

Please start by writing the date and skill in your home learning workbook

Tuesday 15th September 2020

To plan a scientific investigation

Loom link:

<https://www.loom.com/share/67503f5355964bfebf547d96e08671bf>

Password: Junior

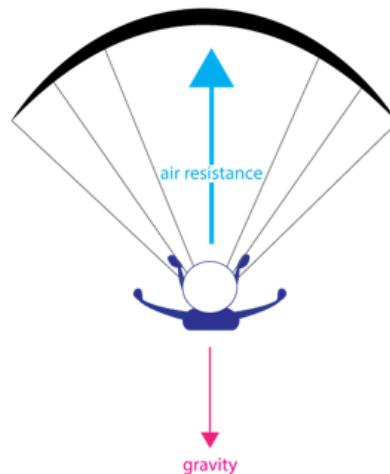
Before we begin this lesson, please start by answering this question in your book:

‘What is air resistance?’

Please watch this [BBC bitesize](https://www.bbc.co.uk/bitesize/clips/zsjd7ty) clip explaining air resistance. (<https://www.bbc.co.uk/bitesize/clips/zsjd7ty>)

Was your definition correct?

As the video explains, air resistance is when air pushes against an object. This is a type of friction. Have you ever felt air pushing against you? Perhaps you were running quickly, or it was windy outside or you were blow-drying your hair? All of these are examples of air resistance.



Together, we will be looking at parachutes and how the size of the parachute affects the speed at which an object falls. Items fall towards the ground because gravity is pulling them towards the centre of the Earth. If someone is wearing a parachute, however, they fall much slower, which keeps them safe. Although gravity is pulling them down, air resistance is pushing the parachute up, so the person falling goes significantly slower.

What we want to discover in our experiment, which we will conduct at school when you return, is:

‘How does the **size** of the parachute affect the **speed** at which it falls?’

Will a larger parachute make a person fall faster or slower than a smaller parachute?

The most important thing to do before conducting an experiment is plan it carefully, so that it is a fair test and we get accurate results.

If I asked you to do 100 maths questions in 10 minutes but I asked your friend to only do 10 maths questions in 10 minutes, would that be a fair test of your ability? No.

Therefore, in order to make it a fair test, we must make sure that everything (except the one aspect that we are investigating) stays the same every time we do the experiment.

These are the materials that you will have to make your parachute:

- Crepe paper (for the surface of the parachute)
- Multilink cube (this will represent your person)
- String (this will attach the multilink cube to the paper)
- Tape (to secure the string to both the crepe paper and the multilink cube)

We will make our parachutes (changing the size every time).

Parachute A will be a small parachute.

Parachute B will be a medium parachute.

Parachute C will be a large parachute.

We will take each parachute in turn and drop it from a height of 1metre. We will use a stopwatch to count how long it takes each parachute to fall to the ground. We know that the most effective parachute will be the parachute that takes the **longest** (so the one that is the slowest) to fall to the ground.

Can you use the above information to plan a fair test in the grid below?

Remember that in a fair test, you can only change 1 thing – everything else must stay exactly the same! This means it should be the same person dropping the parachute and the same person recording the time every time.

Question: What are you trying to find out?

We will be investigating...

What is going to change every time?

The only thing that will change every time is...

What are you going to record each time you repeat the test?

We will be recording the...

What will remain the same every time?

The following things must stay the same every time:

- 1) _____
- 2) _____
- 3) _____
- 4) _____
- 5) _____

Prediction: What do you think will happen?

Watch [this video](#) to help you made a prediction about whether or not parachute A, B or C will be the slowest parachute.

(<https://www.bbc.co.uk/bitesize/topics/zsxxsbk/articles/zxw6gdm&:~:text=Air%20resistance%20is%20a%20type,an%20object%20moving%20through%20water.>)

We would love to see that you have planned this experiment correctly.

Please send either:

- This PDF document saved with your answers
- An email with your answers
- A clear photograph of your sheet / the work in your book

To 5G@gsjs.barnet.sch.uk

One of the year 5 teachers will mark your work and give you feedback.

Please ensure that you send the email using your parent's email address and that they are with you when you send the email.