



BT YOUNG SCIENTIST
& TECHNOLOGY Exhibition

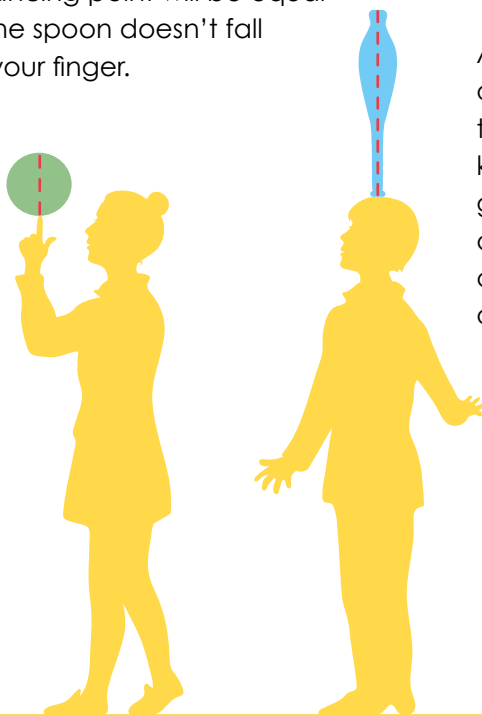
HOW DOES BALANCING WORK?

Everything has a centre of gravity. So long as the centre of gravity of an object is above the point on which it is balanced, it will stay balanced.



**But how
do you find
the centre of gravity?**

You can experiment to find the centre of gravity of anything. For example, you can rest a spoon on your finger until you find the point where it balances on either side like a seesaw. The weight on all sides of that balancing point will be equal so the spoon doesn't fall off your finger.



Acrobats use centre of gravity when they do their tricks. They have to know where the centre of gravity is between them and balance out their different weights, otherwise they will fall.



**DID
YOU KNOW?**

**The lower your centre of gravity,
the easier it is to keep your balance.**

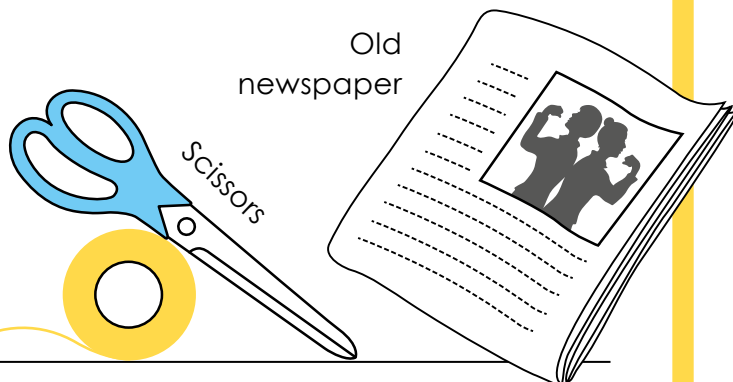
So if you're sitting on a chair, you can lean over more than if you're standing up. That's why racing cars are designed low to the ground, as there's less risk they'll tip over however fast they go.



1 MAKING YOUR BALANCING STICK

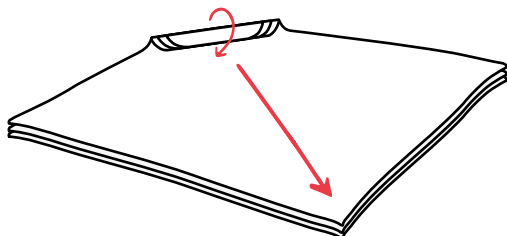
What you need:

Sellotape



Hard surface to lean on (table or floor)

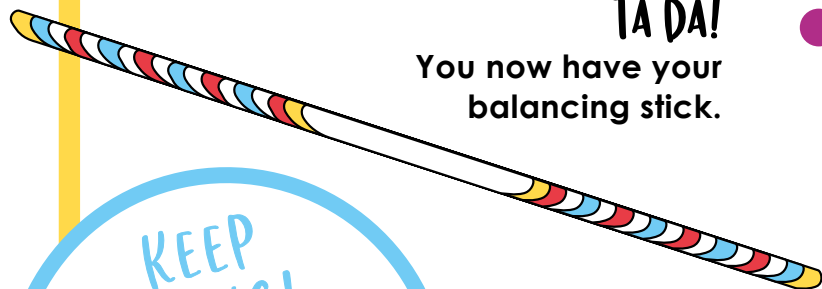
- Lay around 4 sheets of newspaper out on top of each other on a flat surface.
- Take one corner of the newspaper sheets and start to roll them in a diagonal direction.



- Once you have a long straight stick, tape the end of the sheets down so it stays tight.

Tip: Make sure you roll as tightly as possible so the balancing stick is strong and straight.

TA DA!
You now have your balancing stick.



KEEP GOING!

You will fail lots of times.
Don't worry. Don't give up.

Failing is an important
part of scientific
discovery.

Have you seen our
Balancing – Tips and Tricks
film? Go to the Circus250
YouTube channel for further
information and more tricks.

2 BALANCING YOUR STICK

- Check out where the centre of gravity is in your stick by holding it horizontally and seeing where you can put your finger and it stays balanced in a straight line. It will be roughly in the middle. You need to keep your hand under this centre of gravity to keep the stick balanced whichever way up it is.
- Now try to balance it vertically on your flat palm. Keep your hand as flat as you can.
- Always look at the top of the stick, even though you may be tempted to look at the bottom or your hand. If the stick starts to fall, move your hand in the same direction. That way you're keeping it under the centre of gravity.

Tip: It can help to cut off the end of the stick to make it as flat as possible.

Once you can do this balancing trick on your hand, try balancing your stick on other places – on your elbow, the back of your hand, your forehead or your chin.

You can decorate your balancing stick circus style with stickers and sparkle. Good luck!



**BT YOUNG SCIENTIST
& TECHNOLOGY** Exhibition

