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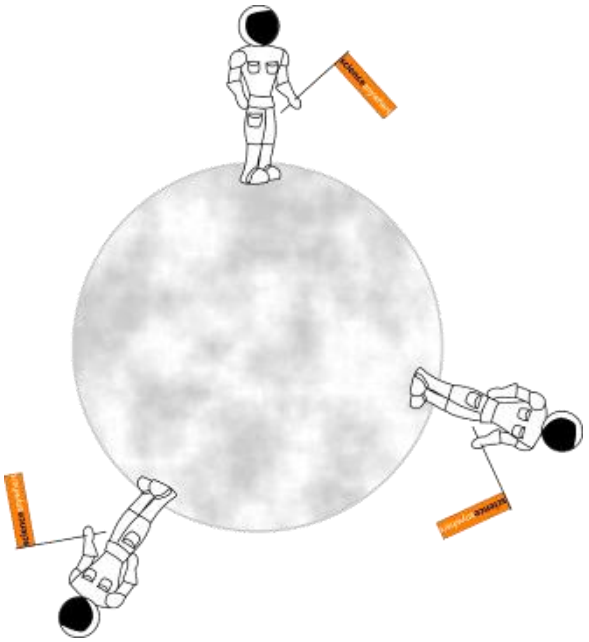
stretch beyond

Unit 6E: Forces in action



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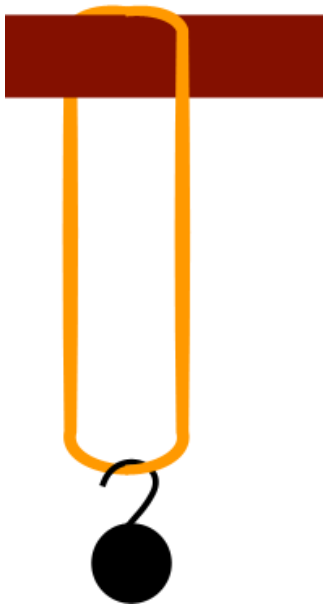
Forces in action

Opposite poles **attract** each other

Like poles **repel** each other

Weight	A force acting on a body due to gravity
Gravity	The force due to the Earth. The Moon also has gravity but it is much smaller.
Upthrust	A force upwards on an object when it is in water
Newton	The unit used to measure force
Forcemeter	The piece of equipment used to measure forces
Stationary	An object that is standing still or not moving

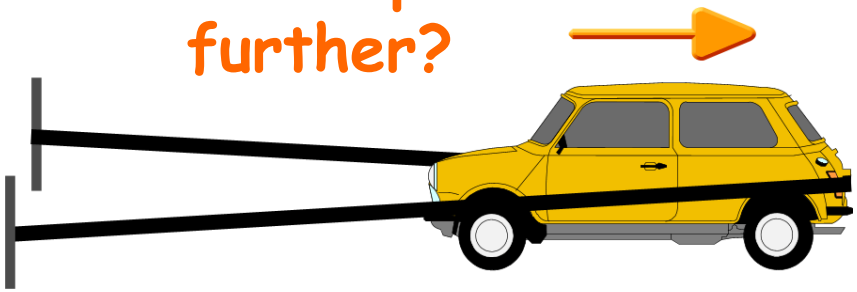


What will happen to the band if a bigger weight is hung on it?

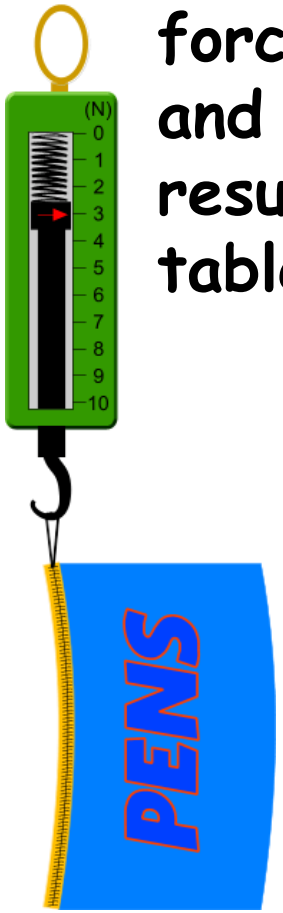
What force is pulling the magnets together?

What is slowing the parachute down?

