Self – Study Pack

- Subject – Science
- Grade – 7
- Term – 2nd Term
- Unit – Nature of Earth (Unit 8)
- Learning outcomes-
    - Describe core, mantle and crust of the earth
    - Demonstrate the structure of the earth's interior using suitable activities.
    - Make models to illustrate the structure of the earth
    - Explain modes of movement of plates.
    - Conduct simple activities to demonstrate plate tectonics.
    - Accept that earth's crust is dynamic.

Activity 1

(Demonstrating the structure of earth's interior)

1) Take a boiled egg. Take a section of it as illustrated in the diagram.

The interior layers of the earth can be compared with the parts of the boiled egg as given below.

Egg yolk → *Core of the earth*
Egg white → *Mantle of the earth*
Egg shell → *Crust of the earth*

2) Take an avocado. Take a section of the avocado as illustrated in the diagram.

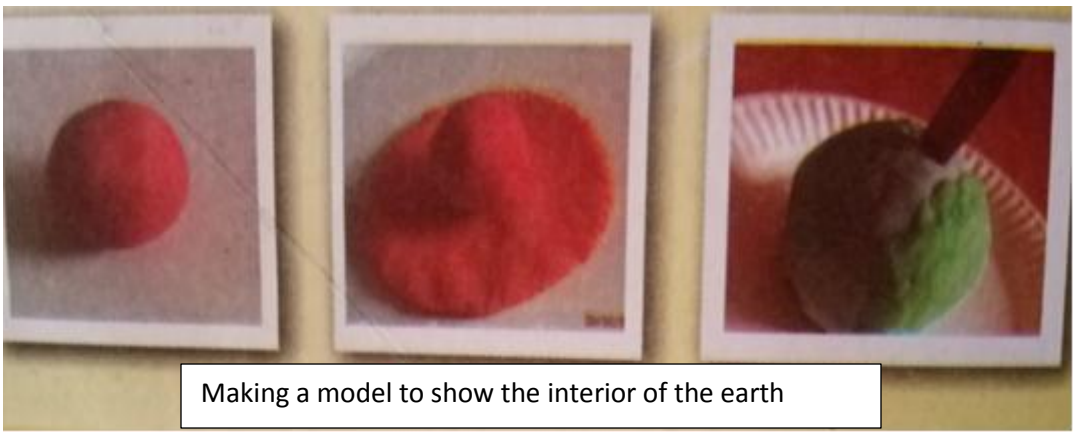
The interior layers of the earth can be compared with the parts of the avocado as given below.

Seed of the avocado → *Core of the earth*

Middle edible part of the avocado → *Mantle of the earth*

Peel of the avocado → *Crust of the earth*

3) Take pieces of clay in three different colours.
   - Take a piece of clay and make a sphere with it in the size of a small lime fruit.
   - Wrap that sphere of clay with a piece of clay in a different colour. Thickness of the clay wrapping is half of the diameter of the first sphere of clay.
   - Wrap the first layer of clay with another different colour clay layer. This layer should be as thin as possible.
   - Cut the final sphere of clay into two equal halves with a sharp knife.



Making a model to show the interior of the earth

Compare the section of clay sphere with interior layers of the earth.

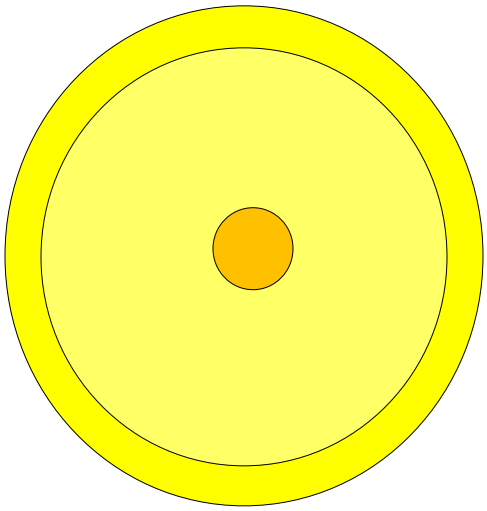
Inner sphere → Core of the earth

Middle clay wrapping → Mantle of the earth

Outer clay wrapping → Crust of the earth

4)

- Take three pieces of Bristol board in three different colours.
- Cut three circles with the radius of 1cm, 7cm and 13cm in three different colours with those three pieces of Bristol board.
- Paste them on one another as illustrated below.
- Compare the layers of the earth with the model you prepared.



