

Science Lesson Plans

Level 2

Term



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Science Lesson Plans

Level 2

Term 2

Week 1

Week	Curriculum Strand	Topic	Day	Specific Objectives	Home work
1	Life Systems	Growth and Changes in Animals	1	To understand how animals adapt to their environment by camouflage	H.W
1		do	2	To identify examples of camouflage in natural world	
1		do	3	To understand how living things reproduce	H.W
1			4	To understand how animals change as they grow	
1		do	5	Assessment	

Level 2		Life Systems
Term 2	Lesson Plan	Animals
Week 1		
Day 1		

Topic: growth and changes in animals

Objective: To understand how animals adapt to their environment through camouflage.

Activity: 1 brainstorming

Activity: 2 how do animals hide?

Materials:

- Cut-outs of different animals and insects in one color
- Chart paper of the same colors as cutouts.
- Stickers of animals in their natural color e.g. giraffe, lion, and butterfly etc.
- Crayons/markers/colored pencils
- A 4 size sheets as per class strength.

Procedure:

Warm-up Q/A

- Ask students: Do you play hide and seek with your friends?
- How do you play this game?
- What do you need to do so you won't be found?
- Do you think animals play hide and seek too? How? Why?
- Listen to their responses.

Activity: 1

- Then place the cutouts and pictures of the animals on the chart paper and display.
- Ask the students which animals they find hard to see and which are easy to see.
(Animal stickers would be easier for them to see and cut out would be hard to see as they are of the same color as the chart paper)
- Ask children to explain,
- Why cut out animals are hard to locate?
Why animal stickers are easy to locate?

Activity: 2

- Divide the students into groups of three.
- Give each group a sheet of paper and animal sticker and colors.
- Tell them to,
- Place the animal sticker onto the sheet.
Examine the colors of their animals.

- Ask students what colors they need to color the background of the chart paper in order to hide their animals so their classmates cannot see them.
- Have students orally describe the colors they see on their animals.
- Then color the back ground in matching colors in a way that it becomes hard to locate the animal.

Follow-up discussion

Ask,

- What did you learn from this activity?
Invite the students to share their work with the class.
- Ask, How did you hide your animals?
- Why can't we see them?
- **Explanation**
Introduce the word camouflage.
- Write it on the board.
- Define this term.
- Explain, that some animals and insects have colors/patterns on their fur, skin, etc. that help them match the elements in their environments. The use of these colors and patterns help the animals to hide and are called camouflage.
- Animals hide by using camouflage. Some animals and insects have specific colors and or patterns on their fur/skin that help them to blend into their environments.
- Ask, can you give example of any animal that you have seen camouflage?
(Grasshopper)

Wrap-up Q/A

What is camouflage?

Level 2		Life Systems
Term 2	Lesson Plan	Animals
Week 1		
Day 2		

Topic: growth and changes in animals

Objective: To understand camouflage in our natural world.

Activity: Students create a paper moth that is camouflaged with something in the classroom. A partner class sends in "birds" to try to find them.

Materials: paper outlines of a moth shape, colors

Procedure:

Warm-up Q/A

- Discuss their prior knowledge of camouflage.
- Based on how much prior knowledge they have, this introduction can be varied to fit individual needs.

Activity:

- Show students the paper moth shape and explain they must cut it out and color it to blend in with an area in the room.
- Rules are it has to be easily visible from the center of the room. (No hiding it under or behind something)
- Explain that in 10 minutes some "birds" from another class are coming to "eat" your moths.
- Students use masking tape on the back of the moth to attach it to the position they chose. Partner class "birds" are told the shape of the moth and the rules before they begin searching.

Follow-up discussion

- Ask,
- What did you learn from this activity?
- Why do you think animals camouflage?
- Place the survived moth on the display board.

Explanation

- Explain, Which animals camouflage and why animals want to blend in with their environments.
- Animals camouflage for they survival. To protect themselves from their enemies, so that they could not eat them.

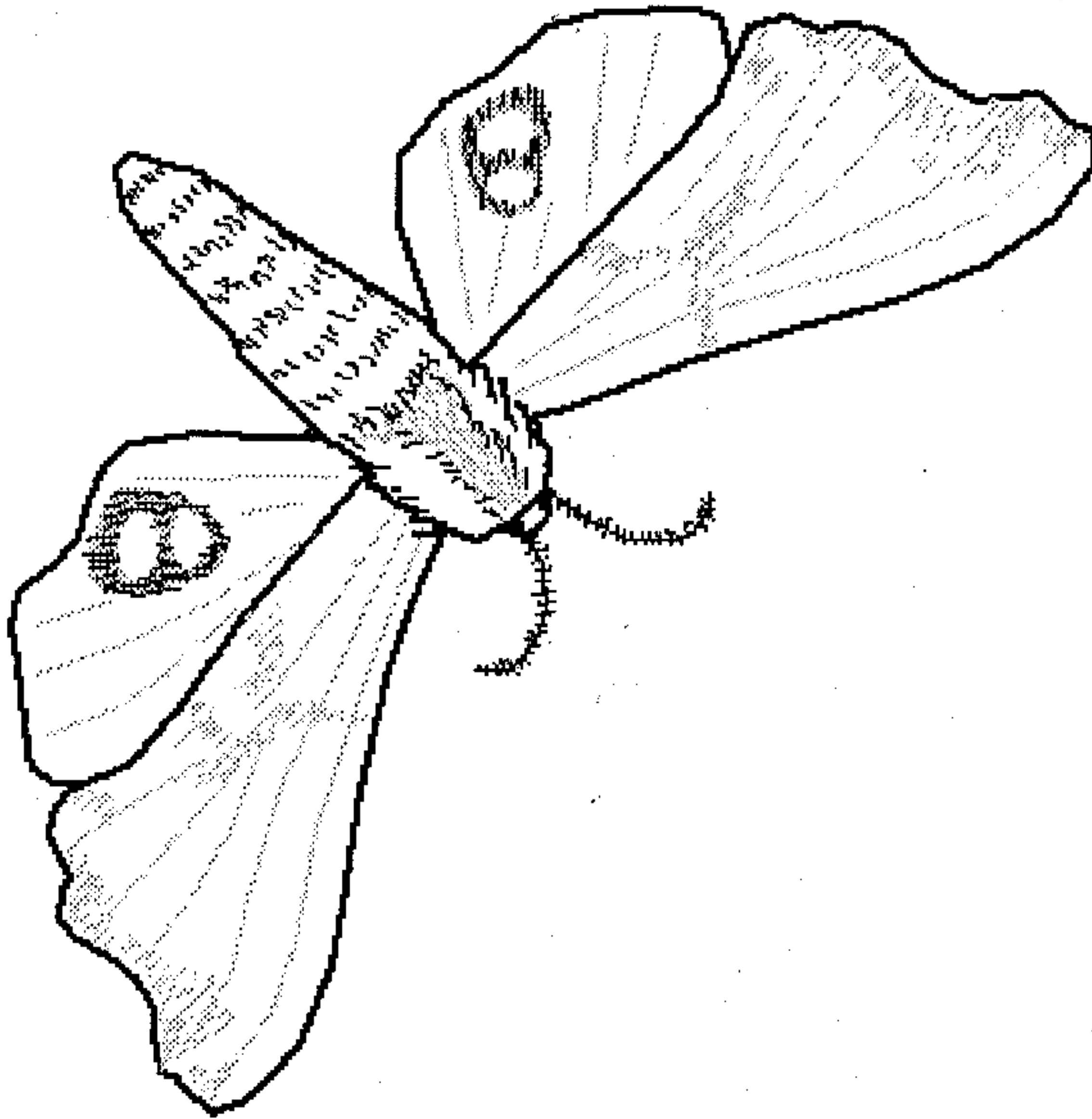
Wrap-up Q/A

Why do animals camouflage?