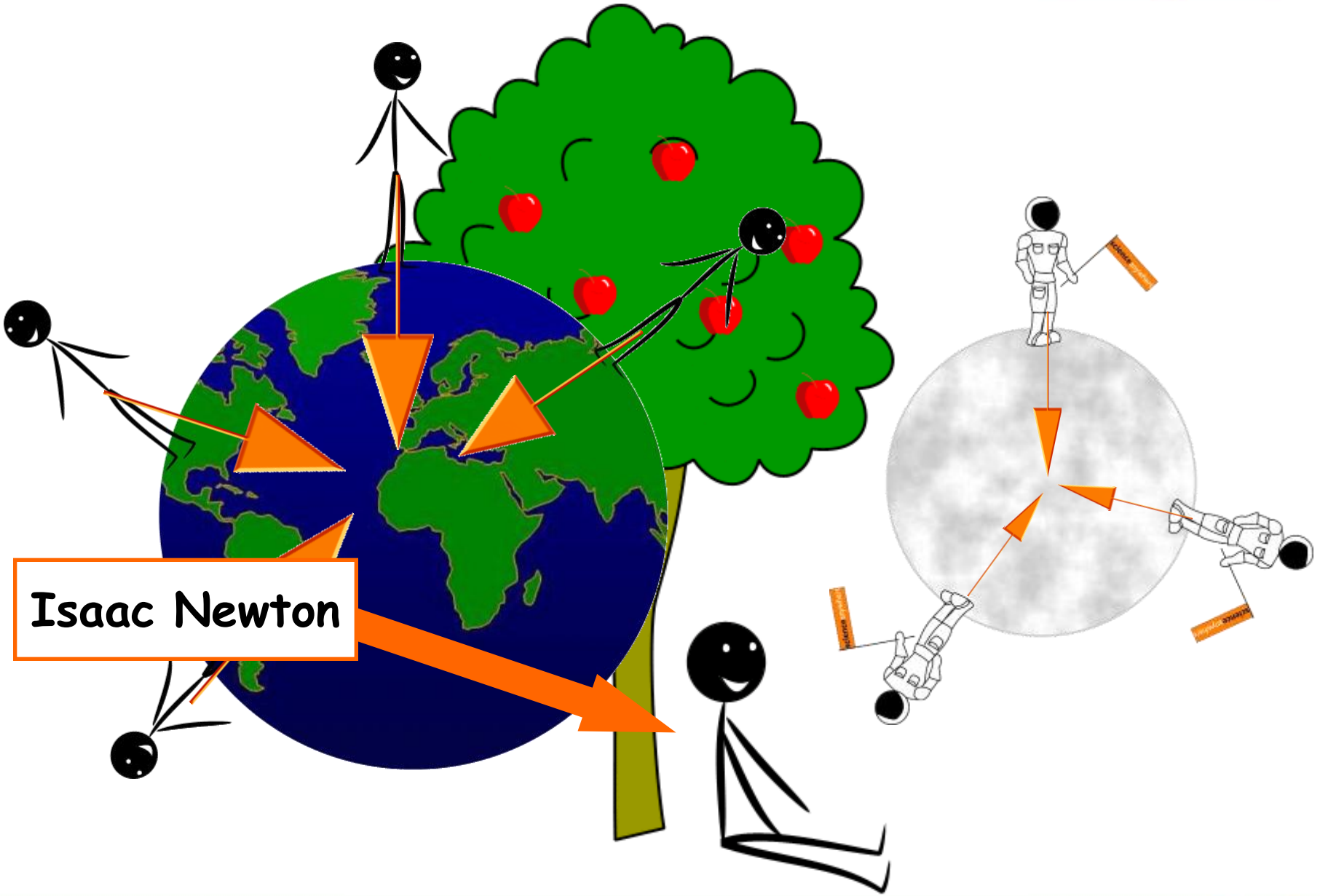
What will happen if the car is pulled back further?

