

# SCIENCE YEAR 4

## ROCKS AND SOILS

- I can name the three different types of rocks.
- I can make models of the different rocks to show I understand the difference.

### Activity 1

Watch the short videos about the different types of rocks.

<https://www.youtube.com/watch?v=KtbAEYwkC1E>

<https://www.youtube.com/watch?v=EGK1KkLjdQY>

Some igneous rocks are: pumice and sandstone.

Some metamorphic rocks are: slate and marble.

Some sedimentary rocks are: limestone and sandstone.

Research what each of these rocks are used for and fill in the table below – or make one yourself

Igneous Rocks	Metamorphic Rocks	Sedimentary Rocks
Pumice is used for:	Slate is used for:	Limestone is used for:
Granite is used for:	Marble is used for:	Sandstone is used for:

# SCIENCE YEAR 4

## ROCKS AND SOILS

- I can make models of the different rocks to show I understand the difference.

### Activity 2 (Working with an adult)

#### Watch the short video about the (chocolate) Rock Cycle

<https://www.youtube.com/watch?v=98F9h6cF0gs>

Your task is to make the different rocks using chocolate.

You will use your chocolate to create “sedimentary,” “metamorphic,” and “igneous” chocolate. And at the end of it all, make a tasty treat!

### Materials

- Blocks of dark and white chocolate
- Aluminium foil and/or aluminium foil cupcake holders
- Hot water and a container to hold it
- A plastic knife or another simple scraping device

### Procedure

First, make "sedimentary" chocolate:

1. Scrape some small shavings from your chocolate blocks.
2. Gather these scrapings onto a piece of aluminium foil and press down on them. You might fold the aluminium foil and then press on the chocolate shavings. You could even stand on enclosed foil packages.
3. Observe the joined-together bunch of chocolate scrapings in the foil, which is now similar to sedimentary rock.

Second, make "metamorphic" chocolate:

1. Place a small pile of your sedimentary chocolate, maybe some of your original unused shavings, and a couple of small chunks from your original blocks into aluminium foil or a cupcake holder.
2. Float this concoction on medium hot water.
3. Watch as the heat from the water transfers to the foil and chocolate, which should start to melt.
4. Remove the foil when the chocolate is soft to the touch (for safety, use the plastic knife, not fingers).
5. Let the chocolate cool. The partially melted and cooled chocolate is now similar to metamorphic rock.

Third, make "igneous" chocolate:

1. Place a small pile of sedimentary and metamorphic chocolate and some chunks from the original blocks into your aluminium foil or cupcake holder.
2. Float this concoction on very hot water.
3. Watch as the heat transfers from the water to the foil and melting chocolate. Allow the chocolate to melt until a smooth liquid forms.
4. Carefully remove the molten chocolate and let it cool, still contained in aluminium. Your melted and cooled chocolate is now similar to igneous rock

Talk about how the "chocolate cycle" is designed to mirror the rock cycle. The rock cycle is a continuing process that has occurred throughout geological time. One type of rock can become another type over time. Very little rock on the surface of the earth has remained fixed in its original rock type. Most rocks have undergone several changes of the rock cycle!

# SCIENCE YEAR 4

## FOSSILS

- I can order the steps to show how a fossil is formed.

### Activity 3

Watch the videos about how a fossil is formed

<https://www.nhm.ac.uk/discover/how-are-fossils-formed.html>

<https://www.youtube.com/watch?v=ID7qhn1ipmw>

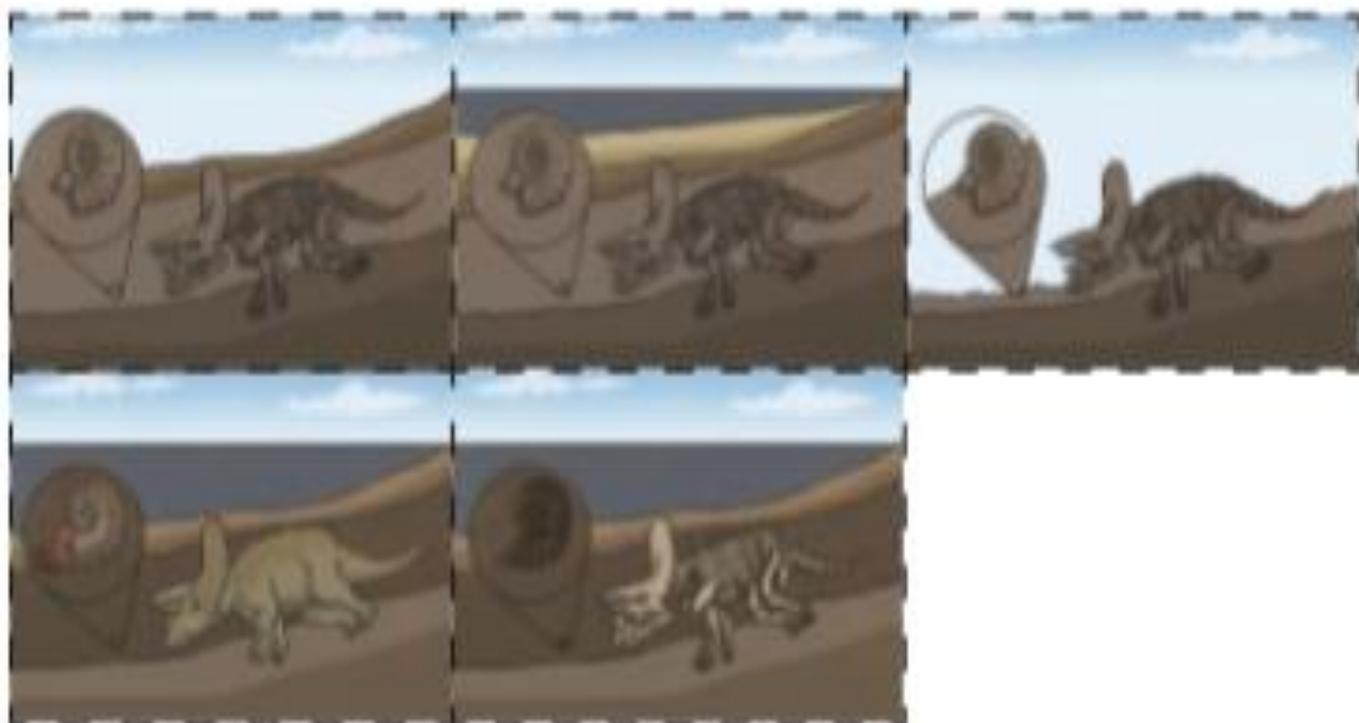
Then talk about the pictures and captions of how a fossil is formed.

