What makes a good paper 'plane?

Designing and testing paper planes is a fun way to stimulate interest in the science of flight. There are even computer programs that will print paper templates to make planes (**Paper Planes** for PC - mail order but there's a free demo on the **Internet** - search for Kitty Hawk). But that aside, you can take a design and investigate how the position of the wings, or the position of a weight affects how well the plane can fly. You might time how long they can stay in the air - just be prepared to practice doing this, as it is tricky. You can enter the results into a **database program** and then use it to analyse the results. The children can sort the results

	A	B	C
1	Parachute testing	Fall time	
2	Baloon	6	
3	Plate	3	
4	Serviette	10	
5	Nylon	5	

o find the best plane. Should the plane have weights on the nose? Some children could plot a scattergraph of wing position against the distance travelled - and find a pattern here.

Instead of 'planes they can make paper spinners or gyroplanes. They can try different size wings, different wing cut-aways, or different numbers of paper clip weights, and they can time how long each design takes to fall. Again a **database program** will help them to handle the results. They can select out the spinners with long wings and see whether those with more clips spin best. They can draw a bar graph, and write on their ideas, about what makes a good spinner, on the print-out.

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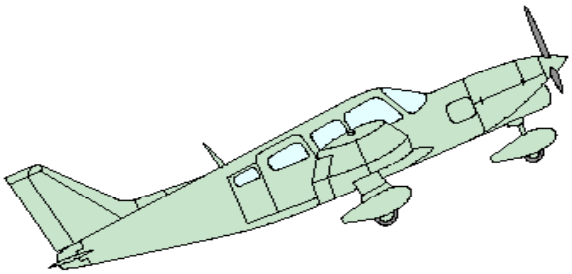

Make and test a launcher for a dart plane

The children can make an elastic launcher for a paper plane and investigate the best way to use it. How could they test it scientifically? Should they use a ruler to measure how much they pull the elastic band? They could try a number of firing positions and record how far their plane flies in a **spreadsheet**. The program can draw a bar graph of their results. What does the graph tell them? Is it best to pull the elastic all the way back?

Alternative: who can make the best catapult to throw a paper ball? Does the size of the paper ball affect how far it travels?

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Which elastic band is the strongest?

A nice investigation, involving some information handling arises from the design of an elastic band tester. They can tie a band to a hook and then to a bulldog clip. The children can test how far the band stretches with more and more weight attached. They can use a **spreadsheet** to record and bar graph their results. You might ask: what pulls on the band? Does gravity pull more on a large weight or a small weight? Is there a pattern between the weight and the stretch?

Who can make a good elastic band roller?

See the spreadsheet topic

All sorts of elastic band devices can be used for investigations on energy. There are cotton-reel rollers, buggies and planes any of which can be tested to show that the more energy we give to the elastic, the more the devices can travel. Ask the children to find a way of testing this idea. Get them to use a **spreadsheet** to record their results. Which type of graph best shows their results? Why does winding more make it go further?

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