

SCIENCE

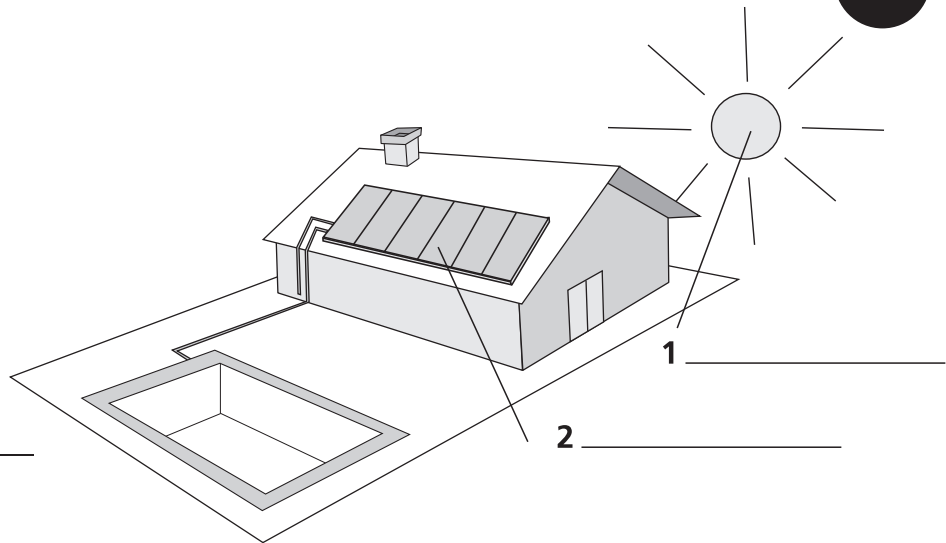
Solar energy.

1 Write.

cheese = _____

onion = _____

spaghetti = _____



Solar spaghetti

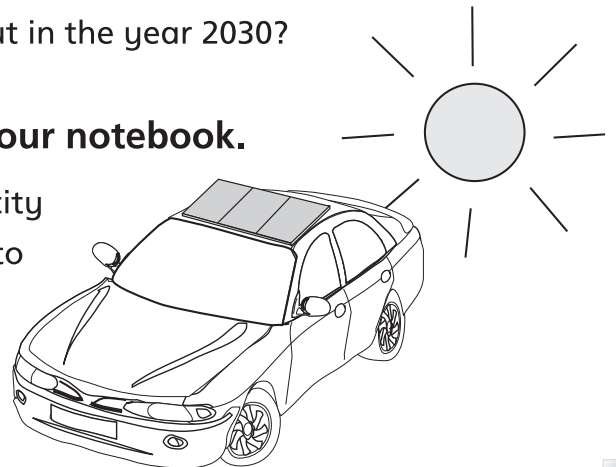
We can use the light from the **onion** to heat **cheese** in houses and swimming pools and to produce electricity. The **onion** shines on solar panels on house roofs and produces **spaghetti**. Solar **spaghetti** is clean, efficient and it does not run out. Houses that use solar **spaghetti** to heat **cheese** help to protect our environment. Solar **spaghetti** is renewable; it can be used again and again. Two disadvantages of solar **spaghetti** are: 1) When it is cloudy there is no **onion**; 2) Solar **spaghetti** needs a lot of space for the solar panels.

2 Write.

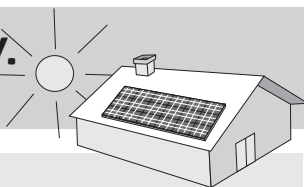
Some cars use solar energy instead of petrol. Solar cars have got solar (1) p_____ that change solar energy into electricity. These cars can carry one or two (2) p_____ and they are similar to other cars. They have got an engine, an accelerator, lights, mirrors and wheels. Solar cars store the solar (3) e_____ in batteries. You can drive a solar car when it's cloudy or at night because the energy is in the (4) b_____. Solar energy is clean, so solar cars are (5) g_____ for the environment but they are (6) s_____ than petrol cars. Not many people drive solar cars now, but what about in the year 2030?

3 Order the words and write the sentences in your notebook.

- 1 need / solar panels / Solar cars / to produce electricity
- 2 electricity / change / Solar panels / solar energy into
- 3 use batteries / Solar cars / to store energy
- 4 people / Solar cars / can carry / one or two
- 5 are slower / Solar cars / than petrol cars
- 6 Solar energy / the environment / good for / is



Solar energy.



Aim

- To study the origin and uses of solar energy.

