ACADEMIC ACTION PLAN

BEST INSTRUCTIONAL PRACTICES HANDBOOK

THIRD EDITION 2016-2017

MOVING CLASSROOM INSTRUCTION FROM GOOD TO GREAT!

CURRICULUM AND INSTRUCTION SUPPORT

OMAHA PUBLIC SCHOOLS

Academic Action Plan

1. The OPS Instructional Framework:

Gradual Release of Instruction

To be used daily in all classrooms.

- **Modeled**: Teacher explains and models the strategy and content indicating how it relates to current learning needs and prior knowledge. Students are in whole group or small groups.
- **Shared:** Teacher encourages student participation by using engagement activities (response cards, white boards, clickers) and by asking questions to check for mastery. Students are in whole group, small group or pairs (elbow partners). Teacher checks for understanding and re-teaches as needed.
- **Guided:** Teacher provides small group instruction at students' instructional level so that students practice using the strategies with the content. Teacher offers support by prompting, questioning and guiding with extensive *descriptive feedback* and re-teaching individually and in small group.
- **Independent:** Students work independently applying what they have learned across a variety of situations. Students work with the content using the strategies to make meaning and complete tasks without support or prompting.

Guaranteed and Viable Curriculum

- *A guaranteed and viable curriculum ensures that students receive the same content in a course or grade regardless of which school they attend or who they have for a teacher.*
- *Curriculum refers to a common set of topics, concepts, and texts aligned with the content standards.*
- *This common curriculum is the material taught by teachers of the same course or grade level.*
- *District Pacing Guides outline what should be taught, when, and for how much time.*
- *Adherence to District Pacing Guides ensures that the intended curriculum is the taught curriculum.*
- *Student objectives/learning goals are based on the content standards which are included in the District Pacing Guides.*

Consistent Procedures and Routines

Each building will select five (from below) to become their school-wide practices.

1) Hand Raising without call outs or talk overs
2) Attention Getting and Non-Verbal Techniques
3) Giving Directions Explicitly and Visually
4) 2 x 10 Positive Connections
5) Repeat the Request / Delayed Response
6) Engagement Techniques
7) Transitions Every 20 Minutes
8) Teach and Pause
9) Finished Early Activities
10) Readiness Wall

MTSS-B schools should continue using their schoolwide Behavioral Matrix.

Literacy Strategies Across The Content Areas

The following are high yield literacy strategies that increase student achievement in all subject areas and grade levels.

1) Six Step Vocabulary
2) Think Alouds
3) Reciprocal Teaching*
4) Note-making (Combination and Cornell)*
5) Preview of Text Structures and Features
6) QAR (Question Answer Relationship)*
7) Comparison Matrix*
8) Non-linguistic Representation
9) Sustained Silent Reading*
10) Oral Discussions/Argumentative Discourse*
11) Quick Writes*
12) Meta-cognitive Writing Prompts
13) Summary Writing*
14) Think, Ink, Pair, Share*
15) Four Square/Step Up to Writing*
16) RAFT (Role, Audience, Format, Topic)*
17) Analogies and Metaphors
18) Advance Organizers
19) Text Tagging*
20) Frayer Model

***Text Dependent Analysis occurs using any of the above strategies when students cite evidence.**

2. Coaching

- First Semester—an average of **ten** coaching visits per week will be completed by building leadership.
- Second semester—an average of **five** coaching visits per week will be completed by building leadership.
- Five-Minute Feedback—going deeper with dialogue, should be the focus of coaching feedback to teachers. Five-Minute Feedback always includes a reflective question.
- Document weekly coaching visits using the new digital coaching tool in Office 365.
- Principals should focus on the following Best Instructional Practice Handbook Priorities during coaching:
  - ⇨ Gradual Release of Instruction
  - ⇨ Procedures and Routines
  - ⇨ Literacy/Numeracy Strategies
  - ⇨ Engagement
- Coaching visits are optional for teachers during an appraisal year.
- No coaching visits provided for teachers on plans of support.
- Nationally, high performing principals spend 50% of their time in classrooms.
- Principals will create time in their coaching schedule for monthly leadership team calibration by visiting classrooms together for inter-rater reliability and school wide data analysis.
- Principals will debrief weekly or every other week with their leadership team about coaching visits to inform and improve the building level professional development and teacher support.

Numeracy Strategies

1) Daily Cumulative Review
2) Multiple Representations
3) Multiple Methods
4) Number Sense
5) Literacy/Language-Rich Mathematics Classrooms
6) Mathematics Embedded in Real-World Contexts
7) Formative Assessment
8) Deliberate and Detailed Planning
9) Math Fact Fluency

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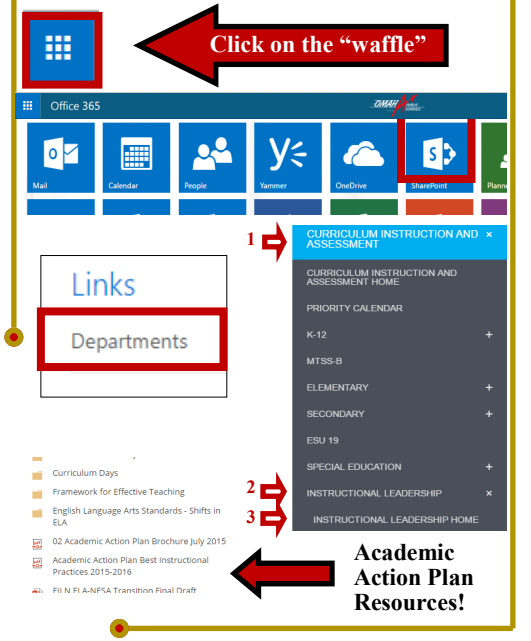
3. Data Use

- Formative, interim, and summative student assessment results will be analyzed and used to identify the areas of success and challenges needing focus.
- Appropriate strategies aligned to the identified focus areas will be identified, implemented, and monitored to ensure continuous improvement for all students.
- Short and long term goals will be established to ensure identified strategies are implemented and effective.
- Additional data will be examined to understand its relationship to academic outcomes.

Tools to Support the Academic Action Plan

Find all of these resources in the Instructional Leadership Share Point Site on Office 365:

- Best Instructional Practices Handbook
- Coaching Tools
- Professional Development Curriculum Instruction Support
- School Improvement Planning tools



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Color Legend

	Good for all students
	Good for all students; optimal strategy for culturally responsive teaching
	Good for all students; optimal for students with learning needs (i.e., Special Education, English Language Learners)

District Coaching Models

30 Second Feedback

This is a culture builder that allows the instructional leader to provide short bursts of positive reinforcement that link a specific teaching practice to a specific learning outcome. This strategy works well at the beginning of the school year and with new staff. This feedback builds relationship and trust.

5 Minute Feedback with Dialogue

This a brief dialogue, accompanied by observed artifacts that identify a specific teaching practice, feedback. An open-ended reflective question, generally starting with Why…?, then How…?, and concluding with What if…? These questions stems are used to initiate the dialogue and encourage the teacher to reflect on his/her practice.

5 Minute Feedback – Going Deeper

This is 5 minute feedback with dialogue that is used to illustrate a missed opportunity – not a mistake; it is an episode of teaching that could have been even more effective by going farther in a direction the teacher was already headed. Follow up with the teacher is a key piece of ensuring the teacher has incorporated the missed opportunity into his/her practice.

Instructional Coaching

This is a proactive method for adding an element to a teacher's future practice. Instructional coaching should be used to teach fundamental, important concepts and practices, such as new pedagogical practices and/or substitute effective practices for ineffective practices. This conversation seeks to directly improve instruction by adding effective practices to a teacher's toolbox. These conversations may occur with an individual teacher, elementary grade level team, middle school team, or high school department. Follow up should include additional coaching visits and conversations to increase the likelihood that the effective practice will be implemented immediately.

The Three Essential Questions (for students) during coaching:

1) *What are you learning today?*
2) *How do you know when you are proficient?*
3) *What would you do if you needed help?*

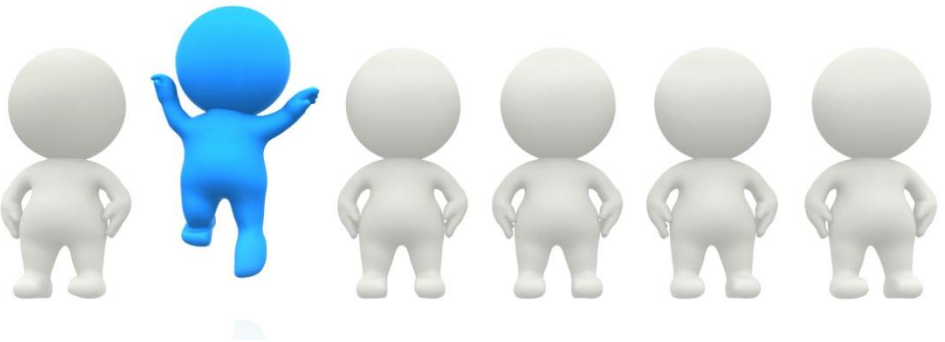
Section 1: Gradual Release of Instruction

The Gradual Release of Instruction includes: Modeled, Shared, Guided and Independent Practice. It is a flexible delivery model to be used for classroom instruction in all subjects PreK-12. These four stages are often repeated throughout the lesson (especially the modeled and shared stages which may have several cycles during the lesson). Formative and summative assessments are embedded throughout the Gradual Release of Instruction with reteaching as needed.

Sample Teaching Strategies

Effect on Student Learning and Achievement

- Moving from modeled (lecture) to independent (assignment) actually results in a slight decrease in student achievement.
- Checking for understanding during shared instruction allows high performing teachers to adjust and reteach if needed. Reteaching immediately corrects misunderstandings and provides another exposure to new content that increases understanding, comprehension and achievement.
- Descriptive feedback (during guided practice) informs students of what they know or don't know and how to improve on what they may not know. Descriptive feedback is ranked as one of the most powerful instructional best practices available to raise student achievement for learners of all backgrounds.



Reflective Question Scenarios for Missed Opportunities

Section	If you see this…	You could say this…
Gradual Release of Instruction	Teacher does not incorporate literacy and/or engagement strategies during modeled instruction	I noticed you were teaching new content during the modeled instruction portion of the lesson. Specifically, you used lecture to present the new content. Modeled instruction should make learning visible and give students a concrete model of expected learning. It may have been helpful to provide a demonstration of the strategy with the use of a think aloud or sample problem**. What other strategies do you find effective and engaging when providing modeled instruction? How do you keep modeled instruction to 5-7 minutes?**
	Teacher does not check for understanding to help adjust instruction	During shared instruction I observed student discussion with elbow partners. Shared instruction allows teachers to check for understanding so that they can re-teach immediately on student understanding. Specifically, you asked students to tell their elbow partner what they learned. It may have been helpful for you to provide a more specific discussion prompt for students to discuss with their elbow partner. This would have allowed you to move around the room checking for understanding of the concept they were discussing, and then adjust your lesson based on their understanding. **Share some ways you can check for understanding to help you adjust your instruction**.
	Teacher does not provide descriptive feedback during small group instruction (guided instruction)	Throughout my visit you were facilitating small group instruction at students' instructional levels. The goal of guided instruction is to provide informal, descriptive feedback to increase learning. Specifically, you asked students to practice the new strategy they learned earlier and then provided general feedback to the entire group at the end. It may have been helpful to provide feedback to individual students throughout the small group session so that they know specifically what they are doing correctly and incorrectly**. What are some ways that you can provide descriptive feedback to individual students during guided instruction?**
	Teacher does not provide authentic, independent learning tasks to students after instruction	For independent work I saw you give students a worksheet of practice problems. The goal of independent practice is for students to apply what they learned earlier in the lesson across a variety of situations. Specifically, you asked students to complete both the front and back of a worksheet that mainly included low-level tasks. It may have been helpful to have students complete an activity that would help them make meaning such as summary writing activities. **What other types of independent work could you give to students to help them make meaning during independent practice?**

Say no to "YES, NO" questions!

Teaching Strategy	Description	Effect on Student Learning and Achievement
Modeled instruction *Teacher doing the work*	Teacher explains and models the strategy and content indicating how it relates to current learning needs and prior knowledge. Students are in whole groups or small groups. Teacher provides a demonstration of a strategy or new content with examples such as: • think alouds • sample problems • Cornell notes • rubric review • chunking	• When the teacher uses modeled instruction, it makes learning visible, gives student a concrete model of expected learning, and fosters meta-cognition
Shared instruction *Teacher and students doing the work together*	Teacher encourages student participation by asking questions to check for understanding. Students in whole group, small group or pairs (elbow partners). Teacher checks for understanding and re-teaches as needed. Teacher uses examples such as: • extensive questioning • anticipation guide • predicting • skimming and scanning • pair and share partners • quick writes • response cards • whiteboards • thumbs up • A/B partners • comparison contrast matrix • higher level questions	• Because shared instruction allows teachers to check for understanding, teachers can re-teach immediately based on student understanding • Nothing increases achievement more than descriptive feedback during shared and guided practice
Guided practice *Students doing the work with teacher support*	Teacher provides small group instruction at students' instructional level, so that students practice using the strategies with the content. Teacher offers support by prompting, questioning and guiding with extensive descriptive feedback and re-teaching individually and in small group. Examples: • stations • cooperative learning • labs • conferencing • differentiated activities • reciprocal teaching • higher level questions • games • word study activities • writing and discussion as appropriate	• Student learning increases when the teacher provides informal descriptive feedback to the small groups of students or as she or he moves about the classroom. For example, students may be divided into three small groups so they can rotate through stations (independent cooperative learning station, technology or silent reading/writing station, and teacher led "coaching"). It is ongoing, unobtrusive, formative assessment that provides descriptive feedback to the students in small groups or individually
Independent practice *Students doing the work*	Students work independently applying what they have learned across a variety of situations. Students work with the content using the strategies to make meaning and complete tasks without support or prompting. Teacher has the students involved in literacy strategies such as: • writing activities • independent reading • lab project summaries • summative assessments • oral presentations • homework • research • exit slips	• Successful independent application of modeled instruction is the goal. When students are able to select from, and appropriately use varied strategies independently, they are exhibiting meta-cognitive behavior

This is a flexible delivery model to be used for classroom instruction in all subjects PreK-12. These four stages are often repeated throughout the lesson (especially the modeled and shared stages may have several cycles during the lesson). Formative and summative assessments are embedded throughout the Gradual Release of Instruction with reteaching as needed.

References:
Fisher, D. & Frey, N. (2014). *Better learning through structured learning: A framework for the gradual release of responsibility.* Alexandria, VA: ASCD.

Section 2: Objectives/Learning Goals and Standards

Content objectives are learning goals that are specifically identified. Objectives are written on the board, specifically stated and measurable, referred to in the lesson, and reflect the content standard. The lesson aligns with the objective. The objective is the learning goal that defines what the students are learning not just what the activity is that the students may be or will be doing. For example: The objective/learning goal is to have students define and use the steps to solve two part equations. The activity might be to write out the steps needed to solve the two part equation followed by doing the computation to solve the equation.

Sample Teaching Strategies

Effect on Student Learning and Achievement

- Student performance is enhanced when they know what is expected of them.
- It allows students to determine what knowledge is required, to understand how this information will be applied in the future and to build meta-cognitive skills.
- Students retain up to 35% more content if it is presented first as an objective/learning goal and reinforced again during the summary of the lesson.

Teaching Strategy	Description	Effect on Student Learning & Achievement
Objective/learning goal written in student-friendly terms	Posted objectives/learning goals are written in student friendly language and are visible to all learners.	• Allows the student to understand learning target. Student performance is enhanced when they know what is expected of them
Objective/learning goal restated by students	Students can articulate objective/learning goal in their own words, and understand what they will be able to know and do..	• It allows students to determine what knowledge is required, to understand how this information will be applied in the future, and to build meta-cognitive skills
Objective/learning goal referred to in the lesson	Teacher employs direct, modeled instruction of lesson objective, refers back to objective/learning goal during lesson, and provides lesson summary that again references objective.	• Reminding students of lesson objectives/learning goals emphasizes purposeful instruction and increases retention
Objective/learning goal clear and measurable	Use of lesson plan language: "Student will know" and "Student will be able to" – links objective /learning goal to assessment and pays deliberate attention to learning intentions and success criteria.	• By stating both descriptive and procedural goals students understand their learning targets • Measurable goals allow teachers to know if students have mastered the objective
All learning activities, assignments and assessments are aligned with objective(s) and standards	Carefully planned, purposefully paced lesson aims ALL learning at lesson objective/learning goal. Classroom activity is always linked to Nebraska State Standards with Omaha Public Schools embedded curriculum expectations.	• All learning aligned to lesson purpose for maximum student engagement and learning • OPS standards are carefully sequenced to allow for student's progression of learning. Teachers are to use the pacing guides • Lessons not aligned with the objective/learning goal and content standard are examples of ineffective busy work

References:
Hattie, J.A. C. (2009). *Visible learning.* London: Routledge.

*Please see the following page for objective/learning goal "Look Fors".

Objective/Learning Goal "Look Fors"

Department of Curriculum and Instruction Support

Teacher

- Posts Objective/Learning Goal for all students to see.
- Uses student friendly language.
- Describes a clear statement of knowledge or skill as opposed to an activity.
- References the Objective/Learning Goal throughout the lesson.
- Assesses student understanding of the Objective/ Learning Goal.
- Aligns Performance Task(s) to the Success Criteria.
- Provides models or exemplars of good work.

Student

- Can explain the Objective/Learning Goal for the day's lesson.
- Can explain how the learning activities relate to the Objective/Learning Goal.
- Can explain how he/she will achieve the Objective/Learning Goal (**Success Criteria:** *To be able to do this, I must learn and understand …*).
- Can explain/show their level of understanding through performance activity (**Performance of Understanding:** *I will show I can do this by …*).

(Unpacking of the Objective/Learning Goal)

- ☐ Done within first 5 minutes of lesson.
- ☐ Strong verbs are used and defined.
- ☐ Students make personal connections to the Objective/Learning Goal.
- ☐ Students clarify the Objective/Learning Goal before proceeding.

(Check for Understanding)

- ☐ Used after unpacking the Objective/Learning Goal
- ☐ Used during instruction
- ☐ Used at the conclusion of lesson

(Success Criteria) Explaining what it means to do quality work in today's lesson in student-friendly terms that are "lesson-sized", observable, and measurable?

Evidence:

- ☐ Aligned with the District curricular pacing guide
- ☐ Connected directly to a content standard
- ☐ Created a rubric or provided a checklist
- ☐ Gave student feedback focused on Objective/Learning Goal and success criteria
- ☐ Examined exemplars or anchors of quality work
- ☐ Helped students apply criteria to their work or a model
- ☐ Conducted discussion and review on criteria

(Performance of Understanding) What did students do, say, make or write during today's lesson to deepen their understanding, aim for mastery, self-assess learning, and/or provide evidence of the student's level of understanding?

Credit for the original draft goes to a PPLC working with Dr. Dwayne Chism.

Section 3: Procedures and Routines/Learning Climate

Procedures and routines support learning. Procedures are consistent. Routines are embedded to maximize instructional time. Transitions are quick and smooth. Instruction is "bell to bell". Procedures and routines are revisited as necessary. Two procedures per day or per period should be retaught daily.

Sample Teaching Strategies

Effect on Student Learning and Achievement

- Off-task behavior is dramatically reduced when a highly structured classroom uses consistent procedures and routines.
- Consistent procedures and routines maximize instructional time.
- If transitions are longer than 30 seconds as much as 18.5 days of instructional time can be lost in a school year.
- Consistent procedures and routines focus efforts on the learning rather than behavior.

The classroom environment is supportive of learning. Teacher shows warmth, care, respect and fairness for all students. There is evidence of strong relationships between the teacher and students. A community of learners has been established. Overall, the room is inviting.

Sample Teaching Strategies

Effect on Student Learning and Achievement

- When a student's basic needs are being met, they learn more effectively.
- A positive climate helps students believe they have a shared responsibility in developing and maintaining a warm and supportive environment.

Reflective Question Scenarios for Missed Opportunities

Section	If you see this…	You could say this…
Procedures and Routines	Teacher does not repeat the directions after noticing students are off-task	I noticed that several of the students continued off-task behavior after you asked them to stop. Specifically, three of the students continued talking and giggling after you stated that they needed to stop talking and open their books to the specified page. Next time try repeating the request with a change in tone or body language or adjust your position in the classroom for greater proximity**. How could you incorporate these, or other strategies, the next time a student is non-compliant?**
	Teacher does not create a personal relationship with a disruptive student	When I visited your classroom, I noticed a student with disruptive behavior. Specifically, this student was continually interrupting your lesson and distracting the rest of the class, even after several redirections. It may be helpful to try a 2x10 strategy where you focus on your most high energy or least engaged student for two minutes each day, 10 days in a row by having a personal conversation with the student about anything the student is interested in. Most students respond positively within five days, and you will see the behavior in your class improve**. How do you see yourself incorporating the 2x10 strategy with this student?**
	Teacher does not provide written directions causing confusion and disorder in the classroom	I noticed you giving directions to students who later seemed confused about what they were to be doing. Specifically, you gave a list of three steps students were to follow, but many had to ask to have the directions repeated causing a loss of instruction time. Giving directions visually may help. Posting the directions where students can see and going over them explicitly can be done each time a new activity or request is given to students, and it increases their ability to respond correctly to the task given. **What other ways can you provide explicit and visual directions?**
	Teacher does not provide engaging instruction and does not seem to notice that students are not visibly engaged in the lesson	I noticed you were reviewing previously taught concepts on the whiteboard. Specifically, you were completing sample problems on the board while the students were to watch, record and listen to what you were doing. I'm not sure if you notices the number of students who were not actively engaged in your demonstration. Next time try an engagement technique such as Thumbs Up, Thumbs Down, Clickers, or individual white boards. For whole class achievement to occur, 80% of the students must be visibly engaged. **How could you incorporate one of these other engagement strategies into your lesson tomorrow?**
	Teacher does not provide independent activities for those students who finish their instructional task before the rest of the class	During my visit I noticed students working on the instructional task and others who were done. Specifically, I observed that some of the students who had completed the assignment were off-task and did not seem to have clear direction on what they were to be doing. One thing that may help is to have a "Finished Early" chart with a list of independent tasks that students can refer to as a reminder of what they are to do when they finish an activity early. This will help maximize instructional time and help students remain engaged in learning**. What are some things you would include on a "Finished Early" chart, and when could you have it up and ready for use?**

Say no to "YES, NO" questions!

Teaching Strategy	Description	Effect on Student Learning & Achievement

Hand raising	This is the number one classroom management strategy that must be taught and re-taught daily and used during shared, guided, independent practice and the summary of the lesson.
	• No call outs allowed:
	  ○ Wait
	  ○ Repeat the hand-raising request – "I'm looking for hands raised" or "I'll call upon you next time when your hand is raised" or "Remember for me to call on you, your hand must be raised"
	• No talking over the teacher allowed:
	  ○ Wait
	  ○ Re-teach the all quiet signal
	  ○ Wait
	  ○ Re-teach the all quiet signal
	• Don't ask the whole class a question without being specific. Whole class questions (that don't specify whom is to answer) result in shout outs. Be specific by:
	  ○ Telling them they have five seconds of think time before they can raise their hands. Then call on someone by name
	  ○ Telling them that you want to see eight hands in the air before you call upon someone by name
	  ○ Using response cards. Have student wait and hold up response card answers all at the same time
		• Students thrive in highly structured classrooms because they know what is expected and how to accomplish what is expected
		• If students are allowed to "talk over" the teacher off task behavior will increase throughout the lesson
		• Without an all quiet signal transitions can last over 30 seconds which can accumulate up to 18.5 days of lost instruction time annually

Attention getting and non-verbal techniques	This strategy is generally used to conclude a student discussion activity or any other time the teacher needs it all quiet. It is used throughout the lesson. • High five and hand raised – All quiet signal • Chimes – All quiet signal • Clapping (if you can hear me clap once, …) – All quiet signal • Tapping desks in rhythm – All quiet signal • Count backwards 5, 4, 3, 2, 1 – All quiet signal • We're 50% there looking for 70%. . . great, looking for 80%. . . – All quiet signal • Eyes up front – Attention getting statement • All eyes on me – Attention getting statement • Heads up – Attention getting statement • Timer running – Transition device that requires student practice to move between activities in 30 seconds or less • Fun toys or sound devices – Transition device that usually has a timer and end noise or exclamation • Hands flat fingers up – Line up signal • Hands flat making a T (time-out) – Teacher talk / student wait signal • Student crosses first two fingers ("r" in sign language) – Restroom request signal • Student raises hand with broken/dull pencil in it – Pencil sharpener signal	• High performing teachers teach 1-2 procedures and routines every day (Smith, 2004). • Transitions that last over 2-3 minutes waste up to 18.5 days of instructional time annually • The majority of acting out behavior occurs when students are not structured during class time • Students feel safe in highly structured classrooms (Wong, 1998). • Low performing teachers do not use all quiet signals and then blame the students for off task behaviors • Low performing teachers shout orders such as "be quiet!" instead of repeatedly practicing all quiet signals (Wong, 1998). • Procedures increase student engagement which increases student retention • Procedures allow for timed transitions which decrease wasted instructional minutes • Procedures decrease off task or acting out behavior • Special education and English language learners need consistent signals

Teaching Strategy	Description	Effect on Student Learning & Achievement
	Adults live with transition signals (e.g., lights at the crosswalk, chimes at the Orpheum) and the more we support students on the use of transition signals, the better prepared students are for the routines of life.	
Giving directions explicitly and visually	This is done between and during modeled, shared, guided and independent practice each time a new activity or request is given. • Verbal directions – at the beginning of verbal directions the teacher indicates that students do not move, talk or start until the teacher is done speaking and they hear the begin statement – "Ready, Set, Go"; "1, 2, 3, Go"; "On your mark, Get set, Go"; "Let's rock"; then the teacher proceeds to list the directions • Visual directions (overhead, chalkboard, LCD) • Check for questions • Student repeats back directions • Begin statement (always use the same "begin statement")	• Having visual directions written down in a power point, chalkboard, etc. increases the student's ability to respond correctly • Most students (and adults) need to see and reread directions after hearing them • Only 20% of students can complete directions if only given auditorily. Students need written/visual directions for <u>all</u> activities • Low performing and beginning teachers often only provide directions orally
2x10 positive connections	Teacher focuses on his/her most high energy or least engaged student for two minutes each day, 10 days in a row by having a personal conversation with the student about anything the student is interested in. This strategy could also fit under learning climate. • Most students respond positively in five days • Most students make connections with 30 second to one minute conversations	• Improves the difficult student's acting out behavior by 80% for that teacher (Smith, 2004). • Often the behavior of the rest of the class improves as well • Students who act out are frequently seeking attention and need a positive, personal connection with their teacher • Students want a safe and structured environment in which they can learn

Repeat the request / delayed response	Teacher uses this strategy when a student is non-compliant. This is done throughout the lesson as needed.
	• Simply repeat the request – if a student asks a question or has a request that cannot be granted at that time or does not comply with the first request
	• No arguing with the ref – explain at the beginning of teaching that non compliance after a couple of redirects is an additional consequence just like athletes/coaches who argue with the referee
	• Don't go to the land of reason – Teachers should always avoid asking "why" in the whole group (the why is really because they are 7, 12 or 16 years old). It sets up "verbal volleyball" and the student may feel compelled to argue back in front of the whole group to save face
	• Delayed response (if needed) – have a private conversation when time allows. Can be done at desk, safe seat, or in the hallway
	• Teaching a redirection requires change in location, voice and body language
	  ○ Close proximity
	  ○ Tone lowered
	  ○ Volume softened
	  ○ Shoulders sideways (Be sure your body language is not confrontational)
		• Students cannot engage in "verbal volleyball" with a teacher when a request is repeated
		• Remember students will always respond negatively to the prompt, "Why did you do that?"
		• Students act out for a variety of reasons: they could be masking academic troubles, dealing with personal issues, or lacking in the social skills necessary to deal with confrontation
		• Students use a non-compliant argumentative strategy because it has worked for them in the past
		• By repeating a request in a non-threatening manner, the teacher can diffuse a heated situation, maintain order, and keep the student in the classroom
		• Non-confrontational approach de-escalates student behavior. Confrontational behavior increases student defiance

Teaching Strategy	Description	Effect on Student Learning & Achievement

Engagement techniques	Used during shared or guided practice but may be used as a summary activity.
	• Whiteboards with markers and paper towels etc.
	• Tag board sheets in page protectors (as whiteboards) with markers and paper towels or socks
	• Solo plates (as white boards)
	• Thumbs up, down, sideways
	• Response cards
	• Student Response System (clickers)
	• Smart Board games
	• Stand up, sit down – used when there is no definite correct answer rather it is an opinion questions
	• Review games – Jeopardy, 10,000 Pyramid, Pictionary, etc.
	• Student movement activities – position line up, in the manner of, Act it out, etc.
	• Eight hands with choral response
	  ○ Wait for the hands of eight different students to be raised before calling on someone
	• I don't know … yet - Students use this response if they don't know the answer … yet
	  ○ Increase student attention
	  ○ Teacher responds "I'll come back to you."
	• Kagan Strategies
	• Discussion and argumentative discourse
	• Writing activities
	• Reading silently with a purpose
		• For whole class achievement gains to occur, 80% of the students must be visibly engaged
		• The 2014 OPS Strategic Plan Needs Analysis found:
		  ○ 49% of all OPS classrooms visited had low engagement (0-60% of students engaged)
		  ○ 35% were engaged (60-85% of students engaged)
		  ○ 16% had higher engagement (85-100% of students engaged)
		• Engagement by grade and school level were found to be:
		  ○ Elementary primary classrooms had 55% of the students engaged
		  ○ Elementary intermediate classrooms had 30% of the students engaged
		  ○ Middle school classrooms had the highest level of engagement at 75% of all students engaged
		  ○ High school classrooms had the lowest level of engagement at 25% of all students engaged

