



Preservation Predictions

You will need

- Seed tray with at least 9 inserts, or other similar container(s) e.g. 9 small yoghurt pots
- Soil
- 9 small items made of 3 different materials (3 items of each material, e.g. wood, plastic, paper, cloth, metal)
- 9 plant labels or lollipop sticks
- Vinegar or Lemon Juice

This activity counts towards

Scouts - Requirement 3

Activity Details

Time: Two weeks

£ ££

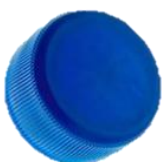
Indoors & Outdoors

Individuals & Teams

C/S/E/N

Before you begin

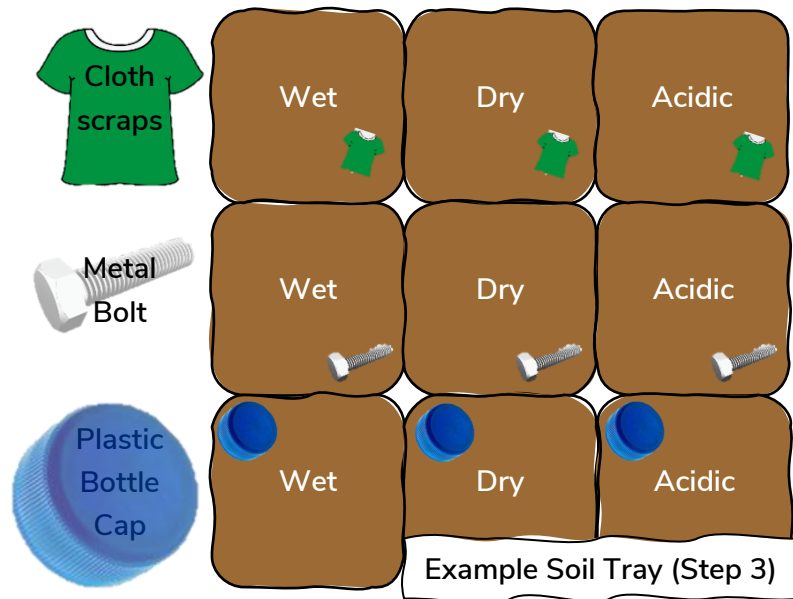
- The person leading the activity should fill the seed tray(s) with soil. Each individual or group will need a separate seed tray.
- The person leading the activity should also prepare sets of nine small items, three of each material. Any items can be used for the materials for the experiment, e.g. plastic - bottle caps, Lego pieces, pieces cut from a crisp packet; metal - screws, tin foil; fabric - old cut up t-shirts or pillowcases. Simply ensure that the items are small enough to fit into the compartments of the seed tray, and are made from a single material.
 - Each individual or group will need nine items, three of each material, e.g. three bottle caps, three screws, three scraps of t-shirt fabric.
- The person leading the activity should make sure they have the resources available to create the three different environments:
 - Wet: water the seed tray daily, making sure it's constantly wet
 - Dry: no resources needed
 - Acidic: vinegar or lemon juice: add two teaspoons daily





Activity

1. The young people take a photograph, draw a picture or write down what the three different materials look like at the start of the experiment.
2. They then create the labels, indicating on each a material and an environment, e.g. '*plastic bottle top, dry*'. Each material will experience all three environments (dry, wet or acidic).
3. Place the nine items into the seed tray, one at a time and making sure the labels are placed at the same time, so that they don't get mixed up. See the picture below.



4. The dry environments are now ready. Leave them as they are.
5. Carefully add water to all the wet environments, making sure the soil is completely soaked through. Ensure that no water goes into the other six compartments.
6. Carefully add two teaspoons of vinegar to the acidic environment
7. Now leave the experiment for two weeks. Each day, add a little water to the wet environments to ensure that they stay wet, and add two teaspoons of vinegar to the acidic environments to maintain the acidity.
8. After two weeks, the Scouts remove the nine items from the tray, keeping track of which environment they were in. An easy way to do this is by drawing a grid on a large sheet of paper, and placing an item with its label in each square.)
9. Compare the three items made of the same material. What effects did the different environments have on the material?
10. Compare the three different items from the same environment. What effects did the environment have on the different materials?
11. Finally, compare all nine items to how they looked at the beginning of the experiment.
12. Record your findings by drawing, writing or photographing the items.





Reflection

Degradation of archaeological remains can be a big problem for archaeologists trying to piece together information about the past. Not everything survives, so it is hard to know whether things are missing or never existed.

From the experiment, what do you think survives the most and the least? What effect do you think this may have on an archaeological excavation and its interpretation?

Safety

The person leading the activity should make sure the nine items are safe to handle and will not cause any injuries.

Everyone should make sure they are dressed suitably and safely.

Discuss with the young people how to keep themselves and others safe when conducting experiments like this one, which uses the power of chemical reactions to degrade materials. Highlight the importance of:

- reading all warning labels on the materials being used
- carefully following directions
- wearing eye protection
- wearing gloves
- wearing protective clothing (such as a lab coat) or something with long sleeves
- tying back long hair
- keeping all chemicals away from your mouth, nose and eyes
- not consuming any food or drink near an experiment

Change the level of challenge

For the budding scientist, you could try a variety of other environments such as hot or cold, salt water or fresh water.

This experiment can be done with just one environment, using only three items, if resources are limited or the person leading the activity would like to make it simpler.

If just one environment is used, acidic will produce the most interesting results.

Make it accessible

If anyone struggles with fine motor skills, another young person or adult could help in whichever way is needed.

Anyone who doesn't want to touch the items/chemicals/soil can direct another person on the team, or you could offer them gloves.