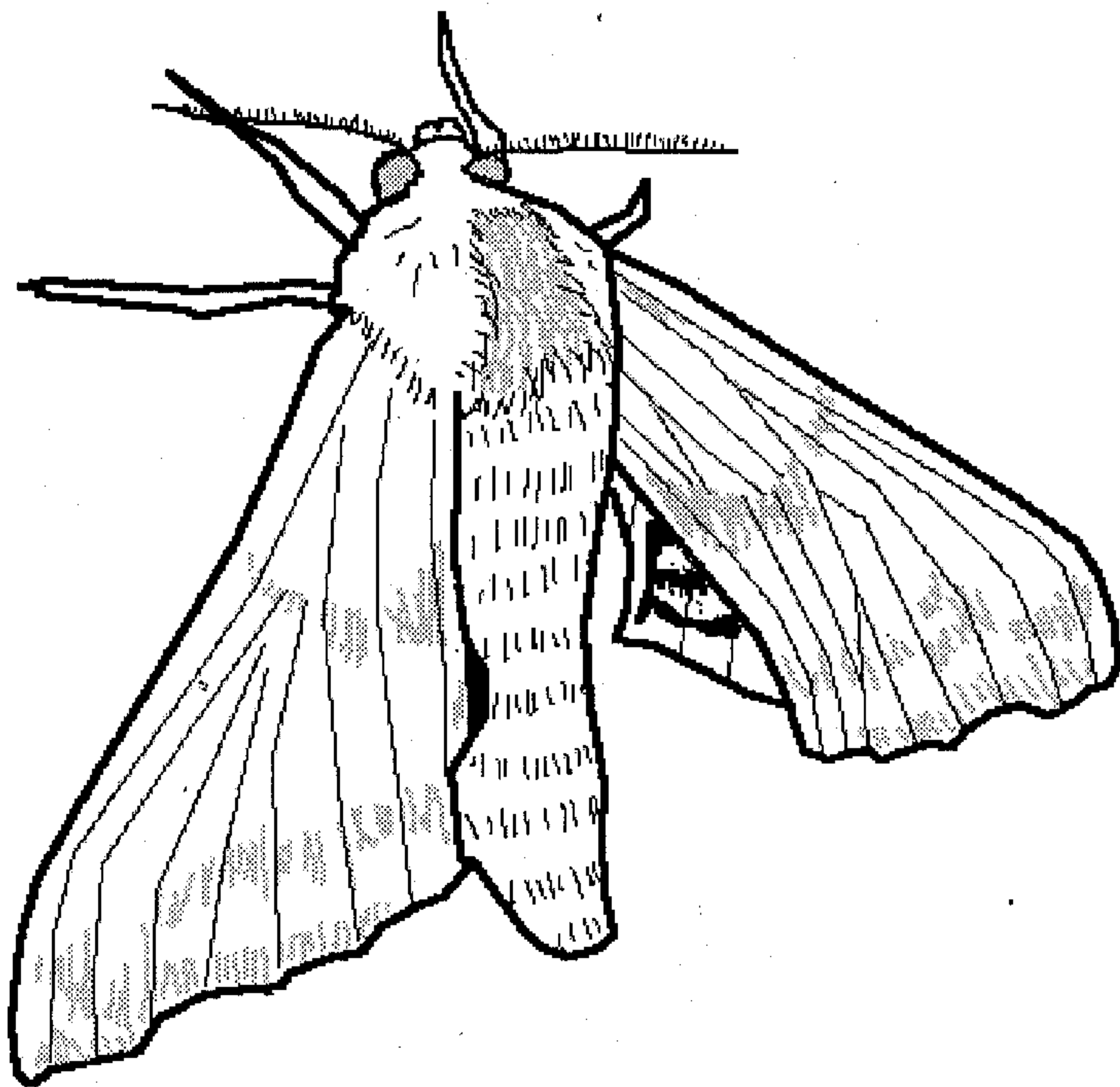
Level: 2
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Day: 2

Moth Pictures for the Camouflage Lesson activity.



Moth



Moth

Level 2		Life Systems
Term 2	Lesson plan	Animals
Week 1		
Day 3		

Objectives: To understand how living things reproduce.

Activity: Discussion, Written work

Materials: Worksheet

Procedure

Warm-up Q/A

- Ask,
- Do you remember growing plants from the seeds in the last year?
- Plants produce seeds and then from seeds new plants grow.
- Plants make copies of themselves.
- Do you think animals do this too?
- Do they make copies like themselves? Yes
- When animals and plants do this we say they reproduce themselves.
- All living things can reproduce.
- Can you give examples of how different animals reproduce?

Listen to their responses and then tell now we will discuss how different animals reproduce?

Draw this table on the board

Living things	Way they reproduce
Birds e.g. hen, sparrow	Lay eggs, and the young ones come out of the eggs
Mammals, cow, cat	Give birth to the babies
Amphibians, frog	Lay eggs
Fish	Lay eggs
Reptiles lizards	Lay eggs
Insects butter fly, moth, Bee	Lay eggs
Plants	Seeds

Then ask, do the young ones of animals look like their parents?

Explanation

Then explain all living things reproduce.

All plants and animals have a life cycle.

The Life cycle of a plant or animal has different stages.

These are called stages of the life cycle.

During these stages living things change in many ways.

Activity: written work

Distribute the worksheet and explain the task.

Wrap-up Q/A

Do living things reproduce?

What are the ways in which living things reproduce?

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Day: 3

**Living things reproduce
Worksheet**

Q I) How do these living things reproduce?

Living things	The way they reproduce
Cat	
Cow	
Lizard	
Hen	
Frog	
Fish	
Butterfly	
Plant	

Q II) Draw a life cycle of a plant to show what happens at each stage?

Level 2		Life Systems
Term 2	Lesson plan	Animals
Week 1		
Day 4		

Topic: Growth and changes in animals

Objective: student will be able to understand in what ways the animals change, as they get older and what things remain the same.

Activity: Discussion, written work

Materials: pencils, colors, copy of worksheet for each child

Procedure

Warm-up Q/A

- Remind the students about yesterday's lesson and ask,
What did you learn about yesterday?
Listen to their responses, and then ask.
Do you think you have changed? Since last year, or since the time you were born.
If yes how have you changed? Or In what ways have you changed?
Do you look like your parents?
Do you think animals change too when they grow up?
Do they look like their parents when they grow?

Discussion

Draw this table on the board.

Then tell,

We will discuss when animals grow what things change and what things remain the same.

Brainstorm the children and build-up the list. (You may get things, which are not listed here.)

Things which change	Increase in Weight, height, size. There is a change in skin; birds grow more feathers, mammals grow more hair. Animals grow teeth, their sound changes.
Things which remain the same	Number of legs, skin color, eyes, ears,

Explanation

- Explain,
- Animals change when they grow.
- There are certain things which change such as there is increase in weight, height, size etc (refer to the list on board and read it to explain).
- On the other hand some of the things remain the same such as number of eyes, number of legs, ears etc
- Animals look like their parents when grow up.

Activity:

- Write down the task on board and explain it.

Task:

- In what way animals change when they grow?
- What things remain the same when animals grow?
- Pick out words from the list for help.
- List of words: weight, height, legs, hair, size, skin, feathers, fur, eyes, ears, color.

Wrap-up Q/A

- How do animals change when they grow?

Level 2		Life Systems
Term 2	Assessment	Animals
Week 1		
Day 5		

Note: Use questions (written work) given with the lessons for assessment.

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Level 2

Term 2

Week 2

Week	Curriculum Strand	Topic	Day	Specific Objectives	Home work
2	Life systems	Growth and changes in animals	1	To understand the changes that take place in the life cycle of a moth	H.W
2		do	2	To recognize different stages in the life cycle of a butterfly	
2		do	3	To compare changes in the life cycle of a butterfly and a moth	H.W
2			4	To recognize different stages in the life cycle of a frog	
2		do	5	Assessment	

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Level 2		Life Systems
Term 2	Lesson plan	Animals
Week 2		
Day 1		

Topic: Growth and changes in animals

Objective: Student will be able to understand the changes that take place in the life cycle of a moth.

Activity:

Materials: Cut outs of moth life cycle prepared by the teacher one day ahead, tape or glue-tack to stick it on the board.

Procedure

Warm-up Q/A

- Remind the students of yesterday's lesson and ask.
- What did you learn?
- Listen to their responses and tell today we will learn about the stages in the life cycle of a small animal called moth.

Activity:

- Show them the cut out of moth and ask. Do you recognize it? It is very common around. When? And where do you find it? (In summer usually around the lights)
- Draw a big circle on the board.
- Then stick moth cut out on the circle on the board at a proper place it.
- Write the word moth with it. Repeat the word for the students.
- Then show them the egg. Stick it on the board and write egg with it.
- Then show them the caterpillar, explain that from the egg caterpillar comes out.
- Stick it on the board too and write the word caterpillar with it. Repeat the word and spellings for the students.
- Then show them the cocoon and explain that a caterpillar makes a cocoon around itself and sleeps for time.
- It under goes many changes inside the cocoon and then comes out of it as a moth.

Activity:

- Distribute the worksheet and explain the task.

Wrap-up Q/A

- What are the different stages in the life cycle of a moth?

H.W Revise the work done in class.

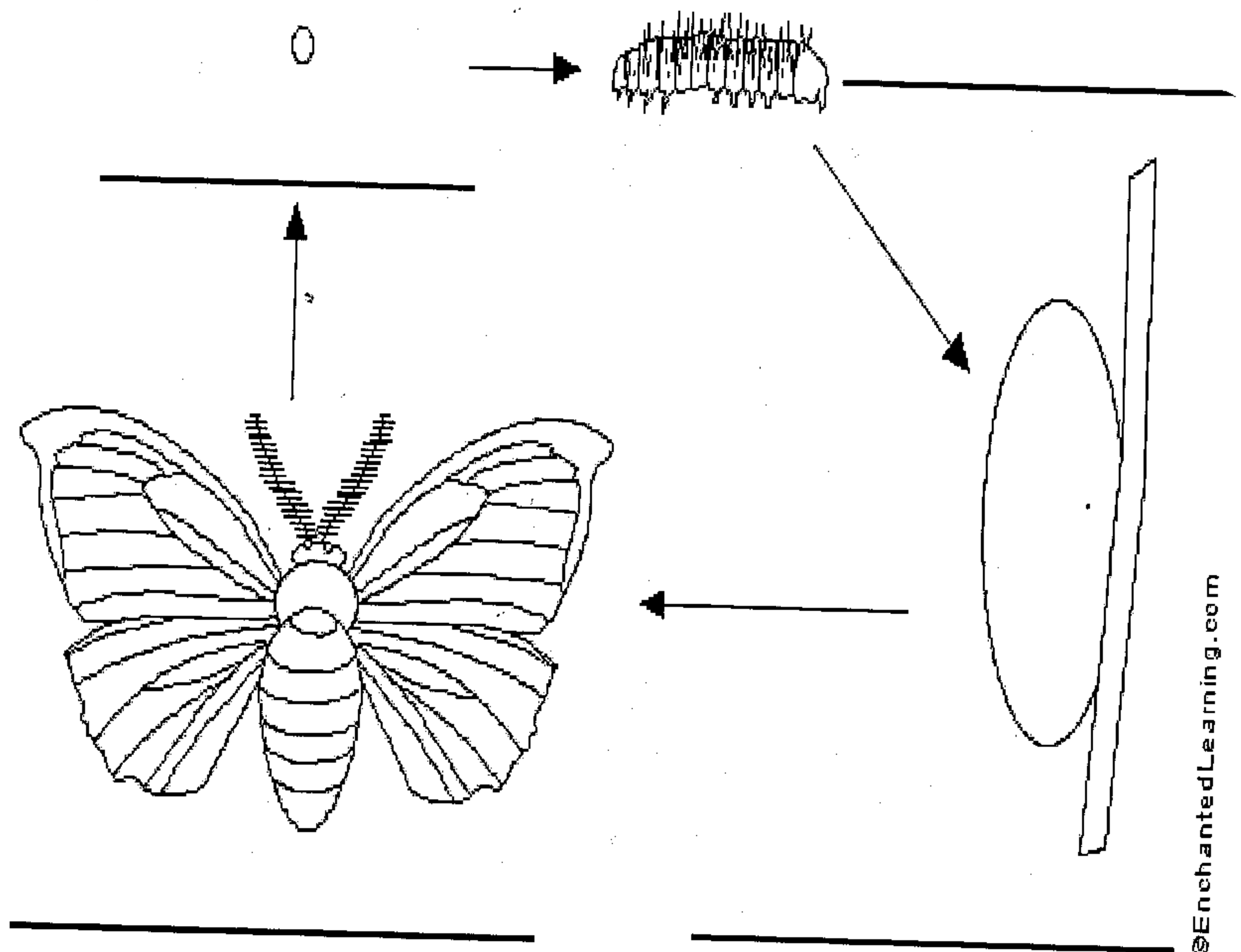
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Moth Life Cycle Worksheet