Transitions every 20 minutes	These are signals used to cue students to move between whole group and small group during modeled, shared, guided and independent instruction and practice. The time it takes for students to move from one activity to the next activity must be 30 seconds or less. • Timed – this is a must! • Music • Cards • 1,2,3,Go • Gentle high five • Chimes • Stand up, hands up, pair up • Clock partners • Chit chat buddies • Go to partners	• Instructional minutes matter! • Transitions that meander over several minutes result in 18.5 lost days of instruction annually • Students lose focus after 5-7 minutes of direct instruction (modeled) and interactive activities increase engagement (Sousa, 2011). • Students need to have increased blood flow (oxygen) to the brain every 20 minutes to stay focused and alert (Sousa, 2011). • The brain remembers best what it learns first and last. It is called primacy-recency. If teaching is "chunked" into 20 minute activities, it is optimal for retention of content in the brain (Sousa, 2011). • Gradual Release of Instruction is full of transitions as the teacher moves from modeled to shared to guided and to independent

Teaching Strategy	Description	Effect on Student Learning & Achievement
Teach and pause to question	During direct instruction teachers should ask questions/check for understanding every 2-3 minutes. This may be used during modeled and is always used during shared and guided practice. It is what Socrates did best! The brain always prefers the question to the answer. This should be higher level questioning followed by a brief activity to process an answer. Listed below are strategies for students to use to process an answer. • Silent think time – just a 10-15 second pause before they can raise their hands • Think- Ink-Pair-Share • Quick writes • Elbow partner talk • Engagement activities listed previously (white boards, response cards, etc.)	• The brain increases engagement when a question is asked without a quick answer provided (Sousa, 2011). • The brain loses interest when the answer is just provided with no question (Sousa, 2011). • The brain always prefers higher level questions over lower level questions (Sousa, 2011).
Finished early?	Teachers verbally tell students what to do when the activity is completed. It also needs to be visual. Students work on finished early activities upon the completion of guided practice activities or independent practice. Finished early lists are always posted for students to see as a reminder of what to do when they are done with the classroom daily activity or station work. The key is that it is always posted and visible for all students. • Pocket chart (so activities can change) • Posters that are laminated so the teacher can write on them • Large whiteboard in the chalk tray • Chalkboard • Bulletin board displays that can be changed	• Consistent procedures and routines maximize instructional time especially at the end of the class (Smith, 2004). • Students who have tasks waiting to be completed on their "Finished Early?" charts are less likely to talk and/or ask for hall passes. They are more likely to remain engaged in learning (Smith, 2004). • Students who are done early may become off-task if there are no finished early tasks
Readiness wall	Post pictures in room of what your expectations look like using a simple rubric: 5) what it is, 3) halfway there and 1) not there yet. Discuss the pictures and show what correct procedures and incorrect procedures look like. • Tardiness • Lining up • Dismissal • Moving into groups • Lab station set up • Desk during testing • Bookcase orderliness • Others (teacher discretion)	• Procedures can be the unwritten code of a culture, and knowing the procedures and routines of a classroom is a key strategy for cultural proficiency • One of the best things we can do for students of all backgrounds is to teach and re-teach the procedures of the classroom for mastery rather than disciplining them for not following the procedures that they may not have mastered yet • Visual procedures are easier to provide quick re-teaching references throughout the school year (Smith, 2004).
Routines for purposeful movement	Routines for purposeful movement are rules to tell students how to move to and from the classroom as well as with in the classroom to minimize disruptions and maximize time. Many of these should be included in the readiness wall. Examples are: • How to enter a classroom when returning from an absence, tardy, or with a pass • How to line up • How to walk in the hall • Where and how to sit in the cafeteria • How to return from the playground • Where to wait to sharpen a pencil	• To occur smoothly (without a lot of student downtime or off task behavior) transitions must have procedures that are pre-taught, given with explicit direction and students are provided extensive practice • Acting out behavior significantly decreases when routines are used for student movement • Referrals for altercations decrease • If photo rubrics (readiness walls) are used with purposeful movements, students have a clear and easy target for behavior

Teaching Strategy	Description	Effect on Student Learning & Achievement
	• How to go to classroom centers from small group activities • How to leave the classroom	
Routines for materials management	Methods to accomplish common task with classroom materials to maximize instructional time such as: • Distribution and the collection of worksheets, test, and homework • How to sharpen pencils • How to obtain and return equipment and or manipulative properly • How to get a tissue	• Instructional minutes matter! • Transitions that meander over several minutes result in 18 lost days of instruction annually
Bell work/focus activity	• Bell work, as the name implies, is the schoolwork that students are doing when the bell rings. It is always the first task of the class period. When you describe bell work to your students on the first day of school, instruct them never to ask you *whether* there is Bell Work today. There is bell work *every* day. It always will be posted in the same place on the chalkboard. Tell students, "As soon as you reach your seat, look at the board for today's bell work, and get started." • Bell work consumes the first five minutes of the class period. Consequently, students who arrive early might have eight or ten minutes of bell work	• Structuring work at the beginning of the class period eliminates the problem of initial off-task behavior (Smith, 2004). • Bell work focuses the learner on content instead of conversation about hallway activities • Bell work gives teachers time for taking role (administrative tasks) while engaging students in learning

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Teaching Strategy	Description	Effect on Student Learning & Achievement
Greeting students at the door	Teacher stands at the classroom door and greets each student as they come into the room. It could be a simple "hello" using the student's name; handing out materials; a casual conversation.	• Students feel welcomed to your room • Students feel that you care about them personally and will frequently do better in class • Helps teachers make positive connections with students; you may be the only person to say something positive to that student that day • Sets the tone for class • Allows teachers to monitor hallway and classroom behavior
Calling on students by name	Teacher addresses students by their first name each time he/she calls on them.	• Students feel that the teacher cares about them personally and will frequently do better in class • Students respond and comply at a higher rate when their first names are used
Valuing student responses	Teacher gives wait time for students to respond. Calls on multiple students instead of the first one who raises their hand. Uses phrases like, "I'll wait until there are eight hands raised before I call on anyone" or "Thank You" instead of "That's Correct", regardless of the response. Gives correct answer after multiple students have responded. A "Think, Ink, Pair, Share" is a good example of providing student wait and write time prior to responding.	• Students will feel more encouraged to respond and speak their ideas out loud • More students will share their ideas without fear of embarrassment
Student work/models displayed	Teacher has examples of student work, at various levels, purposefully displayed around the room. A rubric is present and examples are labeled accordingly.	• Students will feel that their work is valued and that they are part of the classroom • Students need to see examples of what good work looks like; they learn best from their peers • Students should see all parts of the learning process displayed; it helps them understand that a final product takes time and effort
Word walls/books, visuals that reflect the culture in the classroom	Word walls are an organized collection of relevant words visibly displayed in the classroom. The wall should be interactive, student-friendly, and part of the classroom conversation on a regular basis. A word wall is ineffective when it becomes wall art.	• Serves as a permanent model for high frequency words • Provides a reference point for students during reading and writing activities • Helps students see relationships between words and topics • Students' academic writing improves as a result of using word walls

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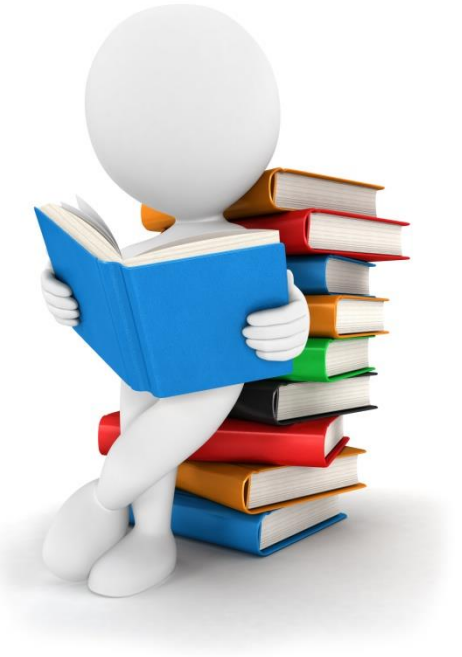
Section 4: Literacy Strategies Across Content Areas

Students read and write as well as speak and listen during their learning experience. Reading, writing, speaking and listening activities are integrated in meaningful ways in lessons. Rigorous academic vocabulary is used. Whether you teach at the pre-kindergarten, elementary or secondary level you should invest at least half of your day or period in some kind of literacy activity with social interaction (speaking, listening, argumentative discourse, cooperative learning). (Jensen, 2013)

Top 20 Literacy Strategies



Effect on Student Learning and Achievement

- Reading and writing are the means by which we learn all subjects.
- When students have content-area literacy support, they are exposed to a wide range of texts and they are more likely to be successful at understanding them.
- Students increase their understanding of the content.
- With the right supports all students can master rigorous content.

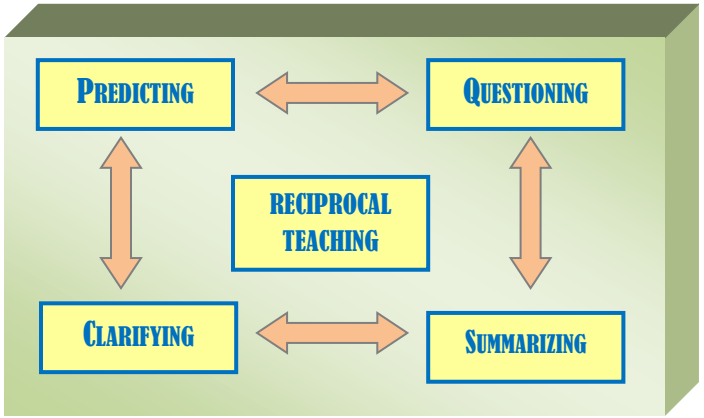
Reflective Question Scenarios for Missed Opportunities

Section	If you see this…	You could say this…
Literacy Strategies Across Content Areas	Teacher does not utilize parts of the Six-Step Vocabulary Process when teaching academic vocabulary	I noticed students reviewing academic vocabulary words. Specifically, they were rereading the descriptions of the words they had written in their notebook. We want students to move the meaning of these words into their long-term memory so try having students draw pictures to represent the words, participate in activities analyzing the words, and discuss the terms with others. These are some of the steps in the Six-Step Vocabulary Process that increase student engagement and have students deepen their understanding of the terms. **How do you see yourself incorporating these, and the other steps of the Six Step Process, into future lessons? How do you ensure that students receive the OPS Academic Vocabulary terms?**
	Teacher does not provide an engaging literacy strategy while reading and analyzing a text selection	I noticed the students were reading a short article related to the lesson content. Specifically, students were reading the article independently and then writing the main idea of each section in their notebooks. I would suggest introducing a summary writing activity where students can synthesize the information from each section utilizing a summary wheel or frame. This helps students identify and organize key ideas at a higher level of thinking**. In what ways could you incorporate on of these summary writing activities?**
	Teacher does not use a think aloud to help students comprehend a process	I was able to watch you demonstrating the sample lessons on the board for students. Specifically, you calculated the problem on the board for students to see. Next time, try incorporating a Think Aloud where you model your thinking process by verbalizing thoughts so students understand the type of thinking necessary to work through the process. Students who can understand the type of thinking that takes place when solving these types of problem will be better able to solve the problems themselves. **Share how you think you could incorporate Think Alouds into future lessons.**
	Teacher does not utilize a structures note making strategy to help students capture the most important information.	I noticed you discussed the most important information from the chapter. Specifically, you worked with them to determine the key ideas to record after you had presented the information. I think you will find it helpful to provide a note-making or graphic organizer where students record their key ideas throughout the lesson instead of at the end. Students only retain about 5% of lesson content if they listen without taking notes. **How can you incorporate a note-making or graphic organizer in future lessons?**
	Teacher does not provide adequate processing time when asking questions regarding lesson content.	I noticed you and students discussing the lesson content after completing the hands-on activity. Specifically, students were called on to answer questions after engaging in a Think-Pair-Share activity. Many students struggled with responding to the questions in depth with their neighbor, and I think I know what might help. I want you to try a Think-Ink-Pair-Share activity – notice I added in the Ink portion. This part forces students to become reflective learners and formulate a response before sharing with a neighbor**. Tell me how you think this would work in your discussions.**

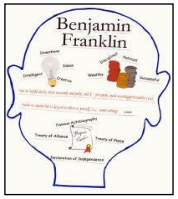
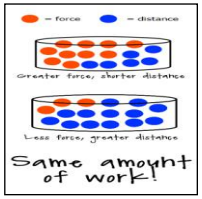
Say no to "YES, NO" questions!

Six-Step Vocabulary Process

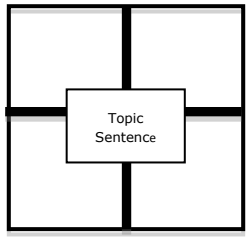
Teaching Strategy	Description	Effect on Student Learning and Achievement
Step 1 **EXAMPLE** (modeled)	Teacher provides a description, explanation, or example of the new term instead of a dictionary definition. Vocabulary notebooks may be used for all six steps. Teacher uses everyday language and makes connections to the students' world and understandings. Teacher provides a nonlinguistic representation of the term.	• Students understand descriptions in everyday language • Examples from student's life allow them to make connections to prior knowledge. The brain cannot add new knowledge without having prior knowledge • Understanding is not dependent on language proficiency
Step 2 **RESTATE** (shared/guided)	Students restate, explain, and write the description, explanation, or example of the new term in their own words independently or with a partner or small group. Allow students to write in native language and then restate or rewrite the term with familiar English words.	• When students use their own words to define a new vocabulary term it is easier to recall • Talking with another student allows for additional examples of another student's connections to prior knowledge
The first two steps are generally done at the beginning of the unit.		
Step 3 **PICTURES** (shared/guided)	Students construct a picture, symbol, or graphic representing the term or phrase. Students create their own picture/representation that is different from the teacher's in step one.	• Nonlinguistic representations help students to store the meaning in long-term memory • Additional neural networks are created on both sides of the brain which reinforces learning and retention
Step 4 **ACTIVITIES** (shared/guided/ independent)	Students are engaged in activities analyzing the word for analogies/metaphors, affixes, synonyms/antonyms, and classification. Students may complete graphic organizers or writing tasks.	• Repeated exposures (5-7 times) provide students an opportunity to store the meaning in long-term memory • Cooperative learning group activities increase student engagement
Step 5 **DISCUSSION** (shared/guided/ independent)	Students discuss with others the terms they are learning (e.g., think/pair/share, Socratic Seminar). If possible, organize students of the same language into groups, one student with a working knowledge of English.	• Students interacting about what they are learning deepens their understanding • Students who act as "teachers" to others have the highest retention rate 24 hours after the discussion (Cohen, 2010).
Steps three through five are generally done during the unit.		
Step 6 **GAMES** (shared/guided/ independent)	Students are involved in vocabulary games that allow them to play with new words. If possible, organize students of the same language into groups, one student with a working knowledge of English.	• Games keep the words in the forefront of student thinking and allow students to re-examine their understanding • Games are high engagement activities that involve all students, not just a few students who may raise their hands
Step six may be done during the unit but is generally done as review at the end of the unit.		

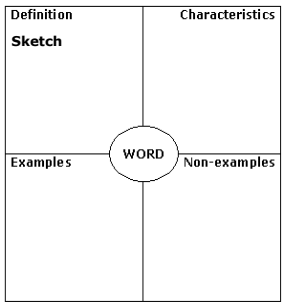
Teaching Strategy	Description	Effect on Student Learning and Achievement
Think aloud	The teacher models the thinking process by verbalizing thoughts so students understand the type of thinking necessary to work through a specific process.	• Students who think about their own thinking are better able to comprehend a process • Students understand the steps in a process by watching and listening to the teacher think out loud • Students can understand what goes on in the mind of a teacher or reader
Reciprocal teaching	Reciprocal Teaching is an interactive dialogue between the teacher and the students or among students in small groups as they read a selected text. **Attributes of Reciprocal Teaching:** • Clarify • Predict • Question • Summarize • Visualization should be included whenever possible The success of this strategy depends on the teacher modeling each attribute prior to assigning student roles. Students have interactive conversations about their predictions, ideas needing clarification, their summaries, or questions to enhance thinking. **Summary**: Groups should be four to six students with students talking to students and/or teacher modeling the reciprocal teaching strategies prior to having students participate in reciprocal teaching using any of the strategies. 	• Students who use reciprocal teaching demonstrate greater ability to independently answer comprehension questions and to summarize the main idea of the selection • Students who struggle with comprehension benefit greatly from the use of this strategy • Students who lead the reciprocal teaching strategy gain an in-depth understanding of the content • Students not only improve their comprehension skills immediately, but they also maintain improved comprehension skills • Students take ownership of their roles in reciprocal teaching when they feel comfortable expressing their ideas and opinions in open dialogue • Students who have been struggling with reading and are taught how to think about text in this way are able to feel comfortable taking part in discussions and engaging with both fiction and non-fiction grade level texts • Students begin to understand how to make sense of what they are reading, whether it is in the context of pleasure reading, classroom reading, social studies text, science text, or even in math word problems

Teaching Strategy	Description	Effect on Student Learning and Achievement
Note-making and graphic organizers	**Combination:** Informal Notes | Sketch/ Picture Summary Statements **Cornell:** Key Terms/ Ideas | Notes Summary **Cloze:** Teacher created notes with key words/phrases removed for students to complete.	• Students identify and understand the most important aspects of what they are learning • Students store the information in a different way without using words • Students retain approximately 5% of a lecture or direct instruction if they listen without taking notes (Cohen, 2010). • Retention of content increases when student's notes are reviewed in follow up activities • When the teacher structures note-making in a standard format it increases students' ability to repeat that skill and work independently later • School-wide note-making that is standardized allows students to transition easily from class to class using the same note-making methods
Preview of text structures	Teacher and students preview the text by noting signal words and the organization of the information (cause/effect, problem/solution, compare/contrast, sequential). Teacher explicitly states the organization of the information with students taking notes.	• Students recognize the underlying structure of content-area texts • Students anticipate what's to come • Students monitor their comprehension as they read
Preview of text features	Teacher and students preview captions, titles, subtitles, headings, glossary, table of contents, text boxes, graphs, etc. to prepare for readings.	• Students are independently successful when they know how to use a textbook or resource in their learning • Student comprehension of nonfiction texts increases when they understand what the text features mean • Students focus attention on key concepts and relationships • Students analyze different types of text to understand how they are organized
QAR **Question answer relationship**	"Right there" (in the text) --book question--  | "Think and Search" (text + my thinking) book and brain--  | "In my head" (my thinking only) --brain question-- --have to infer--  Students engage in answering literal and inferential questions (right there, think and search, author and you, on my own) about current content. Right there, think and search, and author and you questions are **text-dependent questions**.	• When students ask good questions, it leads to improved comprehension, learning, and memory of the material • Connects student learning to standards based assessment • Develops inferential skills that support higher level reading and comprehension

Teaching Strategy	Description	Effect on Student Learning and Achievement
Comparison matrix (with summary writing)	<table><tr><td></td><td>Name 1</td><td>Name 2</td></tr><tr><td>Attribute 1</td><td></td><td></td></tr><tr><td>Attribute 2</td><td></td><td></td></tr><tr><td colspan="3">Summary:</td></tr></table> A visual tool to help make comparisons and thereby linking characteristics or attributes of items (things, people, events). Students analyze the information captured in the graphic organizer by comparing what attributes or features are alike or different.	• Categorizing information has one of the largest effect sizes (1.61) on student achievement (Marzano, 2000) • Causes students to have a deeper understanding of the topic and builds background knowledge • Causes students to systematically organize information which enhances the brains ability to see patterns which deepens retention • Causes students to make connections between known items (prior knowledge) and new items
Nonlinguistic representations	Nonlinguistic representations are information that is encoded in nonlinguistic or imagery form, mental images associated with one's experiences. Learners acquire and store knowledge in two primary ways: linguistic (by reading or hearing lectures), and nonlinguistic (through visual imagery, kinesthetic or whole-body modes). The more students use both systems, the better they are able to think about and recall what they have learned.   **Examples:** • Graphic representations through graphic organizers • Making physical models • Generating mental pictures that connect to prior knowledge • Drawing pictures or pictographs • Engaging in kinesthetic activities (movements or dance) • Mnemonic strategies	• Students can explain their models and put their thinking into words. This may lead to new questions and discussions, which will in turn promote deeper thinking and better understanding • Students use visual representations to help recognize how related topics connect • Students can improve their reading, writing, and thinking skills by using thinking maps to help them organize key concepts in a visual way • Students can organize their ideas using familiar visual patterns or connections, so that they can later recall and apply what they have learned • Students can demonstrate higher order thinking skills through alternative modes • The brain can more easily recall information when it is stored in different parts of the brain. Nonlinguistic content is stored in a different part of the brain than linguistic content. This gives the brain two ways of remembering content which enhances the brains ability to recall the information
Sustained silent reading (SSR)	A scheduled block of time each day (a minimum of 20 minutes three or more times per week) where students and the teacher silently read material of their own choice. An underlying assumption of SSR is that students enhance their attitude and confidence toward reading as well as their skills. The yield of SSR is enhanced when the teacher models silent reading, and there is an opportunity to share favorite passages, reflections and even problems encountered while reading.	• Causes students to practice the skill of reading which has a significant effect on vocabulary development. Only direct instruction in vocabulary is superior • Causes a student to build confidence and positive attitudes toward reading • Modeling and sharing by the teacher allows students to see that everyone has difficulty reading at times

Teaching Strategy	Description	Effect on Student Learning and Achievement
Oral discussions (argumentative discourse)	Reading (or writing) strategy where students debate a claim, prediction, position or role. The teacher structures the friendly debate between students to ensure a safe learning environment. Students engage in "taking sides" or positions that are based on textual evidence that they gather to support their positions.	• Students can insert their perspective as they hypothesize, weigh the evidence, and debate whether the predictions or position offered in the text seem adequate and accurate • Student engagement dramatically increases when students can engage in friendly discourse with their peers
Quick writes Short **"Writing to learn"** Activities	This is an evaluation-free strategy that allows students to think critically, explore and experiment with ideas, and to internalize content in a different way. Students can express personal ideas, questions and thoughts about what they are learning. This type of writing encourages students to write down their ideas without worrying about spelling, punctuation or grammar. The strategy asks learners to respond in 2–10 minutes to an open-ended question or prompt posed by the teacher before, during, or after reading. If the question is during or after the reading, it could require some **text-dependent analysis.** **Examples:** • Response journals • Exit tickets • Reading logs • Learning journals • Think-Ink-Pair-Share	• Quick Writes provide an additional exposure and opportunity to recall content or reflect on new learning which enhances retention • Students think critically, explore and experiment with ideas, and internalize the content in a different way that is more personalized • Students can demonstrate understanding of a concept and vocabulary through their writing • The brain does not retain ideas or content well until they are encoded or processed. One of the best means for processing ideas is through writing. Writing allows the brain to further develop the idea and move the concept from working memory to long term memory. Ideas not written down are fleeting (Sousa, 2011).
Meta-cognitive writing prompt	Meta-cognition relates to "thinking about thinking". Meta-cognitive writing can include planning how to approach a learning task, evaluating the learning process and monitoring comprehension, or what is learned, through writing. **Example:** Describe the process you used to complete the geometry proof.	• Students who use writing to help them process how they learn are better able to use those learning strategies independently • When students write about what they learn, the teacher can identify the "gaps" in the learning and revise instruction to meet the student's needs (Billmeyer, 2006).
Summary writing activities ***and*** **Longer "writing to learn" activities**	Summary writing activities have students synthesize the material using their own words. Students must determine what is important and organize key concepts. Teachers should: Model, provide criteria, balance assigning writing with providing choices for writing, provide samples, and feedback. **Summary Examples:** • Summary frames • Summary wheel • Summary sections on Frayer model • Summary sections of combination or Cornell notes • Summary section on the comparison matrix • Reciprocal teaching • Group-enhanced summary Writing to learn allows students to change abstract thoughts to concrete understandings. **Writing to Learn Examples:** • Proposition/support outlines • RAFT writing strategy (assigning a Role, Audience, Format and Topic)	• Students who have more opportunities to write have demonstrated the highest reading performance • Students analyze the material in depth and create meaning • Students identify/organize key ideas and make connections • Students who write about what they have learned increase content area comprehension • Any form of writing, long or short, generates and refines thought (Schmoker, 2011).

Teaching Strategy	Description	Effect on Student Learning and Achievement
	• Dear Author Letter and/or letters of opinion • Student-developed books • Learning Logs/Think Pads • Writing to clarify any confusing ideas or thoughts • Writing to summarize • Writing to predict	
Think-Ink-Pair-Share	Students are given time to think and write their responses to questions before sharing with a partner and/or the class.	• Students become reflective learners and formulate opinions about a topic while learning from each other • Student engagement increases when all students write about and discuss questions • More students will volunteer to respond to questions if they have reflected, written and discussed their answer first with a partner (Dieker & Hines, 2013).
A structured writing process: **Four square** or **Step up to writing**	Four square and step up to writing provide a structure (step by step process) for writing that helps students brainstorm ideas, organize their thinking, add additional detail and develop paragraph coherence. **Four Square**:  	**Four square writing :** • Students improve organization in their writing when they have a structured approach • Students add more details and supporting evidence when they brainstorm and list specifics in a graphic organizer prior to writing their first draft • Graphic organizers provide a visual structure for students to organize their thinking • Students are structured to have both a topic sentence as well as strong closing sentences in their writing (Gould, 2004).
	Step Up to Writing: Write a topic sentence Give a key idea Explain or give an example Remind the reader of your topic	**Step up to writing:** • Students have a hands on strategy for writing, thinking, and content learning • Students can write narrative, personal narrative, and expository pieces • Students increase their writing skills because they have a structure for writing that supports their organization and enhances their content development (Billmeyer, 2006).
Role, audience, format topic **RAFT**	A writing strategy where the teacher or the students choose the following components for their piece. R – Role A – Audience F – Format T – Topic **Example:** Write a love note to the ocean from a raindrop who is describing the long "water cycle" journey back home.	• Students understand a topic from different perspectives • Student engagement increases because of the novelty of the format • The brain likes novelty and retains content that is presented in a novel or untraditional process • Students make connections to prior knowledge when the role or audience is selected from their world

Teaching Strategy	Description	Effect on Student Learning and Achievement
Analogies and metaphors (That connect to prior knowledge)	Student understanding occurs when teachers make the unfamiliar familiar by drawing a connection between new academic content and the student's world. This is considered one of the most powerful means by which a teacher can make the complex simple. **Analogy**: is a statement that suggests two things are related in the same way that two other things are related. **Examples:** • Venom is to snake as a suit of armor is to a knight • A teacher requiring a student to redo a math problem until mastery is like a newspaper editor requiring a reporter to revise a story until it is correct **Metaphor**: is a statement that compares two unlike concepts, one familiar and one unfamiliar. **Example:** The internet is a flea market: lots available, get something for nothing, some things are what they seem and other things are not.	• Contextualizes new knowledge to prior knowledge making the unknown known • Student understanding significantly increases with an effect size of 2.05 when metaphors are used that reference a students' experiences or world • Helps students recognize relationships and understand patterns between concepts • Causes students to connect with new information / concepts by creating mental images and relationships (Marzano, 2000 Dean & Marzano, 2012).
Advance organizers	An activity that starts students thinking about the content they are about to learn. It is frequently a graphic organizer that students use at the beginning of learning new content to structure and categorize their understandings. Advance organizers reinforce learning by taking it to writing. "Higher level" thinking in advance organizers produces deeper learning than advance organizers with "lower level" thinking. Advanced organizers should focus on what is important rather than what is unusual.	• Students expand their academic background knowledge on the topic • Students use their background knowledge to learn new content in a predictable, structured manner • Students focus on new content and make connections between what they already know and are going to learn
Text tagging	Students mark or highlight text in order to answer a question and/or make generalizations. Students may use symbols, highlighters or write notes as they read the text to increase meaning.	• Text tagging guides students' thinking during reading and helps them to remain focused • When students make notes (annotate) on their text it allows them to highlight main ideas or key points which increases retention (Billmeyer, 2006).
Frayer model	Frayer Model  The Frayer Model is a strategy for enhancing the development of vocabulary or a new concept. Students use a graphic organizer to record information in a relational manner using their own examples and non-examples and in their own words. Most teachers have students add a sketch to the Definition Box to reinforce the new learning with another modality.	• Causes students to use prior knowledge in the learning process of new vocabulary because students list examples and non-examples from their own world • Promotes critical thinking and helps students to identify and understand unfamiliar vocabulary • Creates a visual reference by which students learn to compare attributes • Allows students to put in their own words new terms and goes beyond copying a dictionary definition • Enhances retention of key concepts or terms because it requires multiple processing activities to complete all boxes in the graphic organizer • Enhances storage and recall of a new term by having a sketch created by the student to illustrate the new term or vocabulary

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Section 5: Mathematics

Numeracy strategies across the content areas. The following pages present the eight best practices in mathematics instruction that are endorsed by the Omaha Public Schools as having the greatest impact on student achievement. The presentation differs slightly from earlier pages in this document, as the first column lists the best practice, the second column lists strategies to implement the practice, and the third column lists the effect on student learning and achievement.

