

First Experiments Magnetism Set



Kit Contents

- Pupil & teacher support material
- 1 Super Magnet
- 20 Magnetic Marbles
- 4 Wand Magnets
- 1 Horseshoe Magnet
- 1 Compass Magnet
- 1 Set of floating ring magnets
- 2 plastic cased magnets

Picking Up Pennies

Card
1

You will need:

- A collection of one penny pieces.
- 2 Plastic cased magnets.

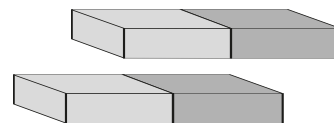
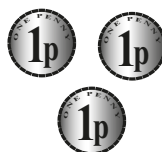
1. Can you make a pyramid out of pennies?
2. Can you make other shapes or patterns using the pennies?

Draw them in the box opposite.

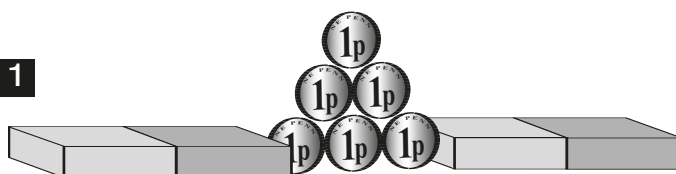
Are all the one pennies you used magnetic?

If they are not why do you think this is?

I think that some pennies were not magnetic because.....



1



2

Does Colour Matter?

Card
2

You will need:

- 4 wand magnets
- Paper clips

Do you think the strength of the magnet will depend on the wand's colour?

(Tick correct box)

I think the colour **does** matter.

☐

I **do not** think colour matters.

☐

How many paper clips will each wand pick up?

Colour each wand correctly.

Write the number of paper clips it picked up.

1. _____

2. _____

3. _____

4. _____

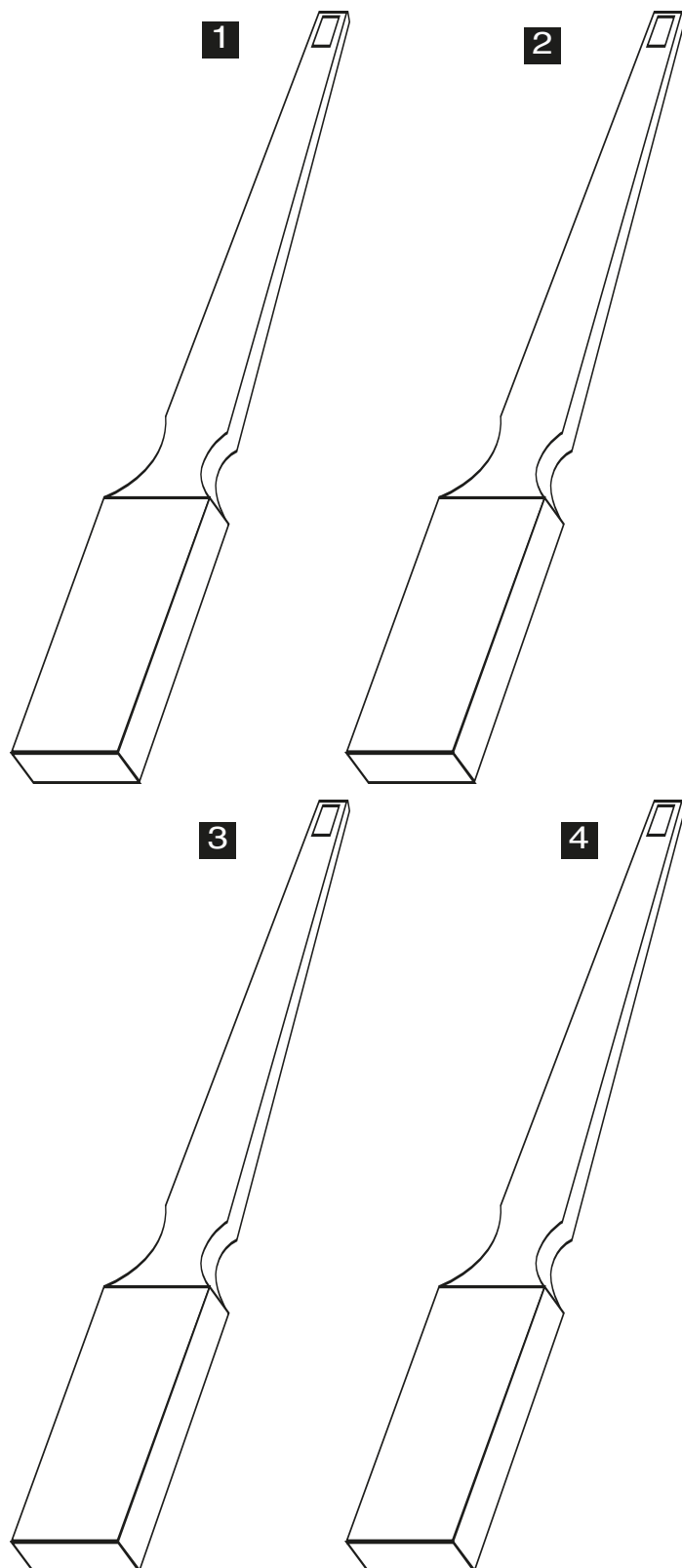
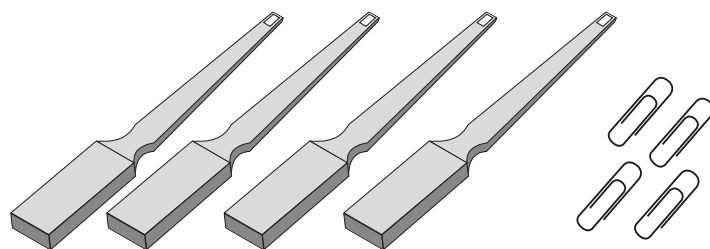
I found out that colour **does** matter