By using the helping words label the stages in life cycle of a moth and color it.

Word Bank: caterpillar, cocoon, egg, moth.



Level 2		Life Systems
Term 2	Lesson plan	Animals
Week 2		
Day 2		

Topic: growth and changes in animals

Objectives: To recognize different stages in the life cycle of a butterfly.

Activity: demonstration, butterfly life cycle mobile

Materials: butterfly life cycle cut outs, colors, pencils, cotton string, punch for making holes, scissors.

Procedure

Warm-up Q/A

- Ask,
- What did you learn about moth in the last lesson?
- Ask, What are the stages in the life cycle of a moth?
- Then ask?
- Do you know any small animal similar to moth?
- Give them a clue, one that is found on flower and is very colorful.
- Then ask, do you have any idea what are the stages in the life cycle of a butterfly?
- Listen to their response.

Activity: 1 Demonstration

- Show them the cut out of butterfly and ask. Where do we find it?
- Does it look like a moth? How is it different?
- Draw a big circle on the board.
- Then stick butterfly cut out on the circle on the board at a proper place it.
- Write the word butterfly with it. Repeat the word for the students.
- Then show them the egg. Tell that adult butterfly lays eggs on leaves and plants.
- Stick it on the board and write egg with it.
- Then show them the larvae, explain that from the egg larvae comes out.
- Stick it on the board too and write the word larvae with it.
- Repeat the word and spellings for the students.
- Then show them the pupae and explain that a larvae turns into a pupae.
- It under goes many changes inside the pupae and then comes out of it as a colorful butterfly.

Activity: 2 life cycle mobile

- Divide the students into groups.
- Give each group a set of cutouts.
- Tell them to arrange these cut outs in the form of a life cycle.
- They will color each stage.
- Then they will label each stage by writing at the back of the cut out.
- They will take help from the life cycle on the board made by the teacher.
- By passing a string through the holes they will join parts in a circle.

- Help the students in doing so.

Follow-up discussion

- Invite each to share their work with the class.
- Ask what did you learn from this activity?

Wrap-up Q/A

What are the stages in the life cycle of a butterfly?

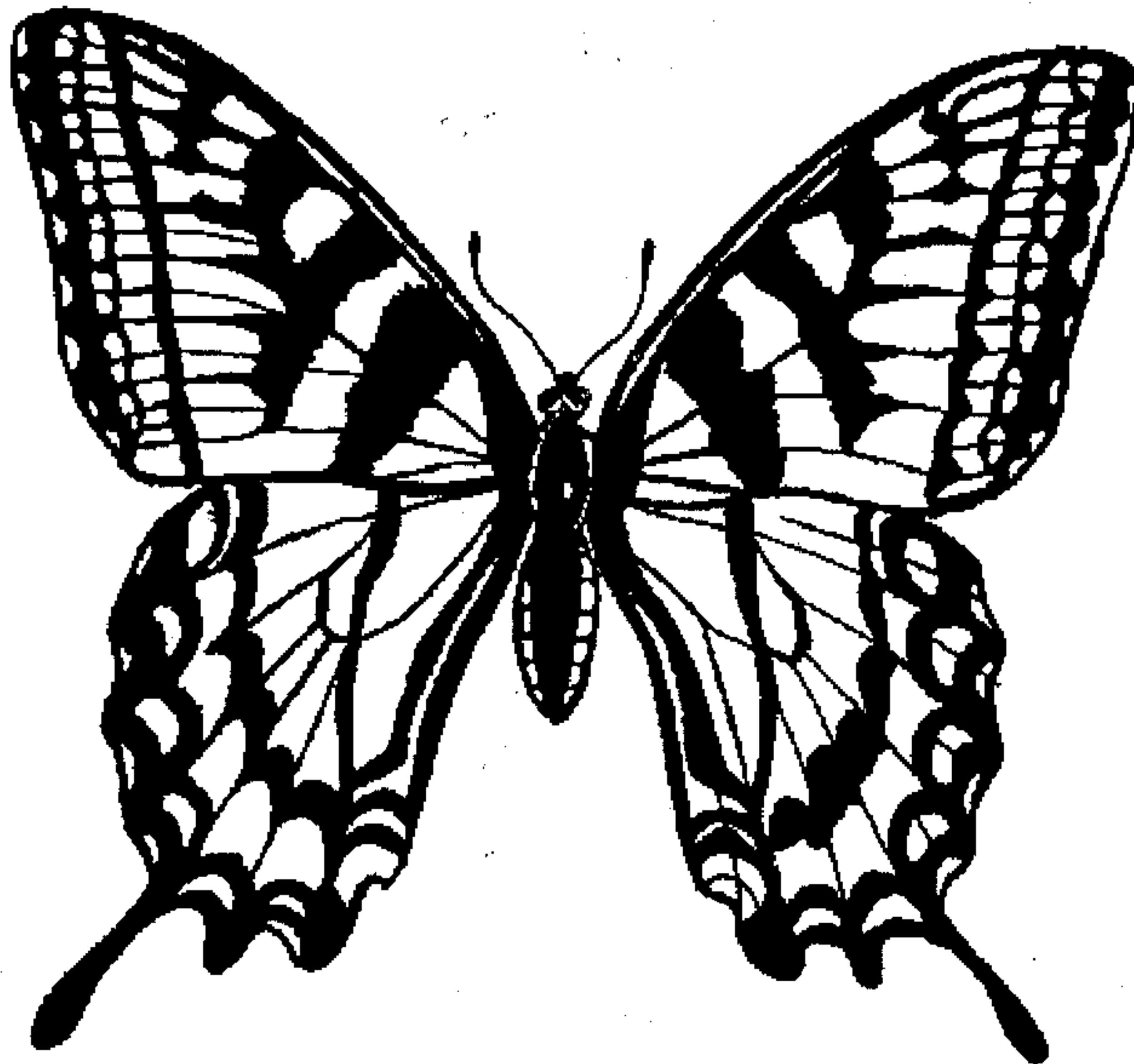
Where does a butterfly lay eggs?