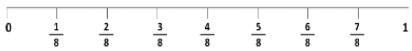
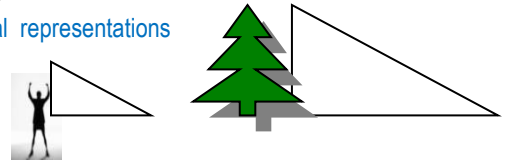
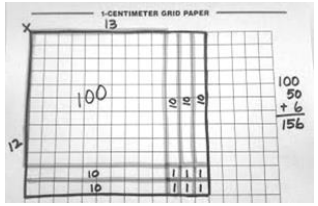
Sample Teaching Strategies

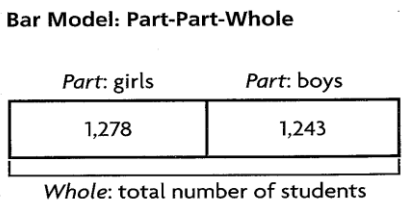
Effect on Student Learning and Achievement

- When students see multiple representation (graphs, manipulatives, tables and charts) of content, it is stored in different parts of the brain making recall much easier.
- Manipulative materials add the dimension of helping students understand the why, not just the how, or the formula. (Burns, 2013)

Best Practice	Description / Strategies	Effect on Student Learning & Achievement

Daily cumulative review	Daily cumulative review at some point in every lesson is one of the most effective strategies for fostering mastery and retention of critical skills. Students need 5 to 7 exposures to a new concept before that concept will move into long-term memory and 22 to 27 successful practices with a new skill before that skill becomes automatic. Daily cumulative review includes some combination of vocabulary, estimation, geometry, measurement, probability, number sense, computation, problem solving, logic, probability, and measurement on a regular basis and can be accomplished through:
	• Math bell-work
	• Spiral review problems
	• Exit tickets
	• Written summary
	• Brain breaks
	• Daily routines
	• Instructional resources through Acuity
	• Distributed Practice
	  ○ Strategically placing review problems within daily coursework
	  ○ Practice on a particular topic should be separated by 10 to 20 percent of the time desired for retention of the topic
	  ○ For example, if a concept is first learned in September but is needed for an April exam, a span of 140 days, practice should appear every 14 to 28 instructional days
		• Activates prior knowledge
		• Moves knowledge from short-term to long-term memory
		• Informs students and teachers whether or not there is mastery of key concepts
		• Keeps skills and understanding current
		• Reinforces previously taught material
		• Gives students a chance to clarify understandings
		• Provides formative information necessary to adjust instruction
		• Gives additional time to process the concept
		• Helps with recognition of the connections between various mathematical ideas

Multiple representations	Multiple representations, such as models, drawings, diagrams, number lines, tables, and graphs, support the visualization and deeper understanding of skills and concepts. Multiple representations are well-represented by the concrete-pictorial-abstract (CPA) sequence of instruction. • Number lines  • Tables • Graphs • Pictorial representations  • Manipulatives • Word wall (with representation) • Kinesthetic activities • Graphic organizer • Area models 	• Allows for understanding through at least one method • Provides different ways to examine a problem • Assists students in making sense of abstract concepts • Helps students see there are many ways to interpret information • Assists with the recall of information when it is stored in multiple parts of the brain: nonlinguistic content is stored in a different part of the brain than linguistic content, thus giving the brain two ways of remembering content, and enhancing the brain's ability to recall the information • Gives extra time to process the concept • Allows learners to discover misconceptions and correct them through the use of concrete experiences

Best Practice	Description / Strategies	Effect on Student Learning & Achievement
	• Bar models • Words • Photographs 	
Multiple methods	Multiple methods teaches that mathematics is a sense-making process for understanding "Why?" and IS NOT a subject with just one right procedure to get to a correct answer. This practice also honors students' various approaches to solving a problem. Effective instruction incorporates deliberate attention to both multiple representations and to alternative approaches to solutions (multiple methods) to accommodate the diverse learning styles within every class. • Productive struggle is a student-based process that allows for discovering ways to solve problems when an approach/method/solution is not given • Compare/contrast methods show more than one approach will give a correct answer for a problem • Argumentative discourse requires students to defend, justify, and explain their method for solving a problem when their method differs from others' methods • Think-alouds model for students how they may solve problems in multiple ways • Math talk gives students the opportunity to explain their mathematical thinking • Multiple methods allow for student choice	• Allows students to make sense in their own way • Enriches instruction and provides new levels of access to mathematical understanding • Gives students multiple methods to solve problems • Allows extra time to process the concept • Allows students to revise their collection of methods and retain those that are most appropriate for each situation • Increases competency when using mathematical language. • Allows students to productively struggle with new problem situations
Number sense	Number sense establishes a comfort with numbers, including estimation, mental math, numerical equivalents, a sense of order and magnitude and a well-developed understanding of place value. Number sense is taught and reinforced in every math problem. • Mental math • Estimation • Place value (e.g., tenths versus tens) • Sense of order (e.g., numbers getting smaller or larger) • Equivalence (e.g., 5+2 = 3 + 4, ½ = 50%) • Manipulatives • Models • Number lines • Derived math facts (e.g., 7 x 8 can be thought of as two times 7 x 4)	• Promotes flexible thinking and reasoning • Facilitates problem-solving • Enables recognition of unreasonable answers • Allows for composing (e.g., 3 hundreds, 4 tens, and 2 ones put together becomes 432) and decomposing (e.g., 543 can be broken up into 5 hundreds, 4 tens, and 3 ones) numbers in different ways • Highlights connections among operations (e.g., addition and subtraction are inverse operations) • Makes mental math easier • Enables students to make reasonable estimations • Improves recall and provides fallback mechanisms for students

Literacy/language-rich mathematics classrooms	Mathematics is a language, and as such must be encountered by reading, writing and speaking while emphasizing academic vocabulary, terminology, explanations, and justifying solutions.
	• Speaking
	  ○ Types of math talk/discourse
	  ▪ Think alouds by teachers and students
		• Increases learning about math when high-level conversation occurs
		• Transforming knowledge takes place with higher-level thinking
		• Exposes students to more viewpoints that help them gain perspective on their own ideas

Best Practice	Description / Strategies	Effect on Student Learning & Achievement
	▪ Math talk moves • Revoicing: The teacher repeats what a student has said, then asks the student to verify whether the revoicing is correct (e.g., "So what you are saying is…Am I correct?") • Repeating: Students repeat or rephrase what another student has said (e.g., "Can you repeat what he just said in your own words?") • Reasoning – Agree/Disagree: Students make their own reasoning explicit by applying thinking to someone else's contribution ("Do you agree or disagree? Why?" or "I agree/disagree because…") • Adding On: The teacher asks other students to contribute to the discussion ("Who can add something more?") • Waiting: The teacher waits at least ten seconds for students to think before calling on someone for an answer ("Take your time…we'll wait.") • Writing ○ Types of mathematical writing: ▪ Affective Writing: Writing that explains the students' attitudes and feelings about mathematics (This assesses and impacts students' mindsets.) ▪ Solving a Math Problem: Writing to explain the procedures and steps the student used to solve a specific problem ▪ Explaining Mathematical Ideas: Writing about math concepts (e.g. "How are addition and subtraction alike?") ▪ Application sentence that shows a connection to real world use (e.g., "I will use a ratio of guests to cookies to help me decide how many cookies to buy for the party.") ▪ Whenever possible, ask students to cite the evidence from the text that supports their thinking. Writing the justification for an answer by citing the source is an example of text dependent analysis in mathematics. ○ Ways to implement writing: ▪ Journals ▪ Notemaking (e.g., Cornell Notes) ▪ Entrance/Exit tickets ▪ Quick writes ▪ Summary writing ▪ Think-Ink-Pair-Share • Vocabulary: ○ Six Step ○ Ongoing emphasis on use and meaning of mathematical terms ○ Precise use of mathematical terms, vocabulary, and notation ○ Interactive word wall • Reading used as anticipatory set, problem to solve, summarize and make connections ○ Fiction texts (e.g. *Sir Cumference and the Dragon of Pi*, *Meatballs and Spaghetti for All*) ▪ Non-fiction texts (e.g., newspapers, magazines, textbooks)	• Stimulates children to think through their own ideas and to approach objectivity when sharing with others • Discussing mathematics helps students organize and consolidate their thinking, communicate coherently and clearly, analyze and evaluate the thinking and strategies of others, and use the language of mathematics • Acts as a formative assessment to drive targeted instruction. • Utilizing math terminology in math talk, reading and writing takes students from progressing to proficient • Speaking, writing, and reading mathematics increase generalized use of math • Verbalizing and writing about mathematics create students who internalize the learning and are better able to think about mathematics and comprehend a process • Increases the understanding of the steps in a process by watching and listening to others (including teachers) think aloud • Writing provides an additional exposure and opportunity to recall content and reflect on new learning and enhances retention

Best Practice	Description / Strategies	Effect on Student Learning & Achievement
Mathematics embedded in real-world contexts	Effective mathematics instruction connects to real-world situations relevant to the students. • Non-fiction texts • Photographs • Research • Cross-curricular connections (e.g., social studies, science, physical education, family consumer sciences) • Project-based learning • Life skills • Careers • Data from current events • Sports • Authentic coursework • Use of technology that is beyond procedural practice • Music	• Maximizes understanding and retention of knowledge when students have applied math to a practical setting relevant to their own point(s) of reference • Builds and strengthens memory pathways • Establishes a purpose for computation practice and fluency

Formative assessment	Formative assessment is an imbedded, on-going process that provides evidence of student achievement to inform instructional planning and to adapt what happens in classrooms to meet student needs. It is a means of eliciting and gathering evidence of student understanding at strategic points during instruction.
	• Running records
	• Quick writes
	• Entrance/exit Tickets
	• Summary writing
	• Mid-chapter check points
	• Self assessments
	• Think-Ink-Pair-Share
	• Example/non-example
	• Graphic organizers
	• Shaping up a review (e.g., Circle, Triangle, Square)
	• Checking for understanding:
	  ○ White Boards
	  ○ Manipulatives
	  ○ Response options
	  ▪ Cards
	  ▪ Student Response Systems
	  ○ Choral responses
	  ○ Brainstorming
	  ○ Hand signals
	  ○ Green-Red-Yellow
	  ▪ Cups
	  ▪ Table tents
	  ▪ Chips
		• Allows students time to process the information, and provide teachers with valuable information about re-teaching, re-grouping or moving forward
		• Provides teachers and students with information that identifies students' achievement of intended learning goals
		• Provides opportunities for descriptive feedback
		• Helps students identify weaknesses and strengths

Best Practice	Description / Strategies	Effect on Student Learning & Achievement
Deliberate and detailed planning	Effective mathematics instruction requires careful planning with all involved parties (e.g., co-teachers and paraprofessionals) that provides coherence for the content, tasks, questioning and assessments. • Vertical alignment • Gradual Release of Instruction • A+ OPS lesson plans • Plan for teaching academic vocabulary • Careful selection and pre-planning of meaningful problems • Plan for misconceptions • Plan for higher-level questions • Manipulatives with a purpose • Stations • Connect concepts from previous units/courses to current unit • Use of technology	• Provides avenues to address students' ability to think, reason, and problem-solve • Allows for addressing conceptual nuances of lessons to be addressed by teacher (e.g., prime when factoring) • Facilitates differentiation • Improves proficiency in mathematics, across grade levels and diverse student populations • Allows for consideration of likely errors and misconceptions and for planning of strategies to address them • Encourages active engagement to activate the brain and increase retention
Math fact fluency	Fluency is a skill in carrying out procedures flexibly, accurately, efficiently and appropriately. Fluency is the ability to efficiently recall a fact and understand how to solve the fact. Fluency includes, but is not limited to, automatic recall of addition, subtraction, multiplication and division facts. It is knowing which procedure is appropriate and most effective in a given situation. • Fluent students: ○ Understand the math they are doing ○ Use a variety of strategies to compute ○ Think flexibly by: ▪ Putting together and taking apart numbers ▪ Knowing the relationship among numbers (e.g., doubles plus one) • Automaticity is achieved through targeted meaningful practice that: ○ Is frequent and short in duration ○ Includes interactive activities ○ Requires that students talk about how numbers relate to one another and participate in discussions of alternative approaches students use Fluency does not focus on speed.	• The best way to develop fluency with numbers is to develop number sense and to work with numbers in different ways, not to blindly memorize without number sense (Boaler, 2015). • As students work on meaningful number activities, they will commit math facts to heart at the same time understanding numbers in math. They will enjoy and learn important mathematics rather than memorize, dread and fear mathematics (Boaler, 2015). • Improves students' mathematical abilities (Seeley, 2009). • To be a successful problem solver, students must be able to accurately compute answers, but more than that, they must be able to figure out how to build equations that correspond to problem situations (O'Connell & SanGiovanni). • Promotes mathematical proficiency (Seeley, 2009). • Allows a student to solve problems more effectively • Speeds up math tasks • Math timed tests can cause math stress and math anxiety (Boaler, 2012). Math anxiety robs people of working memory, which is important to solving problems (Boaler, 2012).

This component of fluency…	…is developed conceptually through…	…using
Small numbers (basic facts)	Phase 1: Counting (e.g. counting all, counting on, skip counting, etc.)	Concrete Pictorial
	Phase 2: Reasoning strategies (e.g., doubles, doubles plus 1, making ten, breaking apart, repeated addition, arrays, etc.)	Concrete Pictorial Abstract
	Phase 3: Automaticity	Abstract
Multi-digit numbers, fractions, decimals, percents, and integers	Phase 1: Developing understanding through models (e.g., base ten blocks, fraction strips, arrays, etc.)	Concrete Pictorial
	Phase 2: Relating models to procedures and algorithms (e.g., adding by place value, distributive property to multiply, compensation, etc.)	Concrete Pictorial Abstract

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Section 6: Rigor

The lesson is instructionally at the student's readiness level yet rigorous. Higher level questioning and discussion are evident. Objectives, instruction and materials are grade/course level appropriate. All levels of learning are built into the lesson from Bloom's Taxonomy.

Sample Teaching Strategies

Effect on Student Learning and Achievement

- Higher-level conversation about text motivates reading.
- Higher-level thinking transforms knowledge, rather than reproducing it.
- Builds upon prior knowledge to generate new ideas.
- Students understand and retain knowledge best when they have applied it to a practical, relevant setting (Daggett, 2005).

Question Stems

Open and Helpful	Closed
• **Why** questions open up a dialogue with teachers and allow teachers to share. This builds trust. • **What if** questions generally follow with a discussion of what adjustments may need to be made. • **How** questions often conclude the dialogue by asking the teacher how she/he will implement the discussed strategy or how the administrator could help in the process. • Other open question stems that could also be used are: When…? Where…? Who…?	• Closed question stems result in less dialogue or yes/no answers. • Examples of closed question stems are: Do…? Can….? Is…?

Teaching Strategy	Description	Effect on Student Learning & Achievement
Use of OPS academic vocabulary	• Every teacher provides students direct vocabulary instruction (six step) on 90 academic words in every content area and at each grade level. The 90 academic words have been identified and provided to all OPS teachers • Students learn the meaning of specific academic content words and/or learn strategies to develop their academic vocabularies • Marzano's Six-Step Vocabulary Process is the focus vocabulary strategy for all OPS teachers	• Increase content comprehension • Builds up student's background knowledge in the content area • Stated simply, "Students can't comprehend paragraphs when they don't know the words."
Quality vs. quantity of coursework	• Quality coursework focuses on depth of understanding rather than repetitive attempts and a basic level of understanding • Less quantity and more complexity is the key	• Higher-level thinking transforms knowledge, rather than reproducing it
Writing leveled assessments	Assessments should be carefully thought out before the unit of instruction begins. Proficiency scales are the road map of what is to be taught and is the basis for all assessment. *If it is not addressed in the proficiency scale, it should not be a part of the assessment.* ***Basic 2.0*** leveled assessments could include matching, fill-in-the-blanks, true/false, multiple choice, and short constructed response items. Basic items should be limited to the most essential facts that students must know to be proficient. ***Proficient 3.0*** leveled assessments focus on what was learned during class. Items written at the proficient level may include some multiple choice items, but the majority will be short constructed response, extended response formats, graphic organizers and learning logs. The teacher provides shared and guided practice on learning related to these types of assessment items in class *before* it appears on a written assessment. ***Advanced 4.0*** leveled assessment items build from what was learned at the proficient level and often include real life scenarios and authentic assessments. *For additional information, see the Quick Flip Questions for Critical Thinking (Barton, 1994).*	• Leveled assessments allow students to begin learning from where they are and progress to higher engagement with higher level of proficiency (Tomlinson, 2001). • Leveled assessments ensure rigor with all levels of questions and are therefore motivating (Tomlinson, 2001).
Socratic seminar	The Socratic seminar is a formal discussion, based on a text, in which the leader asks open-ended questions. Within the context of the discussion, students listen closely to the comments of others, thinking critically for themselves, and articulate their own thoughts and their responses to the thoughts of others. They learn to work cooperatively and to question intelligently and civilly.	• Higher-level thinking transforms knowledge, rather than reproducing it • Higher-level conversation about text motivates reading • Students understand and retain knowledge best when they have applied it to a practical, relevant setting (Daggett, 2008, Sousa, 2011).
Justifying answers or argumentative discourse	• Students share how an answer was formulated, justify its correctness and/or support their answers with evidence • Text-dependent analysis involves students justifying their answers • Text-Dependent Analysis Look Fors: ○ Students going back into the text to CITE EVIDENCE ○ Students justifying their thinking (orally and written) ○ Students using a graphic organizer or note-taker to record their thoughts ○ Teacher giving students descriptive feedback ○ Opportunities to purposefully reread text (close read) Teachers and students asking higher level questions: "What evidence from the text supports your thinking?" "What makes you say that?"	• Justification or argumentative discourse is one of the highest return engagement strategies (Schmoker, 2011). • Helps students develop meta-cognition (think about their thinking)

Teaching Strategy	Description	Effect on Student Learning & Achievement
Rubrics	Teachers and students use rubrics to communicate the criteria for specific learning targets.	• Students understand the learning target and criteria for success (Brookheart, 2013).
Higher level questioning	• The teacher's questioning helps students reach deeper understanding of content • Questioning is abstract and complex rather than focusing on simple recall and comprehension • All OPS teachers should use their higher level questioning flip book	• Higher-level questions engage the brain. Low level questions result in minimal interest or brain engagement • Students understand and retain knowledge best when they have applied it to a practical, relevant setting (Daggett, 2008, Sousa, 2011).
Essential questions	• Important questions that recur throughout one's life • Key inquiries within a discipline must be explicitly taught • Questions that help students make sense of important but complicated ideas, knowledge, and know-how-findings (Wiggins, 2007).	• Creativity and critical thinking increase • Students are better able to discern the major from the minor • Students study skills increase

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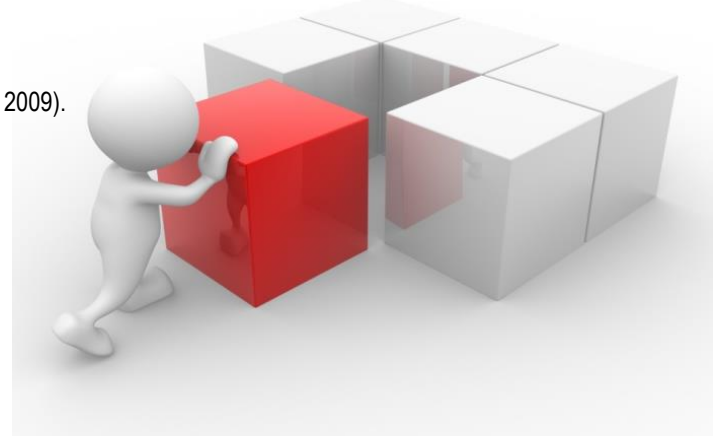
Section 7: Engagement

Students are actively engaged and motivated during the lesson. Students are active participants in their learning. Students are given opportunities to interact with each other and the teacher to enhance learning and maximize participation. Students are given choices. Pacing is appropriate. Content is made meaningful and relevant to the student. Engagement is the opposite of extended whole group lecture.

Sample Teaching Strategies

Effect on Student Learning and Achievement

- Builds self-efficacy and collective efficacy.
- Engaged students are interested in and invested in learning (Voke, 2002).
- Lack of engagement results in only the top 20% of students (high ability learners) that respond to questions (TESA Research, Lozotte, 2013).
- Helps students process and retain information (Sousa, 2011).
- Leads to self-questioning, deeper thinking, and problem solving (Lorain, 2009).
- Engagement strategies move the brain into active and constructive learning (Lorain, 2009).



Reflective Question Scenarios for Missed Opportunities

Section	If you see this…	You could say this…
Engagement	Teacher does not utilize each phase of the Gradual Release of Instruction	I noticed you finished your mini-lesson and then provided students with their independent task. Specifically, you modeled the lesson and then asked students to complete the independent activity. Utilizing the Gradual Release of Instruction ensures descriptive feedback, which is the fastest way to accelerate learning. Modeled, Shared, Guided, and Independent practice should be used in all classrooms. **How can you ensure that future lessons incorporate the appropriate phases?**
	Teacher does not share how the lesson content is relevant to students	I was able to watch you as you discussed the lesson objectives with the students. Specifically, you told them what they were going to learn and do in student friendly terms. You can increase the engagement by sharing how and why the lesson will be relevant to them as well. This helps students understand why they need to know the content and how it will help them be successful. **How can you incorporate the idea of making lessons relevant to students?**
	Teacher does not incorporate hands-on activities	I noticed students recreating diagrams showing how the system worked. Specifically, they were reconstructing the diagram they saw in the video clip in their notebooks. It may be helpful to incorporate a hands-on activity where students use appropriate materials to construction a 3-D model of the system. Students retain more content when the material is reinforced with an activity that is "hands-on". **How can you incorporate hands-on activities into future lessons?**
	Teacher does not incorporate cooperative learning strategies	I noticed students working together to review for the upcoming test. Specifically, they were working in groups of 3-4 to complete the review sheet. It may be helpful to incorporate a strategy where there are opportunities in a game-like structure for students to quiz each other for review. This would help increase motivation and time on task. How do you see yourself incorporation engagement strategies in future lessons?
	Teacher does not incorporate the use of manipulatives appropriately	I noticed you passed out the manipulatives for student use during work time. Specifically, you passed out counters for students to use as they completed their addition problems. It may be helpful to use these manipulatives during the modeled, shared and guided phases of the Gradual Release so that students can see how they are utilized when solving the problems. Effective use of manipulatives helps students move from a concrete to an abstract level of understanding. **How can you adjust future lessons to incorporate the manipulatives throughout the entire lesson?**

Say no to "YES, NO" questions!

Teaching Strategy	Description	Effect on Student Learning & Achievement
Gradual Release of Instruction	Daily use of modeled, shared, guided and independent practice should be used in all classrooms K-12.	• Lecturing decreases achievement (Marzano, 2010). • Gradual Release ensures descriptive feedback which is the fastest accelerant to learning (Schomker, 2009).
Autonomy/Choice	• Teachers provide a variety of learning opportunities for students to choose from to demonstrate learning • Teachers provide students with autonomy over the task, time, team and technique (Pink, 2009).	• Leads to self questioning, deeper thinking, and problem solving (Lorain, n.d.; Pink, 2009). • Students are more likely to be energized as participants in their learning process (Smith, 2004).
Mastery or readiness level	Students succeed best when they receive work/reading at their mastery or readiness level. The "zone of proximal development" is ideal for learning. This suggests students should ideally work at a level slightly harder than their skill and with adult assistance can be successful. In classrooms this is evident in the use of leveled books and differentiated small groups that are flexible and based on current performance levels. Teachers record student growth and create small groups using Acuity data, pre-tests, running records and Fountas and Pinnell Tools.	• Student boredom and off task behavior occurs if the material is too far below their instructional or readiness level (Vygotsky & Cole, 1978, Marzano, 2010). • Student frustration and "fixed mindset" occur when material is too far above their instructional or readiness level (Dweck 2008, Pink 2009).
Purpose	Students focus increases when they understand how what they are learning impacts their world in a meaningful way.	• Students and adults will dedicate and exceed expectations when they fell there is a meaningful purpose to the work (Pink 2009).
Cooperative learning strategies	Teachers use cooperative instructional strategies to ensure all students participate, are held accountable for their contributions and learning, are maximally engaged and work together toward shared team goals (Kagen, 2010). Cooperative structures might include: • Talking chips • Rally robin • Simultaneous roundtable • Quiz-quiz-trade • Numbered heads together • Inside-outside circle • Jot thoughts	• Enhanced academic achievement (Marzano, 2001) • Increased time on task • Increased motivation (Pink, 2009) • Increased higher level thinking (Tomlinson, 2001) • Increased reasoning strategies • Positive self esteem (Slavin, 1996) • Decrease of acting out behavior (Smith, 2004; Kagan, 2010)
Use of manipulatives	Teachers use manipulatives (concrete objects) to help students move from concrete thinking to the abstract. This is essential for math. • Space men (for spacing) • Cubes • Pattern blocks • Two sided counters	• Students are able to move from a concrete to an abstract level of understanding (Burns, 2012). • Students take ownership of their own learning experiences • Students are able to verbalize mathematical thinking (Burns, 2012). • Students who have the opportunity to use manipulatives report an increased interest in math that translates to increased mathematical ability (Sutton & Krueger, 2002). • Helps students process and retain information
Relevance	Teachers help kids see the big picture by asking the questions: Why am I learning this? How is it relevant to the world I live in now? This includes cultural relevance.	• Helps students to process and retain information • Leads to self-questioning, deeper thinking and problem solving (Lorain, n.d.).

Teaching Strategy	Description	Effect on Student Learning & Achievement
Learning using a variety of strategies	• Teacher provides opportunities for students to solve problems, create products and interact based on the different ways people think and feel • The use of learning styles is another means by which student choice is offered	• Engagement strategies move the brain into active and constructive learning (Lorain, n.d.). • Helps students to process and retain information • Leads to self questioning, deeper thinking and problems solving (Lorain, n.d.).
Kinesthetic learning/ hands on activities	• Kinesthetic learning activities include: science labs, simulations, role playing, debates, etc.	• Students retain more content when the material is reinforced with an activity that is "hands on" or applied information (Marzano, 2010).

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Section 8: Differentiation

Instruction is differentiated appropriately so that all students can be successful. Learning activities are structured so that all students can meet the lesson objective even though students are at different readiness levels. Differentiation is evident in the content, process, and products. Co-teacher and/or paraprofessional are actively engaged in the differentiation of instruction. The Gradual of Release of Instruction is evident throughout the lesson.

Sample Teaching Strategies

Effect on Student Learning and Achievement

- Helps achieve independent learning (Tomlinson, 2012)
- When students are taught based on their own readiness levels, interests, and learning profiles achievement increases. (Tomlinson, 2009))
- "Enables a child or novice to solve a task or achieve a goal that would be beyond his/her unassisted efforts". (Wood, Bruner and Ross, 1976)

Differentiation Occurs in Three Areas

- **Content** - When teachers differentiate content, they may adapt what they want the students to learn or how the students will gain access to the knowledge, understanding and skills. (Anderson, 2007).
- **Process -** Differentiating by process refers to how a student comes to understand and assimilate facts, concepts and skills. (Anderson, 2007).
- **Product -** When an educator differentiates by product or performance, they are affording students various ways of demonstrating what they have learned from the lesson or unit. (Anderson, 2007; Nunley, 2006).