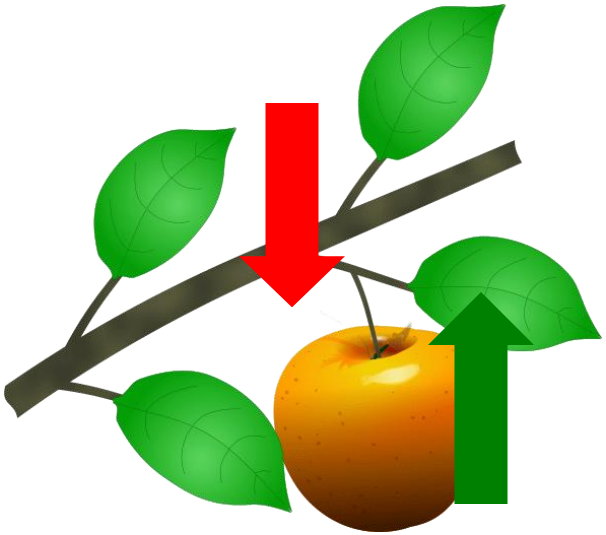


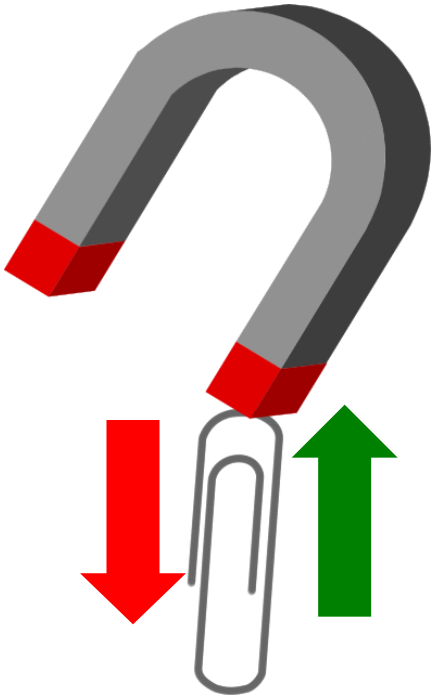
Weigh as many objects as you can using a force meter and record the results in a table

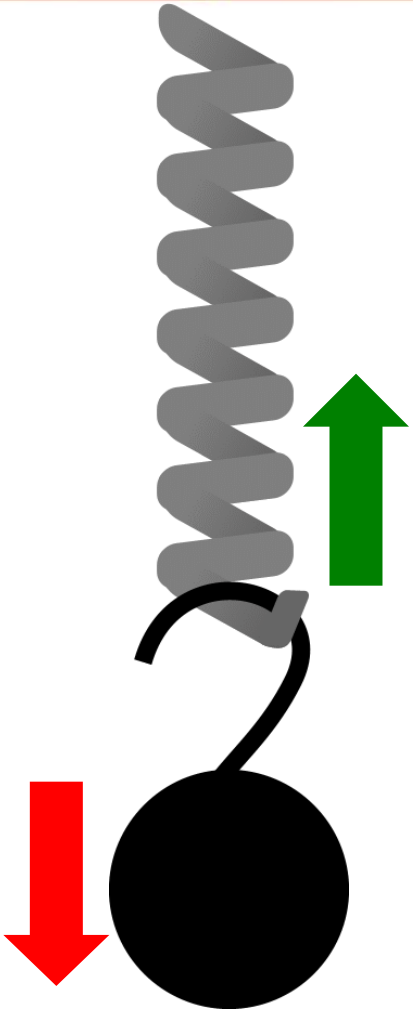


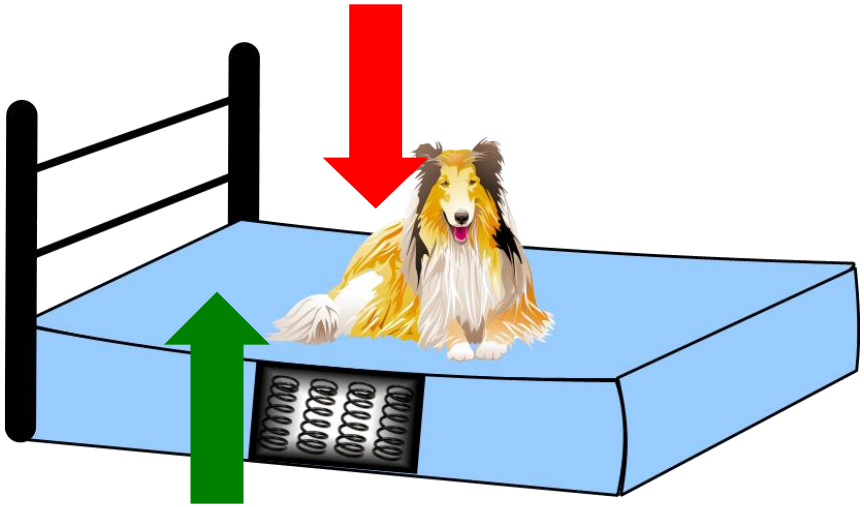
Object	Weight (N)











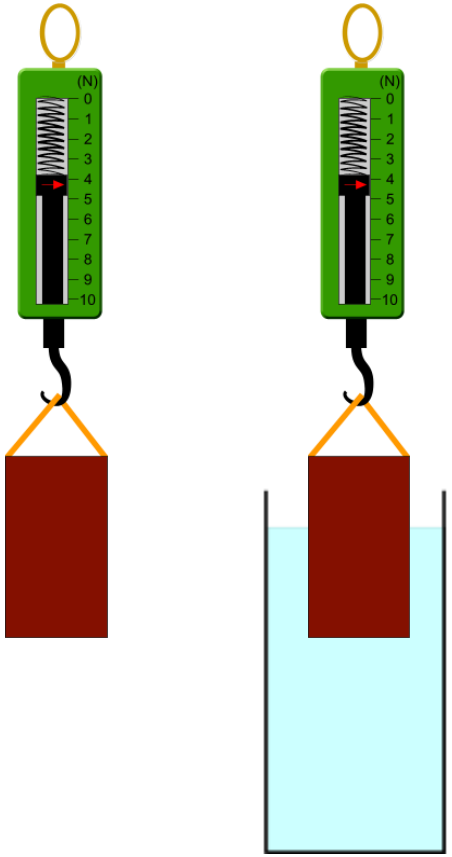
Gravity

Opposing force

Use a forcemeter to measure each object in air, and then suspended in water.