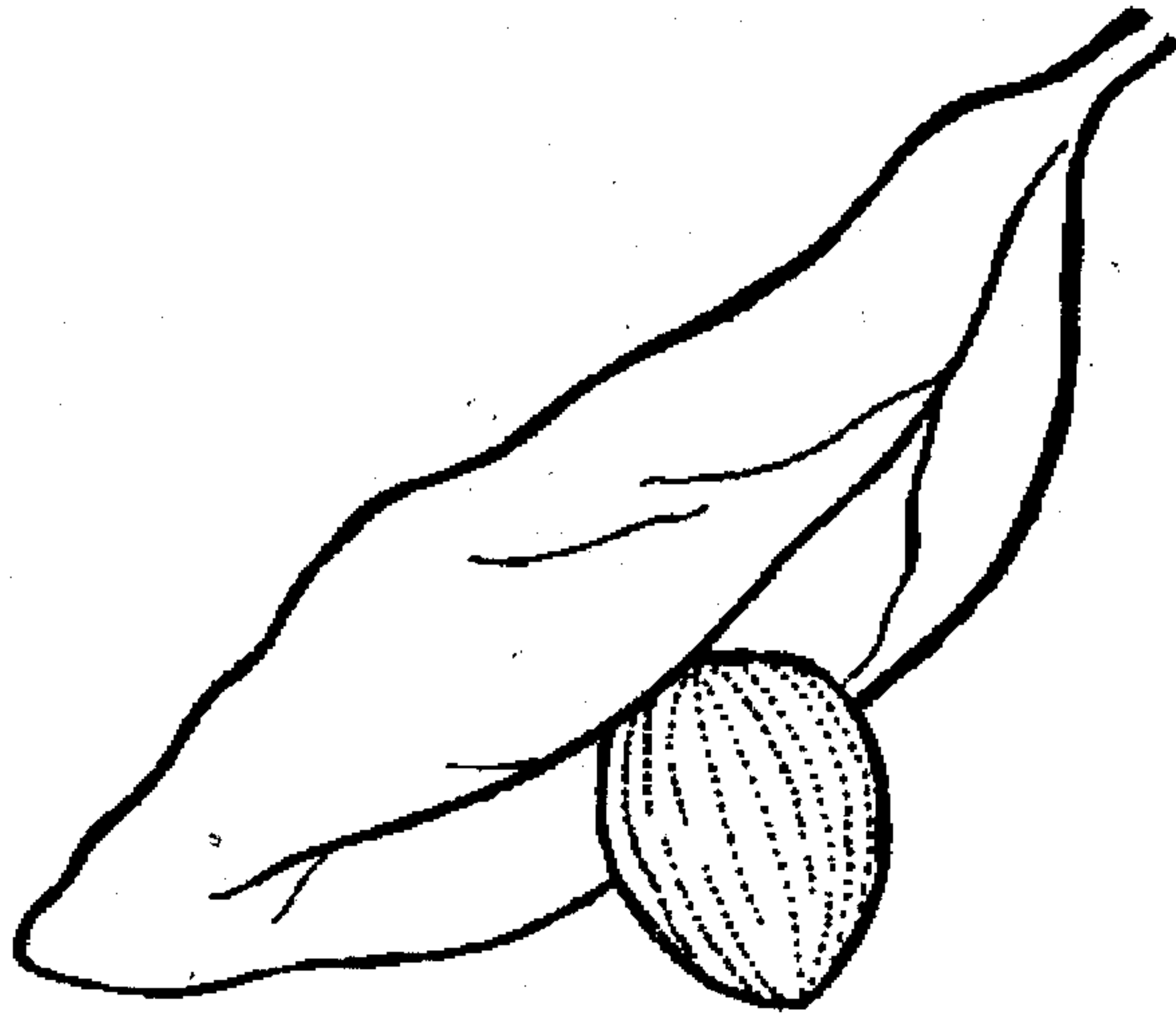
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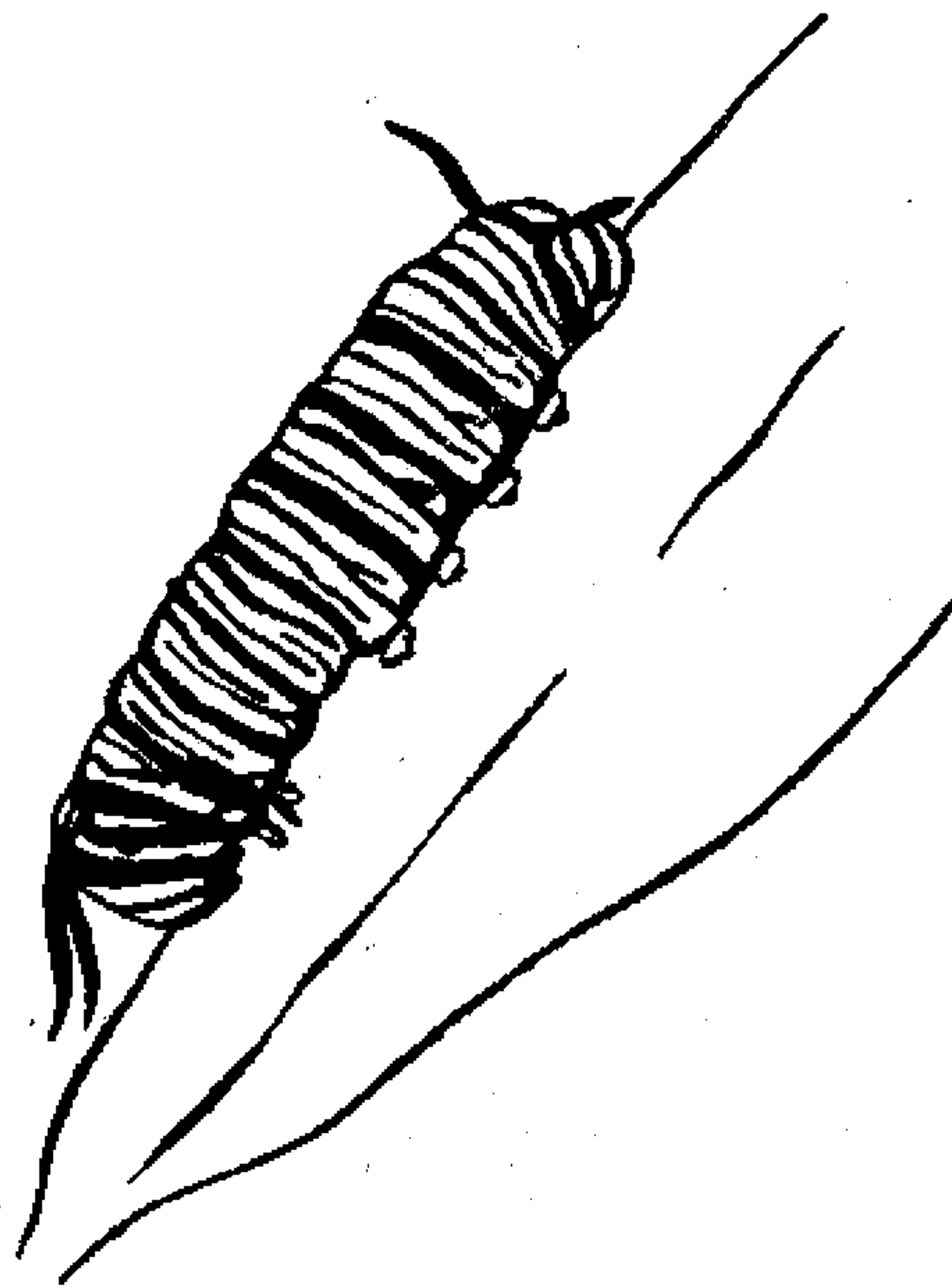
Butterfly Life Cycle templates for Cutouts.

Adult Butterfly

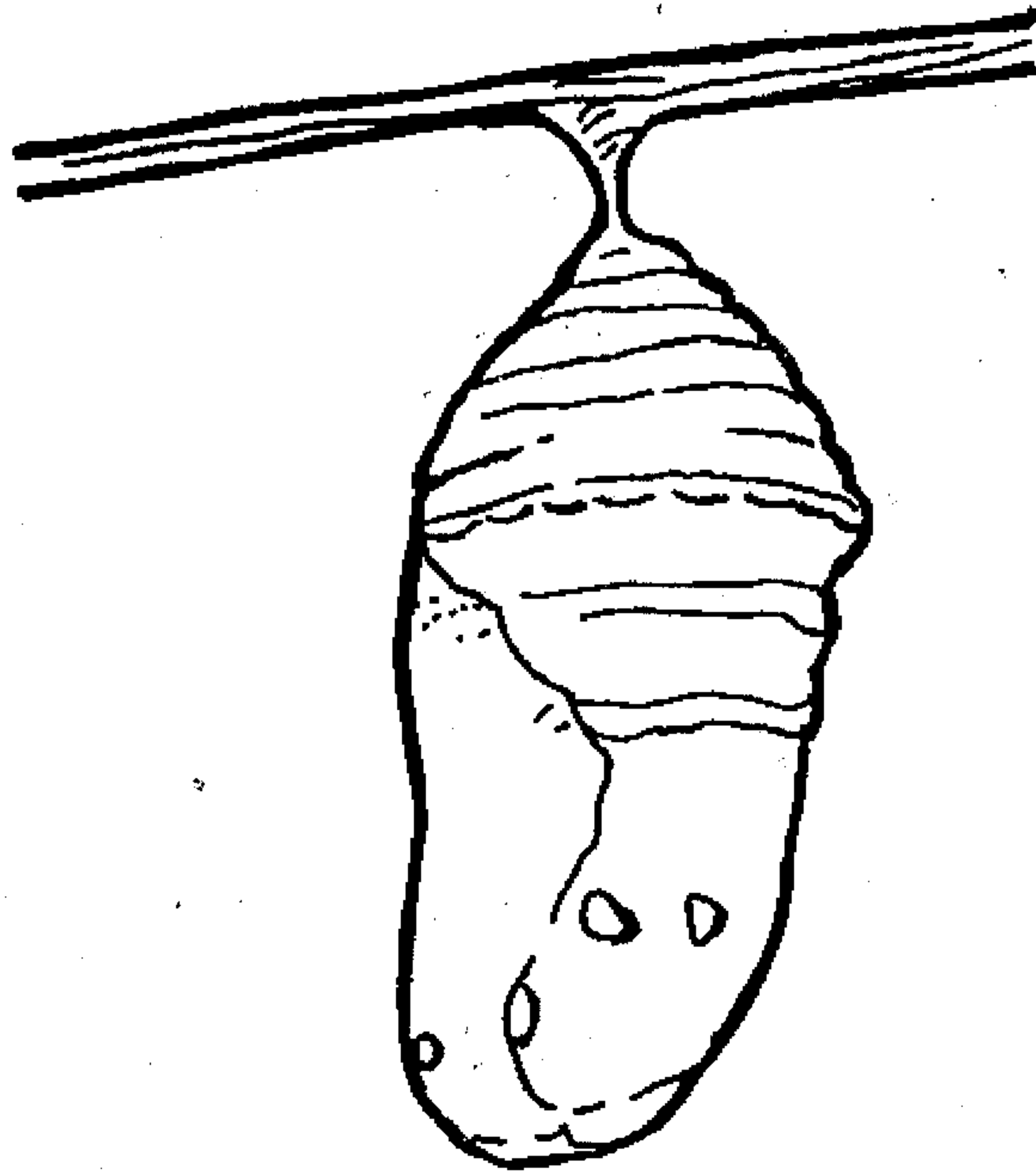




Egg



Larvae



Pupae

Level 2		Life Systems
Term 2	Lesson plan	Animals
Week 2		
Day 3		

Topic: Growth and changes in animals

Objectives: To compare, the stages in the life cycle of a butterfly and a moth.

