

Name: _____ Class: _____ Date: _____

Make a Lasting Impression



Learner Outcomes:

- Describe the nature of different kinds of fossils, and identify hypotheses about their formation (*e.g., identify the kinds of rocks where fossils are likely to be found, identify the portions of living things most likely to be preserved; identify possible means of preservation, including replacement of one material by another and formation of molds and casts.*)

Key Terms:

Fossil

Original remains

Cast

Petrified

Trace fossils

Carbonaceous film

Mould

Background Information:

Certain conditions need to be present in order for fossils to form. In this investigation, you will make and test a hypothesis about the types of materials that work best.

Research Question:

What are the best conditions for making a fossil mould and cast?

Hypothesis: Read the procedure carefully and then formulate a hypothesis about which mixture and conditions will make the best mould.

Manipulated Variable:

Responding Variable:

Controlled Variables:

This investigation / activity has been adapted from:

Bullard J, Krupa G, Krupa M, et al. *Science Focus 7*. Toronto, ON: McGraw-Hill Ryerson.

Materials:

Styrofoam cups	Graduated cylinder	Pebbles
Spoons	Plaster of Paris	Water
Shells or plastic animals	Sand	
	Clay	

Procedure:

1. Label four of the cups A,B,C,D
2. Mix the following:
 - Cup A - 250 ml clay + 30 mL water
 - Cup B - 250 mL sand + 30 mL water
 - Cup C - equal parts pebbles + sand
 - Cup D - equal parts sand, clay and pebbles + 30 mL water
3. Gently press one object into each of the four cups. Remove the object after 30 seconds. (clean the object between pressings)
4. Observe and record the impressions left behind. Note the best two impressions.
5. Mix 100 mL Plaster of Paris with 10 mL of water in a 5th cup. Add water until you have a thick, soupy mixture.
6. Gently spoon the plaster into your two best impressions. Fill the entire impression, but be careful not to destroy it.
7. Allow the plaster to dry overnight. Once the plaster is dry remove it from the mould and observe the details.

Observations:

Substrate	Appearance of impression	Appearance of plaster
A - clay + water		
B - sand + water		
C - pebbles + sand		
D - sand, clay, pebbles + water		

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Analysis:

1. What do you call the impression that you made?
2. What do you call the plaster form that came out of the impression?
3. Which of the mixtures created the best impressions? Why?
4. Which of the mixtures created the poorest impressions? Why?
5. What happened to each of the mixtures as they dried overnight?
6. Why is a good mould important to getting a good cast?
7. What would have happened if the object and the mixture were added at the same time?

Conclusion:

What conditions make the best fossils?

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Extension:

Research the difference between an object that can be fossilized and an object from which a good cast can be made. Why do many museums display casts of their fossils rather than the actual fossils themselves?

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