Record both values in a table.

Object	Weight in air	Weight in water		
Object 1				
Object 2				
Object 3				
Object 4				
Object 5				
Object 6				



Can you come to any conclusion from these results? Write down what your results tell you.

Object	Weight in air	Weight in water	Weight in air 2	Weight in water 2
Object 1				
Object 2				
Object 3				
Object 4				
Object 5				
Object 6				

Fill in the second set of results in these two columns

Check your results by sharing results with someone else in the class and filling in the rest of your table.

Do the results agree with each other?

What do you think you could do if you have 2 results which are different?

Investigation

You are to investigate what happens to the length of an elastic band when weights are suspended from it. To help you with your planning answer the following questions:

- What are you trying to find out?
- What will you measure? (the dependant variable)
- What will you change? (the independent variable)
- What will you keep the same? (the control variable)
- What equipment will you need?

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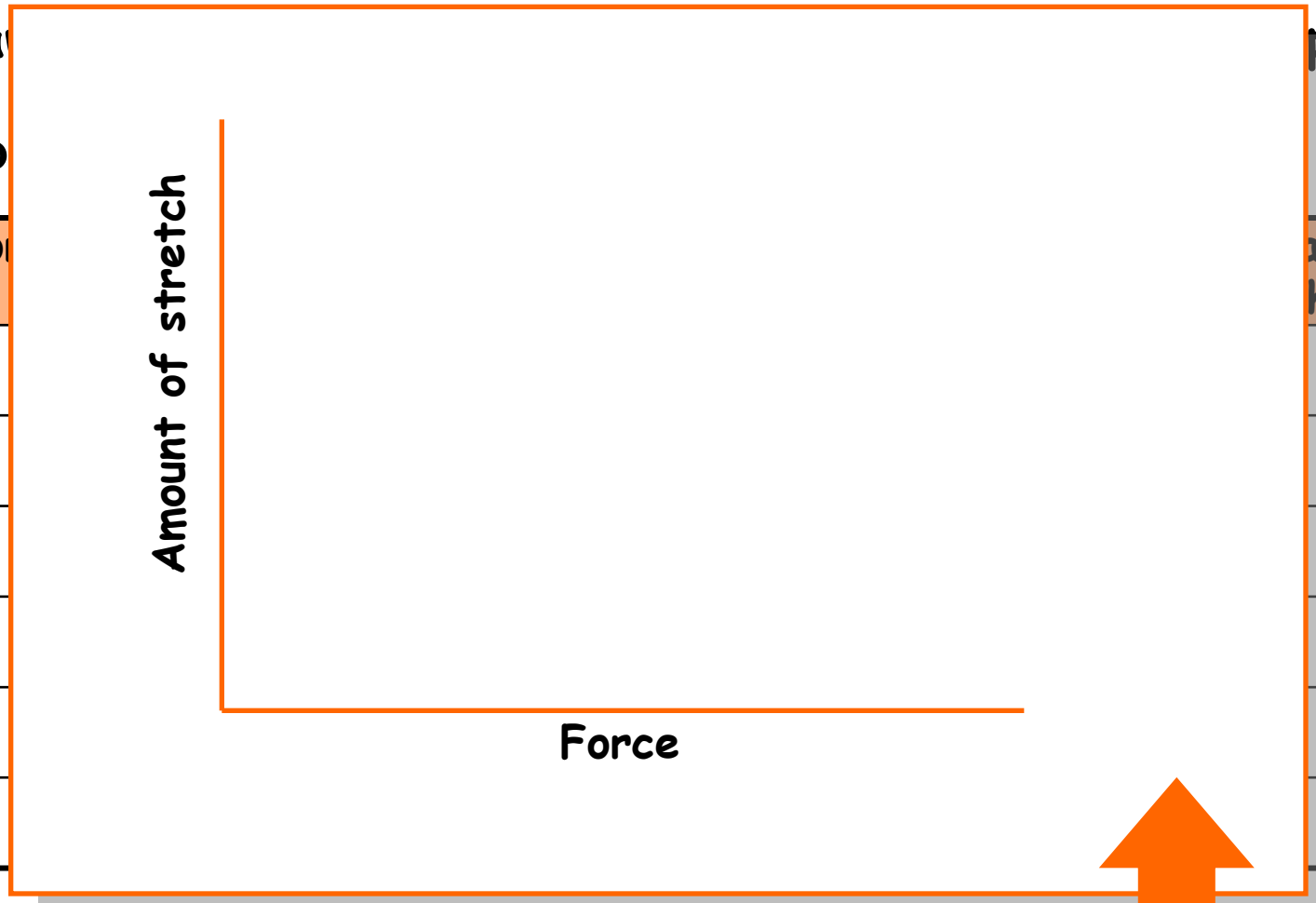
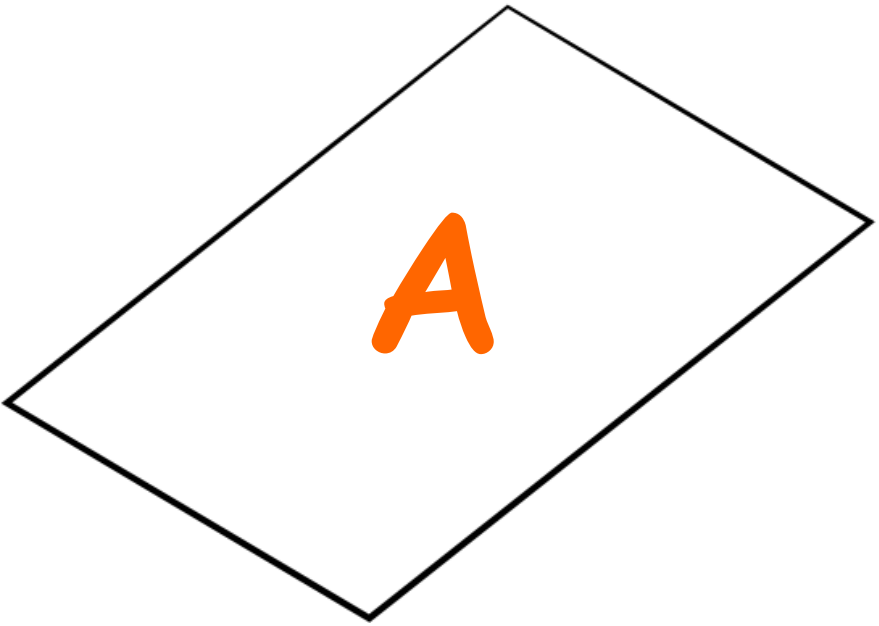
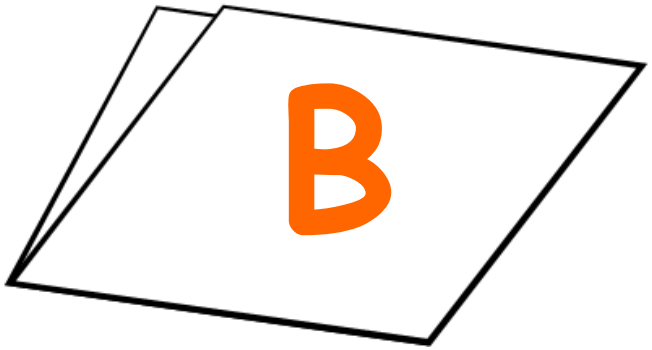


