



Science

Grade 7





Soil

Soil, the topmost layer of the earth crust is one of the most important resource that we have been gifted from the nature. It contain water , air and gases . So the earth is called as the living planet. Soil is important in different ways for the existence of plants and animals.

- 1) Go to the garden and collect several soil samples from the following places.
 1. Under a stone
 2. Heap of sand
 3. Clayey soil
 4. Under a tree with decaying

- 2) Do the activity 15.1 in text book and fill in the blanks of the grid based on your observations.

The place where soil is collected	Texture (Soft / Hard)	Whether Wet Or Dry	Size of the particles (Relatively)	Other facts
1.Under a stone	Rough/ hard	Dry	Large	Gravel/parts of animals
2.				
3.				
4.				

(Write as small, medium or large relatively to the smallest particles.)



3) Answer the following questions according to the above table.

1. What kind of soil contains in beach /river bank or a waterfall?

.....

2. What kind of soil is there in a pottery house/ hill side or in a mud pit?

.....

3. What kind of soil can be seen in a flower bed/ paddy field or under a big tree?.....

4) Sort out the particles by the size of excess particles.

Size



.....

.....

.....

Texture

.....

.....

.....

Type of particles

.....

.....

.....

5) Classify the soil according to the abundance of the above particles in the soil samples you have collected and fill the blanks

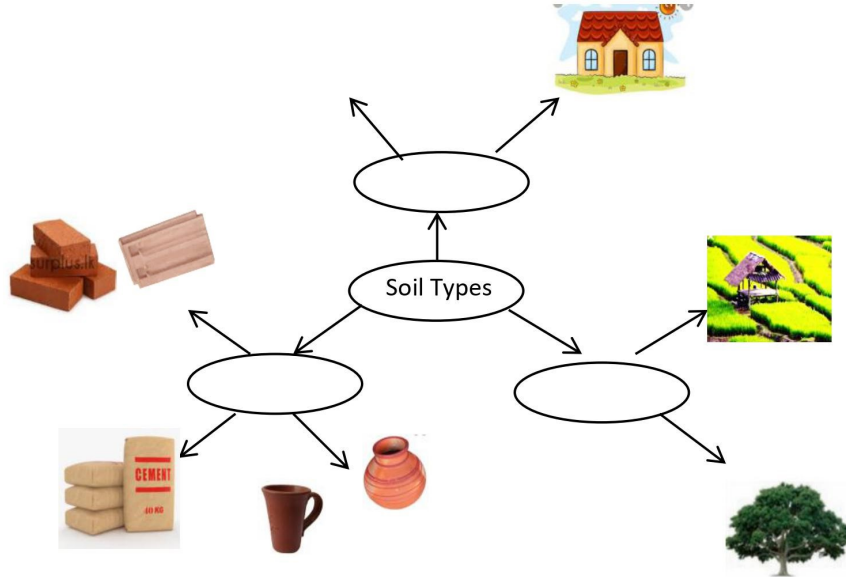
Abundance of particles	nature	Kind of soil
More clayey , Less sand	Sticky	
More sand, less clay		
Having sand, clay and silt		

6) Write the kind of soil according to the given features.

- Retain water, retention of air is less
- Retention of air is high, retention of water is less
- water and air retained



7) Name the kind of soil according to the usage.



8) Loamy soil is the most suitable soil for agriculture. What are the reasons for it?

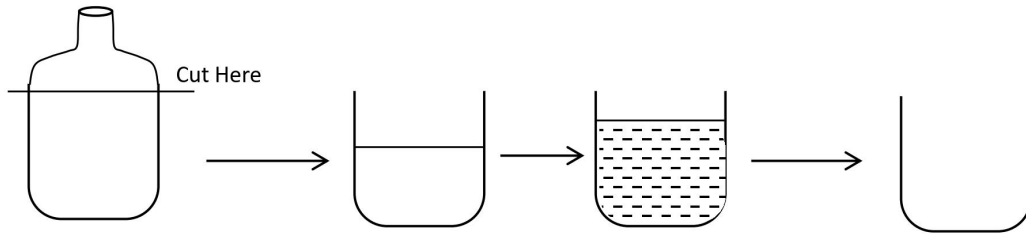
- Abundance of organic matter
-
-
-

9) What are the materials that should be added to the following soil samples to make loamy soil?

