CHAPTER: Inside Our Earth

Grade: **7**
Board: **CBSE**
Book: **NCERT**

1.

Chapter Summary and Placement

<Read through the following to understand how this chapter is connected with the previous and next grades and also the important concepts covered in it.>

1. The features of planet Earth, latitudes and longitudes, the motions of the Earth are explained in detail in the previous Chapter. This chapter explains about the interior of the Earth.
2. The definition of rocks and different types of rocks are explained in detail.
3. The following chapter explains the changes caused in the interior of the Earth and its effects. Hence, understanding the basics is very important.

2.

LEARNING OBJECTIVE

<On completion of the chapter, students will be able to:>

1. Describe the different layers of Earth, the varying characteristics and composition.
2. Describe the structure and types of rocks and process by which rocks changes from one form to another.
3. Analyse that each element has definite physical and chemical properties.
4. Show willingness to consider new ideas about different uses of rocks.

3. Previous Knowledge Requirement (Keywords)

The below points should be refreshed before introducing the chapter:

1) Recall the definition of elements studied in Science.
2) Recall the elements Nickel, Ferrous, Aluminium, Magnesium and Silica

4. TEACHING PLAN

Follow this section for getting ideas on teaching the content covered in the chapter. The subtopic given in the first column with the matching learning outcome can be explained using instructions and resources listed subsequently

Subtopic and Learning Objective #1

Interior of the Earth
LO:
Describe the different layer of Earth, the varying characteristics and composition

Teacher Activity

1. Explain different layers of Earth and their composition in detail. Please refer to the **Resource1.**
2. Explain the features of all the layers one by one.

a) Crust: 35 kms from surface, made up of silica, aluminium and magnesium (sial, sima)
b) Mantle: 2900 km deep
c) Core: 3500 km deep, nife(nickel and iron)

3. Check for understanding:

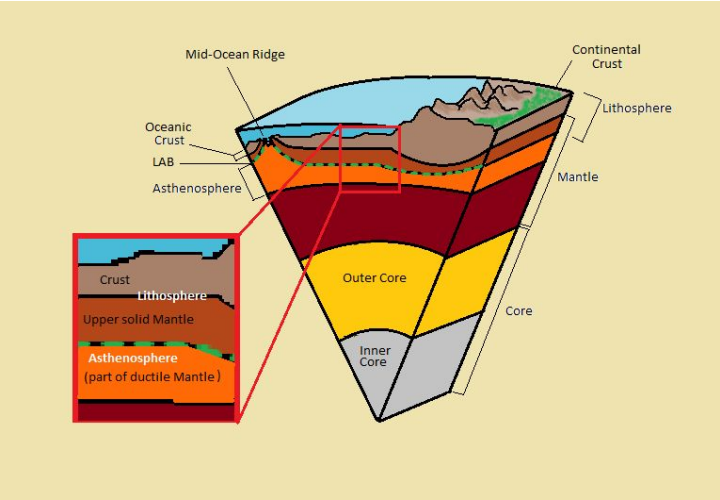
a) What is the composition of the innermost layer of Earth?
b) What is sima?

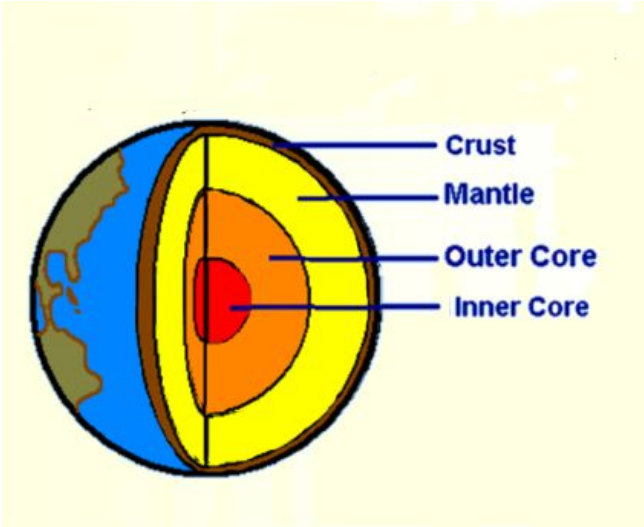
Resources Suggested

Textbook

Resource 1

Part of the interior of the Earth





Subtopic and Learning Objective #2

Rocks and minerals:
LO:
Acquire knowledge about structure and types of rocks. State the continuous process in which rocks change from one cycle to another.

