**BEFORE WE START, LET'S CHECK****What you already know**

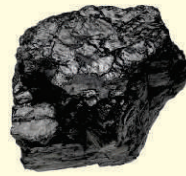
Look at the pictures and complete the names of the rocks.



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What you will know

What are the kinds and uses of rocks?



How does soil form?



What does soil contain?



What are the kinds and uses of soil?



The earth is covered with land and water. Land is made up of rocks and soil.

ROCKS

Rocks are present everywhere on land.



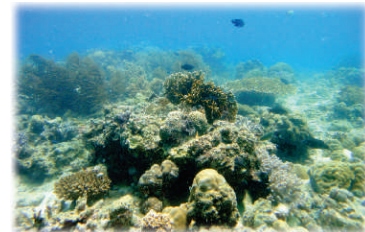
Hills and mountains are made of rocks.



Rocks are found along seashores.



Rocks also stick out of the ground.



Rocks are found at seabeds also.

Rocks of different sizes have different names.



Boulders are small rocks.



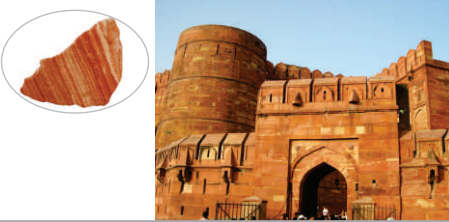





Stones are very small pieces of rocks.



Pebbles are smooth and round stones.

Kinds and uses of rocks

There are many different rocks in the world. Some are hard while some are soft. Let us take a few examples of each kind.

1. HARD ROCKS		
<p>Sandstone</p>  <p>Sandstone is a hard rock. It is often used to build temples and forts.</p>	<p>Marble</p>  <p>Marble is harder than sandstone. It is used to build statues, floors, etc.</p>	<p>Granite</p>  <p>Granite is the hardest of the three. It is used to make floors, kitchen slabs, etc.</p>
2. SOFT ROCKS		
<p>Coal</p>  <p>Coal is a soft black rock. It is used for cooking, in factories and in steam engines.</p>	<p>Chalk</p>  <p>Chalk is a soft white rock. It is used for writing on a blackboard.</p>	<p>Slate</p>  <p>Slate is a smooth black rock. It is used for making blackboards.</p>

SOIL

Besides rocks, the earth's land part has soil as well.



Fun and Learn



Take a stick of chalk.



Strike it with a duster. It will break.



Keep crushing it into smaller pieces.



Finally, you will see that it has changed into white powder.

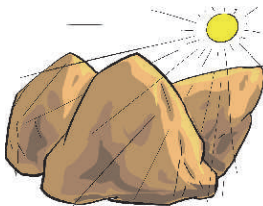
Soil is also formed like this. Let us see how.

Formation of soil

Soil is formed over a very long period of time.



Millions of years ago, the earth was covered with rocks.



The sun heated these rocks.



Rainwater cooled them.



Due to continuous heating and cooling, they developed cracks.



Due to the force of rainwater and wind, the cracks got wider.



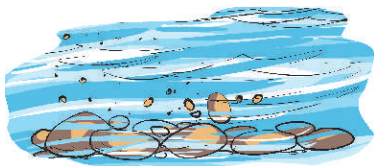
Finally, rocks broke into smaller pieces.



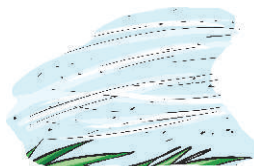
These pieces further broke into even smaller pieces.



These small pieces were carried around by water and wind.



While being carried around, they hit each other and broke into tiny particles.



These tiny particles were carried to far off places by the wind.



Dead plants and leaves mixed with these particles.



Decomposed bodies of dead animals also mixed with them to form soil.

