Chemical weathering investigations

**Year 5**

Complete the following investigations.

**Reaction time**

Investigate to find out what happens to rocks when they are exposed to neutral and acidic substances (water and vinegar).

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| **Resources** | **Steps** |
| * 2 clear cups/jars
* 2 pieces of limestone (or cement)
* White vinegar
* Water
* Texta or label to indicate which substance in each cup.
 | 1. Gather your resources and prepare for your investigation.
2. Complete the P and R sections of your PROE to answer the question *What will happen when we submerge a piece of limestone (or cement) in water, and in vinegar?*
3. Submerge one piece of limestone (or cement) into a cup containing water, and another piece into a cup containing vinegar.
4. Observe the two cups for a few minutes, and at different times throughout the day.
5. Leave the rocks submerged overnight.
6. Make a final observation and complete the O and E sections of your PROE.
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**Drip drip**

Investigate to comparing physical weathering to chemical weathering, using sugar cubes and diluted vinegar.

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| **Resources** | **Steps** |
| * 2 x sugar cubes
* A clear cup/jar
* White vinegar mixed with water
* A dripper
 | 1. Gather your resources and prepare for your investigation.
2. Use a technique to ‘physically’ weather one rock (sugar cube). For example: press it, scrape it, shake it.
3. Discuss with your team: *Are the smaller pieces you’ve created still the same substance as before? Why/why not?*
4. Complete the P and R sections of your PROE to answer the question *What will happen when we drip acid onto the ‘rock’ (the other sugar cube)?*
5. Drip diluted vinegar onto the other rock using a dripper.
6. Complete the O and E sections of your PROE. Include an answer to the question *How has the rock changed?*
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**Altered sculptures**

Investigate to observe the effects of acid rain (vinegar) dripping on rocks.

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| **Resources** | **Steps** |
| * 2-5 sugar cubes and/or pieces of toffee
* Sculpting tools (popsticks/nail files/toothpicks/butter knife)
* A dripper
* White vinegar mixed with water.
* Optional: icing to glue together sugar cubes
 | 1. Gather your resources and prepare for your investigation.
2. Make a sculpture using the sugar cubes/toffee, adding details using the sculpting tools. Try to include some fine details and/or sharp edges in your sculpture.
3. Complete the P and R sections of your PROE to answer the question *What will happen when ‘acid rain’ falls on our sculpture?*
4. Drip diluted vinegar onto your sculpture using a dripper.
5. Complete the O and E sections of your PROE.
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**Caves and sinkholes**

Investigate to find out how cave and sinkholes occur.

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| **Resources** | **Steps** |
| * Sugar cubes
* Clay or biscuit/cracker
* Clear cup/jar
* A dripper
* White vinegar mixed with water
 | 1. Gather your resources and prepare for your investigation.
2. Make a model of the Earth’s surface by placing a layer of ‘rock’ (sugar cubes) in a clear glass/jar and covering it with ‘topsoil’ (clay or a biscuit/cracker).
3. Make a few holes or cracks in the ‘topsoil’ so rainwater can seep into the ‘rock’ layer.
4. Complete the P and R sections of your PROE to answer the question *What will happen when ‘acid rain’ reaches the rock layer underneath the soil?*
5. Drip diluted vinegar onto the Earth’s surface.
6. Complete the O and E sections of your PROE.
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