



Where is the best location for a solar panel?

Lesson overview:

In this lesson, first children observe and describe the weather associated with the different seasons. Then they learn that some weather conditions can be renewable sources of energy and how these can be generated and used by farmers.

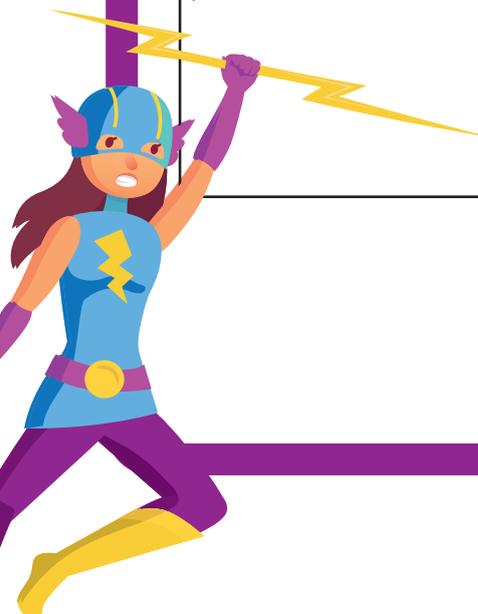
This lesson could be used to start the children thinking about how they might design an idea, invention or innovation that will help farmers continue to care for the environment and be climate superheroes for their Farmvention competition entry.

Equipment needed:

- Simple map or home or school grounds
- Tablet devices with a free light meter application installed or a data logger with a light meter.

Teacher guidance:

Slide 2: Weather	<ul style="list-style-type: none"> • Ask the children to talk to their partner about what the weather is like today. • Ask the children to name as many different types of weather as they can and write a list of key vocabulary for the working wall.
Slide 3: Seasons	<ul style="list-style-type: none"> • Explain that the year is divided into four seasons: spring, summer, autumn and winter. • In each of the seasons, we expect different types of weather and there are changes in to world around us to look out for.
Slides 4-7: Seasons	<ul style="list-style-type: none"> • Use the power point slide to lead a conversation about the weather in each of the seasons and the different things that happen at that time of year.
Slide 8: Seasonal signs treasure hunt	<ul style="list-style-type: none"> • Take the children for a walk around the grounds of the school or the local area and ask them to describe the weather and challenge them to spot any signs of the season e.g. blossoms in spring and fallen leaves in autumn. • Repeat this activity in each of the seasons and encourage the children to compare and describe how their environment changes through the seasons.
Slide 9: Weather problems	<ul style="list-style-type: none"> • Explain that the weather can sometimes be challenging for farmers. Ask the children to think about which kinds of weather might cause problems for farmers. • Too much rain can affect a farmer's crops because it can wash away the important nutrients in the soil that the plants need to grow and be healthy. • Too little rain means that a farmer's crops won't grow because they won't have enough water to survive.





<p>Slide 10: Helpful weather</p>	<ul style="list-style-type: none"> • The weather can also be very helpful to us. We can use it to make renewable energy. • We use energy for lots of things: powering electrical appliances such as televisions, heating our homes and powering vehicles. • Some sources of energy can harm the environment and will one day run out. • Renewable/ clean energy does not harm the environment as we can make it using renewable sources such as the weather. • Farmers can make and use renewable energy on their farms. This is one of the ways that they help to fight climate change.
<p>Slide 11: Wind energy</p>	<ul style="list-style-type: none"> • Wind turbines can make electricity. The wind blows the blades round and that movement energy is converted into electricity. • Lots of farmers have wind turbines on their farms. Have you seen any?
<p>Slide 12: Solar energy</p>	<ul style="list-style-type: none"> • Solar energy comes from the sun. • Solar panels can convert sunlight into electricity. • Lots of farmers use solar panels on their farms.
<p>Slide 13: Biomass energy</p>	<ul style="list-style-type: none"> • Biomass energy can be made by burning natural materials such as dead trees and unused parts of a farmer's crop. • Manure from cows can also be used to make energy.
<p>Slide 14: Your investigation</p>	<ul style="list-style-type: none"> • Explain to the children that they are going to be investigating where the best location in the school/ home would be for a solar panel. • On a simple map of the school grounds, ask the children to think about this and make three guesses about where would be the most sunny so that a solar panel could make the most electricity. • The children should mark their chosen locations on their maps and explain their reasoning for each one.
<p>Slide 15: Observation</p>	<ul style="list-style-type: none"> • The children should be given the opportunity to visit their three chosen locations and check how much sunlight it is receiving at different points of the day. • This could be done simply by asking the children to observe and describe what they found, using a data logger with a light meter or using a free light meter application such as 'Lux Light Meter Pro' for iPads or similar. • Ask the children to complete their observations and measurements three times in each of their chosen locations.
<p>Slide 17: Conclusion</p>	<ul style="list-style-type: none"> • Ask the children to study their results and explain what they found out. Where is the best location for a solar panel?
<p>Slide 18: Farmventing</p>	<ul style="list-style-type: none"> • Encourage the children to think about how they could use their learning about renewable energy to help them design an idea, invention or innovation that will help farmers continue to care for the environment and be climate superheroes.





Key Stage 1 Curriculum Links:

Subject	Topic	Objective
Science	Seasonal changes	<ul style="list-style-type: none"> • Observe changes across the four seasons • Observe and describe weather associated with the seasons and how day length varies.
	Working Scientifically	<ul style="list-style-type: none"> • Asking simple questions and recognising that they can be answered in different ways • Observing closely, using simple equipment • Using their observations and ideas to suggest answers to questions • Gathering and recording data to help in answering questions
Geography	Geographical skills and field work	<ul style="list-style-type: none"> • Use simple fieldwork and observational skills to study the geography of their school and its grounds and the key human and physical features of its surrounding environment.