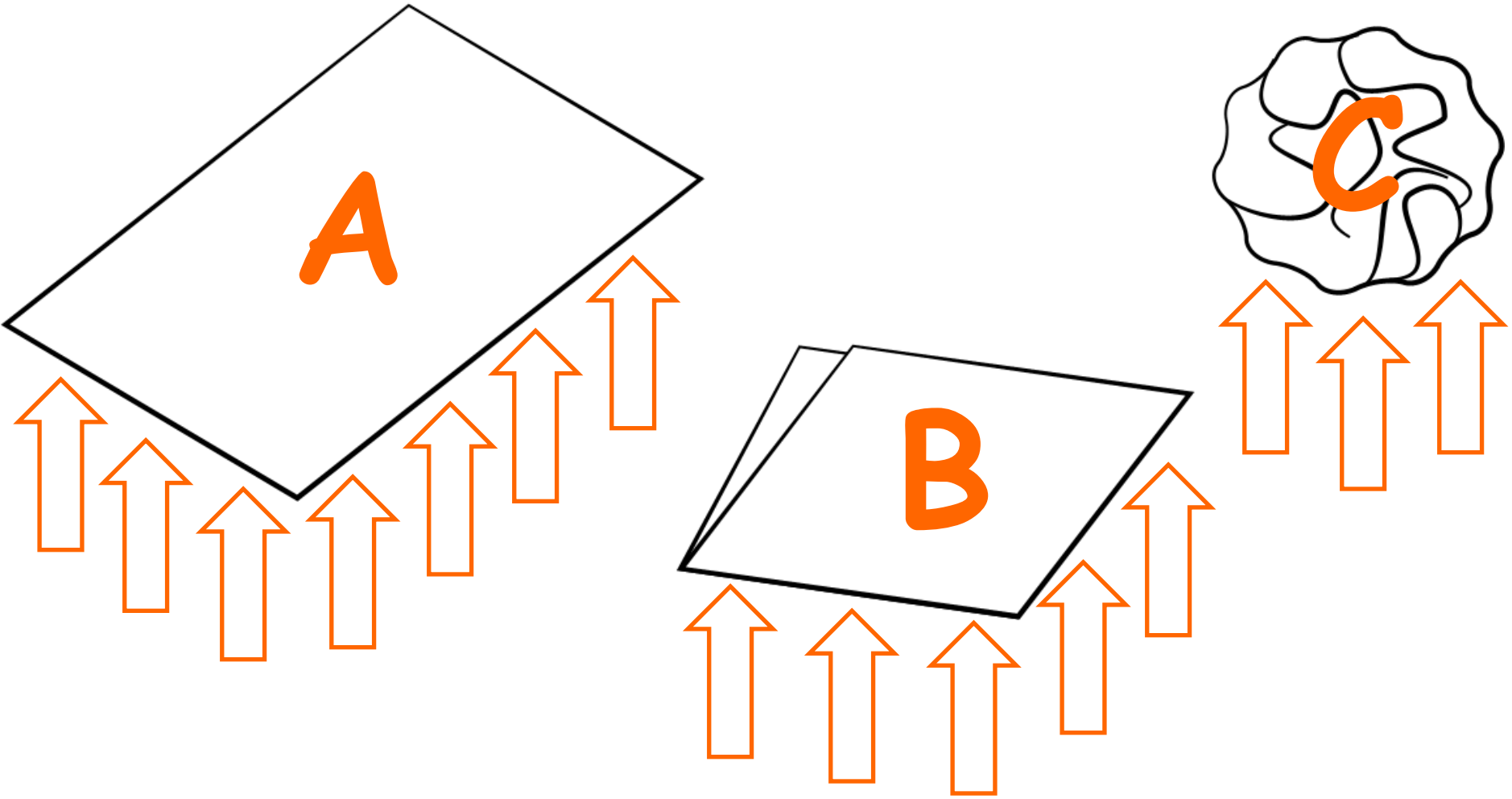
Use your results to plot a line graph of 'Force' vs 'Amount of stretch'