Circle with the radius 1cm → *Core of the earth*

Circle with the radius 7cm → *Mantle of the earth*

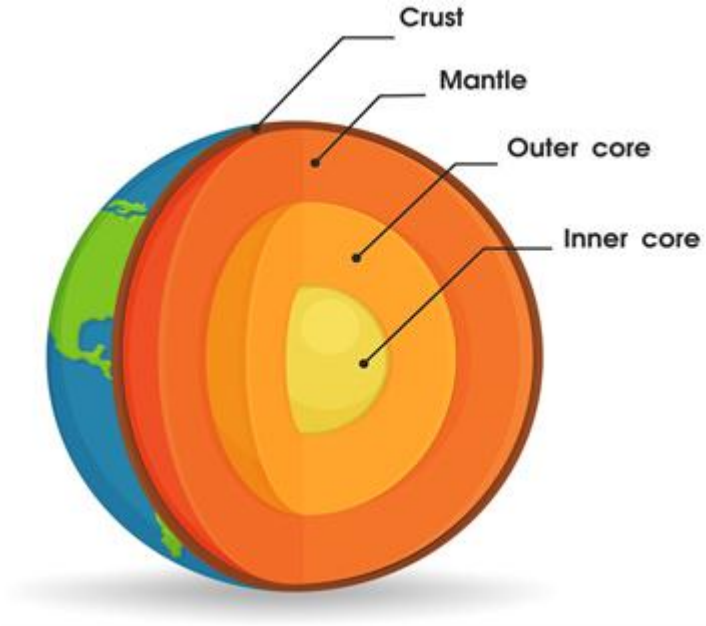
Circle with the radius 13cm → *Crust of the earth*

For your knowledge …….

According the models you studied, it is clear to you that,

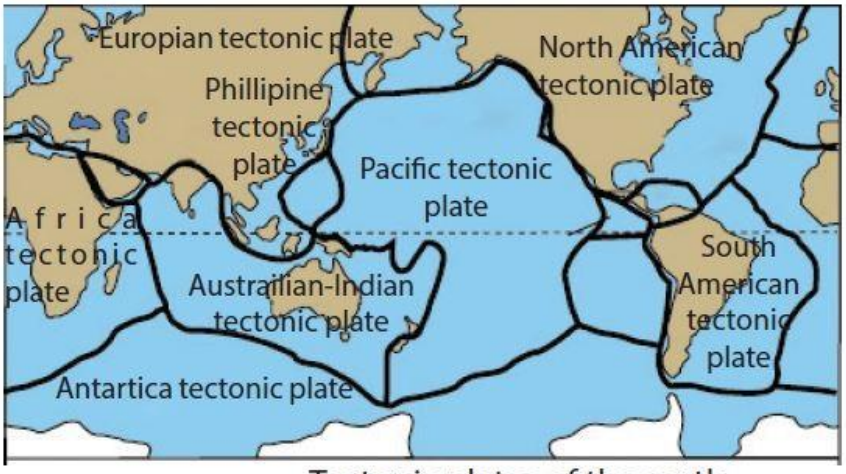
- ✓ Earth consists of three layers called core, mantle and crust
- ✓ The thickness of those layers is different from each other.

Nature of the interior of the Earth



Activity 2

- The outermost layer of the earth is called the crust.
- The crust consists of number of tectonic plates which are in relative motion.
- Study the map given below. Identify the tectonic plates.