Activity: Written work

Materials: note books, colors, chalk.

Procedure

Warm-up Q/A

- Remind the children about the previous lesson and
- Ask,
- What are the stages in life cycle of a butterfly?
- What are the stages in life cycle of a moth?
- Ask, Do you find any difference in their life cycles?

Draw this chart on the board and make comparison. List different stages by asking from the students. Then explain the difference.

Comparison

Moth	Butterfly
Egg Caterpillar Cocoon Moth	Egg Larvae Pupa Butterfly
Difference	Butterflies come from pupae, moths come from cocoons

Activity: written work

Task:

- Draw and label the life cycle of a moth.
- Draw and label the life cycle of a butterfly.
- Then write down the difference.
- What are the similarities?

H.W Revise the work done in class

Level 2		Life Systems
Term 2	Lesson plan	Animals
Week 2		
Day 4		

Topic: Growth and changes in animals

Objectives: To recognize different stages in the life cycle of a frog.

Activity: discussion, written work

Materials: Worksheet, frog life cycle cut out,

Prepare this frog life cycle cutout diagram one day before the class.

- Cut out big blue circles in chart paper
- Draw a picture of a frog (on green paper or color it green)
- Draw tadpoles (on brown paper or color brown)
- For the frog eggs cut out round shapes and put black dots in the center with permanent marker (this doesn't rub off, so is ideal)
- Stick each item in order with arrows in between around the pond.

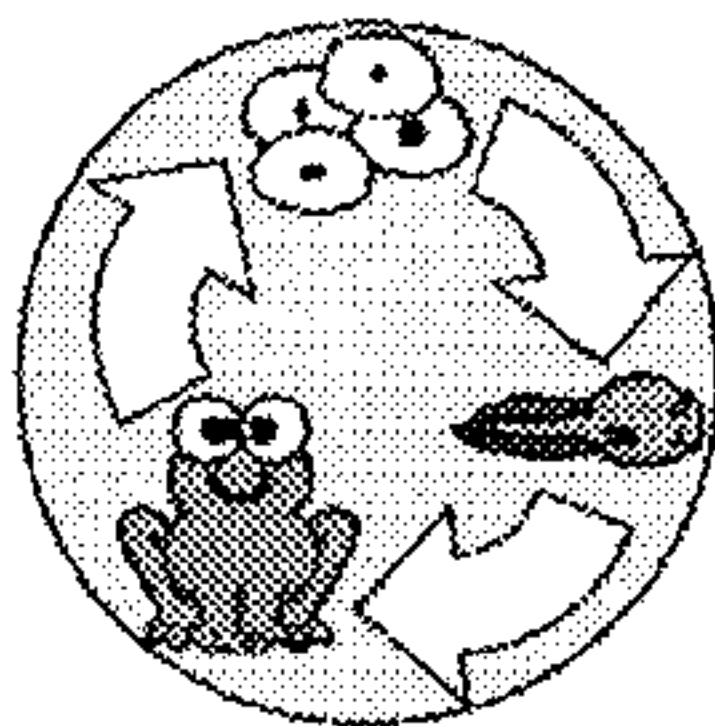
Procedure

Warm-up Q/A

- Ask,
- How many life cycles you have learned about up till now?
- Can you make agues about frog?
- How does it reproduce?
- Listen to their responses.

Activity: 1 Demonstration /explanation

- Stick the frog life cycle diagram on board.



Life cycle of Frog

- Label each stage.
- Adult frog lays eggs. A frog lays eggs in water.

- Write the word frog.
- Eggs hatch into tadpoles.
- Frog babies are called tadpole.
- Write the word tadpole.
- Ask,
- Does a tadpole look like a frog?
- Have you seen tadpoles in ponds?
- How is it different?
- It has no legs. It has a tail. It looks more like fish
- A tadpole then grows legs and its tale also disappears. It increases in size and changes into an adult frog.

Activity: 2

Written work

Distribute the worksheet (2) and explain the task.

Wrap-up Q/A

Where does a frog lay eggs?

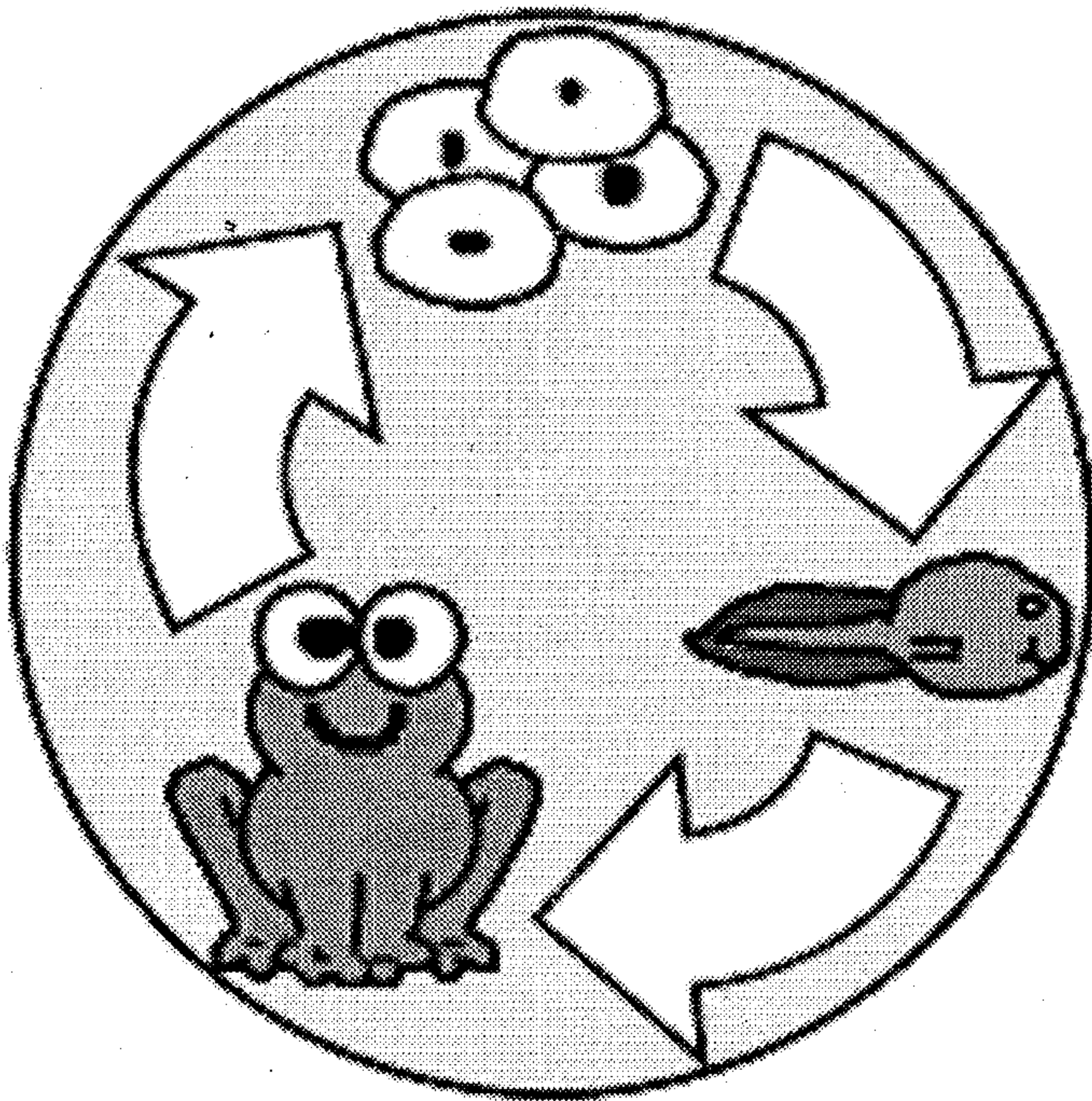
What are the stages in life cycle of a frog?

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Life Cycle of a Frog Worksheet-1

Label the different stages in the life cycle of a frog.

