ENGINEERING IN THE MOVIES

FOSSIL MAKING

STEM

Science and Technology Focus

ROYAL ACADEMY OF ENGINEERING

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INTRODUCTION

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JURASSIC PARK (1993) and its sequels not only introduce us to the world of dinosaurs through CGI, but also brought palaeontology to our attention.

Palaeontology is the scientific study of life that existed over 12,000 years ago. It includes the study of fossils to determine organisms' evolution and interactions with each other and their environments.

Paleontological observations have been documented as far back as the 5th century BC. In this science and technology challenge, you will become junior palaeontologists and create your own fossils.

OVERVIEW

Become a junior palaeontologist and create your own replica of a fossil from the Jurassic period, learning the conditions necessary for fossilisation.

CHALLENGE

- Teams of two
- 180 minutes
- 2/3 KS2/3
- Apprentice

MATERIALS

- Strip of paper or card
- Scissors and sticky tape
- Clay
- Small shells
- Washing-up liquid
- Plaster of Paris
- Gloves
- Goggles
- Teaspoon
- Cup
- Sand
- Toothbrush

TERMS & CONCEPTS

- Cast
- Mold
- Petrification
- Carbonisation
- Excavate
- Palaeontology

THE AIM

- To be able to explain what fossils are, how they are formed and why they are important.
- To create your own mould and cast fossil.
- To excavate a fossil safely and in one piece.
- To carefully select tools.

THE CHALLENGE

Fossils are the direct evidence of past life. They are the tools around which geologists and palaeontologists reconstruct the history of the earth.

They are found in sedimentary rocks. Can you create your own fossil and journey into the past?

THE CASTING PROCESS

1. Cut a strip of paper and stick each end to create a loop.
2. Flatten the clay into a disc shape and put into the loop of paper.
3. Push the clay down so that it fills the loop and there are no gaps and the surface is flat.
4. Wipe washing-up liquid around the shell. This will stop it sticking to the clay.
5. Firmly push the shell into the clay - remember to record which shell you use.
6. Gentle remove the shell from the clay to expose the relief pattern.
7. Mix up the plaster of Paris. Remember to wear googles and gloves.
8. Take three teaspoons of the powder and put it in a pot.
9. Add water and slowly mix until you have a slurry with no lumps. It should be runny enough so that you can pour it.
10. Pour the plaster of Paris into the mould.
11. After a few minutes sprinkle a layer of sand on top.
12. Remove the paper from the outside and make small holes around the circumference of the clay to help with the drying process.
13. The clay needs to dry so leave it somewhere warm.

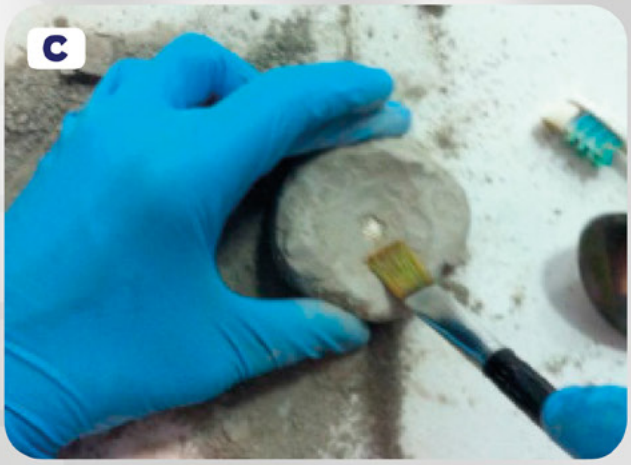
EXTENSION

- Discuss the types of materials that are presently being deposited. What can these potential fossils tell future palaeontologists about our present-day environment?
- Discuss the different types of fossils. Can you describe examples of each?

