

## Chapter – 3

# Our Changing Earth

### Exercise

1.

(A) Why do the plates move?

**Answer:**

The core of the earth is made of **molten magma**. This molten magma keeps **moving deep below** the surface of the earth. Due to the movement of this magma, sometimes the lithospheric plates above it also moves. These movements of the plates are often responsible for **earthquakes** that result in the destruction of life and property on the surface of the earth.

(B) What are exogenic and endogenic forces?

**Answer:**

The movement of the plates under the surface of the earth is caused due to different forces. Based on the kind of force, these are categorized into exogenic and endogenic forces.

1) The forces that act in the **interiors of the earth are called the endogenic forces**. The sudden endogenic forces result in the natural disasters such as **volcano, earthquake, and landslides**. They also cause the formation of mountains.

2) The forces that act on the **exterior or surface of the earth are called exogenic forces**. These forces cause erosional and depositional in nature. They result in the **formation of rivers, occurrence of rivers and glaciers**.

(C) What is erosion?

**Answer:**

Erosion is a process due to which the landscapes and other landforms wear away. Erosion may take place by a number of factors such as wind, sea waves, rivers and ice. These factors are also called the agents of erosion.

**(D)** How are flood plains formed?

**Answer:**

Sometimes, due to heavy rains or increases water levels, a river overflows its banks. This leads to the flooding of the neighbouring areas. As a result of these floods, layers of fine soil and other material called sediments gets deposited along its banks. This leads to the formation of a flat fertile floodplain. The raised banks are called levees.

**(E)** What are sand dunes?

**Answer:**

As wind blows it carries sand and other dust particles along it. As the speed of the wind slows down the sand and dust particles settle on the surface of the earth and forms pile. This phenomenon is responsible for the formation of sand dunes. Sand dunes are formed mostly in desert areas where sand is found in abundance. When wind blows in these areas, it lifts and transports sand from one place to another. When the wind stops blowing or reduces its speed, the heavier sand particles fall and get deposited in low hill-like structures. These are called the sand dunes.

**(F)** How are beaches formed?

**Answer:**

The erosional and depositional activities of the sea waves leads to the formation of beaches. As water flows, it carried sediments along with it to the shore. Over a period of time, layers of sediments get deposited

one over the other along the shore and forms flat-like landforms called the sea beaches. These are often flat and receives the sea waves that bring another layer of sand with them.

**(G)** What are ox-bow lakes?

**Answer:**

As a river enters and flows through the plains, it bends along its way and forms meanders. Due to continuous erosion and deposition, the meanders come closer and closer and detaches itself from the river. This forms a crescent-shaped lake called the ox-bow lake. It resembles the shape of a bow hence is named like ox-bow lake.

**2.**

**(A)** Tick the correct Answer.

Which is not an erosional feature of sea waves?

- (a) Cliff
- (b) Beach
- (c) Sea cave

**Answer:**

It is the depositional feature of sea waves.

**(B)** Tick the correct Answer.

The depositional feature of a glacier is:

- (a) Flood plain
- (b) Beach
- (c) Moraine

**Answer:**

Flood plains and beaches the features of rivers and sea waves respectively.

**(C)** Tick the correct Answer.

Which is caused by the sudden movements of the earth?

- (a) Volcano
- (b) Folding
- (c) Flood plain

**Answer:**

Volcano is caused due to sudden movement of the interiors of the earth which causes a vent on the surface of the earth.

**(D)** Tick the correct Answer.

Mushroom rocks are found in:

- (a) Deserts
- (b) River valleys
- (c) Glaciers

**Answer:**

As strong winds blow in the deserts, they erode the rocks present in these areas. They erode the sides of the rocks, they blow giving the rock shape like a mushroom.

**(E)** Tick the correct Answer.

Ox bow lakes are found in:

- (a) Glaciers
- (b) River valleys
- (c) Deserts

**Answer:**

Ox-bow lakes are formed by the river that divides into smaller meanders. These meanders separate from the river and form ox-bow lakes.

**3. Match the following:**

|                 |                        |
|-----------------|------------------------|
| (i) Glacier     | (a) Sea shore          |
| (ii) Meanders   | (b) Mushroom rock      |
| (iii) Beach     | (c) River of ice       |
| (iv) Sand dunes | (d) Rivers             |
| (v) Waterfall   | (e) Vibration of earth |
| (vi) Earthquake | (f) Sea cliff          |
|                 | (g) Hard bed rock      |
|                 | (h) Deserts            |

**Answer:**

(i) Glacier (c) River of ice

Glaciers are called the rivers of ice as they look like rivers that are made of ice.

(ii) Meanders (d) Rivers

The twisting of rivers, in the plain, leads to the formation of meanders.

(iii) Beach (a) Sea shore

Sea waves hit the sea shores to form beaches.

(iv) Sand dunes (h) Deserts

In deserts, the blowing winds lead to the formation of sand dunes.

(v) Waterfall (g) Hard bed rock

When the river tumbles at steep angle over very hard rocks, it forms a waterfall.

(vi) Earthquake (e) Vibrations of the earth

The sudden vibration of the surface of the earth is called earthquake.

**4.**

**(A)** Give reasons

Some rocks have a shape of a mushroom.

**Answer:**

Mushroom rocks resemble the shape of mushroom it means that they are narrower at the base and broader or wider at the top. These are mostly found in the desert areas, that are formed when the winds erode the lower part of the big rocks as they blow and the upper part remains wider.

**(B)** Give reasons

Flood plains are very fertile.

**Answer:**

Flood plains are formed due to overflowing of the rivers. The flood plains are made of the deposits that are carried by the rivers such as fine soil and sediments. These are rich in nutrients and are also suitable for growth of the plants. This is why they are very fertile and suitable for plant growth.