☐

I found out that colour **does not** matter

☐

(Tick correct box)



Can Magnets Push And Pull?

Card
3

You will need:

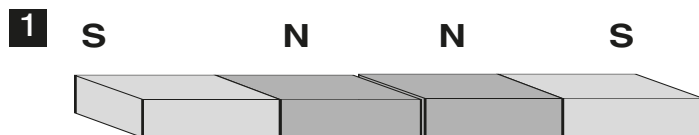
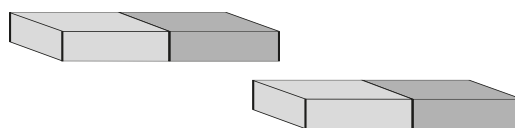
- 2 plastic cased magnets.
1. Put the red ends (north poles) together.
 2. Put the blue ends (south poles) together.
 3. Put the red end (north pole) to the blue end (south pole).

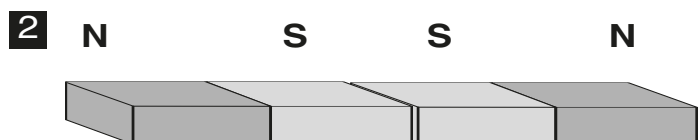
Write underneath each picture either:

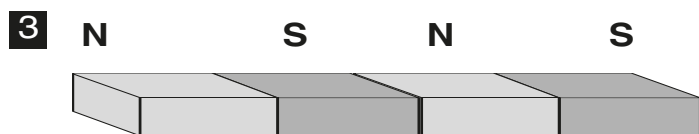
The magnets pull together (**attract**).

The magnets push apart (**repel**).

I found out that:







Car Races

Card
4

You will need:

- 2 paper clips
- 2 wand magnets
- A pair of scissors
- Some colouring crayons or pencils

Photocopy this sheet then colour and cut out the cars.

Sellotape a paper clip to the back of each car.

Draw and make your own race track.

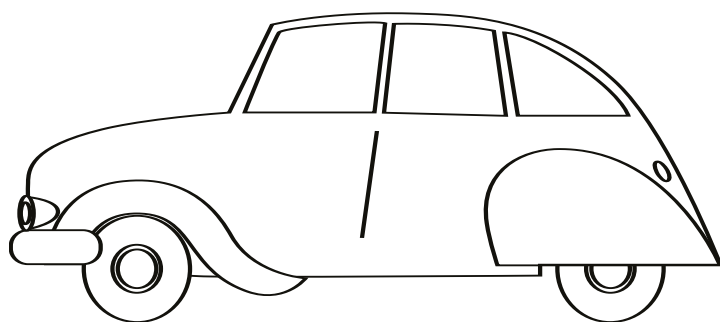
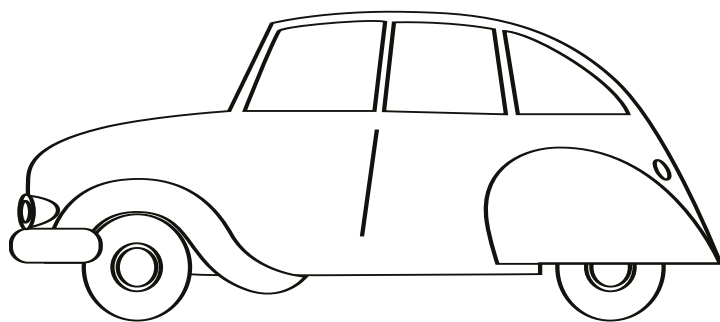
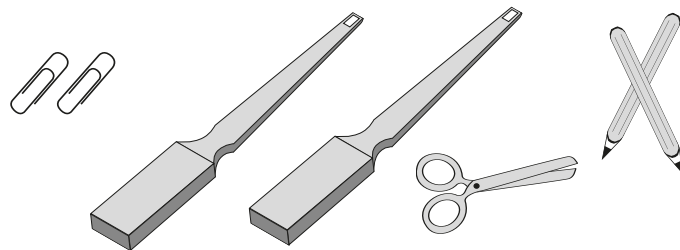
Put the car on top of the card race track and use a magnet under your table to race the cars.