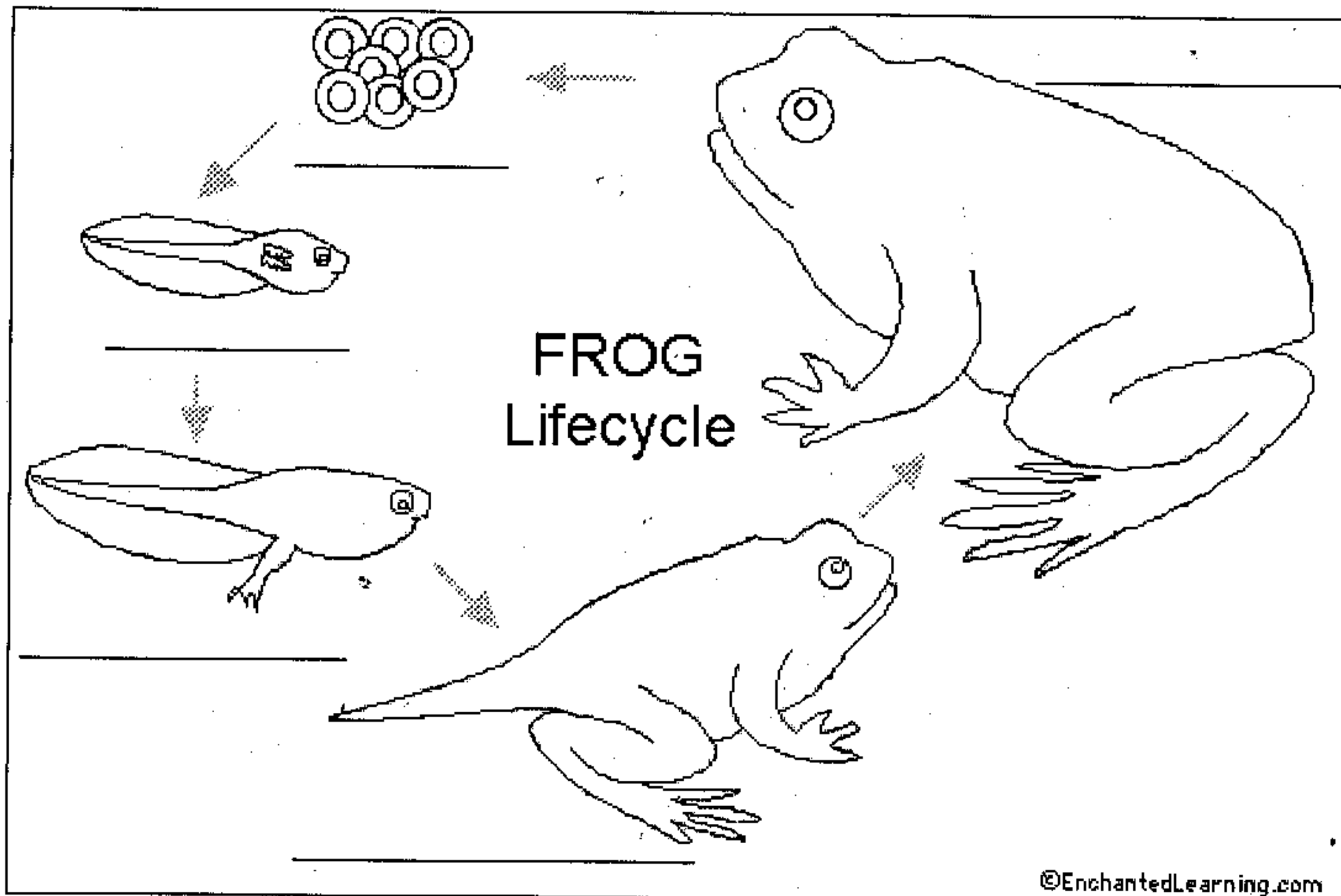


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Week: 2

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Day: 4

Life Cycle of a Frog Worksheet- 2

Label and color the different stages in the life cycle of a frog.



Q II) Look at the above picture and answer these questions.

What is the baby frog that comes out of an egg called?

Does a tadpole have legs?

As a baby frog grows, does it grow a tail or legs?

As a baby frog grows, what does it lose, its tail, legs, or eyes?

Does an adult frog have a tail?

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Term 2	Assessment	Animals
Week 2		
Day 5		

Note: Use worksheets given with the lessons.

Level 2
Term 2
Week 3

Week	Curriculum Strand	Topic	Day	Specific Objectives	Home work
3	Life Systems	Growth and Changes in Animals	1	To compare the stages in the life cycle of a butterfly and a frog	H.W
3		do	2	To compare ways in which some animals take care of their young ones	
3		Matter and materials	3	To understand that matter exists in three states	
3		do	4	To understand that matter exists in three states (written work)	H.W
3			5	Assessment	

Level 2		Life Systems
Term 2	Lesson plan	Animals
Week 3		
Day 1		

Topic: Growth and changes in animals

Objectives:

To compare, the stages in the life cycle of a butterfly and a frog.

Activity: Written work

Materials: note books, colors, chalk.

Procedure

Warm-up Q/A

- Remind the children about the previous lesson and
- Ask,
- What are the stages in life cycle of a butterfly?
- What are the stages in life cycle of a frog?
- Ask, Do you find any difference in their life cycles?
- Draw this chart on the board and make comparison.
- List different stages by asking from the students. Then explain the difference.

Comparison

Frog	Butterfly
Egg Tadpole Baby frog Adult Frog	Egg Larvae Pupa Butterfly
Difference	Butterflies come from pupae. Frogs grow from tadpole to adult.

Activity: written work

Task:

Draw and label the life cycle of a frog.

Draw and label the life cycle of a butterfly.

Then write down the difference.

H.W Revise the work done in class

Wrap up Q/A

- Ask
- In what three states all the materials exist?
- How do you know if something is a solid?
- How do you know if something is a liquid?
- How do you know if something is a gas?

Follow-up activity (can be given as a project to be done in the art periods)**Group Task**

- Prepare a chart of solids, liquids, and gases that you find around you by using words and pictures.
- Students will need clear instructions from the teacher.
- First tell them to make a list of solids, liquids and gases and then draw and paste pictures.
- Students can complete this chart in the art period and take as much time as easily available.

Level 2	Lesson plan	Matter and materials
Term 2		
Week 3		
Day 4		

Topic: Properties of liquids and solids

Objective: To understand that matter (materials) exists in three states.

Activity: Written work

Material: Worksheet

Procedure:

Distribute the worksheet and explain the task.

H.W Revise the work done in class.

Level: 2
Week: 3

Term: 2
Day: 4

Three states of matter Worksheet

Q.1. Here is lists of materials sort them and write them under correct heading in the table.

List: Water, salt, ice, steam, milk, brick, sugar, oxygen, air, Pepsi, honey.

Solid	Liquid	Gas

Q. II) Carefully read the list of the properties and answer these questions.

Have definite shape	No definite shape	No definite shape
Occupy space	Occupy space	Occupy space
Have weight	Have weight	Have weight
Can feel/see	Can feel/see	Cannot feel/see

How would you know that brick is a solid?

How would you know that water is a liquid?

How would you know that air is a gas?

Level 2		Matter and materials
Term 2	Assessment	
Week 3		
Day 5		

Note: Use worksheets given with the lessons

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Week 4

Week	Curriculum Strand	Topic	Day	Specific Objectives	Home work
4	Matter and materials	Properties of liquids and solids	1	To describe the properties of a solid by using observation	
4		do	2	To identify familiar solids by observing their properties	
4		do	3	To describe the properties of liquids by using observation	
4			4	To identify familiar liquids by observing their properties	
4		do	5	Assessment	

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Level 2	Lesson plan	Matter and materials
Term 2		
Week 4		
Day 2		

Topic: Properties of liquids and solids.

Objective: To describe the properties of familiar solids (sugar, sand, salt, wood).

Activity: Comparing solids

Materials: sugar, salt, sand or soil, wood. Labeled as A – B – C – D small containers

Procedure:

Warm-up Q/A

- Remind the students about previous lesson about properties of solids.
- Ask, how would you know if something is a solid?
- Revise the properties of solids with them
- Then tell although all solids have these properties but still they are different.
- Tell them they will compare few common solids to find out how are they different and how are they similar.

Activity:

- Place the containers labeled as A – B – C – D in a corner of your class on a table (you can have more than one set-ups if your number of students is more)
- Divide the students into groups.
- Ask each group to observe samples and identify their differences by looking at them.
- Draw this table on the board.
- Ask them to copy it in their notebooks.
- Tell them to note down their observation in this table.
- Put a tick or cross.

Observation	A	B	C	D
Powder				
Crystals				
Grains				
Solid shape				
Hard				
Soft				
Smell				
Color				
Transparent				
What is it				

- Explain while doing their observation they have to see,
- How does it look like? Is it crystals, powder, grains etc?
- Does it have a color?

Level 2	Lesson plan	Matter and materials
Term 2		
Week 4		
Day 4		

Topic: Properties of liquids and solids.

Objective: To identify familiar liquids by observing their properties.

Activity: Identifying liquids

Materials: 4 different liquids in glass containers (jam jars), water, milk, oil, and sherbet (label A, B, C, D,)

Procedure:

Warm-up Q/A.

- Remind the children previous lesson about the liquids and ask
- What are the properties of a liquid?
How would you know if some thing is a liquid?
- Then tell, yes these are the properties of a liquid but liquids can be different from each other.
- Then tell you are going to identify liquids in an activity.
-

Activity:

- Divide the class into pairs
- Put the liquids on a table in the corner of your class as labeled A – B – C – D)
- Draw this table on the board.
- Ask the students to draw this table in their copies.

Observation	A	B	C	D
Does it have a smell?				
Is it transparent? Can you see through it?				
Does it have any color?				
Is it slippery?				
Is it sticky?				

What is it?

Liquid: A is _____

B is _____

C is _____

- Then explain
- Students will observe the liquids and note their responses in the chart.
- After that they will discuss with their partner and identify what it is?
- Then write it down in the given space.
- They will
Smell the liquid and write
It has a smell or not.
What kind of smell it has?
- See through the liquid and observe
Can you see through the liquid or not.
- Feel the liquid
Is it slippery?
Is it sticky?
- Then identify what it is?

