

# **Connected Learning Team Primary**

**Year 4**

## **Science Package**

Rock cycle  
Soil Testing Experiment

**2 weeks**

# EARTH AND SPACE

## Lesson 1

We are **learning** to (WALT):

**Identify** what a Rock Cycle is and how it works.

I am **successful** when (WILF):

I can **explain** the process of movement and formation of rocks.

### Rock Cycle

The rock cycle is the journey of rocks from down under the Earth's surface and then back up again. The rocks change and transform during this process. The three main kinds of rock are igneous, sedimentary and metamorphic. Each type of rock moves in a different way around the cycle.

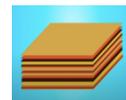
## THE ROCK CYCLE

To understand Rock Cycle, it is important to know the 3 main types of rocks. These are:

Igneous rocks: Inside the Earth's core there are a lot of molten materials and metals. They melt because of the temperature inside. The melted material puts too much pressure on the earth's surface. Sometimes the surface breaks and due to this the Magma comes out in the form of Volcanic eruption. When it comes out it is called lava and on cooling it becomes Basalt rock. Whatever Magma is not able to come out changes into Granite.



Sedimentary rocks: They are formed when sediments (tiny rocks, plants and dead animals) compress. They reach the sea and stay in the seabed. Over millions of years more and more sediments build up and compacts. This compacted sediment eventually becomes sedimentary rock. For example, sandstone and limestone.



Metamorphic rocks: These are changed forms of Igneous and sedimentary rocks. They are formed by heat and pressure. They are generally found inside the Earth's crust, where there is enough heat and pressure to form the rocks.



For example, Slate formed from Clay and Marble formed from Limestone.

### The Rock Cycle

The process of transformation of rocks from one form to the other in a cyclic manner is known as the rock cycle. It includes the following processes:



- Hot lava cools down to form igneous rocks.
- Igneous rocks are then broken down into small particles which are transported and then deposited. This results in the formation of sedimentary rocks.
- When igneous and sedimentary rocks are subjected to great heat and pressure, they change into metamorphic rocks.
- Metamorphic rocks under heat and pressure breakdown and form hot lava.
- This hot magma then again cools down and forms igneous rocks and the cycle is repeated.

Now once you have gained information on the Rock Cycle and the 3 different types of rocks, can you answer the questions below?

1. What are the three types of rocks that are part of the rock cycle?

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2. What do you need in order for igneous rock to form?

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3. What do granite and basalt have in common?

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4. What is the difference between magma and lava?

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5. What has to happen to sediment in order for it to become sedimentary rock?

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**Reflection:** Did you have trouble answering any of the above given questions? If yes, then please read the text one more time and highlight key information to help you record the correct answers.

# EARTH AND SPACE

## Lesson 2

We are **learning** to (WALT):

**Identify** different characteristics of the Soil.

I am **successful** when (WILF):

I can **explain** the characteristics of soil and complete the investigation.

### **Soil**

Soil is found on land all over our planet. It is the loose top layer of the Earth's crust and most of the planet's plant life need it to live. There are 3 types of soil:

Clay: has the smallest rock grains. They stick together when wet and form hard crust when dried. Water does not drain away from clay soil and air can't get into it very well.

Silt: has slightly larger rock grains than clay, which allow better drainage. There are good nutrients in silt which is

often washed downstream and deposited as a river's water flow slows down.

Sand: has the largest grains. It contains tiny bits of rock and feels gritty. Sand doesn't hold water well and there are fewer nutrients in it. This type of soil heats up quickly and plants growing in it need to be watered regularly.

### **How much water do different Soils hold?**

#### Materials:

- 3 types of Soils
- Water
- 3 Zip lock bags
- 2 litre plastic bottle (bottom cut off)
- Rubber band
- Cup
- Clear measuring jug
- 3 filters (you can use a fly wire, filter paper or kitchen towel)
- Stop-watch
- 3 sticky labels

#### Soil descriptions:

Soil Type	Colour	Texture	Particle Size
1			
2			
3			

Prediction: Soil number \_\_\_\_\_ will hold in the most water.

Procedure:

1. Place filter over the neck of the bottle and tie a rubber band around.
2. Pour one cup soil into the bottle.
3. Hold neck of bottle over bottle base (previously cut off) and gently pour one cup water over the soil.
4. Set stopwatch for 10 minutes
5. Pour water collected in bottle base into the measuring jug and record amount.
6. Empty and dry bottle replace filter and repeat for other two soils.



Results:

Soil type	Amount of water collected

Conclusion:

I found out that

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\_\_\_\_\_ because \_\_\_\_\_

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Fair Test:

Was this a Fair test? \_\_\_\_\_ Why/ Why not?

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How can you improve this experiment?

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**Reflection:**

On a scale of 1 to 4 (**1** being the lowest rating and **4** being the highest), how would you rate your understanding of different characteristics of Soils. Can you decide on the basis of your experiment's result, which soil would be the best to grow a beautiful vegetable patch in your house?