Measuring the rate of water flow into the cave
Curriculum Strands: SI, BK – Matter, Earth and Space
Stages: 7–15

Water plays a major role in cave formation. As rainwater seeps through leaf litter and decaying matter found in soils, it mixes with carbon dioxide and becomes slightly acidic. This water then flows through fractures and faults in limestone and, over a very long time, dissolves the rock and enlarges the passages, as well as forming speleothems. By measuring drip rates from speleothems, scientists can estimate how much water is entering that particular zone of the cave.

Equipment

You will need:

- stopwatch or wristwatch with second hand
- small torch
- recording sheet
- pencil
- map of cave

What factors might control drip rates? State your hypothesis: _____

_____

_____

Method

Each team will locate and time drip rates at five different sites in the cave. For each sample site, record the location on the map provided, and the drip rate in the table on next page.

- Select one drip site below a stalactite.
- Start the timer on the first drip and count how many drips fall within a 30-second period.
- Record your observation.
- Repeat this process five times with different drips.

Locations (marked on map)	**Stalactites drip rate** (drips/seconds)	**Straws drip rate** (drips/seconds)
1		
2		
3		
4		
5		

Discussion questions

Draw a bar graph of your results and from your data and observations, answer the following questions:

- Why do you think drip rates differ (or don't) through the cave?
- Did the sites with faster drip rates have similar formations? What about the areas with slower drip rates?
- Would a rainstorm increase drip rates for all sites you sampled? Explain your answer.
- Would increases in drip rates (if any) stop as soon as the rain stops? Explain your answer.
- What effects will removing the trees from above the cave have?

Reference: http://www.esi.utexas.edu/outreach/caves/