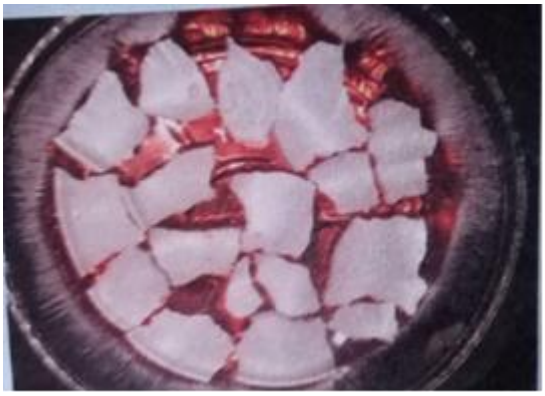


Tectonic plates of the earth

Activity 3

(Demonstrating plate tectonics)

1) Take some colour water to a plate or a shallow basin.
   Take a sheet of Styrofoam and break it into pieces and float them on water as illustrated in the diagram.
   Then shake the water basin slowly.

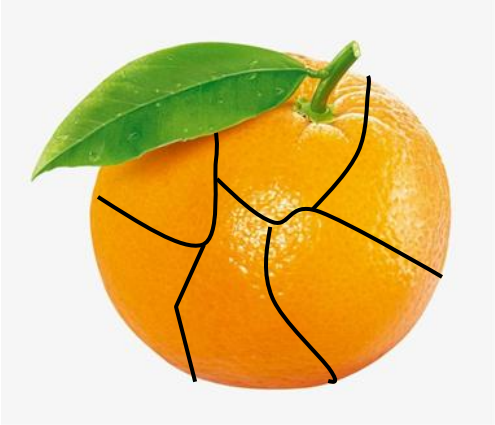


Observe the motion of pieces of Styrofoam.

For your knowledge……..,

- ✓ The way that the tectonic plates float on the surface of semi-liquid magma in the upper part of the mantle can be demonstrated by this activity.

2) Take a yellow orange with a thick peel. While the peel is attached to the fruit, cut it into parts of different shapes.
   Slowly press the orange between your palms.



Observe how the parts of orange peel move. This activity can also be used for demonstrating the motion of tectonic plates.

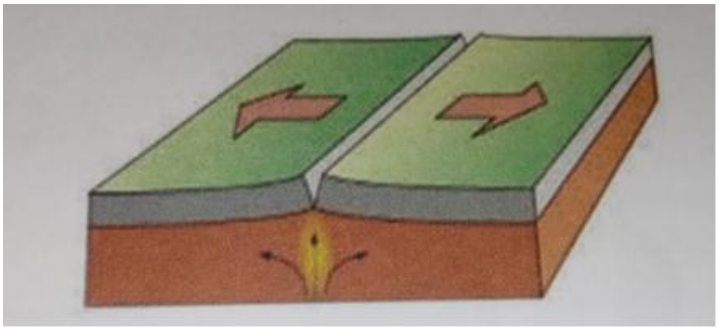
3) Take a boiled egg. Crack its shell by slowly hitting it to a table.
Mark the lines of cracks with a marker pen.
Slowly press the boiled egg with the cracked shell between your palms.

Observe how the cracked areas of the egg shell move. You may have an idea of how the tectonic plates of the earth move.

For your knowledge ……,

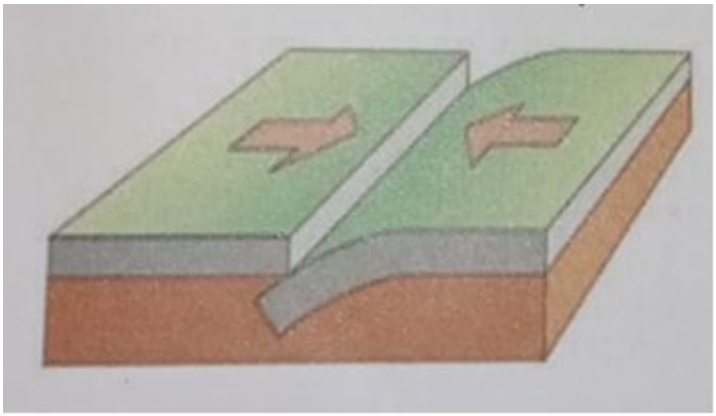
- ✓ There are three methods of movements of tectonic plates.

