



Journey 3: Energy from the sun

Curriculum links

England & Wales

Scotland

Science, Maths, PE, PSHE, ESD

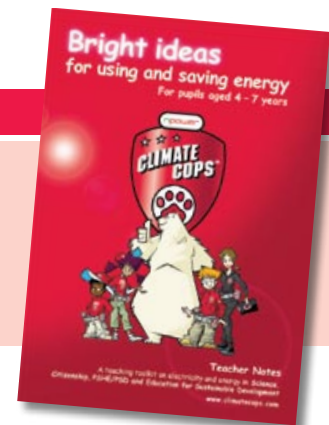
Science, Maths, Drama, PSD, Social Subjects

Energy from the sun will introduce pupils to the full extent of the sun's energy; from simply harnessing heat through absorbent material through to solar energy. Pupils will learn:

- To ask questions ('how?', 'why?', 'what if...?')
- To identify different light sources, including the sun
- To understand that darkness is an absence of light
- To estimate, measure and weigh objects; choose and use simple measuring instruments, reading and interpreting numbers, and scales to the nearest labelled division
- Use movement imaginatively, responding to stimuli

Additional resources:

If you would like to investigate the power of water and sunlight further and their roles as renewable energy sources, the free Climate Cops resource for 4 - 7 year-olds is available to order online. Check with your Science Co-ordinator to see if your school already has a copy. If not, visit the Climate Cops resources section on www.npower.com/education to order a copy for your school.



Please note: To fully access the drag and drop PowerPoint activities, the presentation should be run in normal view, full slide.

Activity 1: Seed to plant dance

Ask pupils if they know what the difference is between light and dark; are there things that are done in the dark that are different from things that take place in the light (e.g. sleep)? Can they remember which is preferred by seeds and which is preferred by plants?

Hand out activity sheet 9 to all pupils. This contains different stages of plant growth to help pupils formulate their dance moves. In this movement exercise they will become germinating seeds, slowly sprouting and growing into plants.

More able groups can adapt their dance in several ways:

- One child could take on the role of photographer for a gardening magazine and the dancer should freeze at a phase in the life of a plant for a photograph to be taken
- Pupils could dance in slow motion to fully express movements and gestures
- The class could work together as a vegetable patch. For example, tomato plants stretching high, strawberry plants running low, spiky blackberry bushes, runner beans twisting around canes. Pupils could also become birds, snails or worms interacting with the plants

Resources

- Activity sheet 9 – seed to plant dance

Activity 2: Speedy beany

Ask pupils to name as many different light sources as they can. Explain that it is the light from the sun that is needed by most plants in order for them to grow; plants turn sunlight into energy. Distribute activity sheet 10 to all pupils. Following the simple 'how to' instructions pupils should germinate a bean seed in darkness* and as soon as a shoot is seen move the bean to a sunny position. Pupils must measure the bean's shoot each day and chart its growth in their workbooks, noting the swift growth rate over the period of a week. The growth can then be charted (plotted) in a series of graphs. This activity is supported by an interactive flash game whereby pupils need to get the correct balance of natural energy to help their plants grow.

Resources

- Energy from the sun PowerPoint slides 3 to 13
- Activity sheet 10 – speedy beany
- Let's get planting flash game
- The Power of the Earth's Natural Energy poster

*To save classroom time you may wish to germinate the beans prior to starting this activity. Germination of beans will take approximately 4 to 6 days. Bean germination could be given as homework a week prior to the activity date.

Activity 3: Heat energy

Heat energy is created by the sun and is needed by most plants to grow. It is so important that gardeners often try to capture and store the sun's heat through solar panel heaters or heat absorbent material. To aid pupils' understanding of heat absorbency, hand out a copy of activity sheet 11 to each pupil. Before testing, ask pupils which of the four colours (black, white, yellow and light blue) might absorb the most heat and what will happen to the ice cube as a result. Split the class into groups and take pupils to a sunny position in the school playground. The different coloured cards should be placed on the ground and an ice cube on top of each one. (If the school has access to a greenhouse this would be an ideal location for the experiment to take place.) Pupils should monitor each ice cube and the colour of the card that has the fastest and slowest melting cubes on them.

Resources

- Activity sheet 11 – hot, hot heat

Activity 4: Greenhouse

Use the PowerPoint presentation to explore what a greenhouse is and how it works.

Hand out a copy of activity sheet 12 to each child and explain that they are now tasked with creating their very own recycled greenhouse from a used pop bottle. Once the npower Climate Cops Green Fingers greenhouse is complete pupils should decorate it in a style of their choosing.

It can be used to help propagate seeds or assist seedling growth prior to replanting in the school greenhouse or grounds. This activity is supported by a video guide hosted by Zoë Salmon.

As a follow up activity you may wish to task the class with cultivating elements of a salad in their mini greenhouses. For help and further information download the 'salad fact sheet' and 'what grows when?' from the information section.

Resources

- Energy from the sun PowerPoint slides 14 to 21
- Activity sheet 12 – npower Climate Cops Green Fingers mini greenhouse
- Video guide: Zoë's npower Climate Cops Green Fingers mini greenhouse