

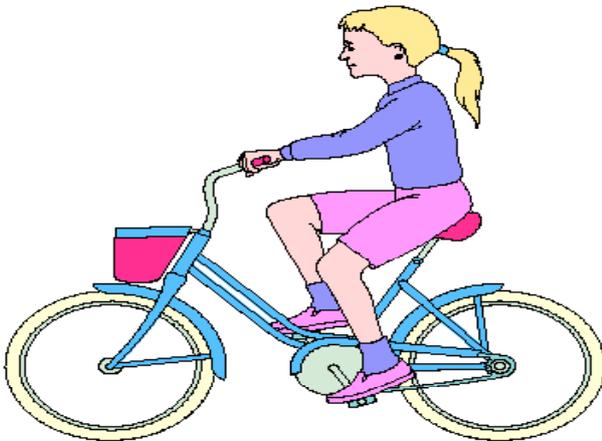
Using IT in... electricity

How can a bicycle make electricity?

A bicycle with a dynamo is a nice model of how electricity is generated. The wheel turns and the lamp lights, but how does the speed of the wheel affect the brightness of the lamp? Computer sensors allow you to answer this in detail: you point a **light sensor** at the lamp and show the light level, as a bar gauge on the computer. If you turn the wheel faster you can measure the difference and, if you also have a **rotation sensor** you can use that to show the speed of the wheel too.

See the spreadsheet topic

IT: Measuring



Can we make a strong electromagnet?

You can make an electromagnet by neatly wrapping insulated wire round a large nail. If you connect this to a battery or two the nail will pick up staples - the more staples, the more powerful it may be. This leads to some questions: how can you make the magnet stronger? How can you test how strong it is? The children might try powering the electromagnet with one, two or three batteries and count the number of staples picked up. Or they might see how the number of turns of wire on the nail affects the magnet's strength. They can put their results into a **spreadsheet** - a program which provides a ready-made table. They can use the spreadsheet to plot a bar graph with the number of batteries along the bottom and the number of staples picked up on the side. Can they see a steady increase in each bar? What does this tell them about using more batteries?

	A	B	C
1	Electrical equipment survey		
2	Room	How many items with plugs	
3	Red class		
4	Store		
5	Green class		
6	Library		

They can investigate the number of turns of wire but this is 'a continuous variable', so it is better to draw a scattergraph. This is harder. This graph should show the number of turns along the bottom and the number of staples picked up on the side. Ask the children if they can 'see' a line through the scatterpoints. If so, they have found a pattern. Would more turns make an even stronger electromagnet? How could they make an electromagnet to pick up a car?

IT: Handling information

Section

3