THE EXCAVATING PROCESS

Remove layers of dried clay using a metal spoon

Use the end of the spoon to remove finer layers



Use a brush so you do not damage the plaster of Paris mould of the shell

You can break apart unwanted clay

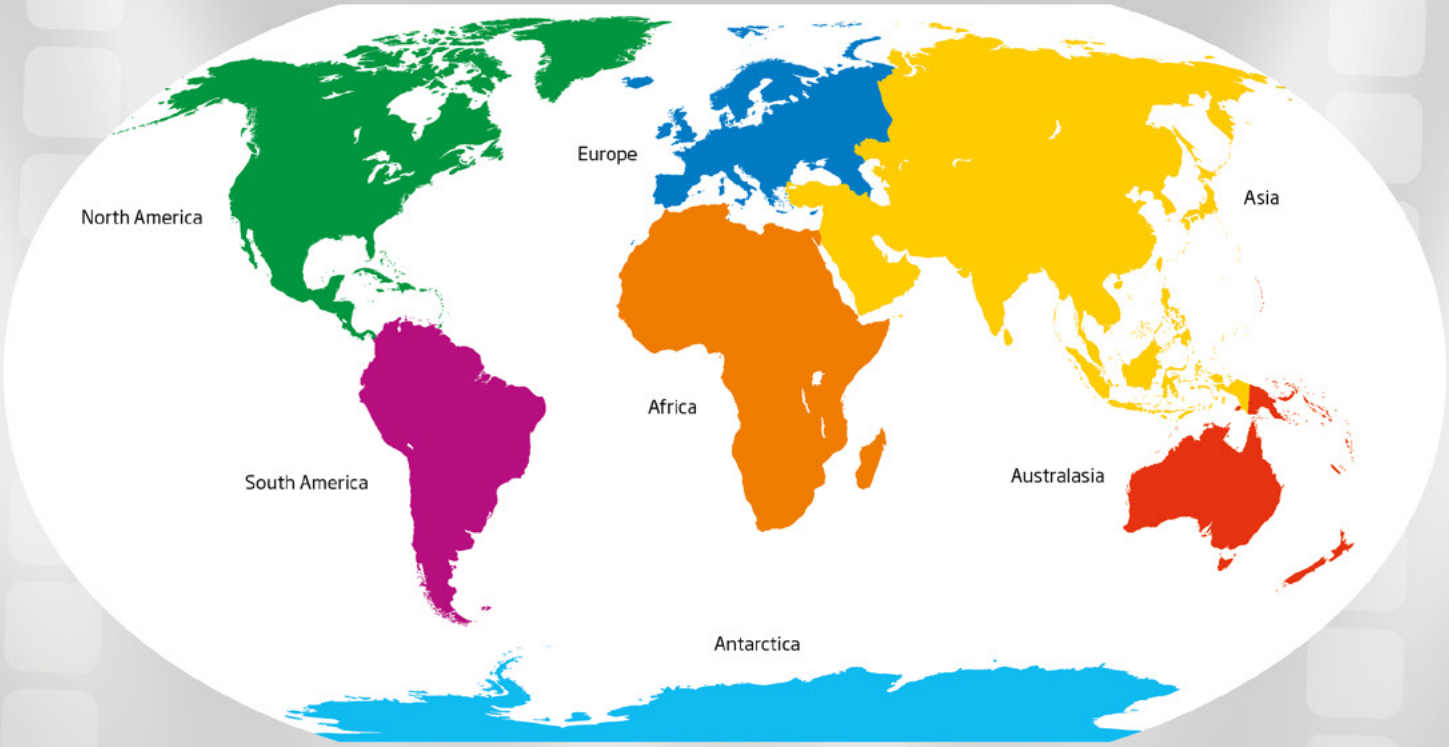
Use the brush to remove small particles of clay

Reveal your own piece of history

FOSSIL LOCATION EXERCISE

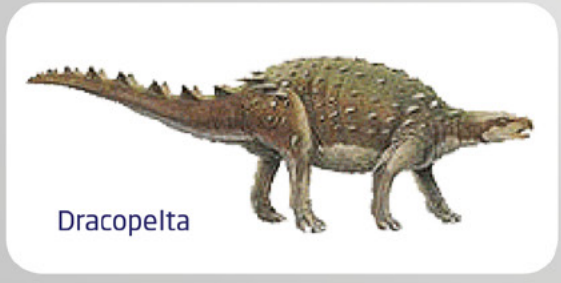
Continents were once all connected as one land mass called Pangea before drifting apart.

1. Label the continent each of the four dinosaurs originated from.
2. Draw a line from each dinosaur to indicate where their fossils were found.



ARGENTINA .....

INDIA .....



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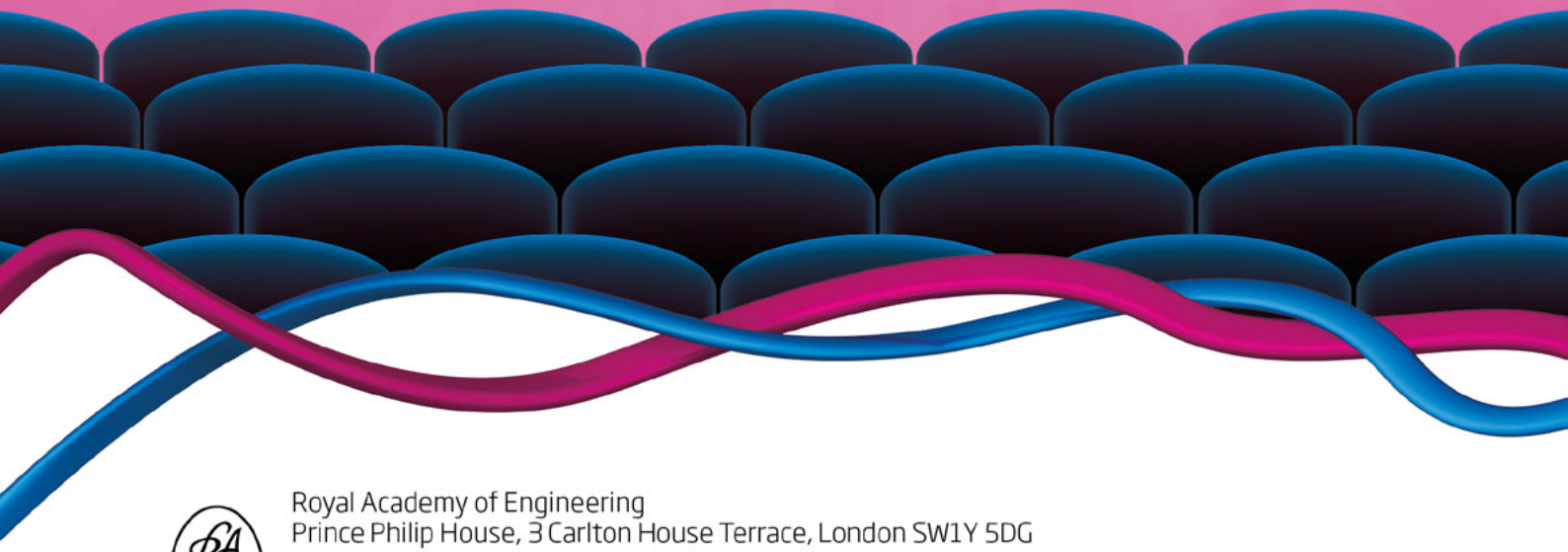

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