Follow up discussion

- Ask the students to share their results
- Once the whole class shared the results reveal the liquids .
- Then those who identified the liquids ask them
How did you identify your liquid?
Listen to their responses
Then explain,
Although all liquids have same properties but they can be different also.
- Some have smells some do not.
- Some are thick and sticky & slippery some are not.
- Some have taste some are tasteless.

Then ask

What did you learn from this activity?

Wrap up Q/A

- Distribute this reinforcement worksheet and ask the students to fill it up on the basis of their results.

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Week: 4

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Day: 4

Liquids
Reinforcement worksheet

**Q- 1) Write down the properties of these liquids on the basis of your observations.
Use the list of words for help.**

List: smell, taste, color, slippery, sticky, transparent.

Water	Milk	Oil	Sherbet	Honey

Q. 2) How do you know if something is a liquid?

Level 2		Matter and materials
Term 2	Assessment	
Week 4		
Day 5		

Assessment Worksheet

Q.1. Here is lists of materials sort them and write them under correct heading in the table.

List: Water, salt, ice, steam, milk, brick, sugar, oxygen, air, Pepsi, honey.

Solid	Liquid	Gas

Q. 2. List the properties of these.

Solid

Liquid

Gas

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Term 2

Week 5

Week	Curriculum Strand	Topic	Day	Specific Objectives	Home work
5	Matter and materials	Properties of liquids and solids	1	To distinguish between solids which dissolve or do not dissolve in a liquid	H.W
5		do	2	To recognize that some liquids mix with each other and some do not by using observation	
5		do	3	To describe 3 states of water by using observation	
5			4	To describe 3 states of water by using observation (written work)	H.W
5		do	5	Assessment	

Level 2	Lesson plan	Matter and materials
Term 2		
Week 5		
Day 1		

Topic: Properties of liquids and solids.

Objective: To distinguish between solids which dissolve and do not dissolve in a liquid.

Activity: Dissolving

Materials: Water, salt, sugar, sand, empty jam jars or plastic containers, plastic spoons, (enough to be distributed among each group)

Procedure:

Warm-up Q/A

- Ask, which is the most used liquid in our daily life? Water
- What are the properties of water?
- (show them a glass of water and revise)
- Water is transparent, it has no smell, no taste, it takes up the shape of container in which it goes, and it flows.
- Apart from these qualities water and some other liquids have one more property, which is called dissolving.
- Ask, How many of you add sugar to your milk or tea?
- Then add a teaspoon of sugar in the glass of water – stir it and ask what happened to the sugar added to water?
- Then explain
- As you have just seen sugar has disappeared in water actually it has dissolved in water.
- Now we will experiment what solids can dissolve in a liquid.

Activity:

- Divide the students into groups.
- Distribute to each group,
- A Jar filled with water.
- Sugar, salt, sand or soil.
- Plastic spoon.
- Ask each group to add salt to the water
- Then see what has happened to salt
- Taste the liquid, is salt still there?
- Then add sugar, observe
- What happens to sugar?
- Ask,
- Can you see the sugar?
- Taste the liquid?
- Is the sugar in the liquid.
- Then tell them to add sand.
- What happens to sand?
- Did it disappear?
- Note down that sand had not disappeared – it has settled at the base of the jar.

Material	Dissolve	Not dissolve
Salt		
Sugar		
Sand		

Follow up discussion

- Invite the students to share their results
- Ask, what did you learn from this activity

Explanation

- Explain,
- If you mix a solid and a liquid together, different things may happen:
- The solid may disappear in the liquid.
- Or the solid may sink to the bottom of the liquid.
- This happened when you experimented with three different solids.

Wrap up Q/A

Ask,

- Do all solids dissolve in liquids?

Level 2	Lesson plan	Matter and materials
Term 2		
Week 5		
Day 2		

Topic: Properties of liquids and solids.

Objective: To recognize that some liquids mix with each other and some do not by using observation.

Activity: Small plastic containers or empty jam jars, small plastic tubs, and plastic spoons.

Materials: Milk, water, oil, Roohafza.

Procedure:

Warm-up Q/A

- Remind the students about previous lesson in which they mixed solids with the liquid
- Ask, what happened when you mixed sugar, salt and sand in water?
- Listen to their responses and then tell that today you will experiment to mix some liquids with liquids

Activity: (Demonstration)

- Set up the materials on a table in front of the class.
- Draw this table on the board.
- Tell them to copy it in their notebook, and record their observations (Put a tick or cross) while you are doing your demonstration.

Mixing Liquids

	Mixed	Not mixed
Milk in water		
Oil in water		
Rooh Afza in water		
Oil in milk		
Rooh Afza in milk		
Oil in Rooh Afza		

- Show them the liquids and ask them to predict
 - a) Which one will mix?
 - b) Listen to their responses.
 - c) Pour a little bit of a liquid into another.
 - d) Stir gently.
 - e) Look carefully did the liquid mix?
 - f) Try this with pairs of other liquids.
- Milk in water
- Oil in water
- Rooh Afza in water
- Rooh Afza in Milk.

- Oil in milk
- Rooh Afza in oil.
- Allow the students to observe each set of liquid to know it has mixed or not.
- Invite each student to observe.
- Give them a chance to stir it.
- Ensure that each child records the observation.
- Also ask questions such as,
- What do you see is happening?
- Do you think it has mixed? etc

Follow up discussion

- Invite the children to share their recorded observations.
- Ask what did you learn from this activity?

Explanation

- Explain,
- If you mix a liquid in a liquid different things may happen.
- The liquid may mix in a liquid.
- The liquid may remain separate from the liquid as it happened in case when you mixed oil in water or milk.

Wrap up Q/A

Do all liquids mix with other liquids?

Level 2	Lesson plan	Matter and materials
Term 2		
Week 5		
Day 3		

Topic: Properties of liquids and solids.

Objective: To describe three states of water by using observation.

Activity: Three states of water

Materials:

- Fill a rubber glove with water and freeze the night before the lesson.
- You will also need: hot water in a flask and a pot.

Procedure:

Warm-up Q/A

- Ask,
- What is water? Is it a liquid, solid or gas?
- (Children's responses may include it is a liquid).
- How do we use it?
- (Children's responses may include we drink it, use in washing etc)
- Ask,
- Have you ever seen water in a solid form?
- (Some of them might say yes, ice)
- Then ask, have you ever seen water in the gas form,
- (Some of them might say yes or no " Steam")

Activity:

- Show students the hand-shaped ice sculpture.
- Pour hot water in the pot.
- Have the students observe the hand every few minutes and record their observations in picture form and/or writing. I prefer pictures with labels.
- Have the students note the water vapor and explain how it is a gas.

Explanation

Explain,

- Water is a liquid but it can be found in all three forms as liquid, solid and gas.
- As you can see point to the solid ice hand,
- When we freeze water it changes into ice, which is a solid.
- When we boil water it changes into steam, which is a gas.
- Point to the steam coming out of the hot water.
- Water changes into ice when we cool it.
- Water changes into steam when we heat it.

Draw this table on the board and explain three states of water.

Liquid water	Solid ice	Gas steam
Can flow	Has a definite shape	Has no shape
Has no shape	Can not flow	

So water can be found in all 3 states – liquid, solid and gas.

Wrap-up Q/A

- What are the three states of water?

Note: Students love to look at the ice hand and it is much exciting than normal ice cubes.

Level 2	Lesson plan	Matter and materials
Term 2		
Week 5		
Day 4		

Topic: Properties of liquids and solids.

Objective: To describe three states of water using observation.

Activity: Written work

Materials: chalk, colors, pencils, notebooks

Procedure:

- Revise the concept introduced in the previous lesson.
- Write the task on the board and explain.

Task:

I) Draw and color three states of water.

II) Complete these sentences.

- Water is a _____ (liquid, gas)
- When we freeze water it changes into _____ (ice, sugar)
- When we heat water it changes into _____ (steam, tea)
- Ice is _____ (solid, gas)
- Steam is _____ (solid, gas)
- When ice melts it changes into _____ (liquid, gas)

Q III) How does water change into ice?

Q IV) How does water changes into steam?

Q V) Find the meanings of these words in the dictionary.

H.W Revise the work done in class.

Level 2		Matter and materials
Term 2	Assessment	
Week 5		
Day 5		

Assessment worksheet

Q 1) Write what happens when you mix these liquids? Will they mix or remain separate?

- Oil in water _____

- Milk in water _____

Q 2) Write what happens when you mix these solids in a liquid? Will they disappear?

Or sink to the bottom of the liquid.

- Sad in water _____

- Sugar in water _____

Q. 2) How do you know if something is a liquid? Name 3 liquids you know about.

Science Lesson Plans

Level 2

Term 2

Week 6

Week	Curriculum Strand	Topic	Day	Specific Objectives	Home work
6	Matter and materials	Properties of liquids and solids	1	To understand that heating a substance cause it to expand	
6		do	2	To understand that some objects sink and some float	
6		do	3	To understand that objects float by changing their shape and air plays a role in floating	H.W
6			4	To understand that objects float by changing their shape and air plays a role in floating	
6		do	5	Assessment	

Level 2	Lesson plan	Matter and materials
Term 2		
Week 6		
Day 1		

Topic: Properties of liquids and solids.

Objective: To identify that heating a substance will cause it to expand (get bigger) and cooling it will cause it to contract (shrink).

