

<p>Science context Energy Energy can be transferred from one thing to another and from one location to another. For example, puddles that have dried up are evidence of the Sun's energy being transferred to liquid particles causing them to move more vigorously and further apart until a gas evaporates.</p> <p>HSW Using scientific ideas and models to explain phenomena. Critically analysing and evaluating evidence from observations.</p> <p>Mathematics None</p> <p>Where In and around the school grounds</p> <p>Time 60-80min</p>	<h2 style="text-align: center;">Back to the Sun</h2> <p>Lesson summary In this activity, students will think about the impact of sunlight, or energy from the sun, on their environment. In their groups, they will look for evidence of the Sun's impact (e.g. a puddle that has evaporated) in and around the school's grounds.</p> <p>Cognitive potential This activity will elicit ideas that students may hold about energy transfer and, through this, students may encounter a variety of possible explanations and maybe a feeling of uncertainty. Teacher questions challenge students to apply their existing understanding about the sun and energy transfer in order to explain how some processes (e.g. evaporation, photosynthesis) might relate to their observations outside the classroom.</p> <p>Central theme and skills Energy transfer Making observations and inferences</p> <p>Key resources Cup of water Young tomato plant Solar calculators A sheet of newspaper or coloured sugar paper (perhaps removed from an old display board)</p> <p style="text-align: right;">bar of chocolate magnifying glass</p> <p>Setting the scene (5mins) Divide the class up into their newly established groups of threes or fours. Think back to the last time you worked as a group. What worked well? What didn't? What do you need to do to work well together, as a team? Give the class some 'thinking time' to reflect on this individually and then get them to share their thoughts with each other, either in their group or in pairs. Use their ideas as a basis for re-establishing some common ground rules for group work.</p> <p>(10-15mins) Give each group some of the items from the resource list (i.e. a cup of water, a magnifying glass, a sheet of newspaper, a young plant). Put up the photograph of the Sun on the IWB. If you put these things outside and left them there for a week, what could happen? What might you see that could be as a result of the Sun? Why? Get the students to share their ideas with their group first. There are lots of possible scenarios. Give them some time to jot/draw/annotate their ideas down as a group. These will be returned to later on in the lesson. In the whole class discussion, try and encourage students to get at the source of what they think would happen so that they begin to see how much can be traced back to the Sun. (This activity could be completed outside; students should not look directly at the Sun).</p> <p>Observations outside (15-20mins) Give each group some paper and one pen. Ask the students to go around the school grounds in their groups and try to spot and note anything they think might be a sign of the Sun's having an impact. They can record their ideas using words and/or diagrams and/or digital cameras if available.</p>
--	--

Sharing ideas and provoking conflict (15-20mins)

Gather the groups back into the classroom. Invite different groups to share what they recorded. **What made you think that this was a sign of the Sun's impact?** Record the ideas from the different groups so that the whole class can see them. **What do you notice about all the examples? How can there be different kinds of evidence?** (For example, where a puddle has dried up or plants growing.) This is an opportunity to relate processes such as evaporation and photosynthesis to energy transfer. (This activity could be completed outside, groups could return to their observation sites with the whole class).

Linking ideas together (15-20mins)

What kinds of things have you been talking about and thinking about today?

What ideas did you find challenging?

Look back at the ideas you wrote down at the start of the lesson. Is there anything that you would change?

Why? What helped you to change your thinking?

These questions initially ask pupils to consider their science learning. Questions to enable pupils to consider group work might also be considered here.

Ask or put these questions up and give the students some private time to reflect on these first. Then ask them to talk about this in their groups before collecting some of their thoughts as a whole class. In addition to this discussion, you could ask students to respond to these questions in their books, using notes and diagrams to support their thoughts.

If the sun disappeared, what would change? This could be left as something for them to think about, to write about as homework and/or to talk about in the next lesson.