Down to Earth
KS3

Student worksheet

Making Regolith

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FAULKES TELESCOPE

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Making Regolith on the Earth and the Moon

What are the similarities and differences in the ways that regolith is formed on the Earth and on the Moon?

(The upper layers of regolith that cover the Earth are known as soil.)

Introduction

You will be simulating regolith formation on Earth and on the Moon. You will need to follow the method on this worksheet, discuss which process each part of the experiment represents and answer the questions. Then the whole class will compare and contrast the process of regolith formation on the Earth and the Moon.

Method

Rocks don't last forever. They are attacked and worn away by the wind and the rain. We are going to look at what happens to a rock when it is attacked by the wind.

A. Regolith Formation on Earth: Wind

Equipment: One piece of white toast, sandpaper, tray

Imagine that a piece of white toast is a rock on the Earth and that the work done by your hand represents the work done by the wind. The sandpaper is the wind carrying particles.

1. What do you think will happen when you rub just your hand, and then the sandpaper across a piece of toast? Write down your ideas below:

Hand:

……

Sandpaper:

……

2. Rub your hand across the piece of toast and observe what happens to the bread and the pieces that fall from it. Write down your observations below:

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3. Now, rub the sandpaper across the piece of toast and observe the bread and the pieces that fall from it. Write down what you see this time below:

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4. In your groups talk about how these two effects were different and why:

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5. Discuss what processes on Earth are represented by the two parts of this experiment:

Hand:

……

Sandpaper

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B. Regolith Formation on Earth: Water

Equipment: Margarine tub ice cube, tray, tap

1. Imagine that the ice cube with sand in is a rock. Place this ice cube on the tray in the base of a sink, underneath the tap.

2. Adjust the water flow from the tap so that a medium stream hits the ice cube. Observe what happens to the ice cube (rock) and the remaining particles.

Write down what you see below:

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3. Discuss in your group how you think water contributes to regolith formation on Earth. Write down your ideas:

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C. Regolith Formation on the Moon

Equipment: 3 slices of brown toast, 2 slices of white toast, rock, cardboard box/roasting tin.

1. Do you think that regolith on the Moon is formed in the same way as on the Earth. Why or why not? Write down your thoughts and reasons below:

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Now you will investigate the effects of meteoritic bombardment on regolith formation. In the box/roasting pan, place 3 slices of brown toast.

On top of this, put two slices of white toast. This represents the Moon's crust.

2. Drop the rock onto the layers of toast twice. Describe the toast and the crumbs below:

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3. Drop the rock onto the layers of toast 20 times. Describe how the toast and the crumbs look now:

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4. Which crumbs can be seen at the surface? Why does this happen?

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5. Compare the thickness of the layer of crumbs after 2 hits and after 20 more hits:

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6. How do you think meteoritic bombardment makes regolith on the Moon? Note your conclusions below:

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Within your group discuss your ideas concerning the formation of regolith on the Earth and on the Moon. Be prepared to share these ideas with the rest of the class.