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).

|  |  |
| --- | --- |
| **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. |

**Drip drip**

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

|  |  |
| --- | --- |
| **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?* |

**Altered sculptures**

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

|  |  |
| --- | --- |
| **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. |

**Caves and sinkholes**

Investigate to find out how cave and sinkholes occur.

|  |  |
| --- | --- |
| **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. |