kind of soil	materials that should be added
Clayey soil	
sandy soil	



Activity



Take an empty Mega Bottle

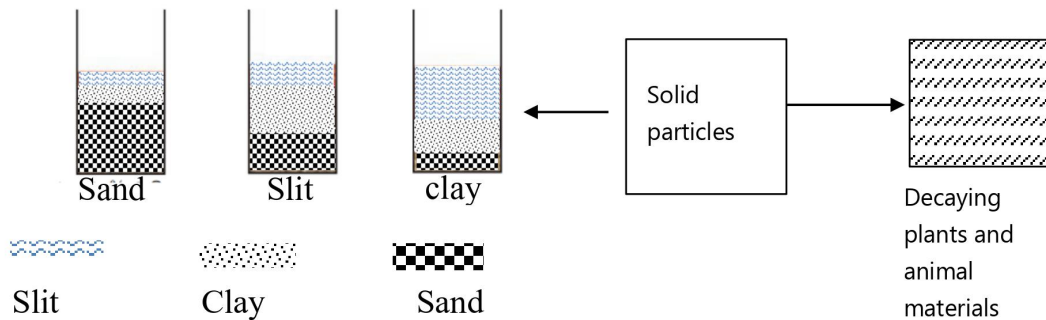
Fill with water

dug the yard take a sample of soil to a coconut shell .Add some water and mix well and leave to settle it..

Draw a digram to Show how the soil components are seperated

Take soil samples from different places and do the above activity

Soil is a mixture of components. Components of soil can be listed as below.



Soil Components

Function

- Add a soil sample taken under a tree to the Mega bottle you prepared.
- Add more water, mix well and leave to settle it.



- Then filter the liquid and remove the materials which float. (Organic materials)
- Place the liquid on a tin lid made of a wooden handle and heat vigorously.
- Once the tin lid has cooled, take the liquid on it with your finger and write whatever you like on a white paper (Draw a picture)

What is the colour of the picture? That colour was given by charcoal.

When organic matter burns, it becomes This shows that soil contain.....

What happens when a piece of dry soil is put into water?

.....

Activity

- Take two empty jam bottles of same size.
- Put some dry soil into one bottle up to 3cm.
- Put water into the other bottle up to 3 cm.
- Add water in the water bottle into the bottle with soil.
- Fill the chart according to the observations.
- Repeat the above experiment using soil samples collected from different locations..

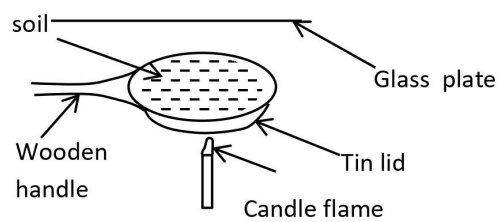


Height of the soil	Height of the water	Height after water and soil are mixed	Height received	Height decrease d	The height of the air In the soil
3cm	3cm	6cm			

(Decreased height = The height of air)

Activity

- Place some soil on a tin lid made of a wooden handle and spread well
- Hold the tin lid to a candle flame and heat it.
- On top of the tin lid hold a wiped dry glass plate.
- Observe the inside of the glass plate.
- Sprinkle a pinch of salt or condiments on it



Observation

.....

Conclusion

.....

What are the chemicals used in the laboratory to identify the liquid droplets as water?

.....



Name four animals that you come across while digging a flowerbed.

(Use a hand lens)

.....
.....

Activity.

Do the activity 15.8 in the text book to observe whether micro organisms are present in the soil. (Instead of the test tubes use two small bottles with lids. Dissolve powdered in hot water instead of milk)

Give reasons for the following steps

Step	Reason
• Boiling the bottles in water
• Heating one soil sample
• Using Milk for the activity.
• Using boiled milk.
• Closing the bottles.

Write down the observations and conclusions you saw in the above activity.

Observation

.....

Conclusion.....



Read the following poem and complete the mind map.

