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Speedy explorers
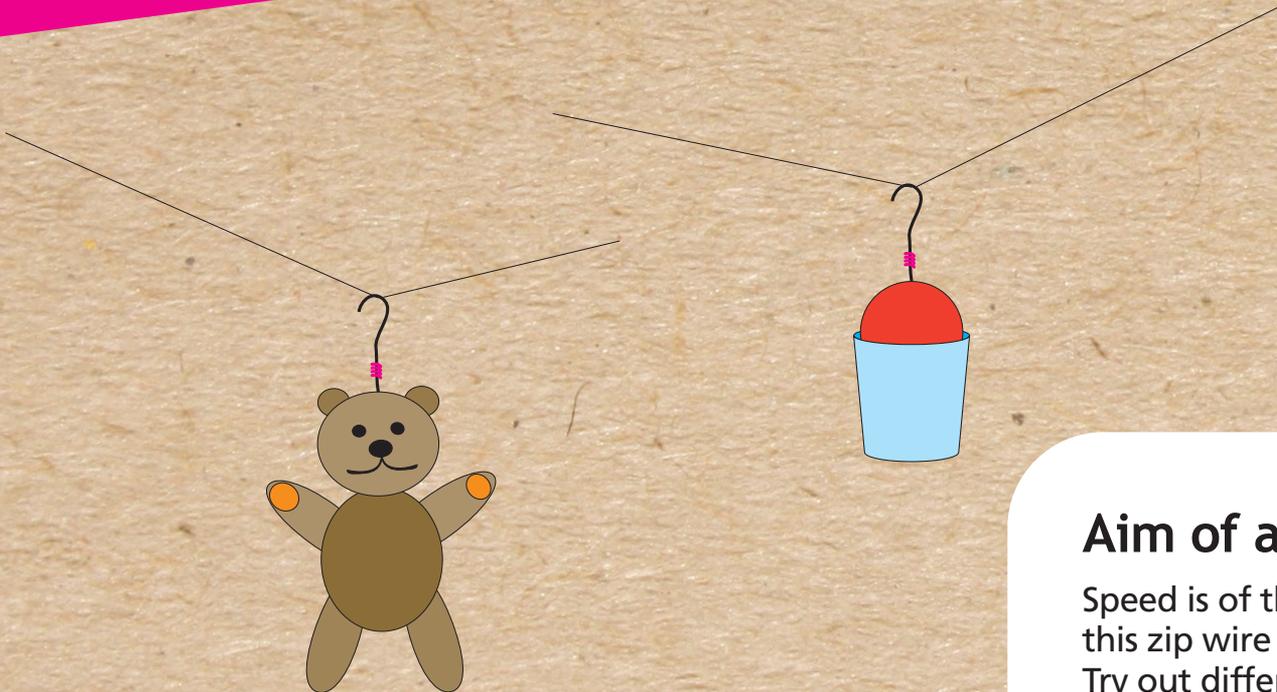
Aim of activity

Speed is of the essence in this zip wire challenge! Try out different materials and techniques to create a rapid route to the finish.

What you'll get out of it

- Calculate speed.
- Create a zip wire.
- Work as a team.
- Keep to time.

What you'll need

- A selection of string, wool or cord, 5–10m long
- Paper
- Pens or pencils
- Sticky tape
- A tape measure (with centimetre measures)
- Brave explorers – these could be teddys, mascots or similar
- A calculator (optional)
- Other construction items, like cardboard, pipe cleaners, safety pins or glue (optional)

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Note to leader

You could ask girls to bring a soft toy or figurine to be the explorer. Or you could draw a face on a balloon. If you're doing the activity outside, try using water balloons for an added splash!

Before you start

It's a good idea to make a score chart to help with the sum in step 5.

Group name	Length of wire (in cm)	Time (in seconds)	Speed

What to do

1 Get into teams of three to six. Your task is to make a zip wire at least 500cm long to transport an explorer (a teddy or similar).

2 Get your explorer and look at the materials you have. Talk together for a few minutes about:
- Where you'll start your zip wire (this might be a cupboard, a door, or the end of the space)
- Where you'll end your zip wire
- How long it'll be – at least 500cm
- What your zip wire will be made from
- How steep it'll be
- How you'll attach your explorer to the zip wire

Top tip

The aim of the challenge is to create the fastest zipwire, but because of the sum you'll do in step 5, the fastest might not be the shortest! You could have a longer zip wire to help your explorer go fast.

3 You have 20 minutes to make your zip wire using the materials – use your time wisely!

4 Someone from another group should measure your zip wire in cm and note it down. Then, send your explorer down it while they time how long it takes in seconds.

5 How fast did they go? To find this out you need to do this sum: length ÷ time = speed.

So, it might be 500cm divided by 6 seconds which is 83.3. So the explorer went 83.3cm per second! Use the calculator if you need to.

6 Once you know which explorer was the speediest, talk together about why. Which materials or ideas works best?

Take it further

See if you can improve your zip wire to make your explorer travel even faster, or swap explorers with another team to see if that makes a difference. You could even have a go yourself – visit a real zip wire and see who in your group is the speediest!