Teacher Activity

a) Explain rocks, and the formation of rocks.
b) Igneous rocks, sedimentary and metamorphic rocks can be explained in detail with the help of examples given in the textbook.
c) Explain in detail the rock cycle.
d) Refer to **Resource 2.**
e) Check for understanding:
a) The process of transformation of the rock from one to another is known as the ___.
b) What are the different types of rocks?

Resources Suggested

Textbook

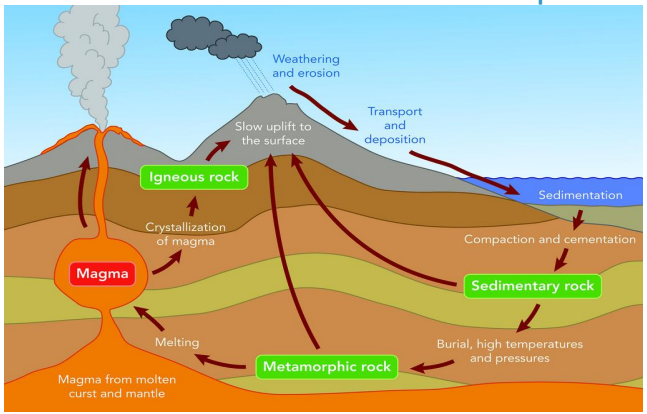
Activity 1

Use it for: Explaining rock cycle/ reinforcement

Type of activity: Role Play

Procedure:

1. Pick a few students in the class
2. Give each of them a paper chit with the following written on them: Magma, Igneous rock, Sediments, Sedimentary rock, Metamorphic rock
3. Ask them to prepare two lines about the features of the rock mentioned on their paper chit and sequence themselves as a rock cycle. They can be given thee image below as a reference
4. How one form leads to other should be explaineD



5. WORKSHEETS

Print or copy the worksheet questions on the blackboard and ask the students to attempt them. They can be given as homework or a class test as well.

Worksheet 1

Use it like: Class test, home assignment, revision

Answer the following questions in brief:

1. What types of rocks have been used to make Red fort and Taj Mahal?
2. What is the radius of the earth?
3. What are fossils?
4. What are minerals?
5. How are intrusive igneous rocks formed?
6. What is a rock?
7. Describe the core.
8. What is sial?
9. Name an edible mineral.
10. How are rocks useful to us?

Worksheet 2

Use it like: A class test, assignment, home task

Answer the following questions in brief:

1. Describe the Lithosphere or the crust.
2. How are extrusive igneous rocks formed?
3. What are igneous rocks? Give two example
4. Why are coal and petroleum called fossil fuels?
5. Define Rock cycle.
6. Give two examples of metamorphic rocks.
7. Describe the types of Classify the igneous rocks.
8. How does metamorphic rock forms?
9. Where is the world’s deepest mine situated?
10. Draw the image of earth and mark the three layers along with the temperature of that layer

6. SOLUTIONS

This section gives you sample answers for activities and questions listed above.

Worksheet 1

1. The Red Fort is made of red sandstone. The Taj Mahal is made of white marble.
2. The radius of the Earth is 6371 km.
3. The remains of the dead plants and animals trapped in the layers of rocks are called fossils.
4. The naturally occurring compounds of elements are known as Mineral.
5. The intrusive igneous rocks are formed by the cooling of molten magma down, deep inside the Earth's crust.
6. Rock is the natural mass of mineral matter that makes up the earth's crust.
7. The innermost layer of the Earth is called as the core with a radius of about 3500 km. It is mainly made up of nickel and iron and is called nife (ni – nickel and fe – ferrous i.e. iron). The central core has very high temperature and pressure.
8. The main mineral constituents of the continental mass are silica and alumina. It is thus called sial (si-silica and al-alumina).
9. Calcium is an example of edible mineral.
10. The hard rocks are used for making roads, houses and buildings. Stones are also used for many purposes.