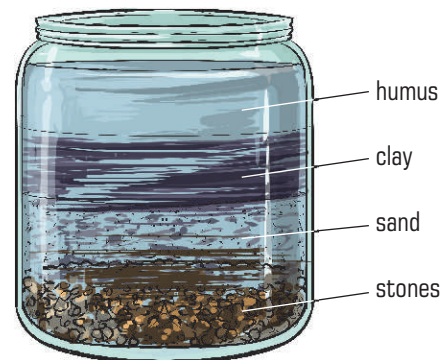
Composition of soil



Fun and Learn

Take a glass jar and fill it with water. Now take some soil from a garden or field. Put it in the jar. Shake the water well. Cover the jar and leave it for some time.

After about 15 minutes, you will see different layers formed in the jar. At the bottom of the jar is the layer of tiny **stones**. Just above it, is the layer of **sand**. **Clay** settles down above the sand. The topmost layer consists of cloudy water with floating **humus**.



Thus, the four main constituents of soil are stones, sand, clay and humus.

Soil contains air



Fun and Learn



1. Take a pot filled with soil.



2. Pour some water into it.



3. You will see small bubbles coming out from the soil.

These bubbles are in fact air trapped in the soil. As water enters the soil, this air escapes as bubbles.

Soil contains water



Fun and Learn



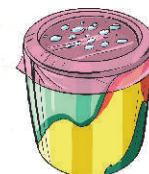
1. Take a cold drink can without a lid.



2. Put some soil in it and cover it with a cling film.



3. Place it on a lighted stove for some time.



4. You will see water droplets on the underside of the film.

It is the moisture in the soil, which turned into vapour and escaped the soil after getting heat. After hitting the film, it again cooled and turned into water droplets.

Kinds of soil

Depending on the amount of its constituents, there are three main types of soil.



Sandy soil: This soil contains a lot of sand. It is dry and has big empty spaces between particles. It does not hold much water. It is not good for growing crops. **Sandy soil** is found in hot deserts and on seashores.



Clayey soil: This soil contains a lot of clay. It is heavy, soft and smooth. There are small spaces between soil particles. It can hold a lot of water.



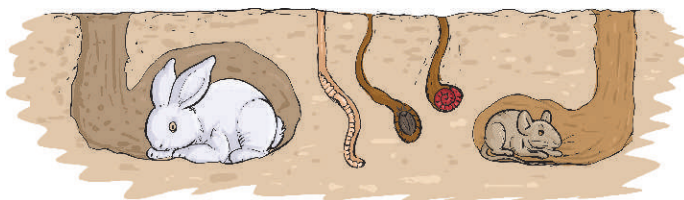
Loam: This soil is a mixture of sand, clay and decayed plants. It contains the greatest amount of humus which makes it the most fertile soil. It is the best soil for growing crops in as it contains air, water and humus.

Uses of soil

Soil is very important to all living things. We know that animals and human beings depend on plants directly or indirectly. Almost all plants grow in soil. So in a way, all living things depend on soil for food.



Farmers grow crops in large fields. They add manure to make the soil more fertile.



Soil is home to many animals. Tiny insects, worms, rats, rabbits and moles live in the soil.

Words to Remember

boulder	– small rocks
stone	– very small pieces of rocks
pebbles	– smooth and round stones
humus	– a constituent of soil, which makes it fertile
sandy soil	– a type of soil that contains a lot of sand
clayey soil	– a type of soil that contains a lot of clay
loam	– a type of soil that contains sand, clay and decayed plants

Points to Recall

- * The earth's land part is made up of rocks and soil.
- * There are many useful rocks, both hard and soft.
- * Soil is formed by the breaking of rocks into smaller particles that mix with plant and animal remains.
- * It takes thousands of years for a small amount of soil to form.
- * The four main constituents of soil are stones, sand, clay and humus.
- * Soil also contain air and water.
- * Depending on the amounts of its constituent, there are three main types of soil.
- * Sandy soil is the least fertile soil whereas loam is the most fertile.
- * All living things depend on soil for their survival.

