



SUPER POWER: Balance!

BALANCING SUPER-PET

LAB NOTES...

BUILD TIME
30
MINS

Balancing

Can you balance a pencil on one finger? If you can, then you're already an expert in finding the centre of gravity!

The 'centre of gravity' is the point on which an object is perfectly balanced on all sides. Everything has one!

Your centre of gravity is what helps you to stay upright, do a hand-stand, or dance without falling over! In this experiment, you changed the position of the centre of gravity for your super-pet by changing how much weight was on the front of the shape. This moved the centre of gravity towards the weights which meant you could balance it at a different point. When you stand up straight your centre of gravity is close to your belly button, but if you stand on one leg and hold your other leg out sideways you probably have to shift the top of your body in the opposite direction to stay balanced.

TO MAKE YOUR SUPER-PET...

1. Watch the video of Nanogirl making her super-pet!
2. Figure out what animal your super-pet is going to be.
3. Fold your card in half, and draw half of your super-pet shape, starting at the fold.
4. Make sure your shape has wings or arms that extend above your pet's head.
5. Cut out the shape, making sure that you cut through both sides of the paper at once.
6. Open out the shape and colour and decorate if you wish.
7. Cut a 4cm piece of skewer and tape down at the top of the middle fold on the underside of your shape.
8. Tape a small weight in a similar position on the underside of each front tip of your wings/arms, this will move the centre of gravity of your pet forwards.
9. Try to balance the head of your pet using the leftover half of your skewer. If it falls backwards you need to add more weight to the tip of your wings/arms.
10. Once you've successfully balanced your pet you'll need somewhere for it to perch!
11. Take some leftover card and cut a strip just long enough to fit around your wrist.
12. Open a paper clip into a hook shape and tape it close to one end of the wrist-guard.
13. Hook an elastic band over the paperclip and tape on the other end of the wrist guard so it's tight enough to stay on your wrist.
14. Use a blob of blue tack to secure your skewer upright in the middle of your wrist guard.
15. Now you can balance your super pet on your wrist.

YOU WILL NEED

- Thin card..... ☐
- Scissors..... ☐
- Tape..... ☐
- Paperclip..... ☐
- Small weights (paper clips work well)..... ☐
- Elastic band..... ☐
- Wooden skewer or short stick..... ☐
- Pencil..... ☐
- (Optional) Colouring supplies..... ☐

Can you spin your super-pet on your wrist-guard?

Does it make a difference to how easy it is to find the centre of gravity if your super-pet is very big, or very small?

What happens if you add lots of weight to the front of your super-pet?

Can you see how your body naturally tries to shift its centre of gravity when you stand on one leg as it tries to balance. What happens when you close your eyes doing this – is it easier or harder to balance?