Teaching Strategy	Description	Effect on Student Learning & Achievement
Rubrics ***(product)***	Teachers can create tiered rubrics for one project, and give them to students based on readiness. They can include the same categories, but adjust the required elements. Add additional categories or requirements to increase the challenge and take off or reduce the requirements (leaving only what is most important for them to learn) for kids needing assistance. Use rubrics with increasing difficulty or requirements over successive projects as a means of identifying areas of student growth.	• Students are more likely to stay on track because they are given a pathway for learning (McKenzie, 2000). • Students are provided clear direction and their confusion is reduced (McKenzie, 2000). • When students are taught based on their own readiness levels, interests, and learning profiles, achievement increases (Tomlinson, 2011).
Co-teaching ***(content, process, product)***	In co-teaching, two teachers of equivalent professional status, most often a classroom teacher and a special education teacher, share instructional responsibility for a diverse group of students. Co-teaching can take a variety of forms including: One teaches-one assists; Station teaching; Parallel teaching; Alternative teaching; Team teaching. *Please see Co-Teaching "Look Fors" on the last page of this section.	• When students are taught based on their own readiness levels, interests, and learning profiles, achievement increases (Tomlinson, 2011). • Co-teaching increases achievement at a faster rate than "pull out" or "s-sections" of a course
Flexible grouping ***(process)***	Flexible grouping is grouping that is not static, where members of a particular group change frequently. For example, students may work with a partner, in a small cooperative or teacher-led group, or with the whole class.	• Differentiated instruction enables a child or novice to solve a task or achieve a goal that would be beyond his/her unassisted efforts (Wood, Bruner and Ross, 1976, p. 90).
Guided reading/math (process)	Guided Reading/Math is small-group instruction designed to provide differentiated teaching that supports students in developing proficiency. Guided Reading/Math sessions involve a teacher and a small group, ideally of two to four children although groups of five or six are not uncommon. While guided reading takes place with one group of children, the remaining children are engaged in quality independent or group literacy/numeracy tasks, with the aim of allowing the teacher to focus on the small group without interruption.	• When students are taught based on their own readiness levels, interests, and learning profiles, achievement increases (Tomlinson, 2011). • Student learning accelerates at a faster pace in guided reading because of the specific descriptive feedback
Manipulatives ***(process)***	Manipulatives are objects that are used to help make abstract concepts concrete by allowing students to construct and manipulate tangible materials. Manipulatives cannot "be skipped" when teaching math as deeper concept understanding occurs.	• Manipulatives help students develop conceptual understanding of ideas by representing the ideas in multiple ways. It is a must do in math classrooms • Students with tactile or kinesthetic learning styles learn best when involved in hands-on tasks
Scaffolding ***(process, product)***	Scaffolding occurs when the student is not yet ready to work independently on a skill or to learn new information. Immediate support is given to students at the point of instruction to help them achieve independent learning. The amount of scaffolding is dependent on the needs of the student; it changes constantly as students work through learning. Support is given to students and then gradually removed when they begin to understand and perform the skills required. When the learning is clear, that scaffold is finished and students move on (OPS Tip Sheet). • Scaffolding takes place when teachers break up the learning into 20 minute chunks and then provide an instructional strategy with each chunk • Activating prior knowledge • Modeling, Shared discussion to check for understanding and guided practice • Think-Ink-Pair-Share • Pre-teaching vocabulary and using the six step process • Think Aloud	• Students are provided clear direction and their confusion is reduced (McKenzie, 2000). • Students understand why they are doing the work and why it is important (McKenzie, 2000). • Students are more likely to stay on track because they are given a pathway for learning (McKenzie, 2000). • Scaffolding activates children's zone of proximal development • Scaffolding helps achieve independent learning • Scaffolding provides smaller "chunks" of information with re-teaching that allows all learners to advance, but has the greatest impact on achievement for below grade level learners

Teaching Strategy	Description	Effect on Student Learning & Achievement
	• Visual aids (i.e., graphic organizers, pictures, or charts) that are not part of the end product but a means for understanding • Frequent checks for understanding with descriptive feedback	
Chunking (content, process)	• Chunking knowledge involves breaking down the learning into manageable segments at which students can be successful. The teacher determines when these crucial segments of learning occur based on the students, the complexity of the information, and the skills presented • Ideally, chunks of learning should be about 5-7 minutes for modeled instruction. As students practice between each chunk of the learning goal, the teacher conducts informal checks for understanding to see if students have mastered the information or segment of the skill. Effective lessons are chunked into small segments according to the Gradual Release of Instruction (Section 1 of Best Instructional Practices Handbook)	• New information is presented in small, digestible bites (Marzano, 2009). • Students are able to pause at crucial points in the presentation of the new information to interact with one another about the new information (Marzano, 2009).
Student choice *(content, process, product)*	Students can be offered choices content, process, and product. For example, students could choose which book to read for literature circles (content). Students could choose to work in pairs, small groups, or individually (process). Students could choose how to demonstrate their learning from an open-ended list of final product options.	• A sense of choice about what or how we learn is empowering, and thus an enhancement to learning (Tomlinson, 2001; Pink, 2009). • Choice is a powerful motivator for student engagement (Tomlinson, 2011).
Leveled assignments and assessments *(product)*	A teacher uses leveled assignments to ensure that students explore ideas at a level that builds on their prior knowledge and prompts continued growth. All levels of Blooms Taxonomy are included in assignments and assessments.	• Leveled assignments allow students to begin learning from where they are and progress to higher engagement with higher level of proficiency (Tomlinson, 2011). • Leveled assignments ensure rigor with all levels of questions and are therefore motivating (Tomlinson, 2011).
Tiered lessons *(process, product)*	A tiered lesson might include three-four different activities of different levels of complexity and difficulty, but with a common goal or end result. For example, different groups of students may be working on science experiments of different levels of difficulty, but all with the purpose of learning about the food chain. Students may work in small groups with others at the same level for a particular lesson or throughout a particular unit.	• Tiered activities can lead to effective whole group discussion and comparison of results • Tiered activities allow below or above grade level students to receive content at their readiness level
Varied resources/ supplemental materials *(content)*	Teachers provide resource and/or supplemental materials at varied levels of readability and readiness to meet above and below instructional grade level needs. Teachers can provide materials in the primary language of second language learners. Students can listen to an audio version of textbook and/or supplementary materials.	• When students are taught based on their own readiness levels, interests, and learning profiles, achievement increases (Tomlinson, 2011).
Leveled books and texts *(content)*	• Teachers provide resources at a variety of reading levels that provide students with information about the skill or concept being studied • Assign reading material to students based on skill level, or allow them to choose the text they are most interested in • Put students in small groups with other students reading the same material	• When students are taught based on their own readiness levels, interests and learning profiles, achievement increases (Tomlinson, 2011).
Stations (process, content)	• Teachers divide the class into two-three groups of students based on ability level. One station is an independent station where students work silently reading and completing graphic organizers, another station might be an Acuity station for informational resources and the third station could be a "coach's corner" with the teacher providing direct instruction and feedback based on learners needs	• Multiple iterations of content provided at the students ability level with descriptive feedback is the fastest accelerant to learning with 200-300% gains (Schmoker, 2011).

Teaching Strategy	Description	Effect on Student Learning & Achievement
Reteaching (content, process)	Reteaching involves teaching again content that students failed to learn. Some form of assessment always accompanies reteaching in order to reveal student misconceptions or errors in understanding that clarify which content the teacher can reteach. There are two situations in which corrective reteaching typically occurs: When introducing new information, and when reviewing previously taught content that students need for an upcoming lesson. For reteaching to be effective, teachers must use a different approach from the one they initially used, one that builds on previous activities but that focuses on the omissions or errors in student thinking that resulted from the activities (Marzano, 2010). Examples of reteaching activities: • Individual tutoring • Peer tutoring • Cooperative teams • Textbooks • Alternative text • Academic games • Learning centers and labs • Computer activities • Advanced work • Student Modeling (Guskey, 2007)	• Provides students with alternative pathways to learning success • Time and activities in reteaching are varied to meet students' individual needs • Students are provided with more time to process the information before moving forward • As students start to see the benefits, they work more intensely, and often the amount of time needed in later corrective reteaching episodes decreases (Guskey, 2007).

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Co-Teaching "Look Fors"

Curriculum and Instruction Support

The Omaha Public Schools has established practices and procedures that ensure children with disabilities are educated with children who are not disabled to the greatest extent possible and that removal of children with disabilities from the regular educational environment occurs only when the nature or severity of the disability is such that education in regular classes with the use of supplementary aids and services cannot be achieved satisfactorily.

Least Restrictive Environment means that, to the maximum extent appropriate, school districts must educate students with disabilities in the regular classroom with appropriate aides and supports, referred to as "supplementary aids and services," along with their nondisabled peers.

Inclusive Practices means that in an inclusive school and inclusive classroom, the administration and teachers fully understand the learning, social and physical needs of all students. The goal of the school/classroom is to maximize the learning potential of students, including those with special needs. Co-teaching is one tool for aiding in the development of an inclusive school.

Instruction in a Co-Taught Classroom

As classrooms become more diverse, differentiated instruction can be provided for students of all abilities. Instruction in a co-taught classroom consists of two or more certified staff who share responsibility for co-planning, co-assessing and co-instruction. This is one option for the delivery of special education services and gives students with disabilities increased opportunities to be successful in the general education setting.

Co-Planning

- Evidence of consistent, advanced, regular cooperative planning in lesson plans, lesson implementation and assessment.

Co-Assessing

- Formative assessments are consistently used to monitor progress, form small instructional groups and inform instruction.

Co-Instruction

- General Education and Special Education teachers are both actively engaged in instruction. Both teachers monitor behavior, and both teachers interact with general and Special Education students during instruction that includes strategies from the Academic Action Plan Best Instructional Practices Handbook, and specific skills related to IEP goals/objectives. Both teachers provide students descriptive feedback.
- Teachers consistently utilize instructional methods including co-teaching structures, small group instruction and alternate or tiered assignments.

Co-Teaching Structures (see five approaches in boxes below)

Co-teaching lessons are most effective when the design and implementation are deliberately selected. The selection of the approach comes after considering the needs of the students. Co-teachers may consider these four factors when choosing an appropriate approach:

- Curriculum, including outcomes, focus and content areas for the learning experience
- Student characteristics and needs
- Assessment of student outcomes
- Instructional strategies with consideration to teacher characteristics and needs

One Teach, One Assist:

- Whole group
- Separate responsibilities
- Little planning

One person maintains primary responsibility for teaching while the other professional circulates through the room providing assistance as needed or to observe the classroom and student behavior or performance during the lesson. It is important that this approach not be overused.

When to Use:

- In a new co-teaching situation
- When questions arise about students
- To check student progress
- To compare target students to others in the class
- To collect data

Station Teaching:

- Divided content
- Shared but separate responsibilities
- Joint planning

Divide both students and content. One teacher teaches the content to one group and then repeats the instruction for the other group. If needed, or appropriate, a third "station" could be used for the opportunity for students to work independently.

When to Use:

- When content is complex but not hierarchical
- In lessons in which part of the planned instruction is review
- When several topics comprise instruction

Parallel Teaching:

- Same content
- Deliver instruction to half the class
- Joint planning

In some situations with difficult content, students would be more successful if they just had more supervision or more opportunity to respond. In parallel teaching, the teachers are both teaching the same information, but they divide the class and do so simultaneously.

When to Use:

- When a lower adult-student ratio is needed to manage instruction
- To foster student participation in discussions
- For activities such a practice, re-teaching, and test review

Alternative Teaching:

- One large group, one small group
- Small group pre-teaches content, reinforces or reteaches or extends content from large group
- Joint planning

When several students need specialized attention, alternative teaching can be the most beneficial approach. In this approach, one teacher takes responsibility for the large group, while the other works with a smaller group.

When to Use:

- In situations where students' mastery of concepts taught or about to be taught varies tremendously
- When extremely high levels of mastery are expected for all students
- When enrichment is desired
- When some students are working in an intervention related to IEP goals and objectives

Team Teaching:

- One large group
- Both teachers actively engaged in the lesson delivery
- Joint planning

In team teaching, both teachers are delivering the same instruction at the same time. Many teachers consider this approach the most complex, but satisfying way to co-teach. This approach is the most dependent on teachers' styles.

When to Use:

- When two heads are better than one or experience is comparable or complimentary
- When teachers have a high sense of comfort and compatibility
- During a lesson in which instructional conversation is appropriate
- When a goal of instruction is to demonstrate some type of interaction to students

Section 9: Assessment/Common Grading Practices

Teacher provides feedback through formative and summative assessment. Teacher gives descriptive feedback in a culturally appropriate manner that provides support to students and challenges students in a positive way. Checks for understanding are ongoing during the learning cycle and guide instruction. Assessments are aligned to the objective/standard. Formal assessments are leveled (secondary).

Effect on Student Learning and Achievement

- Informal checks for understanding allow students time to process the information and provide teachers with valuable information about re-teaching, re-grouping or moving forward.
- Practice assessments are formative assessments that are informally done to check for student understanding (white board responses, clickers, response cards, exit tickets, some bellwork, some practice problems in math, thumbs up/down/sideways).
- Formative assessments provide teachers and students with information that help students improve achievement of intended learning goals.
- Summative assessments provide teachers with an indicator of student learning at the end of learning which can be used to guide future instruction.

Teaching Strategy	Description	Effect on Student Learning & Achievement
Formative assessment	Formative assessments are done during learning to improve student understanding and achievement with descriptive feedback. Typically informal formative assessments occur during shared discussion. Short formative assessments generally occurring during guided practice but may also be a part of independent practice. Formative assessments are worth 35% of the grade.	• Formative assessments provides teachers and students with information that allows for extensive descriptive feedback that helps students improve achievement of intended learning goals
Summative assessment	Summative assessments are done at the end of learning to measure mastery. These are typically tests, projects or performance done during independent work and are worth 65% of the grade.	• Summative assessments provide teachers with an indicator of student mastery at the end of learning which can be used to guide future instruction
Acuity data	The Acuity assessments and instructional resources which are aligned to the Nebraska content standards curriculum indicators are designed to help inform the teaching/learning process and prepare for the NeSA tests. Teachers use the Acuity results to inform and improve their lesson plans and instruction based upon student learning needs.	• OPS students that had the greatest growth in their NeSA scores had multiple opportunities for mastery of the content using Acuity (OPS research Division 2012). • Achievement increased because teachers adjusted and improved instruction based on Acuity results
Descriptive feedback	**Effective descriptive feedback** focuses on characteristics of the work the student has done and on what the student has done well and gives specific descriptive feedback to guide how to improve (Brookhart, 2008). Feedback must be frequent, timely, specific and focused on the learning goal. Simply stated descripted feedback tells the student what they did correctly or incorrectly and what they have to improve on if the student was incorrect.	• Descriptive feedback provides the greatest increase in student learning. If multiple iterations of descriptive feedback occur in a lesson a student can increase their achievement by as much as 300% • Descriptive feedback as one of the highest yield strategies a teacher can use to increase student achievement (Hattie, 2012; Schmoker, 2011)
Proficiency scales	A proficiency scale is a road map for learning during an instructional unit. It explains what is to be learned and the necessary criteria at each level of learning. It is a holistic rubric that looks at the big picture of what students are expected to learn.	• Provides a clear vision of the learning goal • Provides descriptive feedback and tells students what they need to know and be able to do so there are no surprises as to how to achieve
Rubrics	Rubrics are teacher-created scoring guides that are specific to an assignment, a skill or a project and are bases upon the levels in the proficiency scale for that course. Rubrics should be available to students and parents by posting them in the classroom and publishing them in a course syllabus or on the teacher's website.	• Guides students to high levels of quality because the expectations are clearly laid out. Descriptors are provided to define levels of performance which are concise, positive, and understandable • Allows students to see current learning and what they need to do to improve
Informal checks for understanding	During instruction, teachers provide formative practice assessment that includes informal checks for understanding to fine-tune day-to-day instruction, to revisit/ remediate areas of misconception, and give students tools for practice. (Brookhart, 2010) • Checks for understanding are often used during shared and guided and often are not graded when the student is learning new information ***Informal checks for understanding may include:*** • Whiteboards – Teacher asks a question related to the content. Students write their responses on the whiteboard. Everyone shows them at once. (Teacher makes note of those needing more help, and then shifts instruction) • Think-Ink-Pair-Share – After modeling by the teacher, the student processes individually (think) and writes (ink) about what was taught, before sharing with another student	• Informal checks for understanding allow students time to process the information and provide teachers with valuable information about re-teaching, re-grouping, or moving forward • To assess if students are understanding and can do the skills required for each step of learning ***before*** the learning process is completed • To fine-tune day-to-day instruction, to revisit/remediate areas of misconception, and give students tools for practice • To plan for those achieving by providing ways to enrich and expand students' interests and skills (Brookhart, 2010).

Teaching Strategy	Description	Effect on Student Learning & Achievement
	• Exit slips or tickets out – Ask students to determine the important point(s) from today's class using starter sentences such as: I am confused about…, Today I learned…, I think I need help with…, After class today, I'm confused about…, I need a little help…, I understand…, Two things I learned in class today…, One question from class today…, One way I can apply what I learned from class today…, One factor skill I learned today… • Check-ins – 1-2 minute mini-conferences with students at least once a week if not more. Record date of mini-conferences. Students would be prompted for clear, concise information on current knowledge level • Journal Reflections – Students would look at their own performance and determine the next steps to close the gap. (This helps motivate students and commit to learning.) If I could have today back again, what would I do the same? Differently? Two things I did well today… One think I'll do better tomorrow… If I were to do this project again, this is what I would do differently and why • Hand signals – Thumbs up/sidewise/down, or student determines current level of learning using fingers placed over the heart representing their level of understanding (0 none to 5 advanced)	• Checks for understanding are often used during shared and guided instruction and often are not graded when the student is learning new information
Student self-assessment	Self-assessment is about students thinking and collecting information about the quality of their own work and charting a pathway to learning, a skill useful throughout life. When students self-assess, they compare their work to a set criteria or rubric.	• Metacognition (students' thinking about their own learning) is a powerful source of formative assessment. Use of this information can help a teacher slow down learning if needed, provide corrective teaching, or enrichments • Learning is enhanced when students see their strengths, what needs to be improved or is not yet known, and set goals to improve. Revisions and improvements are part of the formative stage of learning
Performance based assessment	Performance-based learning and assessment represent a set of strategies for the acquisition and application of knowledge, skills, and work habits through the performance of tasks that are meaningful and engaging to students (Hibbard, 1996).	• Summative assessments provide teachers with an indicator of student learning at the end of learning which can be used to guide future instruction • Assessments are more meaningful to students (Hibbard, 1996).
Curriculum based assessments (CBAs)	Assessments are linked to the curriculum and instruction. Assessments demonstrate student understanding and progress in the curriculum.	• Formative assessments provide teachers and students with information that helps students improve achievement of intended learning goals • Summative assessments provide teachers with an indicator of student learning at the end of learning which can be used to guide future instruction

Teaching Strategy	Description	Effect on Student Learning & Achievement
Redoing and revising coursework	After formative assessments, the teacher provides corrective teaching and intervention in order for students to learn the content to meet the target. Students will be allowed redos and revisions of coursework for full credit during that unit of study. Scores for student work after retaking, revising or redoing will not be averaged with the first attempt at coursework or assessment but will replace the original student score. Students are expected to complete assignments when given to the class, and teachers may schedule students before, during, or after school to address needed areas of improvement if not convenient during class.	• Formative Assessment is a loop. Students and teachers focus on a learning target, evaluate current student work against the target, act to move the work closer to the target and repeat (Marzano, 2010).
Scoring leveled assessments (Secondary Only)	Multiple learning goals/topics may be on the same assessment, but each goal is assessed separately based on the proficiency scale. Students are scored to their level of understanding for each topic.	• The grading accurately reflects what the student knows and can do, and determines if additional information is needed to assess the student. The grading also determines if the student would benefit from additional instruction on some or all of the standards, and if they will be successful going on to the next level of the course
Learning progressions	Learning is developmental, and a process of moving from novice to a sophisticated understanding. A learning progression is a carefully sequenced set of building blocks that students must master en route to mastering a learning goal. It provides a continuum of how learning develops toward a goal and plays a major role in the formative assessment process by identifying natural breaks in learning in which to provide feedback.	• Breaks down learning into component parts and helps close the gap between where a student is and the desired level of performance • Provides feedback about where students are along continuum of the learning goal
Professional judgment in grading	Teachers make decisions everyday informally about student learning through observations, oral discussions, group interactions, practice work, projects, etc. Sometimes there is dissonance between how students test and the actual level of learning reflected in a grade. In such incidences teachers may choose to exercise professional judgment to more accurately reflect the level of learning the student achieved. Teachers should reflect on quarter (elementary) and semester (secondary) grades to make sure that the grade given accurately reflects what a student knows and can do. Professional judgment decisions different from the grading evidence should be documented and shared with building administration before grades are turned in for the grading period. After reviewing semester grades, a professional may ask these questions: • Is there enough evidence to accurately judge the student's ability against the standard? • Does this grade accurately reflect what the student knows and can do? • Do I need additional information to accurately assess this student? • In what other way could the student show what he/she knows and can do? • Would this student be successful going on to the next level of this course? • Will missing evidence/assessments prevent an accurate assessment of this student? • Would the student benefit from additional instruction in this course on some or all of the standard(s)?	

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Section 10: 21st Century Skills (Formally Technology Integration)

"The role of technology is to support learning, not drive instruction. "
~Eric Sheninger

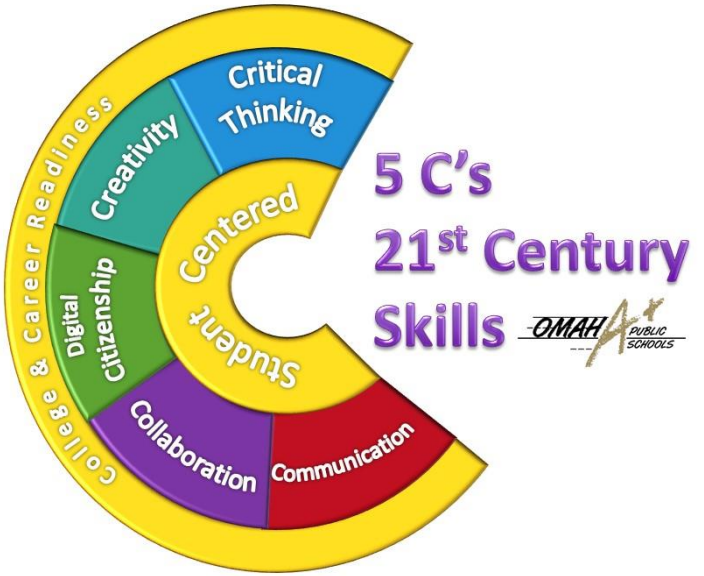
Technology integration has the potential to develop and enhance various 21st century skills if implemented in **student-centered** learning environments. The Partnership for 21st Century Skills (P21) has identified these skills as the four C's-**communication, creativity, collaboration, and critical thinking** (2009). Furthermore, the International Society for Technology in Education (ISTE) has created standards for 21st Century students and teachers (2007 & 2016) acknowledging the importance of developing **digital citizenship** skills for students when they are immersed in digital environments.

The following pages include best instructional practices that will develop the five skills that are central to student centered learning and in preparing students for 21st century careers and life.

Best Practices

Effect on Student Learning and Achievement

- Student centered learning is customized and focused on an individual student's needs (Horn & Staker, 2015).
- Giving students a voice and choice on how they achieve and demonstrate competency in their learning goals is paramount to creating this environment and leads to increased student engagement.
- "Students develop a sense of agency and ownership for their progress and a subsequent ability to guide their learning" (Horn & Staker, 2014, p. 10).
- Encompassing the core values of 21st century learning, the five C's are fundamental in our understanding of changing pedagogy, and the role that technology plays.



Best Practice	Description / Strategies	Effect on Student Learning & Achievement

Communication	Communication skills should be embedded into all curricular areas and include diverse and global audiences such as peers, parents, and community members. Students need to clearly express themselves creatively for a variety of purposes using the tools, styles, formats and digital media appropriate to their goals. This can be accomplished through:
	• Online discussions
	• Online journals
	• Multi-media presentations
	• Digital storytelling
	• Creation of visualizations
	  ○ Graphic organizers
	  ○ Infographics
	  ○ Models
	  ○ Simulations
		• Students who collaborate and communicate in online spaces to provide feedback "learn from each other, improve their work, and develop their skills," making such interactions beneficial to students of all ability levels (Thomas et al., 2014).
		• Live online discussions can offer a fun, yet immersive educational environment—informally requiring both partners to participate and eliminating much of the fear of being judged or corrected (Chen & Eslami, 2013).
		• Digital writing assignments, like digital storytelling, can turn a student's responses to an idea into an activity that allows him or her to "blend design, creativity, thoughtful expression, and technology skills" (Gresham, 2014).

Creativity	When students are given the choice to be original, and use their innate curiosity and creativity they are empowered to demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology. There are multiple ways to encourage creativity in the classroom:
	• Implementing makerspaces in the classroom/library
	• Providing student choice in expression/representation of an idea/concept
	• Promoting student creation of digital media
	  ○ Art and animations
	  ○ Music and movies
	  ○ Multi-media presentations
	  ○ Models and simulations
	  ○ Any original work as a means of personal or group expression
		• Education is being transformed completely "into an experience rather than a thought process," indicating that learning will become more focused on creative input and output (Gresham, 2014).
		• Students who create videos to communicate ideas in the classroom simultaneously partake in a process of self-reflection and monitoring (Henderson et al., 2010).
		• The use of both words and pictures "lets the brain process more information in working memory" (SEG Research, 2008).

Critical thinking	Critical thinking skills are used to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources. Promoting critical thinking can be accomplished through:
	• Applying in-depth questioning & inquiry based learning
	• Utilizing performance-based assessments
	• Using real-world scenarios (problem-based learning) and encouraging students to:
	  ○ identify strategies to solve them
	  ○ collect information and data and use digital tools to analyze and represent data
	  ○ synthesize information and data
	  ○ gather information to form conclusions, solve problems or understand complex systems
		• The ability to solve problems and challenges enables young learners to develop the skills to enter a flexible workforce and compete in a global market (Gresham, 2014).
		• Thinking critically does not always end in the right answer, but leads to more questions and evaluations (Halx & Reybold, 2005; Arend, 2009).
		• "Learning critical thinking leads students to develop other skills, such as a higher level of concentration, deeper analytical abilities, and improved thought processing" (National Education Association, n.d.).

Best Practice	Description / Strategies	Effect on Student Learning & Achievement
Collaboration	Digital tools can be used to broaden perspectives, increase empathy, and promote teamwork. Creating environments in which students can collaborate locally and globally, leveraging digital tools, allows students to: • connect with learners from a variety of backgrounds and cultures • interact with experts and community members • examine issues from multiple viewpoints • work together to effect positive change or problem solve • experience opportunities and environments otherwise unavailable	• Online collaboration contributes to improved graduation rates and other academic improvements, allowing students to connect with a much wider audience than the face-to-face interactions in their own classrooms (Greaves et al., 2010). • Opportunities to collaborate digitally foster better teamwork skills (Purcell et al., 2013).
Digital citizenship	Digital citizenship is a skill in which students recognize the rights, responsibilities and opportunities of living, learning and working in an interconnected digital world. This requires students to act in ways that are safe, legal, ethical and self-aware while online. Examples of digital citizenship skills are when students: • take advantage of the benefits of technology to seek, create and share, while also remaining physically and psychologically healthy • actively cultivate a positive digital identity and reputation • engage in positive social interactions in virtual spaces • are aware of the permanence of their actions in the digital world (digital footprint) • foster a culture of respect for intellectual property, their own and others' • understand the rights and obligations of using and sharing the work of others, including gaining or giving permissions as needed and appropriately documenting sources	• "Digital and media literacy education offers the potential to maximize what we value most about the empowering characteristics of media and technology, while minimizing its negative dimensions" (Hobbs, 2010). • All digital issues (e.g., sexting, cyberbullying, privacy) are ultimately related, and the reality of students' cyber lives means teaching digital citizenship holistically and not just as cyber issues come up (Ohler, 2011).

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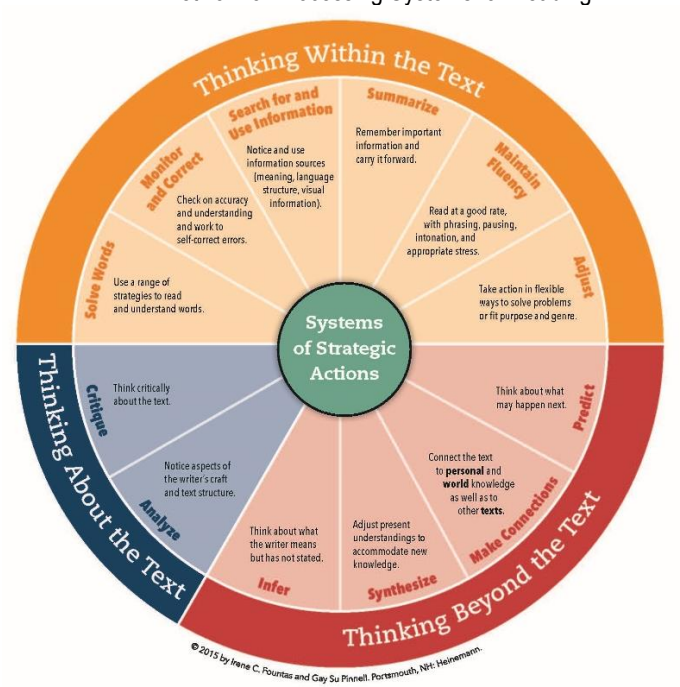
Section 11: Balanced Literacy

Students will become fluent readers through a balanced approach to literacy instruction that includes decoding and comprehension. All students will become fluent readers and writers by receiving direct instruction that includes opportunities for **modeled, shared, guided and independent** practice through differentiation. All students will become fluent readers and writers through a literacy rich environment where students are assessed frequently, provided description feedback and held accountable for their own learning.

Sample Teaching Strategies

Effect on Student Learning and Achievement

- Students apply skills and strategies to become active, purposeful, thoughtful and competent readers, writers, listeners and speakers.
- Students demonstrate high levels of understanding, effective communication skills and independence as problem solvers.
- Students prepare to participate as literate, contributing members in a global society with foundational skills and strategies in reading, writing, listening and speaking.