Or

Race your cars along the table.

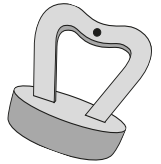
What materials are the magnets working through?

Will the cars work using different magnets?



Pulling Towards The Magnet

Card
5



You will need:

- Super magnet
- A collection of items listed below

Find out which objects are **attracted** (pulled towards) to the magnet.

If you change the magnet for each object will the test be fair?

Yes ☐ No ☐

I will change the magnet to make it a fair test.

I will not change the magnet to make it a fair test.

Predict, test and record if the magnet will pull the objects listed towards it.



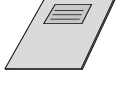






Now add two of your own.

Objects that are pulled towards or **attracted** to a magnet are called **magnetic** objects.

Objects I tested that were made of **magnetic material** were:

Objects that are not pulled towards or not **attracted** to a magnet are called **non magnetic** objects.

Objects I tested that were made of **non magnetic material** were:

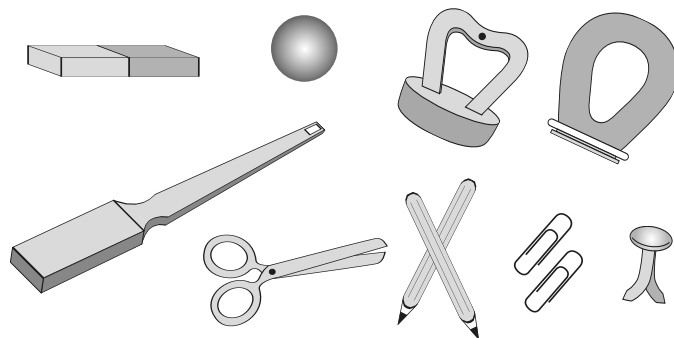
List of objects	I think it will/will not be pulled towards object	Attracted (pulled towards) yes/no	Material object is made of is....
 Paper			
 Pencilcase zip			
 Exercise book			
 Biro			
 Bulldog clip			
 Sweatshirt			
 Chair			
 Window			
 2kg weight			
<hr/>			
<hr/>			

How Strong Is The Force? Part I

Card
6

You will need:

- A plastic cased magnet
- 1 magnetic marble
- Super magnet
- Horseshoe magnet
- 1 Wand magnet
- A pair of scissors
- A paper clip
- A paper fastener
- Some colouring pencils



Colour and cut out your frog

Attach a paper clip to your frog.

Using the marked out grid on card 7, place the frog on the start line.

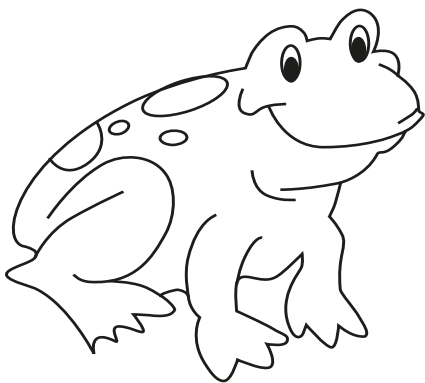
Predict how many lines the frog will jump to meet the magnet.

Slowly move the magnet towards the frog.

Record the line the magnet reached when the frog was pulled (**attracted**) to the magnet.