1. Divergent Plate Boundaries



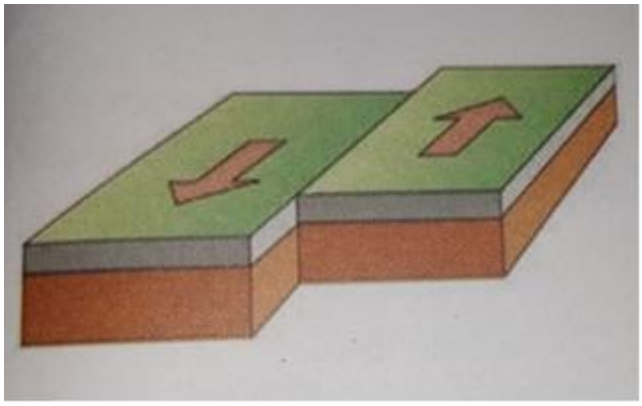
The tectonic plates move apart from each other at the boundaries. A deep gulf can form due to this motion.

2. Convergent Plate Boundaries



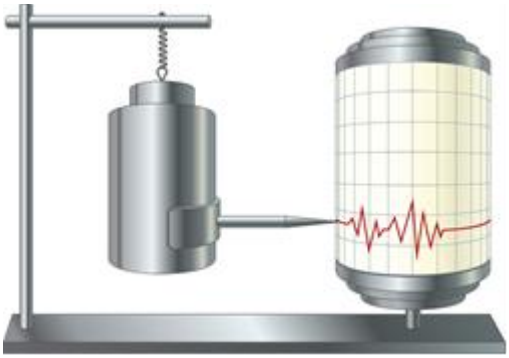
Two tectonic plates collide with each other at the boundaries. Due to this, one tectonic plate comes up pressing the other down. Volcanoes form in that area due to this motion of tectonic plates

3. Transform Plate Boundaries



Two tectonic plates slide passed each other. (Plates slide horizontally past each other.) Earthquakes can occur due to this type of plate boundaries.

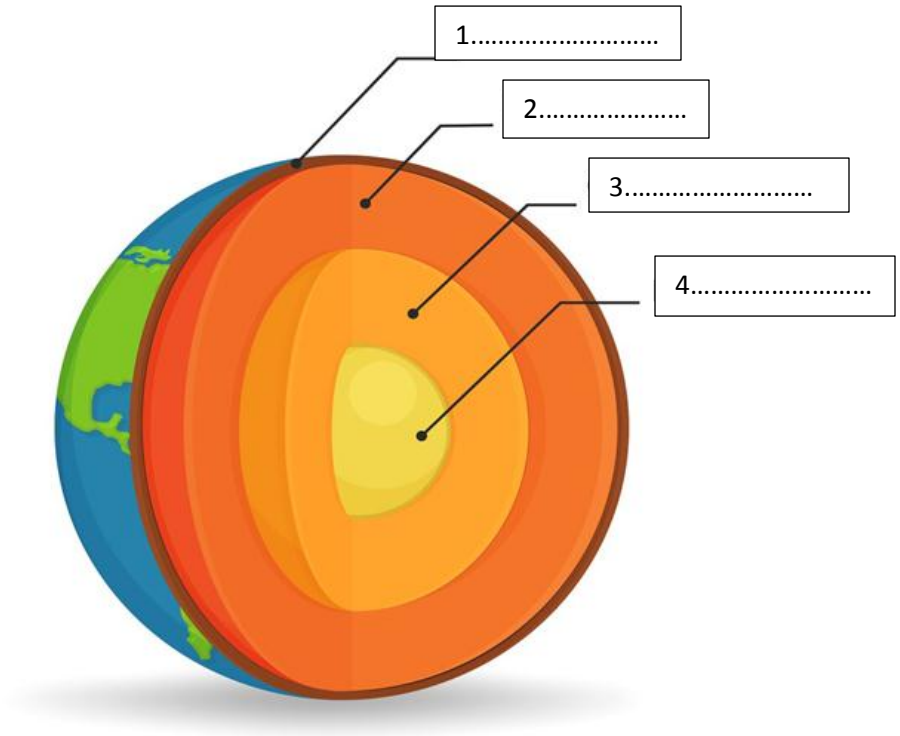
A seismometer is used for measuring the intensity of earthquakes.



