



Air Resistance

LO: To know what is meant by 'air resistance'

- Understand that air resistance is a type of **friction**.
- To know that the **shape** of an object affects its air resistance.



Air Resistance

As you move, you create **air resistance**. When you run or ride your bike, it is air resistance that pushes your hair back and makes your clothes ripple. The **faster** you move, the **more** air resistance you feel.





This is a space capsule falling back to Earth. It is carrying astronauts back from a space mission.

Which part of the space capsule is creating the **most air resistance**?

Why is it important for the capsule to create **air resistance**?

When objects move through the air, an invisible force acts upon it and this is air resistance. This is when **air particles** hit the object and create air resistance. The **air particles** that hit an open parachute make it difficult for it to move through the air, because of its **shape and size**.

The shape of an object affects its air resistance. Some objects are **streamlined** which means that they will have less **air resistance** and move through the air easily. Objects that are not streamlined will have more air resistance.

What objects can you think of that are streamlined to help them move through the air?



Air resistance affects how fast objects fall through the air. Objects with a lot of air resistance fall slower than streamlined objects, which have little air resistance and will fall quicker.

These two pieces of paper started off the same but they have been made into two different shapes. Which one will fall the fastest? Why?



Scrunched up paper

Paper Aeroplane



KEY WORDS

Air Resistance

Shape

Size

Streamlined

Experiment

Your task is to protect your egg astronauts from crashing to Earth with a splat. You are going to do this by designing and making an air resistant space capsule for them to travel in. After this, your capsule will be dropped and we will see if your egg astronaut is ok!

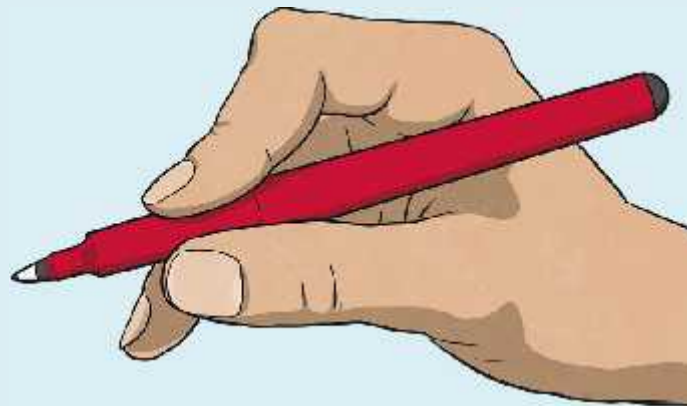


Questions

How are you going to make your space capsule air resistant?

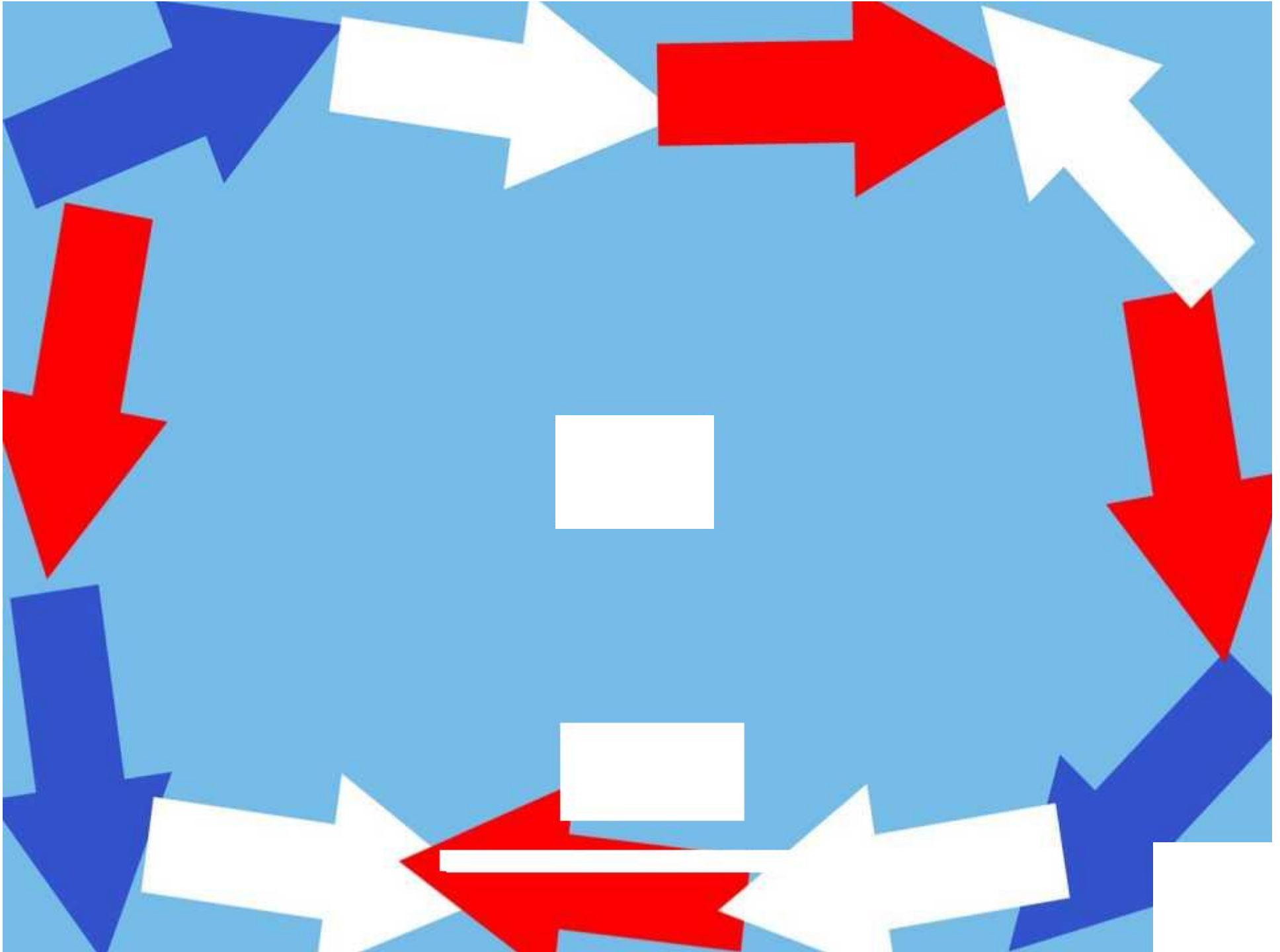
How can we fairly test the different space capsules?

What equipment will you need?



Plenary

Can you write a caption underneath your space capsule design explaining how it creates air resistance?



Air Resistance Teacher Notes

Air Resistance: Teacher notes

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Activity:

In this activity, the children will design and make space capsules to protect their eggs from breaking on the ground when dropped from a height. To do this they will need to build a landing craft with as much air resistance as possible.

The children should be given some group time to work out how to make their capsules air resistant, what equipment they will need and how to fairly test their capsules against their peers.

Suggested equipment:

- Balloons
- Craft straws
- Sticky tape
- String
- Plastic bags (ensure these are handled with care!)
- Paper
- Tissue Paper
- Tape measure (for ensuring a fair test)

Testing:

To contain broken eggs you may wish to carry out this activity on an easily cleanable surface such as the school hall. Alternatively, plastic sheeting could be placed on the classroom floor. If a step ladder is used to drop the space capsules from a height, this should only be climbed by a supervising adult in line with your school's health and safety documentation. Broken eggs should be handled with care to ensure raw eggs are not consumed.