**(C)** Give reasons

Sea caves are turned into stacks.

**Answer:**

Stacks are a type of coastal landforms. These are formed as a result of the erosional activity of the sea waves. As sea waves strike the rocks continuously, it leads to the formation of cracks in them. Over time, these cracks become larger and wider and appear like caves. They are called sea caves. As these cavities become bigger and bigger only the roof of the caves remain, thus forming sea arches. Further, erosion breaks the roof and only walls are left. These wall like features are called stacks. Hence, the sea caves are turned into stacks over a long period of time.

**(D) Give reasons**

Buildings collapse due to earthquake Give reasons.

**Answer:**

As the lithospheric plates move they cause the vibration on the surface of the earth. These are called earthquakes. When the earthquakes are of a high intensity or are very strong, they cause damage to almost everything out of which the buildings are the most affected. Due to sudden and strong shaking of the ground, the high-rise buildings also shake and develop cracks in them. As a result they collapse.

**5. Activity.**

Observe the photographs given below. These are various features made by a river. Identify them and also tell whether they are erosional or depositional or landforms formed by both.

| Photograph                                                                        | Name of the Feature | Type<br>(Erosional or Depositional or Both) |
|-----------------------------------------------------------------------------------|---------------------|---------------------------------------------|
|  |                     |                                             |
|  |                     |                                             |
|  |                     |                                             |

**Answer:**

1. Name of the feature: Waterfall

It is both erosional and depositional activity of the rivers. When the river tumbles at steep angle over very hard rocks or down a steep valley side it forms a waterfall.

2. Name of the feature: Meander

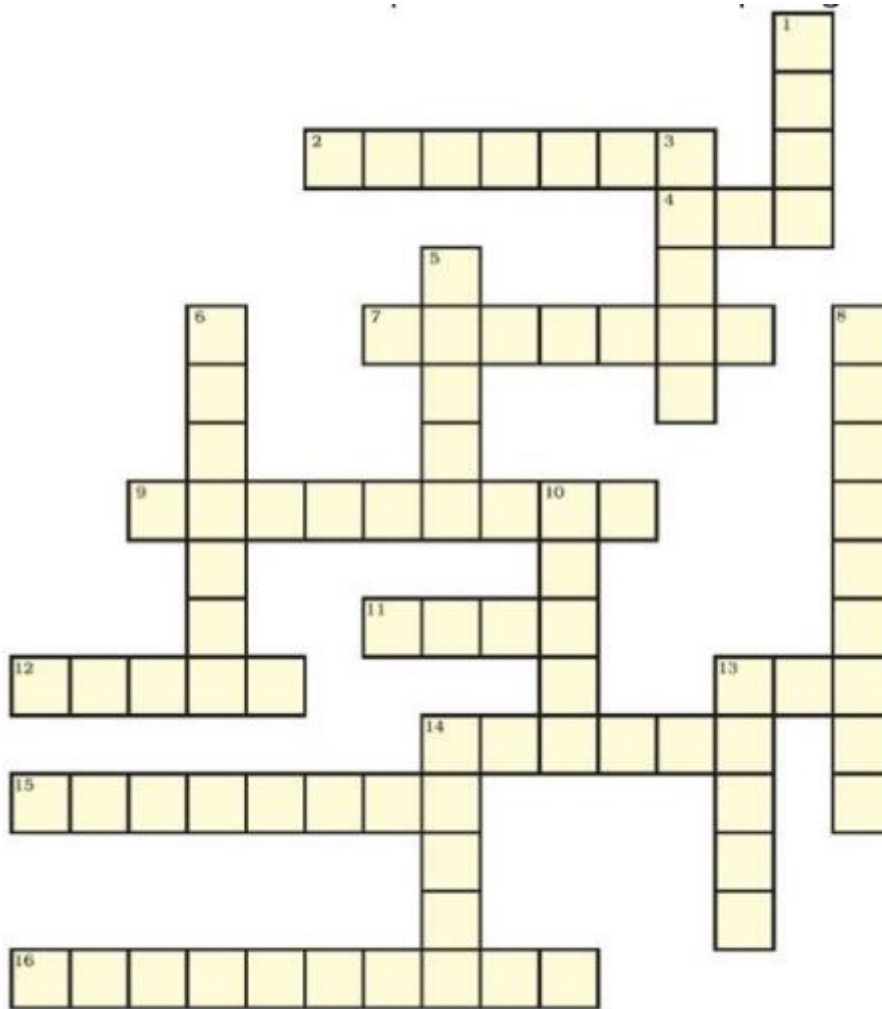
It is an erosional activity of the rivers. As a river enters and flows through the plains, it bends along its way and forms meanders.

3. Name of the feature: Flood plain

It is both erosional and depositional activity of a river. As it floods, the river water deposits layers of fine soil and other material called sediments along its banks. This leads to the formation of a flat fertile floodplain.

6. For fun.

Solve the crossword puzzle with the help of given clues.



#### Across

2. Loop like bend of river
4. Solid form of water
7. Moving mass of ice
9. Sudden descent of water in bed of river
11. Natural cavity on weak rocks formed by action of waves
12. Embankment on river that keeps river in its channel
13. Large body of sea water
14. Dry area where sand dunes are found
15. Small hill of sand piled by action of wind
16. Flat plain formed by river deposits during time of flood

#### Down

1. Rise and fall of water caused by friction of wind on water surface
3. Flow of water in channel
5. Steep perpendicular face of rock along sea coast
6. Debris of boulder and coarse material carried by glacier

8. Crescent shaped lake formed by river meander
10. Fine sand deposited by action of wind
13. Isolated mass of rising steep rock near coastline
14. Alluvial tracts of land at mouth of river formed by river deposits.

**Answer:**