A seismometer

Assessment

1) The diagram given below shows the interior of the earth. Name the main layers of the interior of the earth.



2) Complete the following table with your textbook.

Part of the Earth	Composition	Elements present
Crust		
Mantle		
Core		

3)

i. Name five main tectonic plates of the earth by studying Activity 2

ii. In which tectonic plate is Sri Lanka situated?

iii. Why aren't there strong earthquakes in Sri Lanka?

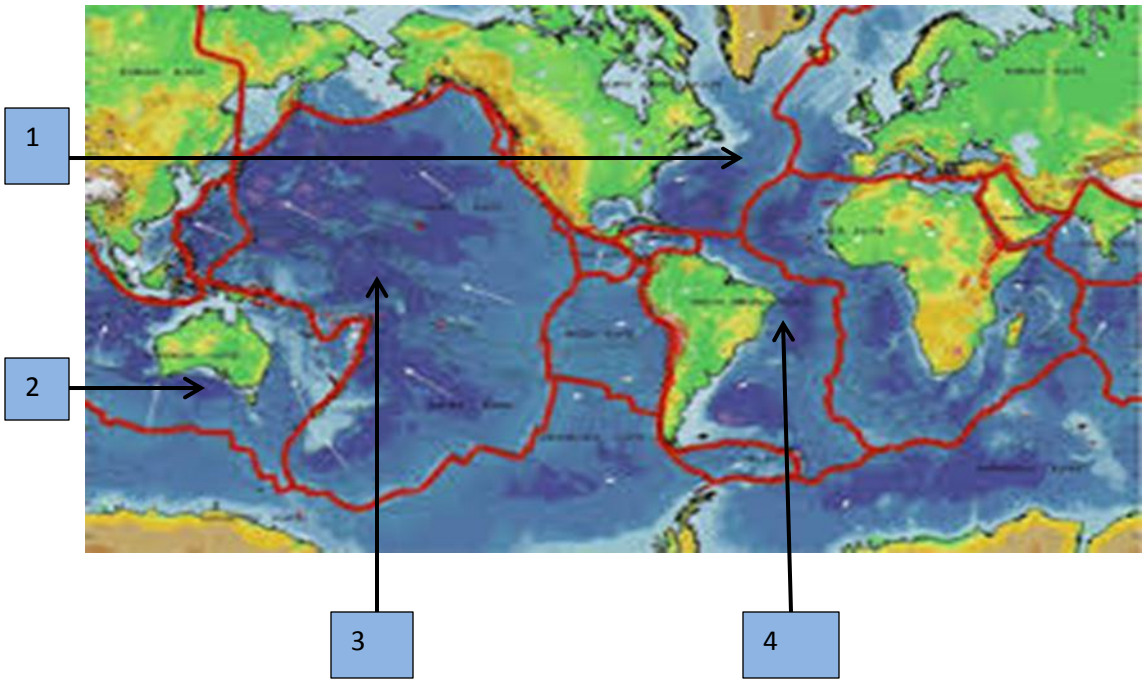
iv. Mention two ways that the Geologists obtain information related to interior of the earth.

v. Mention two countries that are easily vulnerable to earthquakes.

4) Match the correct answer.

The most abundant element in earth crust	seismometer
The things necessary to maintain our live are obtained from	oxygen
The layer of the earth crust divided into tectonic plates	molten iron
The most abundant element in the earth's core	from the crust
Used for identification of seismic waves.	Crust

5) Label the tectonic plates in the map given below by studying the map showing the tectonic plates in activity 2.