A tree speaks

Retains soil heat - saves our lives

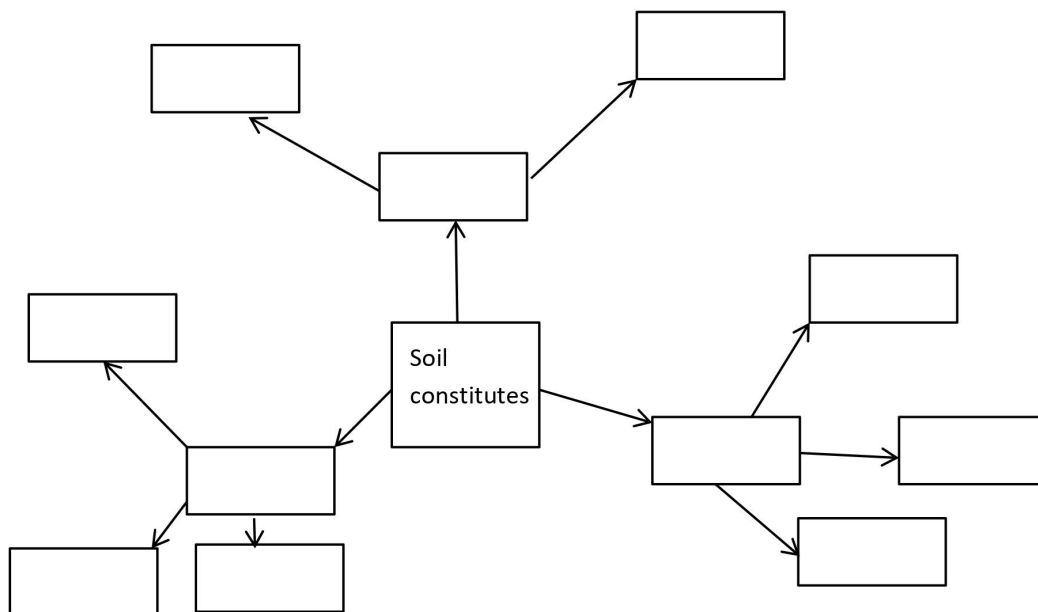
They make us food – using soil water drops

Air present in soil -help for breathing plants

Our seeds are planted - the air in the soil.

Dig a hole and turn the soil – decaying the dead parts

Gives fertilize - by the animals in the soil.





You may have seen cutting hillside using a backhoe.

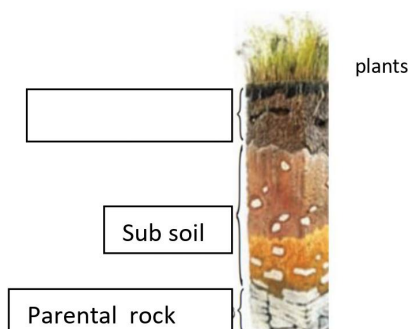
A vertical section of the different layers of the soil from the earth crust can be seen. It is called as

There are three layers can be seen. The bottom of the profile is the

When moving top to bottom, the size of the particles will gradually

The top soil is formed further of the particles in the sub soil.

Activity



Arrange a soil profile using a transparent equipment at home. (Glass bottle or box)

- Take an old empty tin (Biscuit).
- Drill about 10 holes in the bottom of it.
- Go to the yard with a water vessel and the tin. (Where Soil is exposed)
- Lift the tin and pour water into it.
- Observe what happens to the soil when water falls.



What happens to the soil when water falls from holes?

.....

What is the colour of water flowing over the soil surface?

.....

What happened to the soil particles where the water fell?

.....

How do you call that incident?

.....

Write down in the grid how the soil erosion has occurred in the following instances.

Instances	The way of soil erosion occur
<ul style="list-style-type: none"> Emerging stones in the compound. 	
<ul style="list-style-type: none"> Narrowing the river 	
<ul style="list-style-type: none"> The classrom with full of dust 	
<ul style="list-style-type: none"> The water in the river turns muddy when buffoloes bathing 	
<ul style="list-style-type: none"> Roots of the trees are on the surface ground 	

(Use pictures)

What are the reasons for the soil erosion

.....

.....

What are the adverse effects of soil erosion (Use pictures)

.....

.....

.....

.....



Activity

Soil erosion can be reduced When the soil is covered. Do the activity 15.14 in the text book to find how the covering of earth affects soil erosion

From which bottle did the most of the dark water flowed out?

.....

From which bottle did the least colour of water flowed out?

.....

What did you learn by this activity?.

.....

Where the soil erosion takes place most in your compound?

.....

What are the methods that can be applied to minimize the soil erosion in a land with slope

.....

.....

.....

.....

.....

.....

Dear children Think!.....

You are one of the living beings on the earth. The existence of the future earth is in your hands. Suggest what needs to be done to protect the soil for the survival of life.