Best Practice	Description / Strategies	Effect on Student Learning & Achievement
Whole Group (modeled)	Teacher models literacy strategies (comprehension and vocabulary) using core resource and a variety of mentor texts • Sets a clear learning goal • Models strategy through a think aloud explaining why and how to use the strategy • Provides direct explicit instruction focusing on the Systems of Strategic Actions A Network of Processing Systems for Reading 	• Clear learning goals empower students to take ownership of their own learning (Marzano, 2001). • When grade level standards are clearly articulated and understood, student achievement increases • Knowing how to teach strategies explicitly fosters transfer from the structured practice activities to students' independent use of them while engaged in reading (Allington, 2002). • When students are provided the knowledge of why and how to use the strategy, students gain control of their own learning and become reflective thinkers (fosters metacognition) • Think alouds allow students to see your thinking when you read, the connections you make, the questions you ask, your inferences and predictions (Harvey & Goudvis, 2000). • Showing your thinking and the mental processes you go through when you read gives students an idea of what thoughtful readers do (Harvey & Goudvis, 2000). • When focusing on the systems of strategic actions, students learn that reading is a thinking process and teaches them how to think within, beyond, and about the text (Pinnell & Fountas, 2011). • Students understand the steps in a process by watching and listening to the teacher think aloud
Whole Group (shared)	Students participate in literacy strategy (comprehension and vocabulary) application. • Makes text available to students (eyes on print) • Develops anchor charts with students • Preselects specific parts of text to reinforce application of strategy • Practices and applies the strategy within the context of the text • Provides engagement opportunities to discuss text (i.e. think, pair, share) • Checks for understanding (i.e. thumbs up, thumbs down, whiteboards)	• Anchor charts make thinking visible to remind students of prior learning and to enable them to make connections to new learning • Student learning increases when students are provided opportunities to clarify their thinking and practice new strategies with support from their teacher and/or peers • When you reteach immediately based on student understanding, learning increases • Student achievement increases when descriptive feedback is given during shared and guided practice

Best Practice	Description / Strategies	Effect on Student Learning & Achievement
Differentiated, small group instruction (guided reading)	Students apply literacy strategies in instructional level text. • Uses appropriate instructional level materials comprising a wide variety of text types and genres • Provides text introduction based on the needs of the readers and sets purpose for reading • Spends the majority of the lesson allowing students to read independently at their own pace • Provides descriptive feedback (teach, prompt, and reinforce) based on observed reading behaviors • Fosters meaningful conversation about the text after the reading • Makes a teaching point that is evident to students • Uses a variety of ongoing formative assessments (i.e. anecdotal notes, running records, checks for understanding) to inform instructional decisions and next steps for teaching	• It allows students to apply their knowledge in continuous text (Allington, 2012). • Students move toward independent use of the acquired skill/strategy • This guides student learning and prompts effective thinking • When students are provided the necessary support (scaffold) and feedback, success increases • Students are able to expand their reading abilities • When students are taught based on their own readiness levels, interests, and learning profiles, achievement increases (Tomlinson, Brighton & Hertberg, 2003). • Students move forward in their learning when taught within their zone of proximal development (Vygotsky & Cole, 1978).
Independent	Literacy tasks should be connected to previously taught whole group lessons or extend the meaning from the small group lesson. • Provides self-selected reading time daily • Extends the meaning of the guided reading text through authentic reading and writing activities that start in the group and naturally progress to independent • Offers rigorous literacy station opportunities to practice skills and strategies in authentic literacy tasks	• Distributed practice is key to accurate retention and application of information and mastery of skills over time (Sousa, 2008). • Metacognition allows students to take charge of their own learning. It involves awareness of how they learn, an evaluation of their learning needs, generating strategies to meet these needs and then implementing the strategies (Hacker, 2009). • Students become confident, life-long readers • Students who read independently become better readers, score higher on achievement tests in all subject areas, and have greater content knowledge than those who do not (Cunningham and Stanovich 1991; Krashen 1993; Stanovich and Cunningham 1993). • Independent reading builds fluency, increases vocabulary, and builds background • We get better at reading by reading (Allington, 2002).
Word Study	Word study occurs at various times throughout the literacy block (whole group, small group, and independent practice) with a focus on a variety of flexible word solving actions. • K-2: phonological awareness, phonics, and spelling patterns • 3-6: morphological units, Greek/Latin roots, spelling patterns	• Students develop an awareness of how words work. (foster word consciousness) • When students are provided a repertoire of strategies to solve words and apply these in the most efficient way possible, learning is maximized • Knowing spelling patterns helps students notice and use larger parts of words, thus making word solving faster and more efficient (Fountas & Pinnell, 2011).

Best Practice	Description / Strategies	Effect on Student Learning & Achievement
Minilesson	Minilessons are short, focused, and direct. The topic of the minilesson depends on the needs of the class, but generally focuses on one of the following: qualities of good writing, the writing process, or procedures and routines of Writer's Workshop. **Modeled** • Teaches the writing strategy explicitly • Points out qualities of good writing related to the minilesson focus through use of mentor texts • Models the writing strategy through think alouds and demonstrates how and when to use the strategy **Shared** • Practices and applies the strategy with students • Leads the class in generating anchor charts • Uses mentor texts to draw students' attention to the choices authors make in their writing (author's craft) and the characteristics of different genres of writing	• Modeled writing shares the thinking that happens as writers make decisions about what to write and how to commit those ideas to paper • When the teacher's modeling combines the writing process with author's craft, students' understanding of writing increases • Using mentor texts helps students expand their oral and written language • When you show students how to "read like a writer," they learn how to understand the text from the writer's point of view and notice the decisions the writer makes to help students think about the text in complex ways (Fountas & Pinnell, 2006). • By modeling your own writing, you are sharing your processes and showing that you value the writing you are asking your students to do • Anchor charts make thinking visible to remind students of prior learning and to enable them to make connections to new learning
Conferring/Student Writing Time	Teachers provide descriptive feedback during individual or small group writing conferences to move students forward in writing. Student writing time consists of students writing, revising, and editing their own work. **Guided (Conferring)** • Reinforces student strengths and determines a teaching point(s) based on student writing needs and minilesson skills • Takes anecdotal notes to record student strengths and next steps for learning **Independent (Student Writing Time)** • Builds stamina through authentic writing • Applies minilesson skills in writing • Writes for a variety of purposes and genres • Considers audience when writing	• When students are working within their zone of proximal development, learning occurs (Vygotsky & Cole, 1978). • Conferring provides the opportunity to offer individualized instruction at the point of need (Calkins & Hartman, 2005). • Conferring facilitates the "just-in-time teaching" that helps our students grow as readers, writers, and thinkers (Calkins & Hartman, 2005). • When students are provided opportunities to give and receive descriptive feedback, student learning increases • When teachers observe the way students write, the teacher can identify difficulties and provide targeted instruction • Conferring reminds students what exactly it is you want them to practice "today and every day." (Calkins & Hartman, 2005). • The conference is a confidence-building process that encourages students to continue to write and take risks (Routman, 2005). • Conferences enable teachers to "stretch the writer" by teaching strategies intended to take the student beyond a piece of writing to improve "*all* the writing that student will do." (Fletcher & Portalupi, 2001).

Best Practice	Description / Strategies	Effect on Student Learning & Achievement
Sharing	During this brief sharing time, students read their writing (or parts of their writing) aloud. • Selects one or two students who have demonstrated use of minilesson skills or strategies to share a piece of writing with the class • Provides descriptive feedback based on qualities of good writing • Provides opportunities for students to share in small groups, with partners, or in a whole group setting	• By pointing out what the writer has done, students are shown the power of language • When the teacher models how to critique a piece of writing, students learn how to give descriptive feedback to one another during sharing time and peer conferences • Sharing time allows students to learn from one another and to hear good examples of writing

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Section 12: Early Childhood

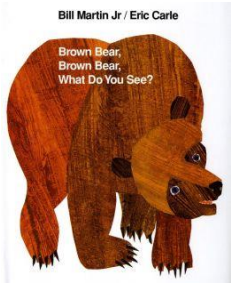
Early childhood education extends and enriches learning experiences. It is the foundation for long term educational attainment. Diverse students succeed when learning is meaningful and children's perspectives and interests are honored. Practices that integrate robust content across developmental domains strengthen language, cognitive and social skills.

Sample Teaching Strategies

Effect on Student Learning and Achievement

- Relationships with caring adults teach children self-confidence, social skills, emotional regulation and trust.
- Students who take ownership in their learning have increased motivation and desire to learn.
- Teaching that honors children's interests and allows them to make choices fundamentally influences their desire for learning.
- Play promotes key abilities that enable children to learn collaboration, negotiation, impulse control, self-regulation, symbolic thinking, memory, language and creativity.
- Movement experiences develop children's physical skills and their conceptual knowledge.
- Language is fundamental to mathematical knowledge, literacy development and social/emotional skills.

	Teaching Strategy	Description	Effect on Student Learning and Achievement
Literacy Strategies Across the Content Areas	**Setting up the literacy environment**	The teacher: • Displays interesting books with their covers facing out • Has a variety of literature distributed throughout the classroom (abilities, cultures, fiction, non-fiction) • Includes props for retelling (felt board, puppets) • Includes relaxing/soft furniture • Includes student made books • Provides a variety of writing materials and tools • Provides modeled and shared reading/writing activities • Creates a print rich environment/word collections • Displays print at student's eye level	• Literacy-enriched centers increase, often dramatically, the amount of literacy-related activities in which children engage during play (Copple & Bredekamp, 2009). • Knowledge of print concepts develops through direct contact with books and explicit modeling by skilled readers, as well as through exposures to environmental print (Copple & Bredekamp, 2009). • In a [literacy rich] environment, children's engagement and progress in literacy increase (Copple & Bredekamp, 2009).
	Read aloud	The teacher: • Reads to students daily • Reads the same story multiple times • Uses open ended questions and prompts • Previews the pictures in a story prior to reading the text (i.e. Picture Walk Strategy) • Reads to children individually or in small groups • Engages children in choral reading of patterned stories • Leads children in story retelling activities, using puppets, props, costumes, stuffed animals and other toys or materials	• Repeated readings of a story to prekindergarten children enhances vocabulary gains. Children learn more from answering questions during readings than they did when simply listening to the narrative (Copple & Bredekamp, 2009). • Children's comments and questions increase and become more interpretive and evaluative when they have listened to repeated readings of the same story • Children elaborate more and offer more interpretations after repeated readings of the same story • Story retelling helps children develop a sense of story structure and understanding about language that contributes to their comprehension of text • Read Aloud is a critical tool for building literacy (Anderson, Hiebert, & Wilkinson, n.d.). • Read Aloud can be used to build alphabet knowledge, concepts of print, vocabulary, comprehension, and world knowledge. Read Aloud is also a source of great joy (Bennett-Armistead, Duke & Moses, 2005).

	Teaching Strategy	Description	Effect on Student Learning and Achievement
Literacy Strategies Across the Content Areas	**Phonological awareness**	The teacher: • Engages students in various interactions designed to build their awareness of sounds in language through planned and playful activities (rhyming, segmenting words into syllables, alliteration) • Encouraging students to listen for and use the sounds of language apart from their meaning or written form (blending, segmenting and substitution of letter sounds)  Examples: • songs • chant rhymes • finger plays • clap syllables of children's names • books with alliteration (*Brown Bear, Brown Bear)* • create nonsense words	• Phonological awareness plays a crucial role in learning to read. Development of this ability typically begins by about age 3 and improves gradually over many years (Copple and Bredekamp, 2009). • Phonological awareness is a strong predictor of school success (Copple and Bredekamp, 2009).
	Language modeling, expansion and extension	The teacher stimulates language use through: • Frequent conversations • Open ended questions • Repetition and extensions of topics • Self and parallel talk • Modeling of various nouns, verbs, adverbs, adjectives, prepositions, and other forms of language that are novel • Expanding on phrases or sentences with additional ideas and vocabulary	• Children hear various uses and forms of language. This exposure increases language skills that are important to academic and social success • Language is linked to cognition and it develops concept knowledge, generalization and thought (Copple & Bredekamp, 2009). • By their interest in and responsiveness to what children say, teachers help initiate children to the back and forth sharing of conversation, and they enhance the complexity of children's language and the extent of their vocabulary (Copple & Bredekamp, 2009).
	Vocabulary development	The teacher introduces and explains new and interesting vocabulary in meaningful ways by: • repeating and reinforcing new words • explaining the meaning of words, including multiple meanings of words • connecting new vocabulary to familiar words • acknowledging children's language experimentation • introducing literature that exposes children to various cultures and communities  • offering new experiences or solving problems • singing, creating stories, and finger plays Teacher systematically introduces, discusses and infuses new and challenging words: • Words introduced are heard and seen across multiple settings • Word wall • Dictation • Frequent conversations are held and include academic vocabulary	• Exposing children to new words, often and in various ways, can have a significant effect on vocabulary development • Multiple exposures enhances storage and recall of new words (Hart and Risley, 1995). • Students retain more content when the material is reinforced with an activity that is hands on or applied information (Marzano, 2001).

	Teaching Strategy	Description	Effect on Student Learning and Achievement
Literacy Strategies Across the Content Areas	**Think aloud or verbal mapping**	The teacher consistently verbally maps his or her own thoughts or actions and the students' thoughts or actions through language and descriptions (Mirror Talk, Self or Parallel Talk).	• Teachers' use of instructional discussions and activities promotes higher-order thinking skills in contrast to a focus on rote learning (Pianta, 2008). • Mirror talk provides a child with specific feedback so they become aware of their own thinking and learning (Dombro, Jablon & Stetson, 2011). • Children make connections between known ideas (prior knowledge) and new information
	Nonlinguistic representations	Children use visual imagery, kinesthetic, and whole-body movement to think about and recall learning. Examples: • making physical models • drawing pictures • engaging in movement and dance Teachers provide visuals, pictures or movement along with verbal instruction. 	• Non-linguistic experiences produce knowledge in the mind of students (Marzano, 2001). • The brain can more easily recall information when it is stored in different parts of the brain
	Early stages of reading	The teacher: • Allows opportunities for independent reading throughout the day during transitions, centers, and arrival/departure by offering familiar and novel books • Children "read" books to themselves or others by recalling the text. They practice the cadence of oral reading and recall story events by matching pictures to story events	• Familiarity that comes with repeated readings enables children to reenact stories or attempt to read them on their own (Sulzby, 1985). • Children who are read to frequently will "read" their favorite books by themselves, by trying to imitate the oral and written language routines of their literate models (Sulzby & Teale, n.d.).
	Print awareness	The teacher focuses on Print Awareness by explaining concepts of print during a variety of reading and writing activities. The teacher: • Models various forms of writing to foster children's imitation of environmental print • Provides various writing tools such as crayons, markers, pens and pencils • Acknowledges children's scribbles as early forms of written langauge • Makes a point to distinguish between student's writing and drawing • Encourages students to become authors and illustrators and to produce different types of print materials • Points to words as they are read • Explains the concept of a word • Talks about parts of a book • Explains the role of the author and illustrator	• Children's knowledge of print concepts is an important predictor of later literacy achievement • The ability to read and write does not develop naturally without careful planning and instruction. Children need regular and active interactions with print (Neuman, Copple, & Bredekamp, 2000).

	Teaching Strategy	Description	Effect on Student Learning and Achievement
Literacy Strategies Across the Content Areas	**Modeled and shared writing**	The teacher: • Models writing during various classroom routines, activities and play • Labels student's artwork/creations • Writes children's dictated thoughts and ideas • Facilitates shared writing activities with students (teacher/student created charts, cards, letters, notes, lists) • Models writing for a purpose (facilitates lists for turn taking) • Writes instructions/classroom rules • Writes responses to literature • Writes steps of a recipe • Writes stories generated by students or teachers	• Children are more likely to become good readers and writers when they repeatedly encounter the ways that reading and writing matter. Seeing teachers and other adults read for their own enjoyment and information and write and use writing in their work and leisure, these experiences convey to children a powerful message about literacy's pleasures and rewards (Copple & BredeKamp, 2009). • Children learn from print when it is used in purposeful, functional ways • Providing children strong literacy education in the early years has been shown to lead to better outcomes later on • The ability to read and write does not develop naturally without careful planning and instruction. Children need regular and active interactions with print • Effective instruction includes rich demonstrations, interactions and models of literacy in the course of activities that make sense to young children (Copple, & Bredekamp, 2009). • Young children understand print better when teachers focus on capturing and recording children's ideas (Pinnell & Fountas, 2011). • The underlying purpose of writing is to communicate
	Guided writing	The teacher works with children on writing activities that they cannot do independently, but can do with assistance. Examples: The teacher may assist children in the following activities: • Using scribbles, unconventional shapes, or letter like shapes, symbols or letters to convey meaning • Daily sign-in/name writing practice • Making lists and writing for a purpose (writing a menu for the restaurant in the dramatic play area) The teacher assists children while they explore writing activities in the Writing Center. 	• It's important to view children's writing errors not as problems, but as opportunities to learn about each writer (Copple & Bredekamp, 2009). • Through scaffolded writing, [teachers] help emergent writers get their thoughts onto paper. [Teachers] also help them sound out words and focus on letters, which is critical to their emergent reading and writing (Bennett-Armistead, Duke & Moses, 2005).

	Teaching Strategy	Description	Effect on Student Learning and Achievement
Procedures and Routines	**Daily schedule**	The daily schedule is posted and includes both written labels and visual representations (photos or pictures) of learning activities. The daily schedule is interactive and reviewed with students throughout the day.	• Children benefit from both predictable structure and orderly routine in the learning environment and from the teachers' flexibility and responsiveness to children's emerging ideas, needs and interests (Copple & Bredekamp, 2009). • Children are able to function and behave appropriately when they know what to do, when, and how to do it and what is coming next (Kaiser & Rasminsky, 2012).
	Proactive teaching	The teacher anticipates what will happen and when, rather than waiting for something to occur and then reacting. The proactive teacher values students, anticipates problems, and sets up a learning environment that captivates student interest and attention. Proactive teachers establish routines, lessons, and disciplinary strategies that teach students self-control. Proactive actions may include: • Developing connections and caring relationships with children and their families • Understanding family and community culture • Establishing positive attitudes about learning • Establishing simple and clear classroom rules, procedures and routines • Planning and preparing engaging and intentional lessons and activities • Lessons are developmentally appropriate and tailored to individual student needs • Increasing productivity by having materials ready and accessible for learning • Managing materials and settings • Modeling and practicing social skills and teaching children how to regulate emotions • Reinforcing students' on-task behavior and learning successes • Addressing students individually and on the child's eye level	• Proactive teaching prevents misbehavior, increases student empowerment and promotes a positive learning environment • Teachers cannot teach and students cannot learn in a classroom plagued with disruptions • As students take more responsibility for their learning and behavior, teachers spend less time correcting misbehavior. Less attention to discipline concerns translates into more time for teaching and learning • The most effective way to deal with misbehavior is to prevent the misbehavior in the first place (Kaiser & Rasminsky, 2012). • A teacher's effectiveness for the remainder of the school year will be determined by what that teacher does during the first few days of school (Kaiser & Rasminsky, 2012). • Children use challenging behaviors because they do not have skills and strategies to regulate their emotional and social needs (Kaiser & Rasminsky, 2012). • Becoming self-regulated is one of the most significant developmental tasks of the preschool years (Kaiser & Rasminsky, 2012).
	Routines for purposeful movement	Learning opportunities are intentionally planned within transitions: • Patterning while getting in line • Name, color, and shape recognition • Mighty Minutes (Teaching Strategies Gold) Transitions are quick and efficient. Periods of waiting without an activity are kept to three minutes or less.	• Children are able to function and behave appropriately when they know what to do, when, and how to do it and what is coming next (Kaiser & Rasminsky, 2012). • Embedding content within transitions increases learning opportunities (Harms, 2014). • Quick transitions reduce students aimlessly wandering and prevent misbehavior
	Giving directions explicitly and visually	Teachers use pictures and simple statements to explain directions, classroom rules, and expectations. Teacher's directions are clearly stated, developmentally appropriate and easy for the children to understand and follow.	• Children exhibit better self-regulation in well-regulated classroom environments (Pianta, 2008). • Students will better understand directions when those directions are delivered in a clear manner, expressed in language the student understands, given at a pace that does not overwhelm the student, and posted for later review (Pianta, 2008).

	Teaching Strategy	Description	Effect on Student Learning and Achievement
Learning Climate	**Setting up the learning environment**	The teacher creates a learning environment that fosters initiative, active exploration of materials and sustained engagement with other children and activities. Teachers ensure that the environment is safe, healthy, conducive to children's exploration and independence, and provide attentive supervision. In choosing materials and equipment, teachers consider children's developmental levels, interests, and established social/cultural contexts. The physical environment should be arranged in response to children's interests. New materials/experiences for free play are added frequently. 	• Well organized classrooms protect play from unnecessary interruptions so children can engage in learning with more concentration (Harms, 2014). • Child initiated play promotes independence and care for the environment • An environment inclusive of multiple cultures gives all the children increased awareness and appreciation of differing cultures and helps them recognize that they can enjoy and work with others from many backgrounds (Harms, 2014). • "Because children's experiences are limited by their surroundings, the environment we provide for them has a crucial impact on the way the child's brain develops." (Strong-Wilson & Ellis, 2007, p. 43). • The environment we are in affects our moods, ability to form relationships, effectiveness in work or play—even our health (Bullard, 2010).
	Valuing students responses and actions using descriptive feedback	Teachers offer praise for specific behavior: • "I asked you to do that and you did it the first time. That is great listening." • "You zipped your jacket all by yourself. When you can do things by yourself, that is called being independent. Wow, you are growing up and becoming independent." Teacher praise is specific and meaningful.	• Children have increased motivation and desire to learn when they receive feedback and praise • Children feel the teacher cares about them personally when the teacher is genuinely interested in their achievements (Copple & Bredekamp, 2009). • When teachers encourage students to be their best, they will live up to the teacher's expectations, time and time again • When teachers recognize student achievement and effort in a clear, consistent manner, students feel more capable and competent and are, in turn, more willing to learn • Encouragement of student's efforts increases student's involvement and persistence (Pianta, 2008). • Positive responses to children's attempts to do for themselves encourage them to continue trying (Copple and Bredekamp, 2009).
	Awareness	Teacher anticipates problems and plans accordingly when children lack understanding and experience difficulties. The teacher: • Notices and addresses misbehavior • Redirects students that are off task • Reteaches • Flexible grouping • Differentiates and individualizes instruction	• When teachers are aware of students' problems and offer support, children see the teacher as a source of support, reassurance, and guidance

	Teaching Strategy	Description	Effect on Student Learning and Achievement
Learning Climate	**Responsiveness**	The teacher responses quickly and demonstrates understanding and knowledge about individual students. The teacher: • Is flexible in his or her plans, goes along with students' ideas and organizes instruction around students' interests • Makes appropriate decisions enabling students to be as independent as possible within a given activity • Provides ample opportunities for students to talk and share ideas	• When teachers are responsive to student needs, students work well on their own and in groups because they know that if a problem arises they can go to the teacher for help • When a child has a healthy sense of autonomy, he respects the boundaries set by the [adults]. He knows he is free to explore the safe world set up for him and will develop the sense of making healthy choices (Jenner, 2012).
	Autonomy/choice	The teacher develops a sense of autonomy by allowing children to explore freely within safe boundaries. The teacher allows students to lead tasks. • Large group • Job/helpers • Teacher follows student interests, pace and signals The teacher provides many opportunities for children to make appropriate choices. 	• Students who take ownership of their learning have increased motivation and desire to learn • Children who learn a sense of autonomy will have the confidence to later pursue and shape their own ideas and plans (Jenner, 2012). • The promotion of autonomy helps to develop the life skills needed when [teachers] are no longer around (Jenner, 2012). • When a child has a healthy sense of autonomy, he respects the boundaries set by the [adults]. He knows he is free to explore the safe world set up for him and will develop the sense of making healthy choices (Jenner, 2012). • The more we build in choices for our students the more likely they are to feel energized as participants in their learning process (Smith, 2004).
	Clear behavior expectations	Rules and expectations for behavior are clear and consistently enforced. • Rules posted in pictures and words • Short simple statements • Positive redirections	• Minimizes distractions and disruptions, allows majority of the time to be spent on instructional activities
	Building Relationships	Frequent conversations between the teacher and students or among students. • Eye contact • Getting down on student level • Asking follow up questions • Using a warm, calm tone of voice • Cooperating and sharing	• When the classroom climate is positive, students have a secure base for learning • When children experience stable, nurturing relationships it fosters the development of healthy [neural] circuitry. And when children experience uncertainty or instability . . . it literally disrupts the circuitry in the brain's architecture as it is being built (Shonkoff & Phillips, 2000).

	Teaching Strategy	Description	Effect on Student Learning and Achievement
Rigor	**Higher level questioning**	Teacher uses discussions that encourage students to think about the "how" and "why" of learning rather than fact recall. • Why do you think.....? • How did you do that.....? • How do you know.....? • What would happen if.....?	• Higher level questioning helps students obtain a deeper understanding of concepts and develop problem solving skills
	Concept development	The teacher provides additional information to expand student's understanding or actions. The teacher often uses discussions and activities that encourage analysis and reasoning. The teacher often provides opportunities for students to be creative and/or generate their own ideas and products. The teacher consistently links concepts and activities to one another and to previous learning. The teacher consistently relates concepts to the students' actual lives by using: • Brainstorming • Problem solving • Prediction	• Teachers use of instructional discussion and activities promote students higher order thinking skills • Projects and other in-depth studies, in which children investigate new topics and ideas, are excellent for sparking conversation and play and encouraging children to use language in generating ideas, evaluating solutions, planning, problem solving, and predicting outcomes (Pianta, 2008).
Engagement	**Kinesthetic learning/hands on activities**	Hands on learning activities include: • Centers • Activities • Artifacts • Role playing • Musical instruments 	• Students retain more content when the material is reinforced with an activity that is "hands on" or applied information • Many young children appear to be essentially tactual or kinesthetic learners (Dunn, Dunn and Perrin, 1994). • The more senses involved during learning, the more likely the brain will receive and process information (Dunn, Dunn and Perrin, 2010). • By using multiple senses to learn, children find It easier to match new information to their existing knowledge (Schiller & Willis 2008). • Hands-on manipulation increases the chance by 75 percent that new information will be stored in long-term memory (Hannaford 2007; Sousa 2011). • Hands-on investigation increases sensory input, which helps learners focus. It allows for experimentation by letting children use trial and error, which increases the chance that learners will make sense of and establish relevancy for what they are learning (Sousa 2011).
	Physical proximity	The teacher provides physical proximity: • Sits on the floor during circle time • Sits at tables during meal times • Interacts in learning centers Students appear interested in spending time with one another and appear comfortable with close contact with others.	• Students typically increase their attention to task and show improved compliance when the teacher is in close physical proximity (Pianta, 2008). • When the teacher uses physical proximity the positive climate of the classroom is increased and students feel safe and secure (Pianta, 2008).

	Teaching Strategy	Description	Effect on Student Learning and Achievement
Engagement	**Learning using a variety of strategies**	Teacher presents information in a variety of ways with a variety of materials throughout the day. • Visual aids • Brainstorming • Problem solving • Prediction • Music/Movement	• Teachers who plan engaging lessons increase student productivity and learning • Children learn best when they are deeply engaged. The key element is the level of the children's interest and engagement (Copple and Bredekamp, 2009). • Students retain more content when the material is reinforced with an activity that is hands on or applied information (Marzano, 2001). • Young children learn by touching, feeling, moving, and experiencing (Dunn, Dunn and Perrin, 2010).
Differentiation	**Differentiation**	The teacher plans ways to address children's differences in age, development, learning styles, culture, family, temperament, multiple intelligences profile, personality style, and special needs or developmental delays. 	• Differentiation optimizes learning for all students • All children learn based on their development and experience level (Schiller & Willis, 2008).
Mathematics	**Daily cumulative review**	Daily cumulative review at some point in every lesson is one of the most effective strategies for fostering mastery and retention of critical skills. Students need five to seven exposures to a new concept before that concept will move into long-term memory and 22 to 27 successful practices with a new skill before that skill becomes automatic. Daily cumulative review includes some combination of vocabulary, estimation, geometry, measurement, probability, number sense, computation, problem solving, logic, and measurement on a regular basis and can be accomplished through using: • Picture Schedules • Classroom Journals: using digital photos to build vocabulary of past, present and future events • Linear Representations: teach counting, numeracy, and patterning with manipulatives • Music and Movement	• The ability to judge the relative time from a past event or until a future event in terms of the calendar year is not in place until sometime between 7 and 10 years of age (Freidman, 2000). • Although young children have difficulty judging the length of time between events (for example, how long the time between snack and outside play will be), they can understand a sequence of events (for example, snack comes after circle time) (Beneke, Ostrosky, and Katz 2008). • When teachers encourage children to tell peers or their families the story of their project or learning, the children strengthen their understanding of the way an event unfolds, with the various activities taking place in a time sequence (Beneke, Ostrosky, and Katz 2008). • Linear representations can help children begin to understand and conceptualize that a day is a unit of time and talk about it with increasing clarity. The teacher can emphasize time-linked vocabulary, such as *before, after, later, earlier*, as the children add the new link (Beneke, Ostrosky, and Katz 2008). • Positive experiences with using mathematics to solve problems help children to develop dispositions such as curiosity, imagination, flexibility, inventiveness, and persistence that contribute to their future success in and out of school (NAEYC and the National Council of Teachers of Mathematics (NCTM), 2002).