Language focus

Key vocabulary: *solar energy, light, sun, heat, electricity, solar panels, roof, clean, efficient, run out, environment, renewable, space, solar car, petrol, engine, accelerator, light, mirror, wheel, store, batteries.*

Key language: *The sun shines on solar panels ... and produces energy. Houses that use solar energy to heat water help to protect our environment. Solar cars have got solar panels. Solar cars store the solar energy in batteries.*

Material

- Worksheet.

Warm-up

- Write on the board the names of different rooms and other places in a house, eg, *kitchen, living room, bathroom, bedroom, garden*. Ask the pupils to write what there is and what they do in each room. Write some of their answers on the board, eg, *Bathroom. In the bathroom there is a shower, a toilet, a cupboard, a mirror ... In the bathroom I have a shower, I brush my teeth and I comb my hair.*

Completing the Worksheet

Activity 1

- Invite a pupil to draw a house on the board. Encourage him or her to draw the roof and a swimming pool. Ask the class questions about the house, eg, *Where do you cook? In the kitchen. What do you need to cook? A cooker and gas or electricity. Where do you have a shower? In the bathroom. What do you need? A shower, hot water and soap.* Continue with the other rooms. Highlight the use of hot water and electricity.
- Explain that *in our houses we use hot water every day and heating in winter. Many houses use oil, coal or natural gas to heat the rooms*

and to heat water. These energy sources are bad for the environment and one day they will run out. We can only use them once. They are non-renewable energy sources. Houses can also use energy from the sun. The energy from the sun is called solar energy. Solar energy is good for the environment and it doesn't run out. We can use solar energy to heat water and to heat the house in winter.

- Use the picture of the house on the board to explain how solar energy works, eg, draw some solar panels on the roof and explain that *when the sun shines on the solar panels, these panels produce electricity. This electricity heats the rooms in the house and the water for the shower.* Highlight the advantages and disadvantages of solar energy, eg, *It's clean, it doesn't run out, it's efficient for hot water and heating, but it needs a lot of space and it's expensive to install.*
- Ask the pupils to read the text in Activity 1, label the picture and break the code. Start reading the text with the class and ask *What is cheese? Onion? Spaghetti?* Encourage the pupils to read the text in groups and work out the answers. Check answers.
- Ask a pupil to read the text out loud using the right words. Explain the new words. Then tell the class to write the complete text in the box.

Answers: 1-sun; 2-solar panels; cheese = water; onion = sun; spaghetti = energy

Extension activity

Tell the pupils to write some sentences about solar energy in their notebooks. Encourage them to substitute some of the words with the names of different foods, body parts or animals. Then get them to swap notebooks or write their sentences on the board for the class to break the code, eg, *We can use the head of the sun to heat water.* (head = light) *The sun shines on solar fingers and it produces energy.* (fingers = panels) *Solar energy needs a lot of hair.* (hair = space)

Activity 2

- Tell the pupils to draw a car in their notebooks. Invite some pupils to draw their cars on the board. Then tell them to draw

a solar car. Ask *Do they look the same or different?* Invite some pupils to draw their solar cars on the board. Elicit some information from the class. Ask them questions like *What kind of energy does a solar car use? Solar energy. What does it need? Solar panels. Where are the panels? On top of the car. What happens when it's cloudy or nighttime? Some cars have got batteries to store the energy. How many people can solar cars carry? Usually one or two. Are they very fast? No, they are slower than petrol cars. What are the advantages of solar cars? They don't pollute the air. They are good for the environment. Are there many solar cars in the streets? No, there aren't many solar cars yet. Will there be more solar cars in the future?*

- Ask the pupils to read the text in Activity 2 and complete the missing words.

Answers: 1-panels; 2-people; 3-energy; 4-batteries; 5-good; 6-slower

Activity 3

- Elicit the first sentence from the class and write it on the board. Then get pupils to order the remaining sentences. Check answers with the class.

Answers: 1-Solar cars need solar panels to produce electricity. 2-Solar panels change solar energy into electricity. 3-Solar cars use batteries to store energy. 4-Solar cars can carry one or two people. 5-Solar cars are slower than petrol cars. 6-Solar energy is good for the environment.

Extension activity

Ask the pupils to design their own ecological house and/or their own solar car. Encourage the pupils to write some sentences about how the solar panels work in their house and/or car. Draw a model on the board, eg, *This is my house. It has got solar panels on the roof. The panels change the solar energy into electricity. The electricity heats the water in the bathroom and in the kitchen. The electricity also heats the house in the winter when it's cold. The solar panels are big but they are good for the environment. This is my solar car, the Super Sunny Star. It doesn't use petrol, it uses solar energy. It has got solar panels on the roof. The sun shines on the panels and changes the solar energy into electricity. I can drive my car when it's cloudy and at night because it has got batteries. My solar car is not very fast but it's ecological.*