Either print them out and match them up or discuss your answers.

The answer sheet follows



# Fossilisation Process



As erosion and weathering takes place, eventually the fossils become exposed.

Over a long period of time the sea will recede in certain places.

Over time more layers of rock cover it and by this time the only thing to remain of the animal would be its bones (except in the case of mould fossils where the bones would also be decayed).

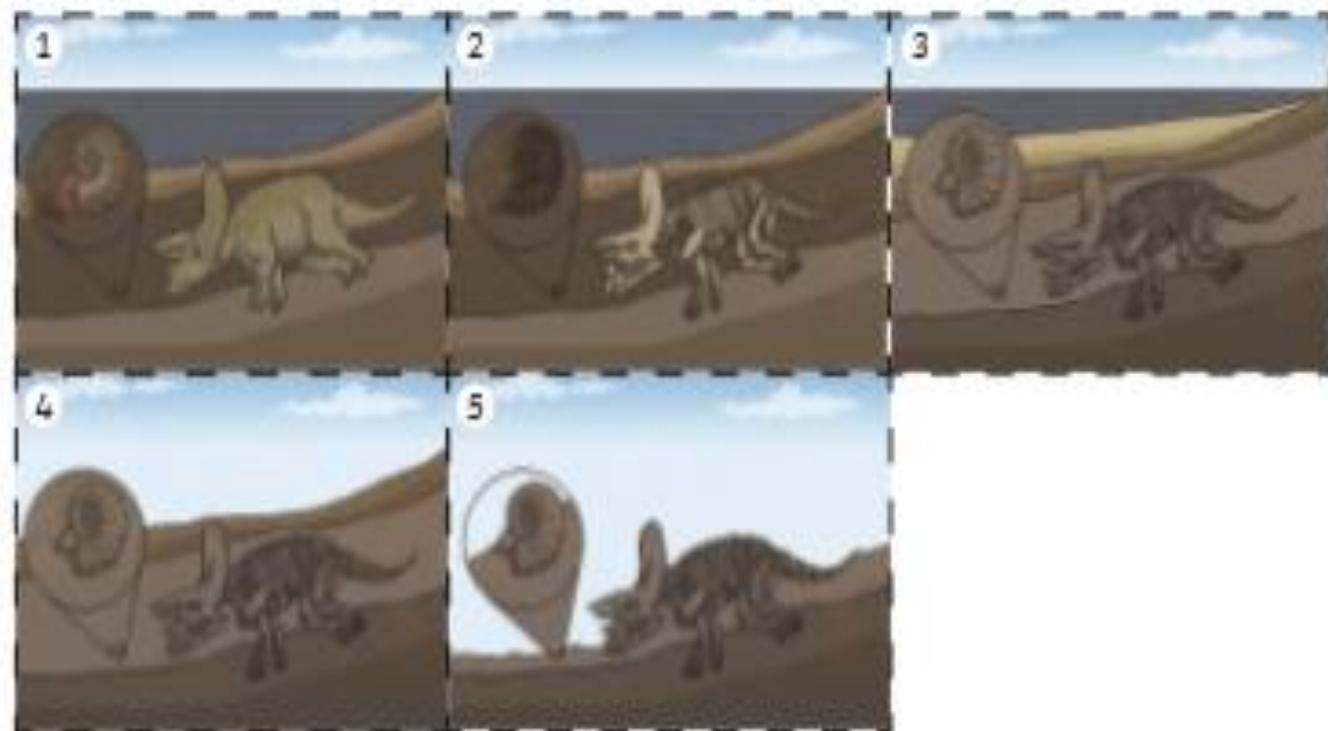
An animal or creature dies and ends up in the sea. It gets covered by a layer of rock.

Over thousands of years the mould fossil might become a cast fossil with sediment entering the mould. In the case of replacement fossils, the original bone matter changes to mineral matter but this does not affect the shape of the bones.



# Fossilisation Process

## Answer Sheet



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## **SCIENCE YEAR 4**

### **MARY ANNING - PALAEOONTOLOGIST**

- I can understand why Mary Anning's fossil findings were important.

#### **Activity 4**

#### **Watch the video about Mary Anning**

<https://www.bbc.co.uk/bitesize/topics/zd4dy9q/articles/zng7gwx>

**Mary Anning's findings changed the way the world was understood. Mary was a fossil hunter, write down 5 facts about her work with fossils.**

# MARY ANNING- Palaeontologist



## Interesting facts about MARY ANNING

1 \_\_\_\_\_

2 \_\_\_\_\_

3 \_\_\_\_\_

4 \_\_\_\_\_

5 \_\_\_\_\_