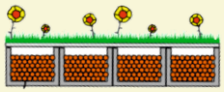
THE ENERGY EFFICIENT AND SUSTAINABLE HOUSEHOLD

CLICK ON THE SMALL IMAGES FOR LINKS TO USEFUL INFORMATION.

1. What are photovoltaic panels? How could they produce electricity for this house? Would they be useful?

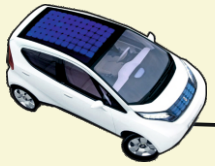
2. Describe a typical solar water heating system, suitable for this roof / house. Include a labelled diagram of the system.

3. How could the roof be radically redesigned to filter rain water? Include an explanation of a 'grow system' and 'stormbank'.



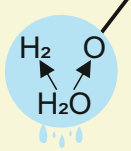
4. Water could be collected from the roof, during wet weather. Describe a simple, homemade water filtration system, often used in countries with limited fresh water supplies. Include a labelled sketch.

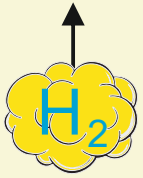
5. A solar powered car is one possible replacement for diesel and petrol cars. How realistic is this? How would they be charged?



6. Hydrogen' can be used as an environmentally friendly fuel, for cars. How is this achieved? Include reference to the hydrogen fuel cell. You will need a labelled diagram.

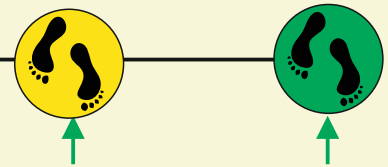
7. Fossils fuels have caused global warming and global pollution. Switching to the 'Renewable Hydrogen Cycle' could be the answer.
What is the hydrogen cycle? Paste an image representing / describing the hydrogen cycle.



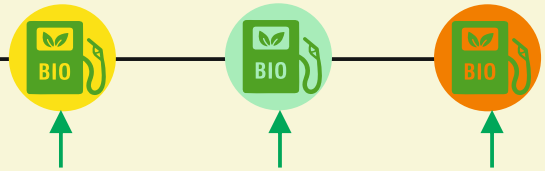


8. If our country switched to the Hydrogen Economy, how would it affect this house and the people who live in it?

9. All the people who live in this house have a 'carbon footprint'. What is an individuals carbon footprint? Include a few examples, of the way we all build up our carbon footprint.



10. How can the occupants of this house reduce their carbon footprint?



11. Name three bio-fuels that this household could use, in place of fossil fuels.
Select one of the bio-fuels and describe how it is *produced* and *processed* into energy / fuel.

12. A small scale wind powered generator could be fitted to this house, providing clean, environmentally friendly electricity. Write four advantages and disadvantages of wind power (including wind farms).

EXTENSION WORK

Describe additional ways this house could be more energy efficient and environmentally friendly. You can answer this question by drawing detailed sketches, with notes.