

discovery

HISTORY | SCIENCE | WORLD | ANIMALS

BOX



Let's fight for
equality
together!

Sexism, racism, poverty...
When will we all
be truly equal?



I use a
wheelchair.



How do mobiles balance?

Mobiles are amazing. They have several arms and turn in the air while staying balanced.

Do you know how?

Try making one to find out.

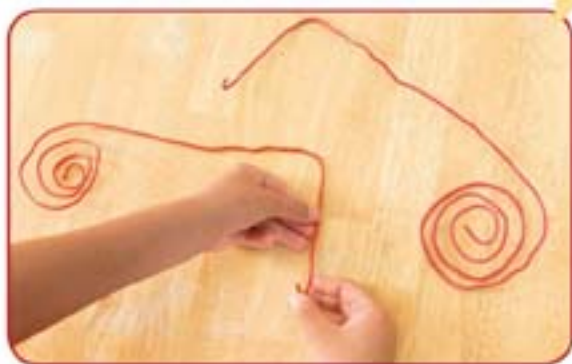
You will need:

- 4 pieces of thick, straight plastic-coated electrical wire

1 Roll both ends of one piece of wire into spirals. Make a small spiral at one end and a bigger spiral at the other end.



2 Take two other pieces of wire. Make a big curled spiral shape at one end and a hook at the other end.



3 Balance the first wire on your finger. When you have found the point at which it balances, make a little bump in the wire as in this photo.



4 Hook the second wire to the first bump. Then find its balance point and mark it by with a little bump. Attach the third wire and do the same again.



Mobile sculptures

A
LLOOT
OOFF
ROA
ARRR



The little bumps are the centre of gravity of each arm and where you attach the wires.

5 Attach the last wire to the bump

on the top arm. Make the other end of the wire into a hook to hang your mobile. Enjoy!

How does it work?

Each arm of the mobile has one side that is heavier than the other. But there is a point somewhere along the length of the arm where the weight of the two ends is equal and pulls downwards with exactly the same force. The arm is balanced there! This balance point is the arm's **centre of gravity**.

Will it balance... or not?

- The mobile stays balanced even when you (or a breeze) move it. Each arm is balanced at its centre of gravity taking into account the weight of all the arms below it. As each arm is only connected at one place it can turn around that point but it doesn't lose its balance.
- This is not true of a pencil standing on its end. The pencil's end is not its centre of gravity (that's a bit higher up). So if something shakes the pencil, it will easily lose its balance and topple over.



The mountains are covered in snow.
Come and enjoy a fun day out!

1 Race route

Help the skier reach the finish line. He must not overtake any skiers or snowboarders. Also he can only go down hill!



3 Where is everybody?

Three of the skiers are in the same family. They are wearing identical outfits. Can you spot them?

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2 Mountain patrol

The mountain wardens' helicopters look the same but there are 7 differences.