Which piece of paper will fall most quickly?

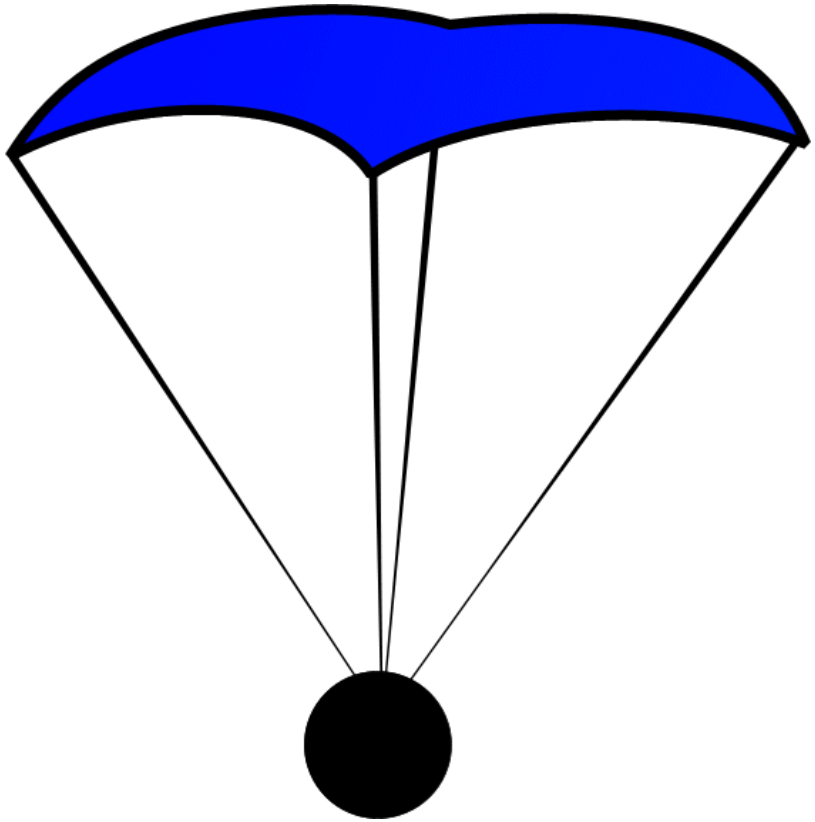
Can you explain why you think this?



Air resistance

What variables could you change on the parachute?

Select the one you would like to investigate- the dependent variable



What will you measure?

What variable will you change?

What variable will you keep the same?