	Teaching Strategy	Description	Effect on Student Learning and Achievement
Mathematics	**Multiple representations**	Multiple representations, such as models, drawings, diagrams, number lines, tables, and graphs, support the visualization and deeper understanding of skills and concepts. Multiple representations are well-represented by the concrete-pictorial-abstract (CPA) sequence of instruction. • Number Lines/Linear Representation • Tables and Graphs • Graphic Organizers – Venn Diagrams, Circle Maps, Bubble Maps, etc. • Pictorial Representations • Real Objects • Manipulatives • Word Walls (with representation) • Kinesthetic Activities • Music and Movement	• Provides different ways to examine a problem or situation • Assists students in making sense of abstract concepts • Helps students to see that there are many ways to interpret information • Assists with the recall of information when it is stored in multiple parts of the brain: nonlinguistic content is stored in a different part of the brain than linguistic content, thus giving the brain two ways of remembering content and enhancing the brain's ability to recall the information • Makes learning more concrete and meaningful • Generating visual maps helps learners understand the concepts of similarities and differences, cause and effect, part as opposed to whole, and analogical sets. Understanding these types of relationships is an essential component of conceptual change and cognitive growth (Brooks, 2004).
	Multiple methods	Multiple methods teaches that mathematics is a sense-making process for understanding "why" and IS NOT a subject with just one right procedure to get to a correct answer. • This practice honors students' various approaches to solving a problem • Compare/contrast methods show that more than one approach will give a correct answer for a problem • Think alouds model for students how they may solve problems in multiple ways • Multiple methods allow for student choice	• Allows students to make sense in their own way • Enriches instruction and provides new levels of access to mathematical understanding • Gives students multiple methods to solve problems. • Allows extra time to process the concept • Increases competency when using mathematical language • Allows students to productively struggle with new problem situations
	Spatial sense	Spatial relationships form a foundation from which more sophisticated geometric concepts can develop. As young children play and explore with their spatial environment, they build upon knowledge of: • Space – shapes and objects in relation to one another – near, under, over, on, next to, on top of, by, etc. regardless of orientation • Transformations – moving shapes around to create new shapes – also includes the concept of symmetry • Visualization – physically seeing shapes and recreating them using mental visualization • Shapes – the form of an object such as 2D shapes - circle, square, triangle, etc. and 3D shapes – cube, sphere, cylinder, and rectangular prism. Forms can also be irregular Spatial Sense is taught and reinforced in everyday math problems through the use of: • Puzzles • Games • Comparisons of shapes/objects - measurement • Discussions of shape attributes – sides, corners, etc. • Following Directions • Songs, Music and Movement	• Children do not develop their ideas about shapes from simply looking at them. They must manipulate, draw, or represent the shapes in a variety of ways (Clements, 1999). • With experience, preschool children can develop visualization. They can observe a shape picture using five shapes, remember it by visualizing what they just saw, and then make the picture accurately using the appropriate shapes in the correct relationship to each other (Copley, 2004). • Four and 5-year-old children can move shapes to determine whether they are identical to other shapes; they slide, rotate, and sometimes flip the shapes to determine whether they match (Clements, 2003).

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Mathematics	**Number sense**	Number sense includes all of the following skills: • Counting - up to 20 while ensuring that children understand the meaning of the number concepts rather than just saying the numbers • One-to-One Correspondence - touching one object for each number stated, or matching one umbrella with one doll in making comparisons between two groups of objects • Quantifying – finding the amount of something, recognizing and naming the number of items in a set instantly • Subitizing - the ability to 'see' a small amount of objects and know how many there are without counting. Subitizing is what tells you what number you roll on a six sided dice – most adults no longer have to count the pips • Estimation - mentally making an educated guess • Ordination – 1st, 2nd, 3rd, etc. • Seriation – smallest to biggest, lightest to darkest, etc. • Patterns Number sense is taught and reinforced in everyday math problems through the use of: • Manipulatives • The Gradual Release of Instruction • Music and Movement • Visual Representations • Story Telling • Labeling	• Case, Griffin, and Siegler (1994) found that children who have a well-developed Number Sense are able to succeed in early math (and beyond), while children who don't are at much greater risk of falling increasingly further behind • Every child *can* learn Number Sense, not every child *will* unless we intentionally and systematically support that learning on an individual basis (Clements and Sarama, 2011). • Growing patterns are important to a child's understanding of number operations. Many rhymes and songs are examples of growing patterns where one phrase and/or action is added to each verse. A block staircase is an example of a growing pattern where each row or column has one more block added to it until it looks like a staircase (Dodge 2010). • Early childhood teachers help children develop mathematical knowledge throughout the day and across the curriculum. Children's everyday activities and routines can be used to introduce and develop important mathematical ideas. Such opportunities to build important mathematical vocabulary and concepts abound in any classroom and the alert teacher takes full advantage of them (NAEYC and NCTM, 2010). • Because young children's experiences fundamentally shape their attitude toward mathematics, an engaging and encouraging climate for children's early encounters with mathematics is important (NAEYC and NCTM, 2010).
	Literacy/language-rich mathematics classrooms	Mathematics is a language, and as such must be encountered by reading, writing and speaking while emphasizing academic vocabulary, terminology, explanations, and justifying solutions. **Vocabulary** • Intentional and planned teaching of mathematic vocabulary (count, number, compare, fewer, more, shorter, longer, addition, subtraction, adding, subtracting, take away, equal, greater, more, less) • Ongoing emphasis on use and meaning of mathematical terms • Interactive word wall with visuals • Speaking • Teacher models the use and meaning of mathematic vocabulary • Teacher encourages children to use mathematic vocabulary • Self and Parallel Talk (Think Alouds) • Teacher verbally maps his/her actions and steps to solve a math problem • Teacher verbally maps the children's actions and steps in solving a math problem • Teacher uses open-ended questions to encourage children to talk about math concepts and ideas	• Researchers have found that young children are, by nature, curious about math. They have good evidence that math becomes real to young children as they use it by talking, reasoning, playing and doing (Stanberry 2016). • Teachers need to find out what young children already understand and help them begin to understand these things mathematically. From ages 3-6, children need many experiences that call on them to relate their knowledge to the vocabulary and conceptual frameworks of mathematics – in other words, to "mathematize" what they intuitively grasp (NAEYC and NCTM, 2010). • Experiences become truly mathematical as the children reflect on them and then represent them in various ways and connect them to other ideas (NAEYC and NCTM, 2010). • Early childhood teachers help children develop mathematical knowledge throughout the day and across the curriculum. Children's everyday activities and routines can be used to introduce and develop important mathematical ideas. Such

	Teaching Strategy	Description	Effect on Student Learning and Achievement
Mathematics		• Teacher models how to tell math stories • Teacher guides children in telling math stories • Think-Pair-Share **Writing** • Teacher models how to illustrate/label/write mathematical stories/problems in a Math Journal • Teacher guides children in illustrating/labeling mathematical stories/problems • These are examples of written mathematics in the classroom (children's work, posters, class-generated big books, charts and graphic organizers) **Reading** • Teacher reads books that use math language and illustrate math concepts (fiction and non-fiction texts	opportunities to build important mathematical vocabulary and concepts abound in any classroom and the alert teacher takes full advantage of them (NAEYC and NCTM, 2010). • Increases learning about math when high-level conversation occurs • Transforming knowledge takes place with higher-level thinking • Discussing mathematics helps students organize and consolidate their thinking, communicate coherently and clearly analyze and evaluate the thinking and strategies of others, and use the language of mathematics • Acts as a formative assessment to drive targeted instruction • Speaking, writing, and reading mathematics increases generalized use of math • Verbalizing and writing about mathematics creates students who internalize the learning and are better able to think about mathematics and comprehend a process • Increases the understanding of the steps in a process by watching and listening to others (including teachers) think aloud • Writing provides an additional exposure and opportunity to recall content and reflect on new learning and enhances retention 
	Mathematics embedded in real-world contexts	Effective mathematics instruction connects to real-world situations relevant to the children. • Mathematical language and concepts are applied to other subject areas (art, music, science, etc) • Mathematic language and concepts are applied to various situations, classroom routines and learning experiences throughout the day • Teacher uses real-life examples to illustrate mathematic concepts • Teacher connects mathematic concepts to the student's own lives and previous learning • Teacher and children record and discuss data from classroom events • Teachers provide an engaging and encouraging climate for children's early encounters with mathematics • Daily life situations that children encounter teach problem solving and logical-mathematical thinking • Project-based learning (class project determined by children's interests): E.g., A building is under construction in the neighborhood. Children create maps and models of the building site, use blocks and legos and carpentry tools to measure length and area	Children's confidence, competence, and interest in mathematics flourish when new experiences are meaningful and connected with their prior knowledge and experience (NAEYC and NCTM, 2010). Early childhood teachers help children develop mathematical knowledge throughout the day and across the curriculum. Children's everyday activities and routines can be used to introduce and develop important mathematical ideas. Such opportunities to build important mathematical vocabulary and concepts abound in any classroom and the alert teacher takes full advantage of them (NAEYC and NCTM, 2010). Because young children's experiences fundamentally shape their attitude toward mathematics, an engaging and encouraging climate for children's early encounters with mathematics is important (NAEYC and NCTM, 2010). Experiences become truly mathematical as the children reflect on them, represent them in various ways and connect them to other

	Teaching Strategy	Description	Effect on Student Learning and Achievement
		• Play: E.g., playing gas station and discussing quantities of gas and payment options while extending play with trikes and wagons	ideas (NAEYC and NCTM, 2010). Positive experiences with using mathematics to solve problems help children to develop dispositions such as curiosity, imagination, flexibility, inventiveness, and persistence that contribute to their future success in and out of school (NAEYC and NCTM, 2010). Children's ability to solve problems in daily life deepens their understanding of logical-mathematical thinking. Play is flexible and situations from everyday life may require many possible solutions. Play allows children to explore and experience math as problem solving and not only as rote memorization of discreet skills such as counting.
Mathematics	**Formative assessment**	The goal of formative assessment is to monitor student learning to provide ongoing feedback that can be used by teachers to improve their teaching and by students to improve their learning. More specifically, formative assessments: • Help teachers identify the children's strengths and target areas where students are struggling and address problems immediately ○ Student observation and documentation ○ Checks for understanding ○ Choral responses ○ Graphic Organizers ○ Brainstorming ○ Hand signals ○ Q&A ○ Manipulatives ○ Math journals	Early childhood mathematics assessment is most useful when it aims to help young children by identifying their unique strengths and needs so as to inform teacher planning (NAEYC and NCTM, 2010). Child observation, documentation of children's talk, interviews, collections of children's work over time, and the use of open-ended questions and appropriate performance assessments to illuminate children's thinking are positive approaches to assessing mathematical strengths and needs (NAEYC and NCTM, 2010). Building on children's individual strengths and learning styles makes mathematics curriculum and instruction more effective (NAEYC and NCTM, 2010).
	Deliberate and detailed planning	Effective mathematics instruction requires careful planning with all involved parties (e.g., co-teachers and paraprofessionals) that provides coherence for the content, tasks, questioning and assessments. • Gradual Release of Instruction • Early Childhood lesson plan format • Plan for teaching academic vocabulary • Careful selection and pre-planning of Creative Curriculum instruction based on students' needs (e.g., Intentional Teaching Cards) • Plan for higher-level questions • Manipulatives with a purpose • Connect concepts from previous units/courses to current unit • Use of technology	• Research has found that curriculum depth and coherence are important; however, unplanned experiences with mathematics are clearly not enough. Effective programs also include intentionally organized learning experiences that build children's understanding over time (NAEYC and NCTM, 2010). • Provides avenues to address students' ability to think, reason, and problem-solve • Facilitates differentiation • Improves proficiency in mathematics, across grade levels and diverse student populations • Encourages active engagement to activate the brain and increase retention

	Teaching Strategy	Description	Effect on Student Learning and Achievement
Play	**Setting up the Play Environment**	The teacher • Prioritizes play in the daily schedule • Creates clear paths and boundaries in the physical space both indoors and outdoors • Separates quiet and noisy areas • Provides soft, relaxing spaces for privacy • Prioritizes how the space minimizes distraction and facilitates children's focus on more sophisticated play • Intentionally selects materials to reflect children's interests and developmental levels both indoors and outdoors • Regularly rotates materials both indoors and outdoors • Play materials align to studies, themes, standards and objectives • Balances familiarity with novelty in arrangement and materials	• Engagement depends on both the novelty and the appeal of the materials in the environment • Space generally shapes the flow of play and communication in the classroom or outdoors (Alward, Perry, Van Hoorn, & Waite-Stupiansky 2014). • A thoughtfully planned environment contributes to children developing play complexity, the ability to make choices, and to extend the length of sophisticated play (Alward, Perry, Van Hoorn, & Waite-Stupiansky 2014). • Preschoolers need materials and equipment that will spark their interest: they thrive when they are able to experiment, test things out for themselves, and draw their own conclusions (NAEYC). • By providing materials related to the study, early childhood teachers can establish links between the children's indoor and outdoor play and their program's curriculum (Engelbright Fox, 2007).
	Child-initiated play	The teacher • Provides curriculum that emerges directly from the interests of the children • Draws upon observations of children's interests and themes in their play to provide opportunities to extend and elaborate their learning (Alward, Perry, Van Hoorn, & Waite-Stupiansky 2014).	• Children's decision making during play leads to children's positive self-efficacy and confidence in their control over themselves and their environment (Anderson, Spainhower, & Sharp, 2015).
	Powerful interactions	The teacher utilizes a stance during play that involves the stages of being present, connecting, and extending learning. During the being present stage the teacher takes a moment to observe and decide, "will the children benefit from my intervention or shall I simply watch? During the connect and extend stages the teacher will… • Make comments • Ask questions • Provide information • Give instructions • Acknowledge a child's effort	• Who you are, and how and what you say and do as you engage with children, makes a difference in what they learn about themselves, others, and the world (Hamre & Pianta, 2008). • Every one of your interactions holds the potential to make a positive impact on how children feel about themselves and about learning, as well as on what and how they learn (Dombro, Jablon & Stetson, 2011).
	Guided play	The teacher utilizes keen observation skills during children's play to determine the best strategy to support the learning opportunity and the optimal moment to implement. The teacher's role during guided play includes, but is not limited to… • Participant • Spectator • Play leader • Parallel player • Matchmaker • Recorder of documentation for planning	• The teacher's ability to set up, observe, enter, and exit play with sensitivity and grace are crucial to the successful sustaining of children's play (Alward, Perry, Van Hoorn, & Waite-Stupiansky 2014). • The evidence suggests that such approaches often outperform direct-instruction approaches in encouraging a variety of positive academic outcomes (Hirsh-Pasek, Michnick Golinkoff, & Skolnick Weisberg, 2013). • Guided play approaches are effective because they create learning situations that encourage children to become active and engaged partners in the learning process (Hirsh-Pasek, Michnick Golinkoff, & Skolnick Weisberg, 2013).

	Teaching Strategy	Description	Effect on Student Learning and Achievement
Science	**Higher level thinking skills**	The teacher: • Gets students thinking about the "how" and "why" of learning. Ex: "Why do you think?" • Asks open-ended questions • Uses student responses to create a learning moment by asking follow-up questions	• Children develop their inquiry skills as they investigate interesting subject matter, and children build theories about interesting subject matter through the use of inquiry skills (Worth & Grollman 2003).
	Problem solving	The teacher: • Helps students use words to identify problems • Stimulates conversations to help students think of solutions	• Children who can solve problems and interact positively with peers will have a more successful transition to school • Problem solving can be a powerful motivating factor to learn science. When students perceive the situations and problems they study in class as real, their curiosity is piqued and they are inspired to find an answer
	Experimentation / prediction	The teacher: • Encourages students to talk and think about the process in different ways. Ex: "I wonder what would happen if...?" • Facilitates opportunities for students to explore or foster curiosity • Engages students in simple investigations in which they make guesses about the outcome • Fosters an environment that encourages a questioning sense, a desire to find answers, and an ability to come up with a question • Allows the students to say what they think will happen before an activity begins and before the adult speaks	• Effective science investigations can deeply engage young children for extended periods of time, beyond a single activity or session • When a child formulates a hypothesis, it makes the science experience the child's own • Scientific skills and methods provide children with tools that help make sense of the world around them
	Creating / planning	The teacher: • Facilitates creation of a topic web • Encourages students to brainstorm. Ex: "What might we do to make sure everyone gets a turn?"	• Children acquire fundamental concepts through active involvement with their environment. As they explore their surroundings, they actively construct their own knowledge (Charlesworth & Lind 1995).
	Integration	The teacher: • Makes an effort to link together different concepts the students have been studying	• A teacher who collects evidence over a period of time can see the evolution of an idea or concept • Children need time to return to ideas and concepts, to ask new questions, and to fit new learning into established ideas
	Real-world applications	The teacher: • Makes learning meaningful by helping students apply their thinking to their everyday experiences 	• Learning science and engineering practices in the early years can foster children's curiosity and enjoyment in exploring the world around them and lay the foundation for a progression of science learning in K-12 settings and throughout their entire lives • Children need to have opportunities to engage in science learning in informal settings, such as at home with cooking activities and outdoor play or in the community exploring and observing the environment
S	**Setting up the**	The teacher:	• Young children engage in science activities when an adult

	Teaching Strategy	Description	Effect on Student Learning and Achievement
	science environment	• Prepares materials before the beginning of the lesson / experiment • Intentionally plans small groups for science experiments • Prepares enough materials for each student • Provides meaningful subject matter from life, physical, and earth sciences • Uses inquiry based learning by creating environments that inspire active investigations and invite children to try out their ideas	intentionally prepares the environment and the experiences to allow children to fully engage with materials • In science we want to capitalize on children's "natural inclination to learn about their world" (Landry & Forman 1999, 133).
	Literacy/language-rich science classrooms	Students learn language through participation in meaningful, comprehensible language-based interactions. Literature of all kinds can be used to support a science-based curriculum. Ex: songs, finger plays, poems. **Vocabulary:** • Interactive word wall • Vocabulary growth is supported by prior knowledge of the everyday world • Hands-on experiences support new vocabulary **Reading and text:** • Fiction text • Nonfiction text • Multiple readings of the same text for various purposes	• Children's natural interests in science can be the foundation for developing language and literacy skills • Scientific exploration presents authentic opportunities to develop and use both receptive and expressive language skills • Non-fiction books become a powerful foundation for conversations 
	Numeracy-rich science classrooms	In a numeracy-rich science classroom, mathematic practices are a daily occurrence. The use of mathematics enables students to identify patterns and relationships. • Graphs & charts • Measurement • Data collection & interpretation • Calculating and predicting values • Probability • Reliability	• Helps students see there are many ways to interpret information • Maximizes understanding and retention of knowledge when students have applied science to a practical setting relevant to their own point(s) of reference • Increasing students' familiarity with the role of mathematics in science is central to developing a deeper understanding of how science works

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Early Childhood Instructional "Look Fors"

Curriculum and Instruction Support

Best Instructional Practices

- ☐ Open-ended, higher level questions are being asked daily
- ☐ Procedures and routines are explicitly taught and reinforced daily
- ☐ Descriptive feedback is provided to individual students
- ☐ Culturally relevant education is responsive and relevant to all individuals and groups
- ☐ The Gradual Release of Instruction is evident daily
- ☐ Literacy/Numeracy strategies are evident in instruction
- ☐ Engagement strategies are evident in instruction

Literacy

- ☐ Literacy environment should include:
  - Paper, wipe off boards, notepads, chalkboards, markers, pens, envelopes, pencils
  - Literacy in every interest area
- ☐ Read aloud to small groups and/or an individual student.
- ☐ Model, share, & guide writing for students.
- ☐ Daily experiences in literacy.
- ☐ Engage in frequent conversations with students.
- ☐ Oral language is emphasized with many interactive classroom conversations, both teacher-student and student-student in all content areas throughout the day.

Engagement and Communication

- ☐ Greet family members by name each day.
- ☐ Family participation in classroom activities.
- ☐ Whenever possible, let students work out conflicts without interfering.
- ☐ Second Step skills are explicitly taught and reinforced daily.
- ☐ Communication occurs regularly with families (face-to-face, phone, email)
- ☐ Teachers help support children in building self-regulation, negotiation skills, and expressing emotions.
- ☐ Students are not sitting quietly for long periods of time.
- ☐ Students are playing, working with materials and working with other students.
- ☐ Transition time for activities within the classroom is short.
- ☐ Teachers work with small groups, individuals and with the whole group.
- ☐ Instruction is differentiated based on student need.
- ☐ Instruction is developmentally informed.

Numeracy

- ☐ Activities that support numeracy skills.
- ☐ Activities that involve comparisons (bigger/smaller, more/less).
- ☐ Activities that explore spatial relationships, shapes, measuring and patterns.
- ☐ Daily experiences in math.
- ☐ Use the daily interactive schedule to discuss the sequence of the day's events

Science & Social Studies

- ☐ Students are engaged in hands-on experiences that explore:
  - Life Science (health, nutrition, bodies & living things)
  - Physical Science (magnets, magnifying glass & mirrors)
  - Communities (careers, cultures & families)
- ☐ Activities that support inquiry based learning
- ☐ Studies follow child initiated interests.
- ☐ Get students thinking about the "how" and "why" of learning.
- ☐ Ask open-ended questions.

Daily Schedule & Routines

- ☐ Offer a balance of activities: large and small, active and quiet, indoor and outdoor, fine and gross motor
- ☐ Display the daily interactive schedule and class rules in words and pictures
- ☐ Have consistent routines and procedures for students to follow (Second Step rules posters)
- ☐ Guide students in putting away materials where they belong by drawing attention to labels
- ☐ Provide students an opportunity to wash their hands before meals and after toileting
- ☐ Participate in family style meals with students
- ☐ Encourage students to serve themselves with minimal assistance
- ☐ Encourage conversations with peers and staff during mealtimes
- ☐ Provide opportunity for students to brush teeth immediately after one of the meals
- ☐ Place cots/mats 3 feet apart (where possible)

High Quality Purposeful Play

- ☐ Play is prioritized in the daily schedule
- ☐ Allow students to choose interest areas, activities, materials, and playmates during center time
- ☐ Allow students to move to different interest areas independently
- ☐ Conduct large group sessions for flexible periods of time (5-20 minutes)
- ☐ Engage students in interactive experiences during large and small groups, indoor and outdoor
- ☐ Provide gross motor activities on a daily basis (balancing, climbing, riding, throwing, catching, jumping, hanging by arms, kicking)
- ☐ Provide creative indoor and outdoor experience (construction, music & movement, art, dramatic play)
- ☐ Play centers are tied to studies, standards and objectives and are changed regularly.
- ☐ Center time provides extensive opportunities for students to represent and extend their thinking and learning through multiple modalities (construction, drawing, writing, painting, movement, dance, drama)
- ☐ Play is based on student's interests

Good for all students | Optimal for culturally responsive teaching | Optimal for students with learning needs

Early Childhood Environmental "Look Fors"

Curriculum and Instruction Support

Physical Environment

- ☐ Maintain a clean, safe, and organized environment (outlets covered).
- ☐ Arrange room to eliminate running and avoid cafeteria style table seating.
- ☐ Store most materials on low shelves where children can reach and put away independently.
- ☐ Provide developmentally appropriate materials in all interest areas with materials that are in good condition.
- ☐ Display books, dolls, props, puzzles that reflect diverse racial, gender, ability, career attributes.
- ☐ Label and identify where materials belong using pictures/photos and written words.
- ☐ Label centers with words and pictures.
- ☐ Post child sign-in and management charts with pictures and words.
- ☐ Display student's artwork of their own creation at eye level around the classroom.
- ☐ Display photographs of students and their families.
- ☐ Provide every student with a cubby or locker to store personal items, labeled with name.
- ☐ Suggested play centers include: blocks, dramatic play, toys & games, art, sand & water, discovery, library, music, and computers.
- ☐ Classrooms are purposefully set up to support active and quiet learning.
- ☐ Student materials are accessible and students have responsibility for these materials.
- ☐ Post lesson plans and objectives in the classroom.
- ☐ Play centers integrate multiple objectives, standards, and content areas naturally to support learning.
- ☐ Have family board including monthly calendars, newsletters, and parent meeting information.
- ☐ Divide the classroom into well-defined interest areas including block, dramatic play, toys & games, art, sand, discovery, library, music, and computers.

Literacy Environment

- ☐ Offer a variety of books and writing materials (paper, notepads, markers, envelopes, wipe-off boards, chalkboards).
- ☐ Display a word wall at children's eye level with pictures.
- ☐ Make books accessible to students at their level.
- ☐ Read to small groups and/or an individual student.
- ☐ Incorporate literacy in every interest area.
- ☐ The classroom environment is literacy rich and student relevant to create a classroom where students have ownership of their own space.

Science Environment

- ☐ Provide a variety of materials to explore physical science or cause and effect (magnets, magnifying glass, and mirrors).
- ☐ Provide a variety of materials for exploring life science (health, nutrition, bodies, and living things).
- ☐ Provide a variety of materials for exploring spatial science (shapes, positions, transformations).
- ☐ Prepare enough materials for each student before the beginning of the lesson/ experiment.
- ☐ Intentionally plan small groups for science experiments.
- ☐ Provide meaningful subject matter from life, physical, and earth sciences.

Math Environment

- ☐ Provide materials for exploring counting, classifying, one-to-one, sequencing, and sorting.
- ☐ Provide materials for exploring counting, classifying, one-to-one, sequencing, and sorting.
- ☐ Provide materials for measuring and charting.
- ☐ Plan for activities that involve comparisons (bigger/smaller, more/less).
- ☐ Uses mathematical language and concepts in other subject areas.
- ☐ Uses real-life examples to illustrate mathematic concepts.
- ☐ Record and discuss data from classroom events.

Social Studies Environment

- ☐ Provide materials to help students learn about people and how they live (careers, cultures, families).

Outdoor Environment

- ☐ Make the outdoor area available on a daily basis, except when weather is extreme (under 32°).
- ☐ Provide creative indoor and outdoor experience (construction, music & movement, art, dramatic play).
- ☐ Provide gross motor activities on a daily basis (balancing, climbing, riding, and throwing).

Kindergarten "Look Fors"

Curriculum and Instruction Support

Literacy

- ☐ Minute recommendations are met through whole group, small group, as well as differentiated instruction during center time.
- ☐ Journeys Reading series is used daily with flexibility based on student needs.
- ☐ Guided Reading starts immediately following the "First 20 Days" of reading or sooner, based on student needs.
- ☐ Guided Reading is taught daily to every student by the classroom teacher.
- ☐ Hands-on activities that support authentic learning are evident.
- ☐ Writing occurs daily. Writer's Workshop is the model for writing instruction.
- ☐ Balance is maintained between exposure to grade-level text as well as instructional and independent reading levels.
- ☐ The literacy block follows OPS curriculum pacing guides for reading and writing.
- ☐ Teachers read to students throughout the day.

Math

- ☐ Minute recommendations are met through whole group, small group, as well as differentiated instruction during center time.
- ☐ Go Math! Is used daily with flexibility based on student needs.
- ☐ The math block follows the OPS curriculum pacing guide.
- ☐ Math writing occurs consistently through the use of math journals or notebooks.
- ☐ Students use math manipulatives daily.
- ☐ Calendar time (up to 10 minutes) may be part of the recommended math minutes.

Physical Environment

- ☐ Original student work is displayed.
- ☐ The classroom environment is literacy rich and student relevant to create a classroom where students have ownership of their space.
- ☐ Classrooms are purposefully set up to support active and quiet learning.
- ☐ Classroom set up is developmentally informed.
- ☐ Visual displays are carefully planned and are at eye level. Avoid overstimulation for students.
- ☐ Student materials are accessible and students have responsibility for these materials.
- ☐ Movement/physical activity is an important part of a kindergarten classroom, and the physical environment promotes movement.
- ☐ Objectives are posted in student friendly language.
- ☐ Classrooms include a meeting space, quiet area, and centers for purposeful play.

Engagement and Communication

- ☐ Life skills are explicitly taught and reinforced daily.
- ☐ Children and adults are happy and look forward to school.
- ☐ Parent and family communication occurs regularly (face to face, phone, email) and positively to inform about academic and social-emotional growth. Families are valued as partners and resources in helping their children to be successful.
- ☐ Classroom management and engagement strategies are integral to student success. Sending students out of the room or suspensions should occur sparingly and with caution. Teachers teach and support children to build self-regulation, negotiation skills, and expressing emotions.
- ☐ Children are active learners and are not required to sit quietly for long periods of time.
- ☐ Children are playing, working with materials and working with other children.
- ☐ Oral language is emphasized with many interactive classroom conversations, both teacher-child and child-child in all content areas and throughout the day.
- ☐ Transition time for activities within the classroom as well as from the classroom to other areas should be minimized.
- ☐ Teachers work with small groups, individuals and with the whole group.
- ☐ Children learn literacy and numeracy in the context of daily experiences. Worksheets are not primary activities.
- ☐ Instruction is differentiated based on student need.
- ☐ Instruction is developmentally informed.