Worksheet 2

1. The uppermost layer over the earth's surface is called the crust. It is the thinnest of all the layers. It is about 35 km. on the continental masses and only 5 km. on the ocean floors. The main mineral constituents of the continental mass are silica and alumina. It is thus called sial (si-silica and al-alumina). The oceanic crust mainly consists of silica and magnesium; it is therefore called sima (si-silica and ma-magnesium).
2. Extrusive igneous rocks are formed when the molten magma coming out from the interior of the earth, cool down rapidly on the surface of the earth and becomes solid.
3. Rocks formed by the cooling and solidification of molten magma are called Igneous rocks. Granite and Basalt are examples of igneous rock.
4. Coal and petroleum are called as fossil fuels because they are all made from the remains of dead plants and animals trapped in the layers of rocks .

Worksheet 2

5 When the molten magma cools; it solidifies to become igneous rock. These igneous rocks are broken down into small particles that are transported and deposited to form sedimentary rocks. When the igneous and sedimentary rocks are subjected to heat and pressure they change into metamorphic rocks. The metamorphic rocks which are still under great heat and pressure melt down to form molten magma. This molten magma again can cool down and solidify into igneous rocks. This process of transformation of the rock from one to another is known as the rock cycle.

6 Slate and marble are examples of metamorphic rock.

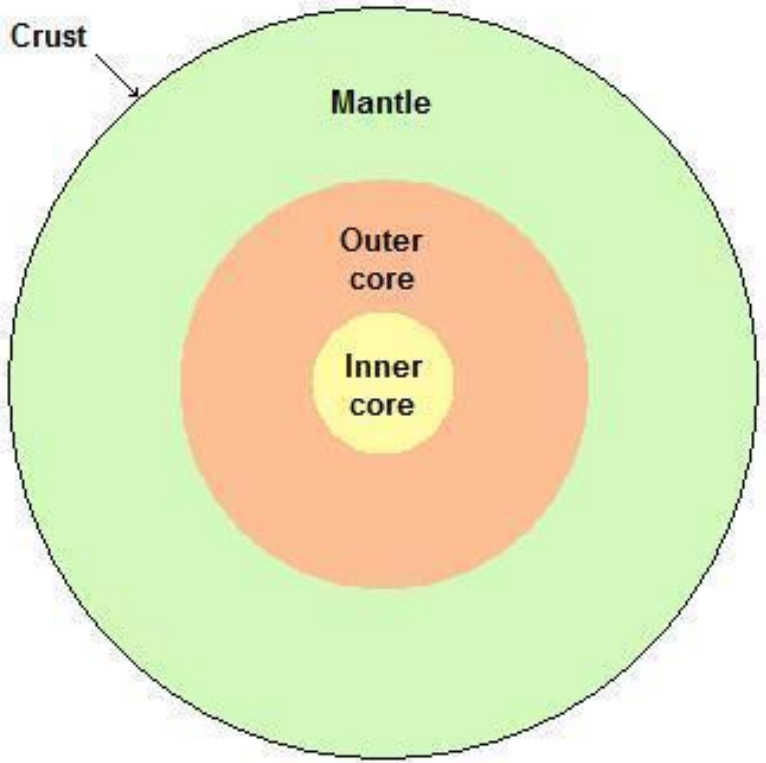
7 Rocks formed by the solidification of molten magma is called igneous rocks. The igneous rocks are of two types. a) Extrusive igneous rocks are formed by the solidification of molten magma on the surface of the earth or the crust. When the molten magma solidifies deep inside the earth's crust, they are called intrusive igneous rocks.

8 Igneous and sedimentary rocks can change into metamorphic rocks under great heat and pressure. For example clay becomes slate and limestone changes into marble.

9 The deepest mine in the world, is in South Africa. It is about 4 km. deep. In search for oil engineers have dug a hole about 6 km. deep.

Worksheet 2

10 .



6. EXTRA RESOURCES

Carry out the following suggested activities/ tasks if you have the time and resources to do them

Extension Activity 1

Name: Recognise the rocks or materials used in building the following

Purpose: Remember the different types of rocks and their examples.
The teacher may provide the students with hints to help them find the different types of rocks used to make popular monuments.
Find out which type of rock do they belong to. Add more monuments to the list.
Also compare how direct usage of rocks in ancient times has moved to engineered materials being used for construction in modern times. (Use of steel, concrete over rocks). What are the advantages and disadvantages of this?

Extension Activity 1







Reference Video Link

The students can be suggested to watch the following videos/ shown in class:

https://www.youtube.com/watch?v=uLpXju5QsKU
https://www.youtube.com/watch?v=N9ncfAsmiSg