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BODILY/KINAESTHETIC

Discovery Worksheets

The dissolving Sphinx

The Sphinx is one of Egypt's most famous landmarks. This giant stone statue dates back to about 2500 BC. The Sphinx originally featured a beard. Pieces of the beard were found between the lion's paws by an archaeologist in 1816. In 1982 more stones were lost from the north paw and in 1988 a large stone tumbled from the Sphinx's shoulder.

Why is this giant statue falling apart?

The Sphinx's limestone structure has been severely damaged by acid rain and weathering. Traffic and industrial pollution from the nearby city of Cairo is transformed by sunlight and reactions with water vapour to form nitric and sulfuric acids. The acid rain caused by the pollution is dissolving the limestone statue. Since 1989, a major restoration project has been under way. Archaeologists, geologists, sculptors and scientists have removed large old stones and cement from earlier repairs and replaced them with new blocks and mortar mixed from lime and sand.

Discovery tools

Atlas of Discovery, pp. 14–15;
three small glasses; lemon juice;
vinegar; water; three sticks of chalk

Experiment — how is the Sphinx dissolving?

To simulate how acid affects limestone, we will see how chalk (made of limestone or calcium carbonate) reacts when placed in acid.

1. Half fill three glasses — one with water, one with vinegar and one with lemon juice.
2. Put a piece of chalk into each of the three glasses.
3. Check on the glasses over the next few days.

Answer these questions.

1. Complete the following chart over three days to describe what happened.

Water	Vinegar	Lemon juice
Day 1		
Day 2		
Day 3		

2. Vinegar and lemon juice are both acids. What happens when acid makes contact with limestone?

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3. Why is the Sphinx under threat of destruction?

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4. What is the source of the acid rain affecting the Sphinx?

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5. How does acid rain form?

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