Centre for Alternative Technology
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General Study Guide

1. Following the map on your ticket go to the **self build house** by the lake**.**
   What three jobs can the sun do for people staying in this house on a sunny day?

2. Make a sketch of the house. Show the side with the conservatory. Label the parts which use solar energy.

3. Which direction is the side with the conservatory facing (North, South, East or West)?
   What difference would the direction make?

4. Now go to the **whole home display**. Inside you will find a model house. Push the buttons to find out how much electricity is used for different things. Fill in the table below.

Appliance	**Amount of electricity used (Watts)**	**Cost per hour (£)**	**Cost per quarter (£) (every 3 months)**
Whole house			
All lights in house			
TV and video			
Computer			
Washing machine and dryer			

5. When you have looked at the whole house think of *three* ways you can save energy in your school.

6. Think of six ways you could save energy in your home.

7. Now go to the **solar pump**
   This pump is powered by sun light. The solar cells make electricity when light falls on them. The electricity is turning the pump. In what weather conditions will the solar pump not work?

8. If it is sunny use the black 'clouds' that you will find under the pump to see if you can slow the pump down, or even stop it for a while.

9. Now go into the **Gardens** and find our **Mole Hole**.
   Here you will meet many of the creatures living in soil that are usually too small to see. What useful things do some of them do?

10. All of our Gardens at CAT are organic. That means we do not use artificial pesticides to spray our plants. What would happen to the creatures in the soil if we were to use these pesticides?

11. Some small creatures in our gardens are pests as they eat the plants we grow. Find out how to get rid of garden pests like slugs, caterpillars and greenfly without poisoning them.

12. Now move on to our **compost** display.
    Find out how we make compost and why it is useful.
    List 6 things you can put in a compost bin
    a) d)
    b) e)
    c) f)

13. Why should we try and reduce what we throw away in the rubbish bin?

14. Visit one of our **compost toilets**. How is it different from your toilet at home?

15. Just round the corner you will find our **wave machine.** Try to make enough electricity to light the lighthouse.

16. Look closely at how the wave power makes electricity. Write a few words about how it works.

17. The wave machine is a model of how we could make electricity from the power of waves. In what sort of place do you think you would find a real wave machine doing this?

18. Move on to the **wind power** area
    Can you see our big windmill up on the hill? It is called the Polenko and there is a picture of it on the display boards.

19. Draw a sketch to show the difference between a windmill used to make electricity and one used as a water pump. Label your sketches.

20. In the **power house** you will find the **hydro power** display.
    In the middle you will see the Pelton wheel water turbine. This makes about half of our electricity on site. Behind it is a picture of our water power system.
    Make a sketch of the journey water makes from the reservoir up on the hill to the river down in the valley. Show how we use the water in between.
    Label your sketch using these words to help you - reservoir, pipes, 30 metre fall, turbine wheel, electricity, lakes, cliff railway, river

21. Think about the water cycle. How does the water get into the top of our reservoir up on the hill?

22. Move on to look at the **solar water heaters**.
    On the left you will see different plates that get warm in the sun. The first is white, the second black, the third is black and insulated, and the fourth is black, insulated and covered in clear plastic. Using the thermometer readings write down the temperatures for each plate.

White plate	Black plate	Black and insulated plate	Black, insulated plate with clear plastic

Which is the hottest?

23. Look at the water heater with a cut-away corner to show what it is like inside. Make a sketch of this showing all of the parts.
    Label your sketch using these words to help you - insulation, clear plastic, black surface, water pipes, angle, old radiator.

24. Make your way to the **Information Centre** building. This building is not made with the same materials of most houses. Take a close look at the inside walls. What have they been made from?

25. The walls of the building are insulated. Can you think of what we have used as an insulator?
    (hint - it is attached to sheep and keeps them warm!)

We hope you have enjoyed your day at CAT and look forward to seeing you again soon!

Don't forget to take a look at our transport maze, small holding and adventure playground before you leave!