



The homeowner: Energy efficient house

There are many ways to save energy in your home: turning the lights off when you are not in the room, only boiling the water you need when using the kettle and turning appliances off, instead of leaving them on standby.

But imagine if you were able to build your own house – there would be many things you could do to make your home super energy efficient.

Your task

You are a team of architects commissioned to plan an energy efficient house. The house has to meet its power, heating and lighting needs, with minimal carbon emissions. It should not be too expensive – people need to be able to afford it. It should also be somewhere a family would want to live. You can make the house as unique as you like.

You need to produce:

- **basic plans for the house that show:**
 - its dimensions
 - the materials you want to use
 - how the house will be heated, lit and supplied with electrical power
- **a report that explains:**
 - how your house will be built
 - the choices you made
 - how it will save energy
 - why people would want to buy it
- **a presentation that you will deliver in front of your class.**

They are business people and you are persuading them to invest in your super efficient houses.

Activity card 6



You must use scientific explanations to back up your design decisions.
Here is an example:

We have insulated the roof with glass wool. This is because most heat will be lost through the roof through convection currents. The glass wool insulates it and traps tiny pockets of air and stops convection currents forming in the roof space.

Use the flow chart to help you make your design decisions.
There are options to help you, but you need to research other possibilities.

Where will you build your house? <ul style="list-style-type: none">• On the ground• Underground• In a tree• Somewhere else	What material will you use for the walls? <ul style="list-style-type: none">• Bricks• Mud• Straw bales• Something else	How will you heat it? <ul style="list-style-type: none">• Ground source heat pumps• Solar heating• Something else
How much is your house going to cost to build?	How will you light your house? <ul style="list-style-type: none">• Energy saving bulbs• Light pipes• Something else	How will you supply it with electricity? <ul style="list-style-type: none">• Wind turbines• National Grid• Hydrogen fuel cells• Something else