

Solar

Date:

Name:

Class:



Task 1 – Using the words and numbers in the list below, fill in the gaps in the following paragraph

Heat ~ shadows ~ radiates ~ sundials ~ 24 ~ revolution ~ star ~ length ~ Greek ~ hours ~ Sun ~ light



The **Sun** is our closest **star**, it is at the centre of our 'solar' system. The word solar comes from the **Greek** word for Sun, Sol. Some of the Sun's energy **radiates** as far as the earth we receive this in the form of **heat** and **light** energy. One **revolution** of the earth takes **24** hours giving us day and night. As the earth turns, the Sun seems to move across the sky and **shadows** cast by objects and people will change in **length** and direction, these shadows can be used to chart the passage of time and **sundials** were designed to make this easier to read by dividing the day into segments or **hours**.

Task 2 - Examine the image of the **solar installation** on the house below and see if you can answer the following questions

1. Do solar panels require direct sunlight to produce energy?

No, they do not need direct sunlight as they can generate energy from daylight and so will work even when the weather is cloudy.

2. What direction should the solar panels be facing in the UK?

Solar panels should be facing south to make the most of the sun.

3. How is direct current from the panels converted into alternating current that can be used in the house?

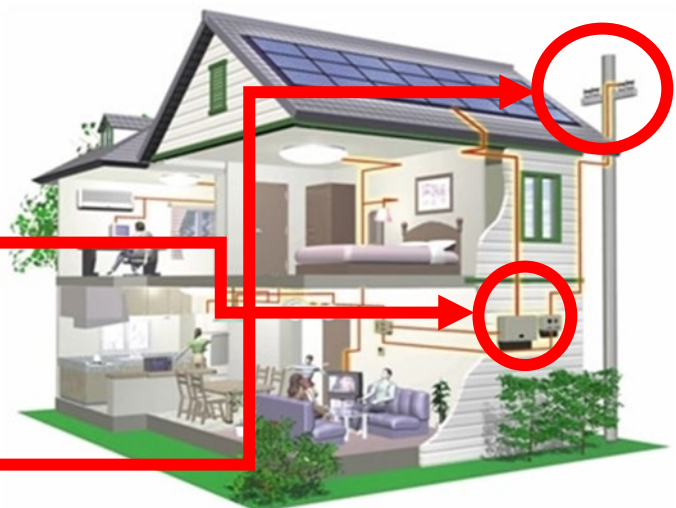
DC is converted to AC using an inverter

4. Circle the point on the image where this is happening

5. What happens to any excess energy produced?

Any excess energy generated by domestic solar panels is fed back into the national grid.

6. Circle the point on the image where this is happening



Solar

Date:

Name:

Class:

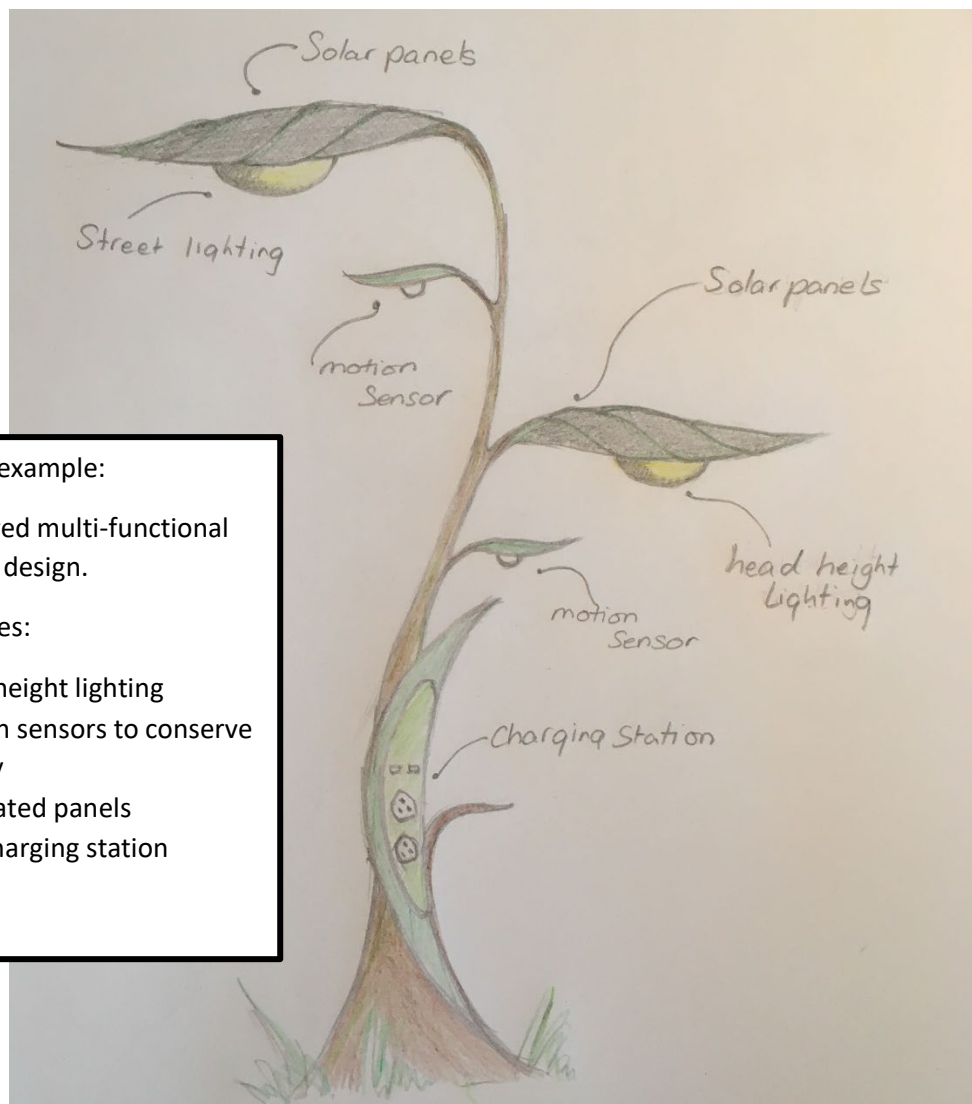


Task 3 – The solar challenge!

In pairs, **design a solar streetlight** that could be used on pathways between villages to light the way making it **safer for children to walk to school**.

- Your streetlight will be powered by a solar panel
- Work together to present your Ideas to the class
- The design must use energy efficiently and fit nicely into it's planed location

Present your ideas in the form of a drawing with notes in the space below



Indicative example:

Tree inspired multi-functional streetlight design.

Key features:

- Multi height lighting
- Motion sensors to conserve energy
- Integrated panels
- Fast charging station