What do you think will happen to your dependant variable when you change the independent variable? (this is your prediction)

What apparatus will you use? You should draw a diagram to show how you will set up the equipment.

How will you carry out your experiment?

How will you record your results?

What will you do with the recorded results to look for patterns and trends?

What do your results show?

Can you use a scientific explanation to describe why the results show this?

Does this agree with your prediction?

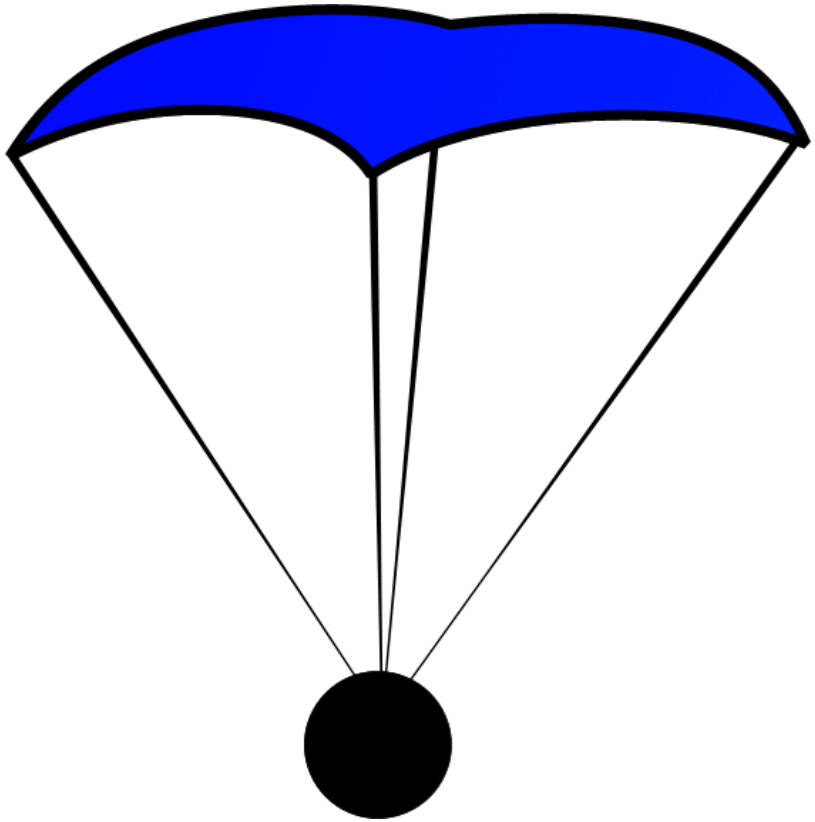
Could you have done the investigation any better?

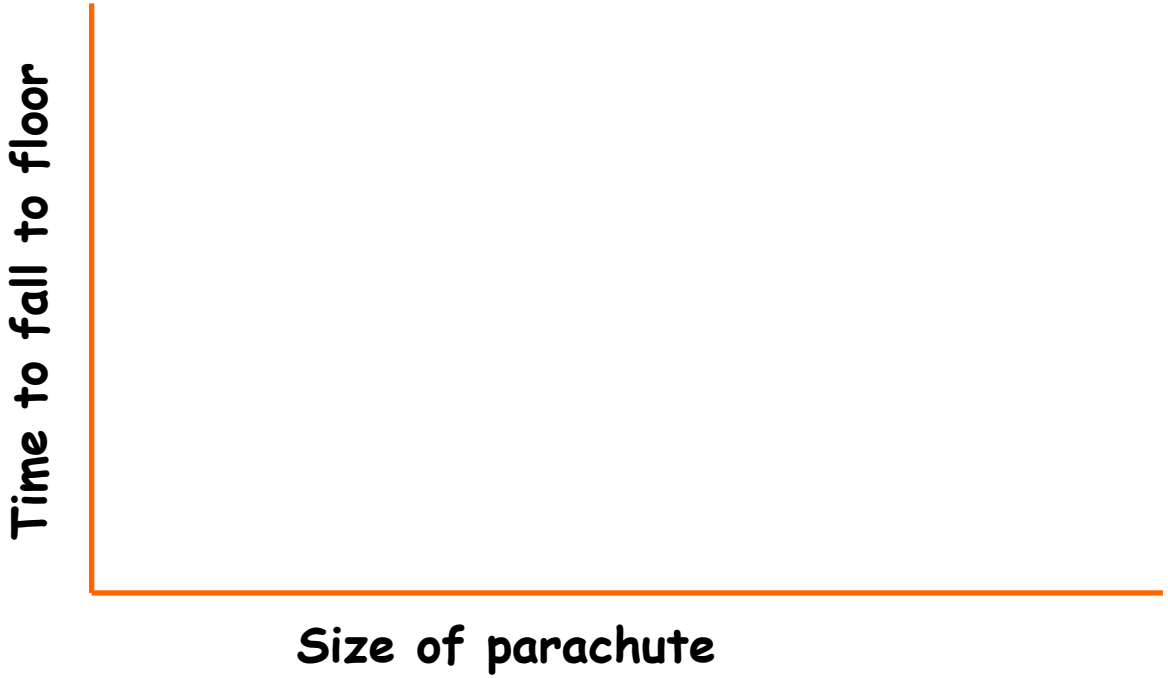
On our parachute we could change the size of the parachute or the size of the weight hanging from it.

