Modelling the Rock Cycle

Introduction

It can be difficult to imagine even the simplest processes involved in the rock cycle. Some of them take place over millions of years and they can involve extreme temperatures and pressures. We can gain a better understanding of these processes by creating a simple model using everyday objects.

Aim

To model the processes of the rock cycle

Materials

- 4 lollies
- Scissors
- Ziplock plastic bag
- Aluminium foil
- 2 x 500ml beakers
- Kettle
- 6 ice cubes
- 200ml cold water
- 250ml hot water

Method

This investigation is divided into three parts. In each part you will put the same "rock" material through different processes.

Part A

1. Cut the lollies into small pieces and seal the pieces in the ziplock bag.
2. Fold aluminium foil around the bag to form a flat parcel.
3. Press down with your hand to flatten the parcel. You could also place a heavy book on the parcel or stand on it.
4. Remove the aluminium foil and observe the "rock" formed. Keep the ziplock bag sealed and take a photo.

Part B

1. With the "rock" material still sealed in the ziplock bag, squeeze and knead the bag with your fingers. Your hands will also warm up the bag and its contents.
2. Stop kneading when the pieces start to merge together. Keep the ziplock bag sealed and take a photo.

Part C

1. Use the kettle to boil water and half fill one of the 500ml beakers.
2. Place the 6 ice cubes in the other beaker and half fill with cold water.
3. With the "rock" material still sealed in the ziplock bag, place the bag into the hot water.
4. Leave for about 2 minutes or until the material has melted.
5. Remove the bag and place it into the ice water for about 2 minutes or until the material has hardened.
6. Remove the "rock" material from the ziplock bag and take a photo.

Results

Insert photos of each of the rocks created, detail how you created this ‘rock’

Rock Type	Physical features	How did you make it form?	Drawing/Photo
Sedimentary			
Metamorphic			
Igneous			

Discussion

1. Compare the sedimentary rock and metamorphic rock you created in your model. Identify at least one similarity and one difference.

2. What did you use in the lab to weather the Starburst? What are two different ways rocks are weathered in nature?

3. Compare the igneous rock and metamorphic rock you created in your model. Identify at least one similarity and one difference.

4. One part of this activity modelled how sedimentary rock changes into metamorphic rock. Propose how we could change the activity to model how sedimentary rock turns into igneous rock.

Conclusion

Explain how well this activity is at simulating the rock cycle with lollies. Name one advantage and disadvantage of the practical in explaining rock cycle processes