Exercises

A. Tick (✓) the correct option.

1. The earth is covered with land and

(a) rocks ☐

(b) soil ☐

(c) water ☐

(d) both (a) and (b) ☐

2. Which of these are small, round and smooth?

(a) rocks ☐

(b) boulders ☐

(c) stones ☐

(d) pebbles ☐

3. Which of these is the hard rock?

(a) coal ☐

(b) granite ☐

(c) slate ☐

(d) chalk ☐

4. Which of these is used as fuel?

(a) coal ☐

(b) chalk ☐

(c) marble ☐

(d) sandstone ☐

5. Which soil is the best for growing crops in?

(a) sandy

(b) clayey

(c) loam

(d) all of these

B. Fill in each blank with the correct word.

1. Rocks are found at _____ (*sea surface / seabeds*).

2. _____ (*Granite / Sandstone*) is harder than marble.

3. The lightest constituent of soil is _____ (*sand / humus*).

4. Rocks broke into small pieces due to the force of rain and _____ (*snow / wind*).

5. _____ (*Clayey / Sandy*) soil can hold a lot of water.

C. Answer in one or two words only.

1. What do we call a small rock?

2. Name the rock used for making blackboards.

3. Name the heaviest constituent of soil.

4. Name the type of soil found in hot deserts.

5. What makes soil fertile?

D. Answer in one sentence only.

1. What is the land part of the earth made of?

2. What is marble usually used for?

3. What are the main constituents of soil?

4. How is it possible for clayey soil to hold a lot of water?

5. What do farmers add to the soil to make it more fertile?

E. Answer in two or three sentences.

1. What is sandstone?

2. How do rocks convert into soil?

3. How can we prove that the soil contains air?

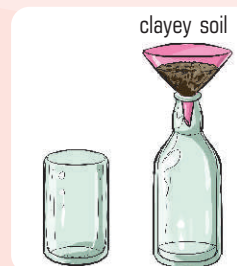
4. Write two differences between sandy soil and loam.

5. What are the uses of soil?



BRAINSTORM

Look at the given pictures. Each funnel has the same amount of soil in it. Now the same amount of water is poured into each funnel. Draw the approximate levels of water in the remaining two bottles.





TELL YOUR TEACHER

Raghu, Hari, Shyam and Kaisar are farmers. They want to buy a new piece of land for growing crops on. Here they are telling about their preferences.

I will check the shape of the field first.



Raghu

I will check the soil of the field first.



Hari

I will check how far the field is from a cinema hall.



Shyam

I will check how far is the field from a river or canal.



Kaisar

Tell your teacher who is/are correct and why?

FIND OUT



Earthworms live in soil. They are called farmers' friends. Why?



Look at the picture. It is called a fossil. What is it and how is it formed?

Project

Go to a building-material supplier's, stationer's and a coal depot and collect small samples of sandstone, marble, granite, coal, chalk and slate.

Put each sample in a small plastic pouch. Now take a sheet of chart paper. Stick each pouch on the chart with sellotape. Write the name of each rock below the pouch. Write 'Different Kinds of Rocks' on the top of the chart and submit it to your teacher.

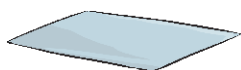


Activity Time

Making sandpaper



What you need:



a thick paper sheet



a bottle of glue



a bowl of dry sand



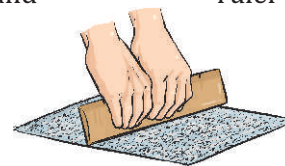
a wooden ruler



1. Take the paper sheet and apply glue to it.



2. Immediately cover the paper with sand.



3. Using the wooden ruler, spread the sand evenly.

Leave it for some time to dry. Your sandpaper is ready. You can sharpen your pencil with it.

Virtual Tour

For more information visit:

- <http://www.childrenoftheearth.org/soil-facts-for-kids/soil-facts-for-kids-01.htm>