

ANSWERS

Chapter 3: Rocks and Minerals

What I Know

(Left to right)

- | | |
|-----------------|-------------|
| 1. Marble | 2. Chalk |
| 3. Diamond | 4. Talc |
| 5. Pumice stone | 6. Graphite |

Checkpoint 1

- | | |
|--------------|-----------------|
| 1. Slate | 2. Pumice stone |
| 3. Quartzite | 4. Sandstone |

What I Have Learnt

I. Objective Type Questions.

- | | |
|--------------------|-----------------|
| A. 1. c. limestone | 2. b. sandstone |
| 3. b. Limestone | 4. c. Peat |
| 5. c. Limestone | 6. b. Diamond |
| B. 1. Metallic | 2. Non-metallic |
| 3. Coal | 4. Sandstone |

C. Across:

3. Non-metallic mineral: CALCITE
5. Sedimentary rock: CONGLOMERATE
6. A hole or area of holes made in the Earth from which minerals are extracted: MINES
7. Igneous rocks: OBSIDIAN

Down:

1. When the dead organisms rot away, they form a thick, lumpy brown material: PEAT
2. Rocks that formed by the deposition of sediments: SEDIMENTARY
4. Metamorphic rock: GNEISS

II. Short Answer Questions.

1. Quartzite and granite
2. Igneous rock can be used in construction, making ornaments, jewellery, cosmetic and cleaning industries.
3. Pumice rock is light in weight because it has lots of pores.
4. The magma exists in molten state due to the extreme temperatures existing under the Earth's crust.
5. Slate is used in making roof tiles as its layers can be split into separate flat sheets.
6. A mineral is an element or a chemical compound that is usually crystalline and has been formed as a result of geological processes.
7. Minerals are used in making machines, utensils, wires, jewellery and are also used as fuels.
8. When dead organisms rot away, they form a thick, lumpy brown material called peat. This peat turns into coal.
9. Quarry is a large open hole or pit dug for mining stone, marble, gravel, etc.

III. Long Answer Questions.

1. Igneous rocks:

Igneous rocks are formed when magma cools and hardens. Sometimes, the magma cools inside the Earth. In some cases, it erupts on to the surface from the volcanoes (in this case, it is called lava). When the magma from under the Earth's crust (lava) comes out during volcanic eruptions, some of it gets spread over the Earth's surface. Slowly and gradually, it cools down and forms rocks. Granite, obsidian, basalt and pumice are examples of igneous rocks.

Sedimentary rocks:

Sedimentary rocks are formed by the deposition of sediments, over time. These sediments can include minerals, sand, mud and pebbles. These rocks appear in layers. The oldest rocks are present at the bottom with newer rocks above them. When water flows down through a mountain slope, it breaks some of the rocks of the mountain that come in its way. Likewise, strong wind and heavy rainfall also cause breakage of rocks into smaller pieces. These small pieces of rocks and soil particles are carried away by flowing water or wind to some other places. This way, layers of sediments pile up at a particular place and get cemented over thousands of years, thus forming sedimentary rocks. Sandstone, shale, conglomerate and limestone are examples of sedimentary rocks.

Metamorphic rocks:

Metamorphic rocks are igneous and sedimentary rocks that have been transformed under extreme heat and pressure. Due to this heat and pressure,

they do not melt; rather, the minerals in them are changed chemically to form metamorphic rocks. These rocks are more compact and dense. They are the least common of all the three types of rocks. Marble, slate, quartzite and gneiss are some examples of the metamorphic rocks.

2. Refer page 79 of the textbook.

3. **Types of Rocks:**

Igneous Rocks: Granite, obsidian, basalt, pumice

Sedimentary Rocks: Sandstone, shale, conglomerate, limestone

Metamorphic Rocks: Marble, slate, quartzite, gneiss

4. Petroleum is formed from the remains of dead plants and animals. The pressure exerted by heat and weight of the rocks on the piles of dead, rotting plants and animals turn them into liquid oil.

5. Minerals are of two types—metallic and non-metallic.

Metallic minerals: Iron can be extracted from iron ores such as haematite. Most of the iron ore is used for manufacturing steel. Aluminium is extracted from bauxite and copper is extracted from pyrite. Some metals like copper, iron, aluminium are also obtained from minerals. Metals are used for making machines, utensils, wires, etc. Metals like gold and silver obtained from minerals are suitable for making jewellery.

Non-metallic minerals: Precious stones such as diamonds, emeralds, rubies, topaz and sapphires are also obtained from the ground. They are used to make jewellery. All the minerals which form rocks are natural non-living things. But coal and petroleum are minerals formed from living things. They are obtained from deep inside the Earth's surface. Coal is formed from the remains of dead plants and animals. Petroleum is also formed like coal. The pressure exerted by heat and weight of the rocks on the piles of dead, rotting plants and animals turns them into liquid oil.

Enrichment Activities

I. HOTS

- A. Yes, rocks are a part of our daily life. Our kitchen counter tops are made up of granite. We use mortar and pestle for grinding purpose. We wear gemstones as jewellery. We use pumice stone for cleaning purpose. In school, the blackboard is made up of slate and chalk is made of limestone.
- B. The existing sources of energy are non-renewable sources. So, we are in search of alternative sources of energy.
- C. Calcium, magnesium and aluminium are used in antacids.
- D. Slate and limestone are being used in the picture.