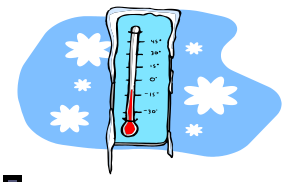
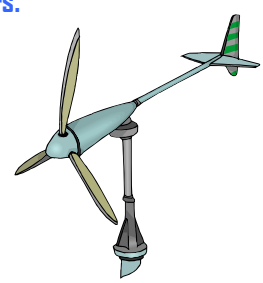
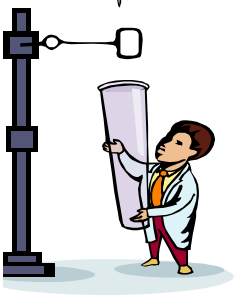
Digit the badger 6

The group decided they needed to record the weather at the hide, to see if it affected the badgers.







They wanted to measure the rainfall, (important for worms!) They also wanted to test the temperature and the wind-speed. (Badgers don't like windy nights, as they can't hear as well because of the noise.)

Knowing what is happening with the weather is important. We need to watch carefully to see how climate change affects badgers.

Why don't you set up an experiment to measure the new problem for the Earth – global dimming?

Global dimming happens because of pollution in the atmosphere. It blocks sunlight. Much of the pollution comes from cars, factories and aeroplanes.

Set up a beaker of water, under a sheet of plastic. The plastic stops rainfall getting into the beaker, but allows the water inside to evaporate.

Measure the depth of the water each day, at the same time. If it has been sunny, some will have evaporated.

To find out how many calories of energy the sun has beamed onto the earth, we can use the following formula.

600 – (?°C x 0.6) x cm. of water evaporated.

To evaporate 1cm³ of water at 0°C needs 600 calories of radiant heat. At 100°C only 540 calories are needed. So for every degree C, you need 0.6 calories less.

Multiply that by the number of cm³ gone, and you've got your calorific value! Brilliant!

If you keep records over a period of time, you'll measure the calorific value of the sunshine on your garden.

Visible air pollution reflects sunlight back into space, stopping it from reaching the surface. The pollution also changes the optical properties of clouds. As the particles help the formation of water droplets, polluted clouds contain a larger number of droplets than unpolluted clouds. Research shows that this makes them more reflective than they would otherwise be, reflecting the Sun's rays back into space. **However, the decline in sunlight may mean that global warming is a far greater threat to society than we previously thought!** So – do we clear up pollution and warm the planet, or keep the pollution and stay cooler?

Why not make an albedo tester?

"What's albedo?" I hear you ask?
Well, the albedo effect is how well the Earth reflects sunlight.
White surfaces reflect lots of the Sun's light back into space, keeping the planet cooler.

Darker surfaces absorb heat and make the Earth warmer. (Feel the surface of your playground on a hot, sunny day!)
The icepacks and glaciers at the poles reflect heat. The dark sea absorbs heat. **(Do you see a problem here with melting icecaps?)**

Set up an albedo tester like the one above. You need 2 ice cream tubs, some black and white gaffer tape, a couple of thermometers, (inside), and a couple of plant ties, to keep the lids on.
Mount your boxes looking straight into the Sun. Have a look at them each day, at the same time. Record the heat in both boxes. Is it different? By how much? Does it vary from season to season?
You could record your measurements in a table like the one below.

Date	White Box	Black Box	Difference

It might just make you think about the problems of the icecaps. It's not just about polar bears! Why don't you take your findings into school and ask your friends and teachers what they think? (Might get you some 'brownie points with 'Teacher'!)