Science and Social Studies

- ☐ Minute recommendations are met through whole group, small group, as well as differentiated instruction during center time.
- ☐ Pearson Science is used with flexibility based on student needs.
- ☐ The science/social studies block follow the OPS curriculum pacing guide.
- ☐ Students are given the opportunity to engage in scientific practices through directed, guided or open inquiry.
- ☐ Students engage in hands-on learning experiences.
- ☐ Students engage in investigations and conversations in order to make sense of their world.

Academic Action Plan

- ☐ The Gradual Release of Instruction is evident daily. (Modeled, Shared, Guided, Independent)
- ☐ Procedures and routines are explicitly taught and reinforced daily.
- ☐ Literacy strategies (i.e. Think Alouds) and numeracy strategies (i.e. number sense) are evident in instruction.
- ☐ Descriptive feedback is provided to individual students.

High Quality Purposeful Play

- ☐ Specific time is designated daily for high quality purposeful play. This can also occur during instructional blocks.
- ☐ Student choice occurs daily.
- ☐ Outside play occurs daily (weather permitting).
- ☐ Teachers provide small group instruction and complete formative assessments during this time. Time also provides the opportunity for many interactive classroom conversations, both teacher-child and among children.
- ☐ Play centers are tied to themes, standards and objectives and are changed regularly (monthly to quarterly). Play is supported with intentionality.
- ☐ Center time provides extensive opportunities for children to represent and extend their thinking and learning through multiple modalities (construction, drawing, writing, painting, movement, dance, drama).
- ☐ Suggested play centers include the following:
  - Dramatic play
  - Writing
  - Blocks
  - Discovery (Science and Social Studies)
  - Math
  - Art
  - Library
  - Technology
- ☐ Play centers integrate multiple objectives, standards, and content areas naturally to support learning.

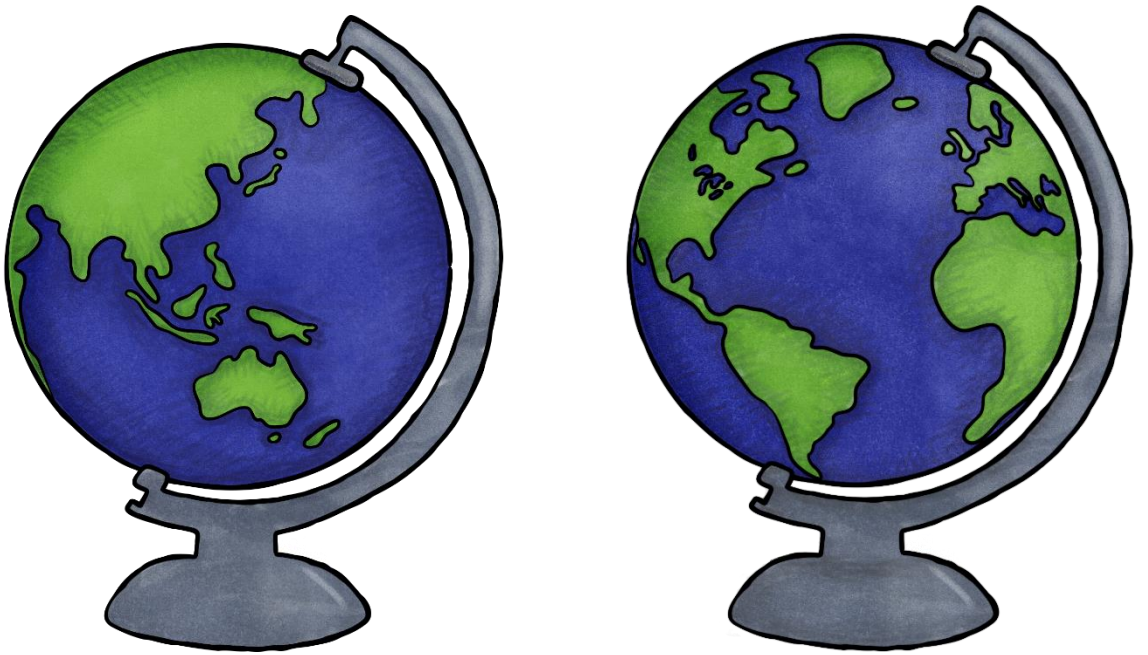
Section 13: English Language Learners

English Language Learners (ELLs) must be provided additional supports to make learning comprehensible across all content areas while they are learning English. The eight instructional components in this section provide a framework that supports content instruction, while utilizing proven methods of language teaching that incorporate reading, writing, speaking and listening.

Sample Teaching Strategies

Effect on Student Learning and Achievement

- Research studies have shown that all students in classrooms using these eight instructional components performed better than comparison or control groups (Echevarria, Vogt & Short, 2014).



Teaching Strategy	Description	Effect on Student Learning and Achievement
Lesson preparation ***ESL Non-negotiable:*** *The ESL teacher reviews and displays content AND language objectives for students.* ***ESL Non-negotiable:*** *The ESL Teacher will teach English through content area concepts.*	**Content Objectives:** • The teacher plans objectives that support the district's learning outcomes • The teacher writes focused objectives, and uses student-friendly language that suits the age and English proficiency levels in the class • The teacher shares the content objectives with students, orally and in writing so students understand what they are supposed to learn **Language Objectives:** • The teacher identifies language objectives to support reading, writing, speaking, and understanding during the lesson • The teacher shares the language objectives with students, orally and in writing so students understand what they are supposed to learn • The teacher may tie language objectives to skills such as: ○ Articulating predictions ○ Stating conclusions ○ Summarizing information ○ Making comparisons **Appropriate Content Concepts:** • The teacher plans around content concepts by considering the students' first language literacy, their English proficiency, their academic background of the topic, cultural and age appropriateness of instructional materials, and difficulty level of texts used in the lesson **Supplementary Materials:** • The teacher uses supplementary materials to a high degree, making the lesson clear and meaningful such as: ○ Media ○ Visual aids ○ Adapted text ○ Hands-on manipulatives ○ Realia ○ Graphs ○ Models **Adaptation of Content:** • The teacher adapts content in a way that keeps key concepts in tact without watering down the curriculum. The teacher may do this by: ○ Incorporating native language support ○ Summarizing the text in an outline or graphic organizer to focus on key points ○ Elaborating the text to add information by embedding definitions of difficult words ○ Providing more background information **Meaningful Activities:** • The teacher develops classroom activities that mirror what actually occurs in the learner's real world	• With careful planning, teachers make learning meaningful and relevant by including appropriate motivating materials and activities that foster real-life application of concepts studied (Echevarria, Vogt & Short, 2014). • ELLs who already know and understand a concept in their first language have a far simpler task to develop language for the concept in English than do students who lack knowledge of the concept in either language (Torgesen, 2007, as cited by Echevarria, Vogt & Short, 2014). • A variety of supplementary materials supports different learning styles and multiple intelligences because information and concepts are presented in a multifaceted manner (Echevarria, Vogt & Short, 2014). • Authentic, meaningful experiences are especially important for ELLs because they are learning to attach labels and terms to things already familiar to them. Learning becomes situated rather than abstract when they are provided with the opportunity to actually experience what they are being taught (Echevarria, Vogt & Short, 2014).

Teaching Strategy	Description	Effect on Student Learning and Achievement
	Examples of language objectives: LA/Reading: • **Content Objective**: The students will identify details to compare and contrast characters from the text *Friends Around the World* • **Language Objective**: The students will identify and provide examples of how characters from the text *Friends Around the World* are alike and different  • Students should use the following **sentence frames**: ○ One way my characters are alike is that _____ ○ One way they are different is that _____ Math: • **Content Objective**: Students will be able to compare triangles based on their angles • **Language Objective**: Students will be able to compare triangles based on their angles using key vocabulary such as **acute, obtuse and right triangles** ○ Students should use the following **sentence frames**: ○ _____is the same as _____because _____ ○ _____is different from _____because_____ Science: • **Content objective:** Students will experience how the Earth's tilt and orientation around the sun determine the four seasons. The following generalizations will be applied: Seasons change according to Earth's orientation to the Sun • **Language objective:** Students will be able to write an explanation about why the Earth has seasons ○ Students should use the following **sentence frame:** The reason there are seasons is because _____ Social Studies: • **Content Objective:** Students will be able to evaluate the relative merits/weaknesses of capitalism and communism • **Language Objective:** Students will be able to articulate the merits/weaknesses of capitalism and communism by giving an opinion and justifying it ○ Students should use the following **sentence frame:** _____ is better than _____ because _____ I think this is important because _____	

Teaching Strategy	Description	Effect on Student Learning and Achievement
Building background knowledge	**Concepts linked to students' background:** • The teacher informally assesses what students know and can do, and determines any mismatches in schemata through brainstorming, structured discussion, quick-writes, KWL, (Ogle, 1986). • The teacher makes explicit connections between students' schemata (prior knowledge and personal experiences) and concepts, vocabulary, and materials in the current lesson **Links between past learning and new learning:** • The teacher makes explicit connections between previous lessons and concepts, vocabulary, and materials in the current lesson **Developing key vocabulary:** • The teacher uses a combination of rich and varied language experiences, teaches individual words, teaches word-learning strategies, and fosters word consciousness • The teacher makes connections between what the student knows about the structure of their native language and what they are learning about English • The teacher provides student-friendly definitions with examples and visuals, and prompts the students to create their own examples using the word	• Connecting students' experiences to a text, developing background knowledge, and teaching key vocabulary increase comprehension and achievement (Biemiller, 2005; Echevarria, Short, & Powers, 2006; Stahl & Nagy, 2006). • The brain is constantly searching for meaning and students will give their attention to what they find personally meaningful (Sousa, 2011). • "Research clearly emphasizes that in order for learning to occur, new information must be integrated with what students have previously learned." (Rumelhart, 1980 p. 68). • Many students do not automatically make such connections, and they benefit from having the teacher explicitly point out how past learning is related to the information at hand (Echevarria, Vogt & Short, 2014). • Over eighty years of research shows the powerful relationship between vocabulary knowledge and comprehension (Baumann, 2005; Stahl & Nagy, 2006).

Comprehensible input
Making a message understandable for students is referred to as comprehensible input (Krashen, 1985).
	Appropriate speech:
	• The teacher uses appropriate rate and enunciation. (Beginning ELL students benefit from teachers who slow down their rate of speech, use pauses, and enunciate clearly while speaking)
	• The teacher carefully monitors the vocabulary and sentence structure they use with ELLs in order to match the students' proficiency levels. (The teacher may do this through explaining idioms, paraphrasing and repeating information to enhance understanding, pointing out cognates, having students restate directions to clarify for others)
	Clear explanation of academic tasks:
	• The teacher presents instructions in a step-by-step manner, preferably modeling or demonstrating with visuals
	• The teacher pairs oral directions with written ones so ELLs can refer back to them at a later point as needed
	A variety of techniques used:
	• The teacher uses a variety of techniques to make learning clear for students. Some effective techniques include:
	  ○ Using gestures, body language, pictures and objects to accompany speech
	  ○ Providing a model of the process, task, or assignment
	  ○ Previewing material for optimal learning
	  ○ Allowing alternative forms for expressing their understanding
		• Using appropriate speech coupled with a variety of techniques will increase students' understanding and make the content more clear (Echevarria, Vogt & Short, 2014).
		• The way information is presented orally has a significant impact on the degree to which ELLs will be able to achieve standards (Echevarria, Vogt & Short, 2014).
		• ELLs at all levels (and native English speakers) perform better in academic situations when the teacher gives clear instructions for assignment and activities (Echevarria, Vogt & Short, 2014).
		• Behavior problems are minimized when students know what they are supposed to do (Echevarria, Vogt & Short, 2014).

Teaching Strategy	Description	Effect on Student Learning and Achievement
Instructional strategies	**Learning strategies:** • The teacher promotes cognitive learning strategies that directly relate to individual learning tasks and are used by learners when they manipulate material, or apply a specific technique to understand a learning task (Slater & Horstman, 2002). Some effective learning strategies include: ○ Previewing text ○ Setting a purpose for reading/learning ○ Using mnemonics ○ Highlighting ○ Text tagging ○ Using graphic organizer • The teacher explicitly teaches/reinforces metacognitive learning strategies to help students become aware of their own thinking and be able to reflect on how they learn content. Some important metacognitive learning strategies include: ○ Predicting and inferring ○ Generating and using questions to guide comprehension ○ Monitoring and clarifying ○ Evaluating and determining importance ○ Summarizing and synthesizing ○ Visualizing • The teacher promotes language learning strategies that will support ELs as they increase their progress in speaking and comprehending English. Some effective language learning strategies include: ○ Analyzing English patterns such as prefix + root + suffix patterns ○ Breaking words into component parts ○ Purposeful grouping and labeling words ○ Drawing pictures/making gestures to communicate when the English word is unknown ○ Imitating behaviors of native English speaking peers **Scaffolding techniques:** • The teacher incorporates verbal scaffolding such as paraphrasing the student's response in other words to clarify and model correct English usage, reinforcing definitions that are contextualized in text, eliciting more language/information by asking the student to tell more or add on • The teacher uses procedural scaffolding such as one-on-one teaching, or small-group instruction pairing ELLs with another more experienced student • The teacher uses instructional scaffolding to provide ELs with access to content and language concepts by providing completed graphic organizers as a pre-reading tool, examples of completed assignments, or by demonstrating how a task should be completed by modeling the steps **Higher-level questioning and tasks:** • The teacher asks higher level questions to ELLs that elicit critical thinking. It is possible to reduce the linguistic demands of responses while still promoting higher levels of	• Studies have found that when metacognitive strategies are taught, explicitly, reading comprehension is improved (Duffy, 2002; Snow, Griffin, & Burns, 2005; Vogt & Nagano, 2003). • Cognitive Learning Strategies help students organize the information they are expected to learn through the process of self-regulated learning (Paris, 2001). • Paris & Paris (2001) suggests that self-regulated learning emphasizes autonomy and control by the individual who monitors, directs, and regulates actions toward goals of information acquisition, expanding expertise, and self-improvement. • Chamot (2009) suggests learning strategies are important because: ○ Good language learners use task-appropriate and flexible strategies ○ Students who are mentally active and strategic are better learners ○ Learning strategies are particularly effective with academic tasks ○ Learning strategies can be taught and learned ○ Learning strategies can transfer new tasks • Research indicates that students who are perceived as lower achieving learners are asked fewer higher cognitive questions than students who are perceived as more capable (*Asking the Right Questions,* n.d.).

Teaching Strategy	Description	Effect on Student Learning and Achievement
	thinking for ELLs ○ For example, instead of asking the ELL student a yes/no question, give the student two or three options to choose between so they are able to incorporate more analyzing into their thinking	
Interaction	**Frequent opportunities for interaction:** • The teacher structures his/her lesson in ways to promote student discussion, while balancing teacher talk time • The teacher encourages elaborated responses from ELLs when discussing the lesson concepts by using prompting language such as: ○ What do you mean by… ○ What else... ○ Tell me more about... ○ How do you know? ○ Why is this important? **Grouping configurations:** • The teacher uses a variety of grouping structures, including individual work, partners, small groups, cooperative learning groups, and whole group. Groups can vary between homogeneous, heterogeneous, language proficiency, language background, and/or ability depending on the purpose of the lesson activity **Sufficient wait time:** • Wait time refers to the length of time the teacher waits before calling on a student to respond. The teacher consciously allows time for the student to express his/her thoughts fully, without interruption. The recommended wait time for native English speakers is 3-5 seconds, however most ELLs benefit from at least 5-7 seconds of wait time in order to process the language before formulating an answer **Clarify concepts in native language:** • The teacher provides English Language Learners opportunities to clarify concepts in their native language when possible • The teacher supports clarification of key concepts in students' native language by using a bilingual instructional paraprofessional, bilingual peer, or materials written in the students' native language (bilingual textbooks, leveled readers, dictionaries)	• Moving from whole group to cooperative learning groups adds variety to the learning situation and increases student involvement in the learning process (Echevarria, Vogt & Short, 2014). • Brains are never more engaged than when in interaction with others. To align our classrooms with how brains best function, we can engage the social cognition network and structure for positive social interaction (Kagan, 2014). • Wait time has a tremendous impact on ELLs who are processing ideas in a new language and need additional time to formulate the phrasings of their thoughts (Echevarria, Vogt & Short, 2014). • The National Literacy Panel on Language Minority Children and Youth found that academic skills such as reading taught in the first language transfer to the second language (August & Shanahan, 2006).
Practice and application ***ESL Non-negotiable:*** *The ESL teacher appropriately manages a take-home book program that supports students' ability to practice and apply newly learned reading behaviors at their independent reading level on a daily basis.*	**Hands-on practice with new knowledge:** • Students apply what they have learned from direct instruction through guided and independent practice • The teacher provides specific feedback to the students while they are practicing in meaningful ways that are relevant to the students **Application of content and language knowledge in new ways:** • The teacher provides students with opportunities to apply new content in a variety of ways such as organizing information on a graphic organizer, generating solutions to real-world problems, or reflecting their opinion in journal entries • The teacher provides students with opportunities to apply language knowledge such as explaining their graphic organizer to a peer, working in a team to find a solution to real-	• Second language research shows that for students to develop a high level of English proficiency, they must have opportunities for targeted output, namely oral and written practice (Swain, 1985, as cited in Echevarria, Vogt and Short, 2014). • Students have a greater chance of mastering content and practice sessions are enhanced when given many hands-on experiences including manipulatives. (Echevarria, Vogt and Short, 2014). • Having books in the home has been proven to improve a child's reading performance, cause children to read more

Teaching Strategy	Description	Effect on Student Learning and Achievement
	world problems, or sharing and justifying their written opinions with a partner **Integration of all language skills:** • The teacher designs learning activities that incorporate cooperative learning or opportunities for social interaction with hands-on practice • The teacher provides opportunities for students to practice oral and written language skills in all subject areas. Students are practicing all four domains of language (reading, writing, listening, speaking) in every lesson	and for longer lengths of time, and produce improved attitudes toward reading and learning among children (Lindsay, 2010). • Having as few as 20 books in the home still has a significant impact on propelling a child to a higher level of education, and the more books you add, the greater the benefit. (Evans, Kelley, Sikora & Treiman, 2010).
Lesson delivery ***ESL Non-negotiable:*** *The ESL teacher integrates all 4 language modes (reading, writing, speaking, and listening) into each lesson.*	**Support content objectives during lesson:** • The teacher provides explicit instruction that targets the content objectives and then allows students to have the opportunity to practice and make progress toward meeting the objectives. Throughout the lesson and in the conclusion, the teacher and students can evaluate the extent to which the lesson supported the content and language objectives **Support language objectives during lesson:** • The teacher makes instruction understandable to ELLs, creating opportunities for students to discuss, read, and write about lesson concepts, and provides hands-on activities to reinforce learning in order to capture students' attention and keep them engaged **Promote student engagement:** • The teacher's lesson delivery allows for students to be actively engaged 90% to 100% of the lesson time • Students are engaged in activities that relate directly to material related to the content and language objectives • The teacher minimizes off task activities such as making announcements, passing papers, having lengthy discussions not related to content concepts of the lesson, etc. **Pace lesson appropriately:** • Pacing refers to the rate at which information and concepts are delivered during a lesson • The teacher considers the various English proficiency levels of his/her students to appropriately chunk important information in smaller conceptual units and allow processing time between new chunks of information	• Schmoker (2011) recommends "whole class lessons focused on a clear learning objective in short instructional 'chunks', punctuated by multiple cycles of guided practice and formative assessment". • The research relating to engaged time on task states that instruction that is understandable to ELLs, that creates opportunities to talk about the lesson's concepts, and that provides hands-on activities to reinforce learning, captures students' attention and keeps them more actively engaged (Echevarria, Vogt and Short, 2014). • The pacing rate for ELL students must be quick enough to keep students' interest, but not so quick that it makes understanding difficult (Echevarria, Vogt and Short, 2014).
Review and assessment ***ESL Non-negotiable:*** *The ESL teacher regularly provides descriptive feedback on student's oral and written communication.*	**Key vocabulary:** • The teacher takes time to review key vocabulary of the lesson in order to distinguish and reinforce the critical vocabulary that ELLs need to understand the content concepts **Key content concepts:** • The teacher stops periodically during the lesson to summarize key concepts covered up to that point. At the end of the lesson, the teacher reviews the content and language objectives **Regular feedback on student output:** • The teacher provides feedback that supports and validates ELLs' output • The teacher's feedback is specific and academically oriented	• When ELLs make errors in English language structure, restating the sentence with correct form, while validating, provides feedback that is instructive and helpful (Echevarria, Vogt & Short, 2014). • With data-driven instruction guided by periodic review and assessment, students are more likely to achieve an instructional match between classroom content and academic language needs (Echevarria, Vogt and Short, 2014). • Formative and summative assessments that are multi-

Teaching Strategy	Description	Effect on Student Learning and Achievement
	• The teacher focuses on both content and language when providing feedback. The teacher encourages students to use increasingly sophisticated words, phrases, and sentence structure by modeling their use during teacher-student conversations • The teacher's feedback includes facial expressions and body language that convey positivity such as a smile, nod, or encouraging look, especially for ELLs who are at the beginning stages of English proficiency **Assess student comprehension of objectives:** • The teacher assesses comprehension before, during, and after learning takes place in order to identify who may need more review or re-teaching	faceted and attentive to the various contexts of a students' life (e.g., home, school, culture, native language, and literacy development in both native language and English) provide relevant and practical information to the teacher about how to design appropriate and culturally relevant content and language instruction for English Language Learners (Echevarria, Vogt and Short, 2014).

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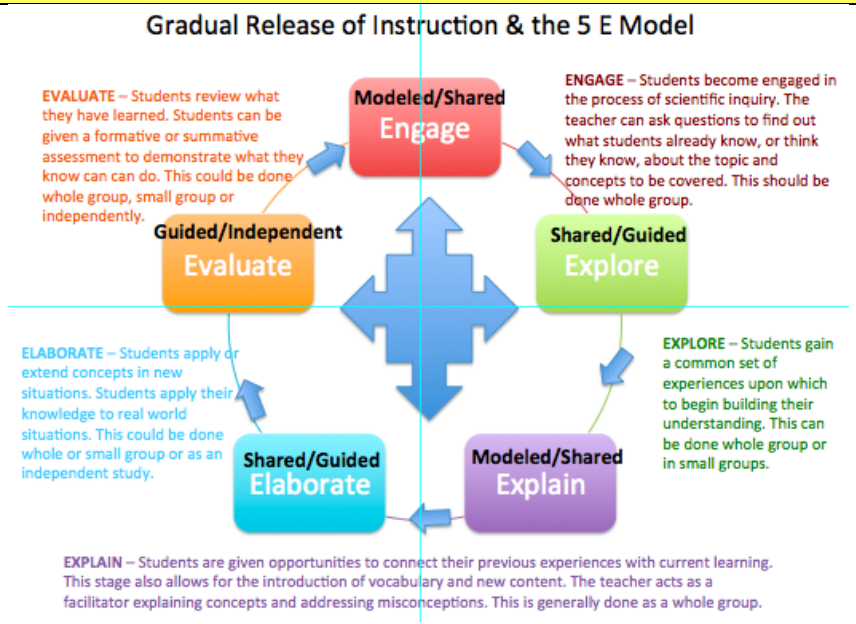
Section 14: Science

Scientific Inquiry is an approach to learning that involves a process of exploring the natural or material world, that leads to asking questions and making discoveries in the search for new understandings. Inquiry, as it relates to science education, should mirror as closely as possible the actions that real scientists engage in their own practice. The inquiry process is driven by one's own curiosity, wonder, interest or passion to understand an observation or solve a problem. **Scientific Practices** are the methods in which students do science. Scientific inquiry and practices will be assessed together, showing students not only "know" science concepts; but also, students can use their understanding to investigate the natural world through the practices of science inquiry, or solve meaningful problems through the practices of engineering design (NGSS Lead States. 2013 & Bybee, 2011).

Sample Teaching Strategies

Effect on Student Learning and Achievement

- Using inquiry to learn science allows students to be engaged in many of the same activities and thinking processes as scientists who are seeking to expand human knowledge of the natural world (Center for Science & Mathematics, 2000).
- Verbalizing and writing about science creates students who internalize the learning and are better able to think about science and comprehend a process.
- Increasing students' familiarity with the role of mathematics and statistical analysis in science is central to developing a deeper understanding of how science works.
- Being actively engaged with the scientific practices that students are learning allows them to reach a deeper understanding of the content. Finally active engagement with science will likely lead students to become more interested and have more positive attitudes towards science (Tweed, 2009).

Teaching Strategy	Description	Effect on Student Learning and Achievement
Gradual release of instruction	 **The Gradual Release of Instruction includes: Modeled, Shared, Guided and Independent Practice.** It is a flexible delivery model to be used for classroom instruction. The four stages are often repeated throughout the lesson (especially the modeled and shared stages which may have several cycles during the lesson). This delivery model is directly connected to the 5 E Model of teaching science. In addition to the cyclical nature of the model, instruction may begin at any point in the cycle for science. Formative and summative assessments are embedded throughout the lesson with reteaching as needed.	• The students will be actively engaged with the science they are learning and thus reach a deeper understanding of the content. Active engagement with science will likely lead students to become more interested and have more positive attitudes towards science (Tweed 2009). • Engagement activities help students make connections with what they know and can do • The sustained use of an effective, research-based instructional model can help students learn fundamental concepts in science and other domains (Bybee 2008).

Literacy/language-rich science classrooms	In literacy/language-rich science classrooms, reading, writing, and discussion are a daily occurrence. Students use a variety of texts, including academic journal articles, scientific websites, science fiction, and essays. Students have access to electronic media, film, visuals, and lab experiences, which further support reading comprehension. Students actively construct science-specific vocabulary and explicitly use reader aids to enhance their understanding of science texts using a variety of literary sources in an effort to engage every single student. Students frequently discuss, present, and write about possible hypotheses, predictions, analyses, findings, and ideas. Students include elements of the writing process in their lab reports, solutions to problem sets, and research findings.
	• Vocabulary
	  ○ Marzano's Six-Step
	  ○ Ongoing emphasis on use and meaning of scientific terms
	  ○ Precise use of scientific terms, academic vocabulary, and notation
	  ○ Interactive word wall
		• Exposes students to more viewpoints that help them gain perspective on their own ideas
		• Stimulates children to think through their own ideas and to approach objectivity when sharing with others
		• Discussing science helps students organize and consolidate their thinking, communicate coherently and clearly, analyze and evaluate the thinking and strategies of others, & use the language of science
		• Journals act as a formative assessment to drive targeted instruction
		• Speaking, writing, and reading in science increases generalized use of science
		• Through discussion and reflection, students can come to realize that scientific inquiry embodies a set of values. These values

Teaching Strategy	Description	Effect on Student Learning and Achievement
	• Communicating ○ Argumentative Discourse - See Science Practices ○ Think-alouds by teacher and students ○ Think-Ink-Pair-Share ○ Communicate and defend results to peers and others • Writing ○ Journals – students reflect on their own learning ○ Lab Reports ○ Notemaking (e.g., Cornell Notes) ○ Entrance/exit tickets ○ Quick writes ○ Summary writing ○ Think- Ink-Pair-Share ○ Genres of Writing (e.g., Functional, Informational, Poetry) ○ Interactive Science Notebooks • Reading and Text-Dependent Analysis ○ Text dependent analysis should happen frequently, as requiring students to cite evidence supports concept understanding. ○ Fiction texts (e.g., *Pond Scum, Roller Coaster, etc.*) ○ Non-fiction texts (e.g., newspapers, journals, magazines, textbooks) ○ Multiple reading of the same text for varying purposes ○ Critical analysis of information from the text	include respect for the importance of logical thinking, precision, open-mindedness, objectivity, skepticism, and a requirement for transparent research procedures and honest reporting of findings (National Research Council (U.S.), 2012). • Verbalizing and writing about science creates students who internalize the learning and are better able to think about science and comprehend a process • Increases the understanding of the steps in a process by watching and listening to others (including teachers) think aloud • Writing provides an additional exposure and opportunity to recall content and reflect on new learning and enhances retention • Justification or argumentative discourse is one of the highest return engagement strategies (Schmoker, 2011). • Helps students develop meta-cognition (think about their thinking)
Numeracy-rich science classrooms	• In a numeracy-rich science classroom, mathematic practices are a daily occurrence. The use of mathematics enables students to identify patterns and relationships ○ Graphs & Charts ○ Measurement ○ Data Collection & Interpretation – See Science Practices ○ Calculating and predicting values ○ Probability ○ Reliability	• Helps students see there are many ways to interpret information • Maximizes understanding and retention of knowledge when students have applied science to a practical setting relevant to their own point(s) of reference • Increasing students' familiarity with the role of mathematics in science is central to developing a deeper understanding of how science works

<table>
<tr><th>Teaching Strategy</th><th>Description</th><th>Effect on Student Learning and Achievement</th></tr>
<tr><td>Directed Inquiry</td><td>In Directed Inquiry, teachers provide students with the question to be investigated and the procedures and materials for conducting the investigation. Regardless of the level of inquiry, all aspects of the Gradual Release of Instruction are employed.