Activity: Expanding air

Materials:

Small bottle, two bowls, balloon, ice, cold water, hot water in a flask

Procedure

Warm-up Q/A

- Remind the students about previous lesson and ask
- What makes water to change into steam?
- What makes water to change into ice?
- What makes a boiled egg solid?
- (Their responses might include heating, cooking, boiling, freezing or change in temperature)
- Listen to their responses and tell we will experiment to see how heat changes the substances?

Activity: Demonstration

- Put the balloon on the bottle.
- Have students establish that the bottle has air in it and that the air molecules inside cannot get out of the bottle when the balloon is on it.
- Ask students if they think the balloon will change if we put the bottle in hot water.
- Encourage idea exchange.
- Get 3 cups of hot water.
- Put it in a bowl and put the bottle in the bowl also.
- Let each student feel the bottle as it warms up.
- Have them observe the balloon.
- Ask students if they think the balloon will change if we move the bottle to cold water.
- Encourage idea exchange.
- Get 2 cups of cold water and 4-6 ice cubes to put in the other bowl.
- Put the bottle in the bowl, and again let the students feel the bottle as it cools off.
- Have them observe the balloon.
- Let the students move the bottle back and forth as time allows, and encourage predicting what will happen when they do.

Follow-up discussion

- Ask for possible explanations and accept them all as something to consider.
- Ask, What did you learn from this activity?

Explanation

- Explain,
- Heat produces changes in the materials.
- When we heat a substance it expands as you just saw air in the bottle got bigger and filled up the balloon.
- Similarly when we heat water it changes its form and becomes steam.
- Similarly when we cool a material it shrinks as you just saw in the experiment that when air in the bottle cooled down it came out of the balloon and went back in the bottle.
- Similarly when we cool steam it becomes water and when we cool water it becomes ice.
- So heating and cooling bring change in the materials and they change their forms.

Activity:

Write these headings on the board and ask the students to write their observations.

Observation page:

Date: _____

Material: _____

Things I noticed _____

A picture of what I saw:

Wrap-up Q/A

What makes materials to change? (heating and cooling)

Level 2	Lesson Plan	Matter and Materials
Term 2		
Week 6		
Day 2		

Topic: Properties of liquids and solids

Objective: Students will be able to understand that some objects float and some sink.

Activity: sinking and floating

Materials: A large bowl of water, a small piece of polystyrene, piece of wood, lots of small objects, such as pebbles, marbles, corks, grapes, crayons and buttons.

Procedure:

Warm-up Q/A

- Show them the objects you have brought one by one.
- Ask them to guess if they will sink or float when placed in water?
- Ask why do objects sink or float?
- Are the ones which float are light in weight?
- Are all the ones which sink are heavy?
- At this stage they might not have proper answers.
- Listen to their responses and tell now we will experiment to see what happens to these objects.

Activity: 1 Demonstration

- Set up your apparatus in front of the class.
- Before putting each object in water keep on asking the children to guess if it will sink or float.
- One by one put all the objects in water. (You can call volunteers from the class to do this also).
- Draw this table on the board and ask them to copy it in their notebooks.
- Tell the children to carefully observe and record.
- Help them in writing the names of objects if they find it difficult due to language problem.
- List the names of objects you have used on the side of the board.

Sinking and floating

Objects which sink	
Objects which float	
Objects which half sink	

Follow-up discussion

- Invite the students to share their result.
- What did you observe? or
- What did you learn from this activity?
- Ask, can you tell
- Why did some objects float?
- Why did some objects sink?
- Why did some objects half sink?
- Listen to their responses, then explain.

Explanation

- Explain,
- Some objects float in water because they are light. Such as ping pong ball floats as it is very light.
- Some objects sink because they are heavy. A coin or marble sinks, as it is heavy.
- Some objects half sink because they are not very heavy and not very light. Such as crayons half sink.

Wrap-up Q/A

- Why do some objects float?
- Why do some objects sink?
- Why do some objects half sink?

Activity: 2 Written work

Task:

I) Tell them to draw the experiment to arrange the objects like this to show what happened.

II) Objects float because they are _____ (light, heavy)

III) Objects sink because they are _____ (light, heavy)

Level 2	Lesson Plan	Matter and Materials
Term 2		
Week 6		
Day 3		

Topic: Properties of liquids and solids

Objective: Students will understand that objects float by changing shape and the role that air plays in floating.

Activity: making sinkers floater

Materials: clear plastic container, water, and balls of modeling clay.

Procedure:

Warm-up Q/A

- Remind the students about yesterday's lesson.
- Ask,
- What did we do yesterday?
- Why do some objects float?
- Why do some objects sink?
- Why do some objects half sink?
- Ask, have you ever sat in a boat?
- Why do you think a boat floats on water?
- Listen to their responses.
- Then tell we will experiment to see what makes a boat float.

Activity:

- Set up your apparatus in front of the class.
- Mark the level of water on the bowl with a marker.
- Tell the children to see the level mark. (it should be facing towards the class).
- Show the students a ball of clay.
- Ask them what they think will happen if you drop it into a container of water.
- Drop it in the water.
- Ask them why they think it sank.
- Give one ball of clay to each student.
- Tell them to mould their clay into a shape that will make their clay float.
- Encourage them to keep trying, depending on the time.
- If they find it difficult to think of a boat shape, give them some clues. (if they mould their clay into a boat shape it will float).
- Let them try their boats in water.
- You can make it into a contest and at the same time they realize that how to modify their boat shape so that it does not sink.
- **Follow up discussion**
- After many have achieved their goal and their clay floats.
- Ask, Why is clay floating in the boat shape?

- Draw some pictures on the board.
- Ask which picture of the clay will float and which one will sink?
- Ask why did certain ones float?
- Ask; is there anything inside the clay boat that helps it float?

Explanation

- Explain,
- Shape of the boat helps it float.
- This shape of the boat takes up more space as compared to the other shapes and ball of clay.
- It pushes water aside and stays on top of water.
- Show them the mark you made for water level on the side of the bowl.
- Show them that water level is higher because boat has pushed the water aside to stay on top.
- Put a marble in the boat and explain the boat has sunk because it has become too heavy to push the water aside to stay up.
- Explain that there is air inside the boat also which helps it float. Air makes the objects lighter.
- Discuss that the ones with the higher sides trapped more air inside and floated.
- Can you name any objects, which have air in them and they float?
- (ping pong ball or any ball with air, empty bottle, tyre tubes, balloons etc)

Wrap-up Q/A

What makes a boat float?

(Its shape and the air trapped inside).

Level 2	Lesson Plan	Matter and Materials
Term 2		
Week 6		
Day 4		

Topic: Properties of liquids and solids

Objective: Students will understand that objects float by changing shape and the role that air plays in floating.

Activity: written work

aterials: Worksheet

Procedure

- Revise the concept introduced in the previous lesson.
- Distribute the worksheet and explain.

Revise the work done in class.

Level: 2
Week: 6

Term: 2
Day: 4

Sinking and Floating Worksheet

Q I) If you want to make your clay float on water in which shape you would mould it into.

Flat
Round ball
Square
Boat shape

Q II) Circle the objects which will float on water?

Ball
Boat
Tube with air
Nail
Coin
Crayon
Empty bottle
Balloon
Wood

Q III) Complete these sentences.

- a) _____ objects float on water. (light, heavy)
- b) _____ objects sink in water.(light, heavy)
- c) _____ of a boat helps it to float. (Shape, size)
- d) _____ in the objects help them to float.(air, colour)

Level 2	Lesson Plan	Matter and Materials
Term 2		
Week 6		
Day 5		

Topic: Properties of liquids and solids

Objective: Students will understand that why some objects float and sink.

Activity: Sinking and floating

Materials: one plastic pen cap, one clear bowl of water and clear plastic bottle, and 1 piece of modeling clay.

Procedure

Warm-up Q/A

- Remind the students about previous lesson about sinking and floating and ask,
- Why do some objects sink?
- Why do some objects float?
- What happens when light objects are placed in water?
- What happens when heavy objects are placed in water?
- Show the plastic pen cap and
- Ask, does it sink or float?
- Then
- Put the plastic pen top in the water and see what happens.
- It floats, Ask, why does it float?
- (It floats because it is lighter than the water)
- Then tell we will make a diver with it. That diver will move up and down in the water.

Activity: 1

- Stick a small piece of clay onto the pen top.
- Tell,
- This is the diver.
- Put the diver into a bowl of water.
- See what happens.
- Remove or add modeling clay until the diver floats upright.

Follow up discussion

- Ask, why did this happen?
- What did you learn from this activity?
- **Explanation**
- **Explain**
- There was air in the hollow of the pen cap, which helped it to float.
- Now we have added clay, which has increased its weight and filled the hollow as well. Due to which it can balance straight up.
- Then completely fill the plastic bottle with water.
- Put the diver in the bottle and screw the top on tightly.
- Rotate the bottle and the diver will float up and down.
- Weight of an object and air makes objects sink or float.

- The lighter objects float.
- The heavy objects sink.

Wrap-up

Which objects sink?

Which objects float?

Science Revision Plan

Level 2

Term 2

Week 7

Week	Curriculum Strand	Topic	Day	Specific Objectives
7	Life systems	Growth and changes in animals	1	Revision
7		do	2	
7		do	3	
7			4	
7		do	5	

Science Revision Plan

Level 2

Term 2

Week 8

Week	Curriculum Strand	Topic	Day	Specific Objectives
8	Matter and materials	Properties of solids and liquids	1	Revision
8		do	2	
8		do	3	
8			4	
8		do	5	