High-Flying Planes - Why do planes fly so high?

Fact

- When a huge plane like a 747 moves through the air fast the air causes drag, or friction, that slows the plane down. Up high the air is thinner and that means less drag.
- When you move slowly through the air, air gives way and you can move with ease. If you try moving forward fast, into a head wind it becomes more difficult. That's why planes need engines – to push them through the air and overcome the drag.
- When the engines of a plane don't have to work so hard to push it through the air, this saves fuel.

Do you know

- Some planes fly about 10,000 metres above the ground where the air is thinner.
- A plane has a specially designed shaped so it can go faster. It is streamlined so it's able to slice through the air faster and there is less drag.
- A Jumbo Jet uses 4 litres of fuel in just one second.
- A 747 can carry over 560 people.
- The tail of a 747 is as tall as a 6 story building and one wing is big enough to park more than 40 middle sized cars on.

Experiments you can do

You need two containers, one filled with a thick liquid like Golden Syrup and the other with a runny liquid like cooking oil. Using a different spatula in each container, stir the liquids and see which one takes the most effort. Is the thicker stuff harder to move through? What about the thinner liquid - is it easier for the spatula to move through? The thick liquid is causing lots of drag, or friction. The thinner liquid is causing less drag. Just like thinner air way up high causes less drag.

Other Investigations

Watch planes flying overhead. Or if you get a chance to visit an airport watch planes taking off and landing. Which direction are the planes going? Are they all going in the same direction? How high are they flying and how big are they? Does the size of the plane make a difference to how high they're flying?