<table><tr><th>Teacher is…</th><th>Student is…</th></tr><tr><td>• presenting question to be investigated
• providing prescribed procedures and materials for the investigation
• leading the investigation</td><td>• following step-by-step directions
• using teacher selected manipulatives to examine scientific concepts
• engaging in the same process resulting in the same results
• collecting and recording data/evidence and applying statistics and other data analysis strategies to inform their inquiry
• drawing conclusions based on their gathered evidence from repeated trials and communicating their findings
• reflecting on their own science practices</td></tr></table></td><td>• Introduces students to new content with predicted results that guarantees consistency
• Students who use inquiry to learn science engage in many of the same activities and thinking processes as scientists who are seeking to expand human knowledge of the natural world (Center for Science & Mathematics, 2000).
• Students retain more content when the material is reinforced with an activity that is “hands on” or through applied information (Marzano, 2010).
• Manipulatives help students develop conceptual understanding of ideas by representing the ideas in multiple ways
• Students with tactile or kinesthetic learning styles learn best when involved in hands-on tasks</td></tr>
<tr><td>Guided Inquiry</td><td>In Guided Inquiry, the teacher helps students develop inquiry investigations in the classroom. Usually, the teacher chooses the question for investigation. Students—in one large group or several small groups—may then assist the teacher with deciding how to proceed with the investigation and what materials are needed. Regardless of the level of inquiry, all aspects of the Gradual Release of Instruction are employed.

<table><tr><th>Teacher is…</th><th>Student is…</th></tr><tr><td>• allowing the students to “get stuck” and work through their problems
• controlling some, but not all aspects of the investigation(e.g. posing the question for students to investigate, determining some of the procedures, controlling the availability of materials
• beginning to act as a facilitator</td><td>• working with the teacher to determine some aspects to change in the investigation
• collecting and recording data/evidence and applying statistics and other data analysis strategies to inform their inquiry
• drawing conclusions based on their gathered evidence from repeated trials and communicating their findings
• reflecting on their own science practices</td></tr></table></td><td>• Promotes internal motivation through choice which leads to self-questioning, deeper thinking, and problem solving (Lorian, 2010 & Pink 2010).
• Students are more likely to be energized as participants in their learning process (R. Smith, 2004).
• Students retain more content when the material is reinforced with an activity that is “hands on” or applied information (Marzano, 2010).
• Manipulatives help students develop conceptual understanding of ideas by representing the ideas in multiple ways
• A sense of choice about what or how we learn is empowering and thus an enhancement to learning (Tomlinson, 2011 & Pink, 2011). Choice is a powerful motivator for student engagement (Tomlinson, 2001).
• Students interacting to discuss what they are learning in order to deepen their understanding
• Students with tactile or kinesthetic learning styles learn best when involved in hands-on tasks</td></tr>
</table>

<table>
<tr><th>Teaching Strategy</th><th>Description</th><th>Effect on Student Learning and Achievement</th></tr>
<tr><td>Open inquiry</td><td>Open Inquiry is defined as a student-centered approach that begins with a student's question, followed by the student (or groups of students) designing and conducting an investigation or experiment and communicating results. This approach most closely mirrors scientists' actual work. Open inquiry requires higher-order thinking and usually has students working directly with the concept and materials, equipment, and so forth. Having students ask the questions that guide their own investigations is key to open inquiry. Regardless of the level of inquiry, all aspects of the Gradual Release of Instruction are employed.

<table><tr><th>Teacher is…</th><th>Student is…</th></tr><tr><td>• allowing the students to "get stuck" and work through their problems
• acting as the facilitator</td><td>• generating the questions for investigation
• planning and designing the investigations
• determining what variables to manipulate and control
• collecting and recording data/evidence and applying statistics and other data analysis strategies to inform their inquiry
• drawing conclusions based on their gathered evidence from repeated trials and communicating their findings
• reflecting on their own science practices</td></tr></table></td><td>• Promotes internal motivation through choice which leads to self questioning, deeper thinking, and problem solving (Lorain, 2009 & Pink, 2009).
• Creativity and critical thinking increase
• Students retain more content when the material in reinforced with an activity that is "hands on" or applied information (Marzano, 2010).
• A sense of choice about what or how we learn is empowering and thus an enhancement to learning (Tomlinson, 2001 & Pink, 2009). Choice is a powerful motivator for student engagement (Tomlinson, 2001).
• Students are encouraged to evaluate the usefulness of their beliefs and ideas by applying them to new problem situations and inferring from them implications for future courses of action (Llewellyn, 2002).
• If students themselves participate in scientific investigations that progressively approximate good science, then the picture they come away with will likely be reasonably accurate (AAAS, 1993).
• Manipulatives help students develop conceptual understanding of ideas by representing the ideas in multiple ways
• Students with tactile or kinesthetic learning styles learn best when involved in hands-on tasks</td></tr>
<tr><td>Scientific Practices</td><td><table><tr><th>Content "Look Fors"</th><th>You see the teacher…</th><th>You see the students…</th></tr><tr><td>Asking Questions & Defining Problems</td><td>• using questioning skills to assess prior knowledge, facilitate discussions and construct knowledge
• using probing, prompting and reflection techniques
• posing open-ended questions</td><td>• readily asking a variety of questions about phenomena
• recognizing differences between questions that can and cannot be answered by investigation</td></tr></table></td><td>• Successfully integrating the science practices with classroom lessons and field investigations will make the learning experiences richer and more meaningful for students by fostering a sense of curiosity
• Students will be learning the skills of science as well as science content
• Students gain experience sharing responsibility for learning with each other (Llewellyn, 2002).</td></tr>
</table>

<table>
<tr><th>Teaching Strategy</th><th>Description</th><th>Effect on Student Learning and Achievement</th></tr>
<tr><td>Science practices</td><td>
<table>
<tr><th>Content “Look Fors”</th><th>You see the teacher…</th><th>You see the students…</th></tr>
<tr><td>Planning & Carrying Out Investigations</td><td>• engage students through open-ended discussions, investigations and reflections
• examining student questions for variables to study
• modeling variable identification and investigation practices with think-alouds</td><td>• listing the procedures they will follow for the investigation
• identifying the variable that has to be changed, the things that should be kept the same and what to look for or measure to obtain a result in an investigation
• comparing what they actually did with what they planned</td></tr>
<tr><td>Analyzing & Interpreting Data</td><td>• facilitating discussions based on graphical representation of data
• supporting multiple and various view points when interpreting data
• asking probing and supportive questions about conclusions that students are generating</td><td>• discussing what they find and relating that to their initial questions
• identifying patterns or trends in their observations or measurements and noticing related changes</td></tr>
<tr><td>Developing Models</td><td>• demonstrating what scientific models include (e.g. graphs, diagrams, physical models, animations, etc.)</td><td>• using collected data to design a model that communicates their findings
• using models to develop understandings of concepts</td></tr>
</table>
</td><td>• The practices are a clear representation of what scientists do as they engage in the scientific inquiry process (Quinn, Lee, & Valdés, 2013).

• The ability to make inferences and predictions based on data is a critical skill students need to develop. Data analysis is crucial to the development of theories and new ideas

• Models help students develop understandings of abstract concepts</td></tr>
</table>

<table>
<tr><th>Teaching Strategy</th><th>Description</th><th>Effect on Student Learning and Achievement</th></tr>
<tr><td>Science practices</td><td>
<table>
<tr><th>Content “Look Fors”</th><th>You see the teacher…</th><th>You see the students…</th></tr>
<tr><td>Using Mathematics and Computational Thinking</td><td>• using counting and numbers to identify and describe patterns in the natural and designed world(s)
• describing, measuring, estimating and/or graphing quantities (e.g. area, volume, weight, time) to address scientific and engineering questions and problems
• utilizing district resources (i.e. BLAM books, NeSA-S Intervention lessons, 180-Day Powerpoints) to increase student achievement on the lowest performing indicators</td><td>• using counting and numbers to identify and describe patterns in the natural and designed world(s)
• describing, measuring, estimating and/or graphing quantities (e.g. area, volume, weight, time) to address scientific and engineering questions and problems</td></tr>
<tr><td>Constructing Explanations & Designing Solutions</td><td>• asking probing and supportive questions about conclusions that students are generating
• supporting and explaining to students the importance of failure in the advancement of science
• allowing students to struggle with misconceptions</td><td>• attempting to give explanations which are consistent with evidence or with ideas from prior experiences
• showing that they are aware that there may be more than one explanations that fits the evidence
• propose solutions to design problems based on multiple trials</td></tr>
</table>
</td><td>• Successful students must be able to connect and apply content to real-world situations

• When students create explanations, they are trying to understand how or why different phenomena occur and do so by using evidence to support and justify their claims. This is how real scientists create their own understandings</td></tr>
</table>

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<tr><th>Teaching Strategy</th><th>Description</th><th>Effect on Student Learning and Achievement</th></tr>
<tr><td>Science Practices</td><td>
<table>
<tr><th>Content “Look Fors”</th><th>You see the teacher…</th><th>You see the students…</th></tr>
<tr><td>Engaging in Argument from Evidence</td><td>• asking students to support their arguments/conclusions with evidence
• asking students constructive/critical questions</td><td>• identifying arguments that are supported by evidence
• constructing and/or supporting an argument with evidence, data and/or models</td></tr>
<tr><td>Obtaining, Evaluating & Communicating Information</td><td>• consistently expecting students to share information with each other in a variety of forms
• providing frequent and equitable positive reinforcement
• using graphic organizers that assist students in comparing phenomena
• providing a variety of tools for students to use while they are making observations
• asking the students to form predictions that explain observed phenomena</td><td>• using drawings, writing, models and paintings to present their ideas using tables, graphs and charts to record and organize results
• choosing forms for recording of presenting results that are appropriate for the type of information collected and presented and the audience
• identifying differences and similarities between objects and materials
• using tools or instruments as necessary to extend the range of senses (e.g. hand lenses, microscopes, data collection tools)
• distinguishing from many observations those which are relevant to the process at hand</td></tr>
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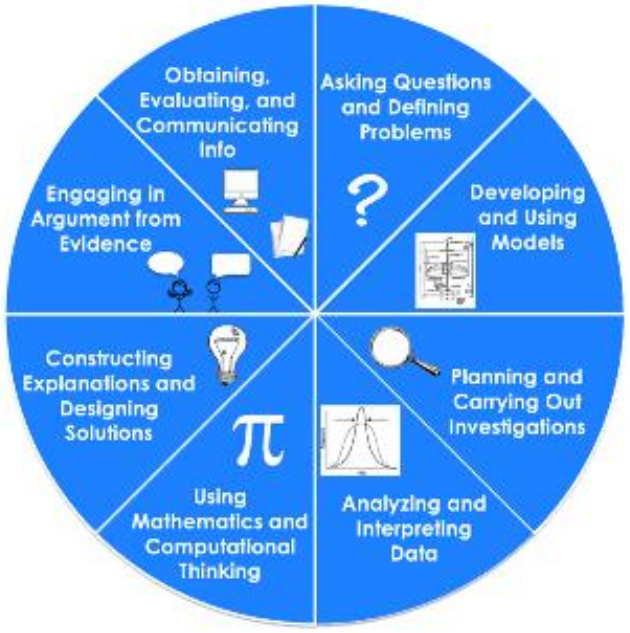
</td><td>
• Engaging in argument from evidence enables students to see multiple points of view and potential solutions

• Through observations and data collection, students gain an understanding of their natural and designed world(s)



</td></tr>
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Section 15: Lesson Planning

Lesson Planning is the key to bring prepared and organized for instruction. An effective lesson gets students thinking and allows them to access prior knowledge to learn new information.

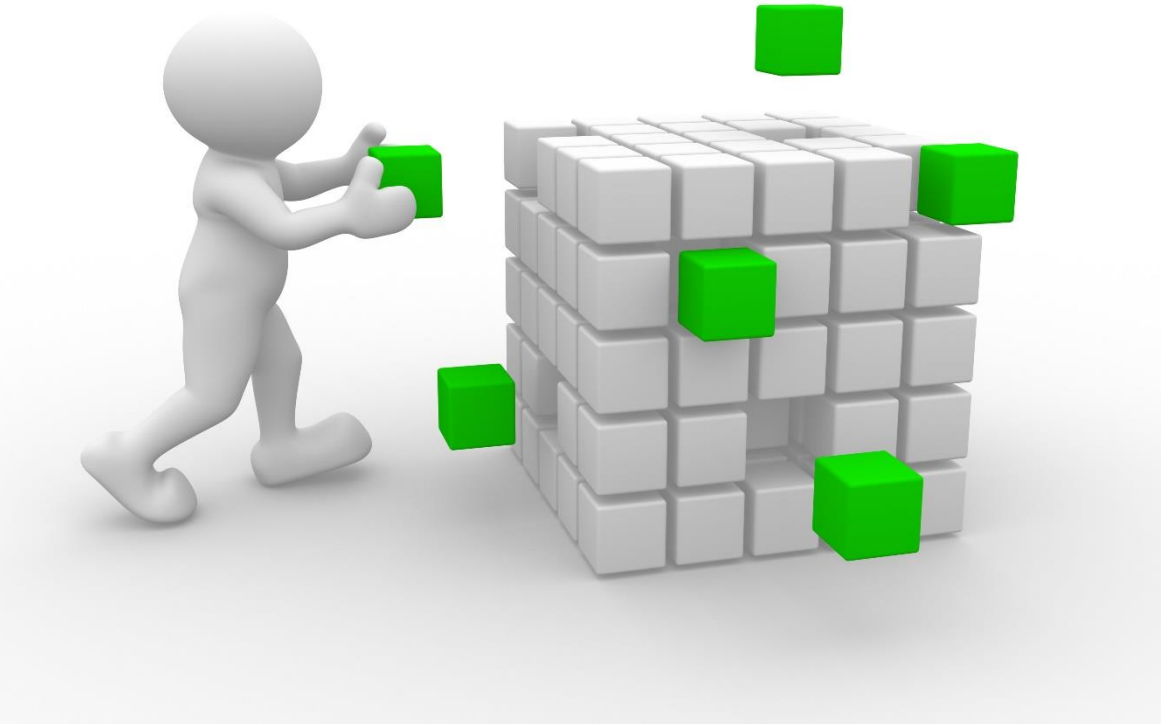
Support Materials

Effect on Student Learning and Achievement

All learners implicitly ask four fundamental questions:

- Does the teacher know me or care about me?
- What am I learning?
- Why is it important for me to learn this?
- Why would I be interested in learning this?

- Teachers can successfully answer these questions through lesson planning that engages learners from the beginning (ASCD, 2011).



Required Lesson Plan Components

- Anticipatory Set
- Objective/Learning Goal
- Modeled
- Shared
- Guided
- Independent
- Summary

} These components are often repeated throughout the lesson (frequently the modeled and shared process may have several cycles during the lesson).

Lesson plans are required and should be outlined at least one week in advance. Plans may be requested at any time by the principal. New teachers should use one of the district created templates. Templates may be found by going to Sharepoint; Curriculum, Instruction and Assessment site; Instructional Leadership tab; Lesson Planning folder. Veteran teachers may use one of the district templates for lesson planning or create their own as long as the lesson plan contains the seven components listed above.

Omaha Public Schools
Lesson Plan Scoring Guide

Component	Not Met	Met	Observed during instruction
Anticipatory Set	An anticipatory set was not a part of the lesson.	An anticipatory set is developed for the lesson that prompts students to think about how they learn, is engaging and relevant, and activates prior knowledge.	Lesson begins by prompting students to think about how they learn, develops focused learning, is engaging and relevant, and activates prior knowledge.
Objective/Learning Goal	Objective does not connect with content standards.	Objective is aligned with content standards and written in student- friendly terms.	Objective is posted, aligned with content standards and written in student- friendly terms.
Gradual Release of Instruction* * The gradual release cycle may be repeated and adjusted throughout the lesson to ensure mastery of content through multiple re-teaching opportunities.			
Modeled: Learning goals are discussed followed by demonstration/ direct instruction. **Shared:** Checking for understanding occurs via engagement activities. Re-teaching may be needed prior to guided practice. **Guided:** Leveled performance groups, rotating stations or cooperative learning/group work occur with descriptive feedback. **Independent:** Students working independently applying what they learned from the lesson.	Lesson does not address learning through Gradual Release of Instruction.	Modeled/shared instruction is interactive with demonstration of the learning strategy evident. Guided practice is planned and specific to student needs. Independent work is planned with new applications of content.	Modeled/shared instruction is interactive with demonstration of the learning strategy. Guided practice is evident and specific to student needs. Descriptive feedback is provided. Independent work is observed with new applications of content.
Literacy Strategies and Procedures and Routines (These should be embedded into Modeled or Shared or Guided or Independent components of the lesson.)	Lesson did not use engagement strategies, differentiation, literacy strategies, procedures and routines and/or assessments embedded in the lesson.	Lesson utilizes engagement strategies and differentiation. Appropriate literacy strategies are selected and identified. Procedures and routines are clearly identified. Informal and/or formative and/or summative assessments are embedded throughout the lesson.	Lesson utilizes engagement strategies and differentiation. Appropriate literacy strategies are selected and observed. Procedures and routines are observed. Informal and/or formative and/or summative assessments are embedded throughout the lesson.
Summary	Lesson ends without an opportunity for students to summarize or reflect on new or previous learning objectives.	The lesson includes an opportunity for students to summarize or reflect on new or previous learning objectives.	The lesson includes an opportunity for students to summarize or reflect on new or previous learning objectives.

Lesson Plan Checklist

Key
- **Bold font:** Required
- Regular font: Optional

Staff Member _____ School _____ Date _____

Grade/Subject _____ Reviewed by _____

A checkmark indicates that:
- the lesson-planning component is "met" based on the lesson plan scoring guide
- the degree of detail provided is appropriate, based on the teacher's classroom performance and the needs of the students

Anticipatory Set	COMMENTS
☐ **Activates prior knowledge**	
☐ **Engaging and relevant**	
☐ Utilizes higher level thinking	
Objective/Learning Goal	COMMENTS
☐ **Connects to content standards**	
☐ **Written in student-friendly language**	
OPS Instructional Framework	COMMENTS
☐ **Gradual Release of Instruction is utilized within lesson**	
☐ **Modeled and shared instruction is interactive**	
☐ **Demonstration of the learning strategy is evident**	
☐ **Guided practice is planned and specific to student needs**	
☐ **Independent work is planned with new applications of the content**	
☐ **Lesson includes the use of engagement strategies**	
☐ **Appropriate literacy strategies selected for and identified within lesson procedures**	
☐ **Appropriate and clearly identified procedures and routines utilized within lesson procedures**	
☐ **Informal or Formative or Summative assessments are embedded throughout the lesson**	
☐ Differentiation is noted within the lesson	
Summary	COMMENTS
☐ **Summarizes material learned in lesson**	
☐ **Relates to previous knowledge**	
☐ Utilizes higher level thinking to reflect on learning	

Additional Comments/Observations:

_____

Section 16: Super 3+/Big 6+ Research Inquiry Frameworks

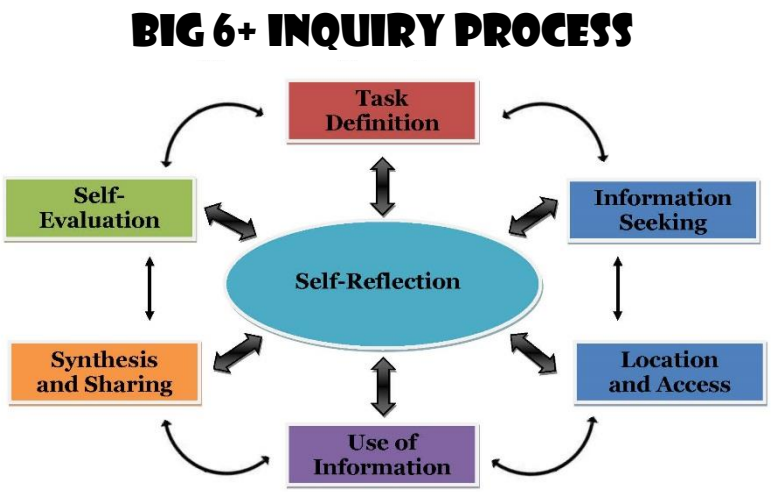
The Super 3+ Research Inquiry and the Big 6+ Research Inquiry Frameworks are district-wide research models for teachers that should be followed when students are engaged in doing and writing research. This district-wide framework provides common language for students across all grade levels and content areas, scaffolds inquiry skills to meet the needs of K-12 learners, and ensures research projects are rigorous.

Effect on Student Learning and Achievement:

- Requires students to take an active role by critically analyzing and evaluating information to come to new understanding.
- Encourages students to generate their own questions and use multiple sources to locate information to help them develop new understandings. Inquiry makes students responsible for asking and answering high level questions which increases both rigor and engagement.
- Moves students beyond low level tasks.
- Provides an effective path for research for students and teachers.

Research Model: Grades PK-2

Research Model: Grades 3 - 12



For more information see: libguides.ops.org/big6

Inquiry Process created by OPS Library Services for use in the Omaha Public Schools based on the Eisenberg and Berkowitz Big6 model and featuring elements from Barbara Stripling's Model of Inquiry and the Six Traits of Writing.

Super 3+ Inquiry	Description	Big 6+ Inquiry	Description	Effect on Student Learning & Achievement
Plan	• Knows the purpose of a question • Can ask a question • Understands audience • Understands expectations	**Task Definition**	• Asks, creates, and refines questions for inquiry • Determines path for inquiry • Identifies intended audience • Understands Rubric Expectations and Product Components	By deliberately teaching questioning skills, we will be facilitating a process that will help students develop a mental muscle necessary for deeper learning, creativity and innovation, analysis, and problem solving (The Right Question Institute). Students who learn to ask good questions are no longer just consumers of information; they are also generators of information (Tucker, 2015, p. 78).
	• Understands the organization of the library • Seeks information from a variety of sources • Evaluates sources to find the most useful sources	**Information Seeking/ Location & Access**	• Understands the organization of the library • Identifies possible sources of information • Seeks information from diverse genres, formats, and points of view • Uses information seeking strategies to locate information within a variety of sources • Evaluates sources of information	The amount of information available to our learners necessitates that each individual acquire the skills to select, evaluate, and use information appropriately and effectively (AASL, 2007). Students need direct instruction to develop search skills and evaluative thinking. Students are resourceful in easy searches, but lack the skills to formulate search strategies (WSWHE BOCES).
Do	• Identifies the main ideas and supporting details • Organizes information by using a variety of tools and strategies • Uses information ethically	**Use of Information**	• Makes sense of information by clarifying main and supporting ideas • Looks for patterns and connects ideas across resources • Organizes information by using a variety of tools and strategies • Uses information ethically	Students understand and identify the most important aspects of what they are learning to retain and recall information better. Categorizing information has one of the largest effect sizes (1.61) on student achievement (Marzano, 2000). Students form the habit of acknowledging an author's work and learn the concept of plagiarism during the inquiry process.
	• Creates new understanding based on inquiry • Presents new learning to others	**Synthesis and Sharing**	• Compares new ideas to prior knowledge and draws conclusions by integrating new ideas with prior knowledge • Creates product to express new learning and chooses presentation format based on requirements, audience, and personal strengths	Students learn best when they are actively involved in making sense of information rather than passive receivers of information (Bruner, 1973). Students learn to articulate what is important about a subject to integrate the ideas more firmly into a deeper understanding (Kuhlthau, Maniotes, Caspari, 2012).
Review	• Reflects on inquiry process	**Self-Evaluation**	• Reflects on inquiry process	Self-reflection reinforces content learning and establishes good habits for learning how to learn through use of an inquiry process (Kuhlthau, Maniotes, Caspari, 2012).

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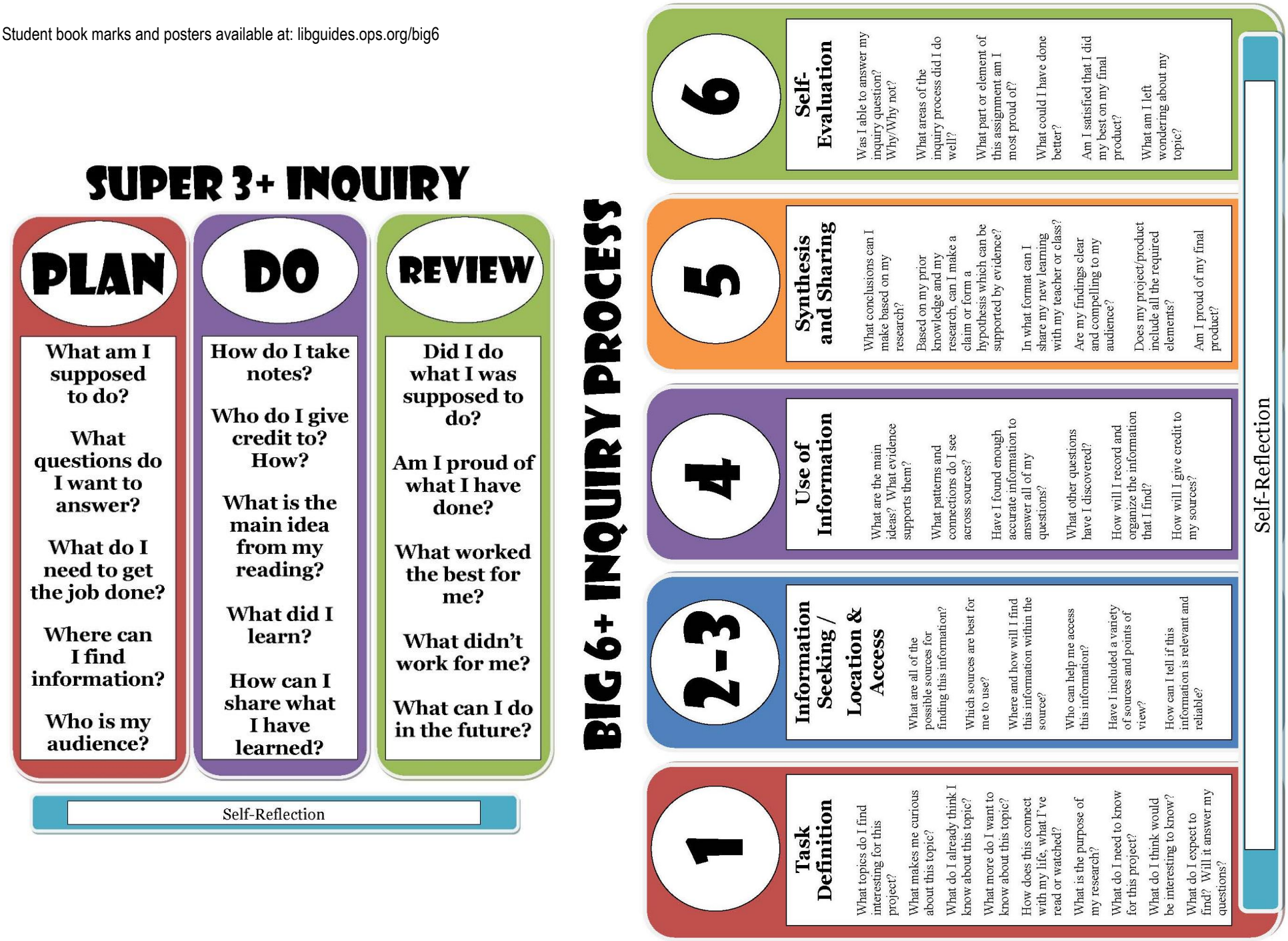
Student book marks and posters available at: libguides.ops.org/big6



Positive Tags

- Wow! I could stay in your room all day.
- You have such a rich learning environment for all students
- I wanted to take a moment and say how much a I appreciated visiting your classroom today.
- When I walked into your classroom, it was evident how hard you have been working.
- You make it look easy!
- Thank you for always giving that extra 5%!
- You're on the right track now!
- That's the right way to do it!
- Best yet!
- Thank you for giving your very best!
- Thank you for being such a dedicated teacher!
- Thank you for being a wonderful teacher!
- You are making a difference!
- I enjoy watching you teach!
- "A teacher takes a hand, opens the min and touches the heart." Chinese proverb
- Marvelous!
- You've mastered that!
- Keep up the good work!
- Now that's what I call a fine job!
- SUPER DUPER!
- You must have been practicing!
- SUPERB!
- You've done a great job!
- They may forget what you said but they will never forget how you made them feel.
- It takes a big heart to open little minds.
- "It's easy to make a buck but a lot tougher to make a difference" Tom Brokaw
- Success!
- It is a pleasure to work with a teacher like you.
- That's great!
- You outdid yourself today!
- Good thinking!
- SPLENDID!
- Good for you!
- Brilliant Job!
- This is truly above and beyond!
- I appreciate you opening the door to my visit today.
- Your classroom environment is warm and inviting
- I appreciated…
- "A good teacher explains. A superior teacher demonstrates. A great teacher inspires" William Arthur Ward
- We are thrilled to have you on our team and this is exactly why we need you!
- You really impress me!
- Your contributions make a real difference!
- Sensational!
- Give yourself a pat on the back

Add your own:

***Remember to incorporate the name of the strategy in the positive tag for Five-Minute Feedback.**