The process of making cement is described in this flow chart. The two raw materials used in the process are limestone and clay. Limestone is crushed, sized, dried and stored in storage silos. In the same way, Clay is washed, crushed, and dried in storage basins. The two materials are mixed in the correct proportion and ground in a tube mill (This mixture is known as slurry) and stirred in a correcting basin. It is then stored in a storage tank. From there, it is fed into the rotary kiln where it is burnt at a high temperature of 1000 to 1700°C. Here clinkers are formed which are sent to a cooler, to be cooled. At this stage, Gypsum is added to the clinker and this mixture is powdered. The powdered mixture is the finished product, cement, and it is sent to the storage silos ready for distribution.
Raw materials

Limestone
- Crushed
- Sized
- Dried
- Stored in storage bins

Clay
- Washed
- Crushed
- Dried
- Stored in storage bins

Mixed in correct proportions
- Ground in a tube mill (slurry)
- Stirred in a correcting basin
- Storage tank

Rotary Kiln lohe burnt at 1000°C to
- Clinkers are formed

Gypsum is added

Cooled in a cooler

Mixed and powdered

The powder is stored in storage

Cement is ready for distribution
The earth contains a large number of metals which are useful to man. One of the most important of these is Iron. The Iron ore which we find on the earth is not pure. It contains some impurities which we must remove by smelting. The process of smelting consists of heating the ore in a blast furnace with coke and limestone and reducing it to metal. Blasts of hot air enter the furnace from the bottom and provide the oxygen which is necessary for the reduction of the ore. The ore becomes molten, and its oxides combine with carbon from the coke. The nonmetallic constituents of the ore combine with limestone to form a liquid slag. This floats on top of the molten iron and passes out of the furnace through a tap. The metal which remains is pig iron. We can melt this again in another furnace – a cupola – with more coke and limestone and tap it out into a ladle or directly into moulds. This is cast iron.
Impure

Heated in a blast furnace with coke

Hot air is blown from the bottom to provide oxygen

Ore becomes

Oxides combine with carbon form

Pig iron

Non metallic constituents combine with limestone to

Melted in another furnace coupled with coke and limestone

Trapped into moulds

Cast
3. Given below is a process description. Read it and draw a flow chart representing the process described.

Rayon is a man-made fibre. It is a reconstituted natural fibre-cellulose. Rayon is made by dissolving cellulose in a solution of sodium hydroxide, or caustic soda. The cellulose is obtained from shredded wood pulp. The dissolved cellulose is formed into threads by forcing it through a spinneret in a setting bath of dilute sulphuric acid. The threads are drawn from the setting bath, wound on a reel, washed, then dried on a heated roller, and finally wound on to a bobbin.
Process of making RAYON

1. Shredded wood pulp
2. Cellulose
3. Dissolved in Sodium Hydroxide
4. Forced through a spinneret in dilute sulphuric acid
5. Threads formed
6. Wound on a reel
7. Washed
8. Dried on a heated roller
9. Wound on a bobbin
4. Read the following passage carefully. Represent this by means of a flow chart.

Silver occurs in the ores of several metals. The froth process of extracting silver, accounts for about 75% of all silver recovered. Here the ore is ground to a powder, then placed in large vats containing a water suspension of frothing agents, and thoroughly agitated by jets of air. Depending on the agents used, either the silver bearing ore or the gangue adhering to the bubbles of the froth, is skimmed off and washed. The final refining is done using electrolysis.
Extraction of silver

1. Ore of silver metal
2. Ground to powder
3. Placed in a vat containing frothing agents
4. Agitated by air
5. The ore is skimmed
6. Washed
7. Refined by electrolysis
8. Silver
5. Using the information provided in the given text, draw a flow chart describing the different stages involved in the making of coins. Remember to give an appropriate title to your flow chart:

Coins are manufactured in a factory known as ‘mint’. There are three mints in India: Bombay, Calcutta and Hyderabad. Production of coins at the mints is a complete process. It starts with the buying of unmixed metals and their testing by the Assay Department. Then the metals are alloyed in oil-fired or electric arc furnaces, and cast into ingots 40 cm wide, 15 cm thick and 6 m long. These ingots are reheated until the temperature is hot enough for hot rolling. During this stage, the ingots pass through a series of rollers until they form long, thin sheets which are of the thickness of a coin. From these thin strips, blank discs are punched. These are the basic raw materials for the manufacture of coins. The blanks are heated to soften them, and they are rolled so that the rim is raised. Finally they are stamped with the design of the coin. At every stage, defective pieces are carefully sorted out, and (with the frequent checking and returning points) strict quality control maintained. Rejects are returned to the alloying stage, together with the waste from the alloy strip.
Unmixed Metals are taken

Tested by the assay Dept

Converted into an alloy in a furnace

Cast into ingots (of the required size)

Good ingots selected and reheated

Defective ingots are removed

Passed through a series of rollers until they become thin strips (disc)

The faultless blank discs are punched

Defective Discs are removed

They are heated again to be softened

They are rolled again for the rims to be removed

Faultless coins are selected and design stamped

Defective and smudged coins removed

Clear coins selected

Defective coins returned to the alloying stage

Selected coins are collected