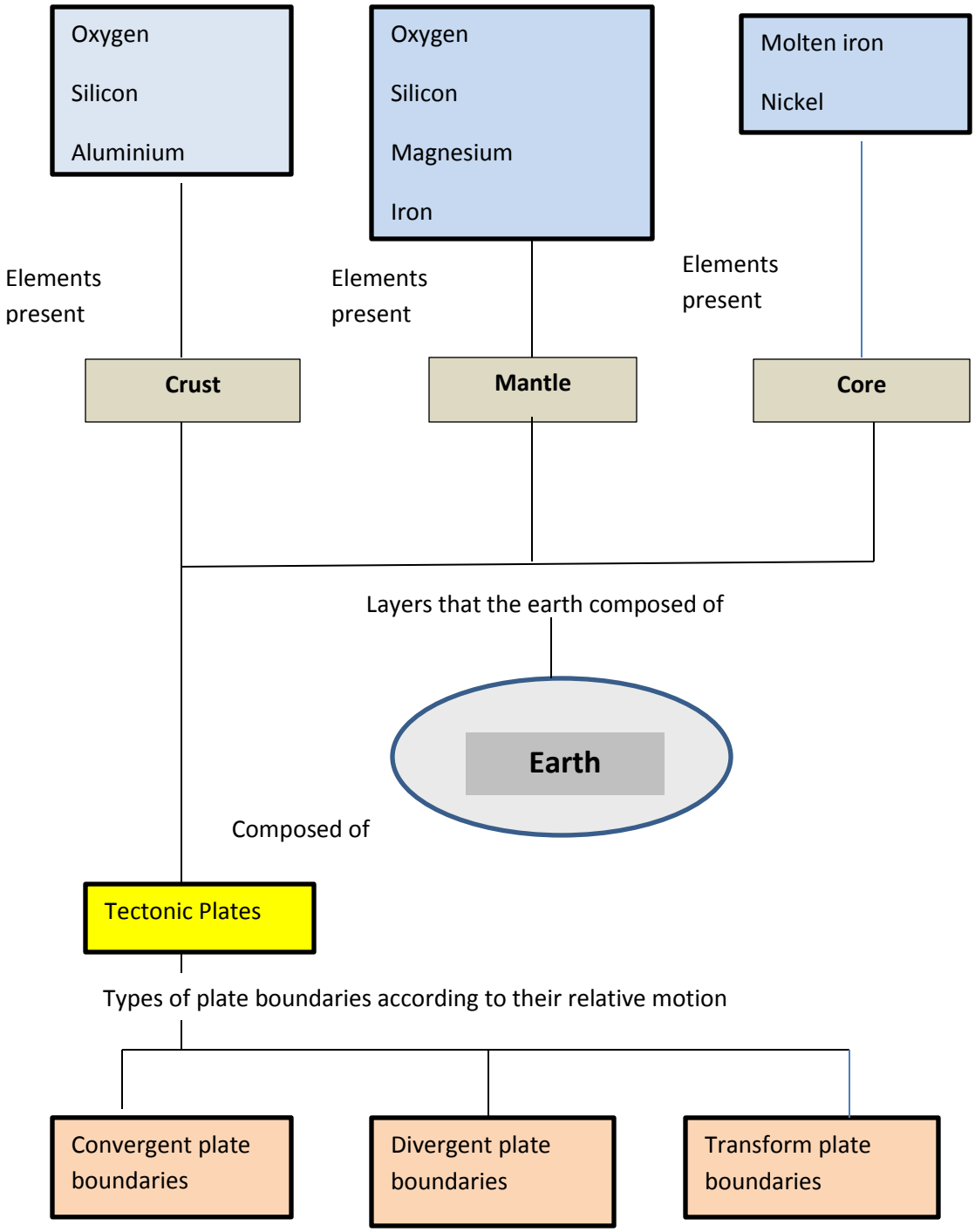
No. 1 ……..

No. 2 ……..

No. 3 ……

No. 4 ……..

Summary


Oxygen
Silicon
Aluminium
Oxygen
Silicon
Magnesium
Iron
Molten iron
Nickel
Elements present
Elements present
Elements present
Crust
Mantle
Core
Layers that the earth composed of
Earth
Composed of
Tectonic Plates
Types of plate boundaries according to their relative motion
Convergent plate boundaries
Divergent plate boundaries
Transform plate boundaries