

Superhero Science!

Can superhero powers be found in everyday life?



The Newark Academy Science Team

Get to know our very own superheroes in the science department ...



Scan me!

Investigate

Superhuman Strength

Investigation – How does exercising increase muscle fibre strength?

You will need:

- Several rubber bands of the same size
- A ruler
- Optional: Elastic bands of different widths.

Tip – If you do not have any elastic bands you can use hair ties.



Have a go at plotting your results on a graph!

Method:

1. Using your thumbs, stretch a single rubber band as much as you can. Use the ruler to measure how far you can stretch it, and record the distance in the results table.
2. Add another rubber band and repeat step 1.
3. Repeat step 2 until you have run out of rubber bands (be sure to measure and record how far you can stretch them each time).

Number of bands	Distance stretched (cm)
1	
2	
3	
4	
5	
6	

What you should have found:

By increasing the number of muscle fibres (elastic bands), you're increasing its strength. The more elastic bands you add, the more difficult they are to stretch.

So should a superhero exercise more to get superhuman strength?

You could try the activity again, this time comparing thicker and thinner elastic bands to see the effect of increasing and decreasing the size of a muscle fibre.

Do you think it will be easier or harder to stretch a thicker elastic band?

What happened to the distance stretched as you increased the number of elastic bands?

Research

Super climbers

Big Question – How can some animals climb up walls?

Superhero powers don't just exist in comic books, they also occur in nature.

Geckos are great at sticking to things and can even walk up walls. Can you research **WHY** the tiny hairs on their feet give them this superpower?!



Give it a try!

Rub a balloon on your hair for a few seconds. Then turn on the kitchen tap gently and hold the balloon next to the thin stream of water.

The negative charge gathers on the balloon when you rub it. When you hold it next to the water (which has a small positive charge) the charges attract.

This is the same kind of electrostatic interaction that gives geckos their sticky feet!



Design

Super Animals!

Can you create an animal with real life superpowers?

Now you have investigated and researched different types of superpowers that can be found in nature...

Design your own super-animal.

You can include as many superpowers as you would like and it can be based on a real life animal or one completely made up.

Your design should include:

- A diagram of the animal you've created
- Where your animal would live/be found in the wild
- Labels to show all the different super powers, why you've included them and how they are useful to the animal.

We would love to see your designs, email them to Miss Wileman at;

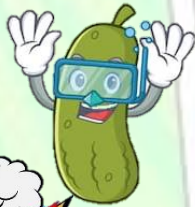
rwileman@newarkacademy.co.uk

Scan the QR code above, or visit

<https://www.rd.com/culture/unusual-animal-superpowers/>

To have a look at 10 more animals with real superpowers!

For example; Sea cucumbers can regenerate their own organs – that would certainly make superman jealous.



Superhuman Scientist

Scientists are responsible for shaping the world around us.

Mae Jemison is a great example of a superhuman scientist as a doctor, engineer, astronaut and many more!

Can you find out who Mae Jemison was and what her biggest contributions to science were, particularly in her role within NASA?

There are lots of superhero scientists such as doctors, nurses and lab technicians working really hard right now to help us all. Say thank you by completing our colouring page!

(If you don't have a printer, why not try draw your own?)