For our investigation we will change the size of the parachute

What will we need to keep the same?

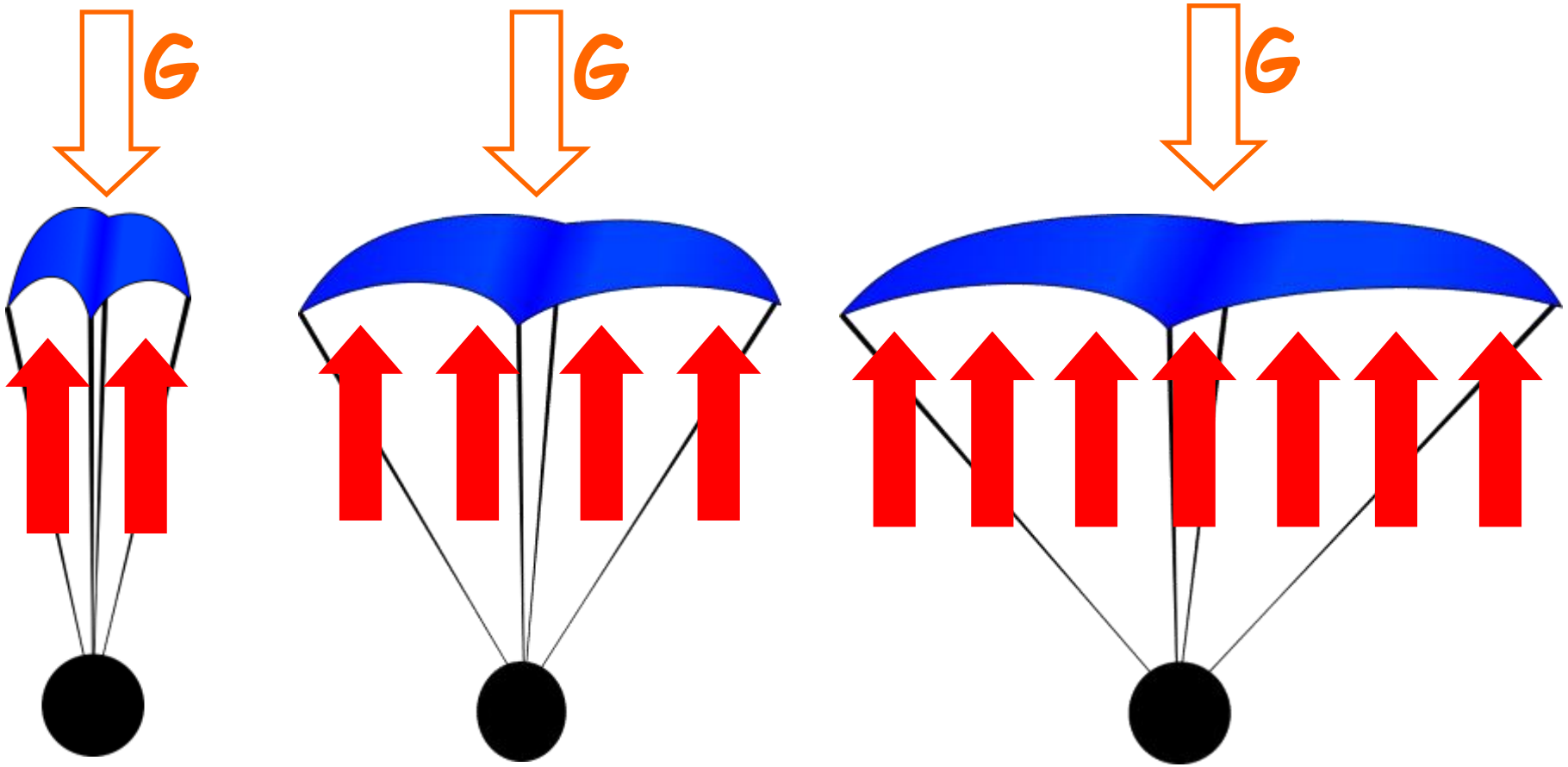
We will time the parachute falling to the ground. Where shall we drop it from?





The graph tells us that as the parachute gets bigger the time it takes to fall gets _____

This is because the amount of air resistance _____ as the size of the parachute increases



Gravity

Air resistance

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