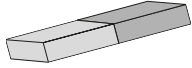



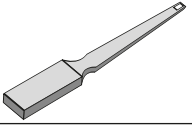
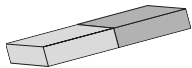



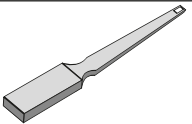
Repeat with the other magnets.

Repeat using a paper fastener instead of the paper clip.

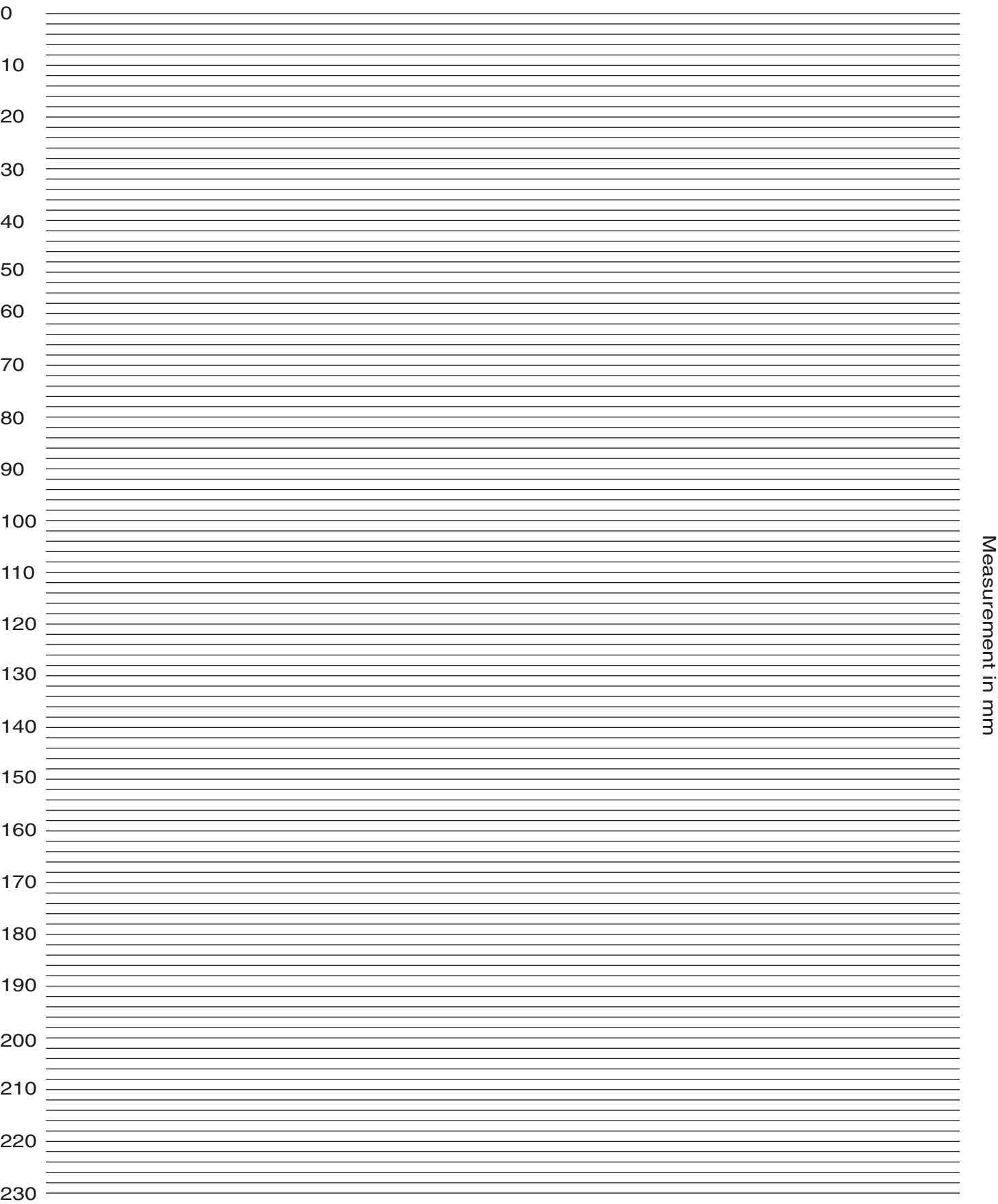


The paper clip moved the furthest. ☐

The paper fastener moved the furthest ☐

Magnet	I predict paper clip will move	Distance paper clip moved
		
		
		
		
		
Magnet	I predict paper fastener will move	Distance paper fastener moved
		
		
		
		
		

Measuring sheet.
Start Frog



Measurement in mm

Start Magnet



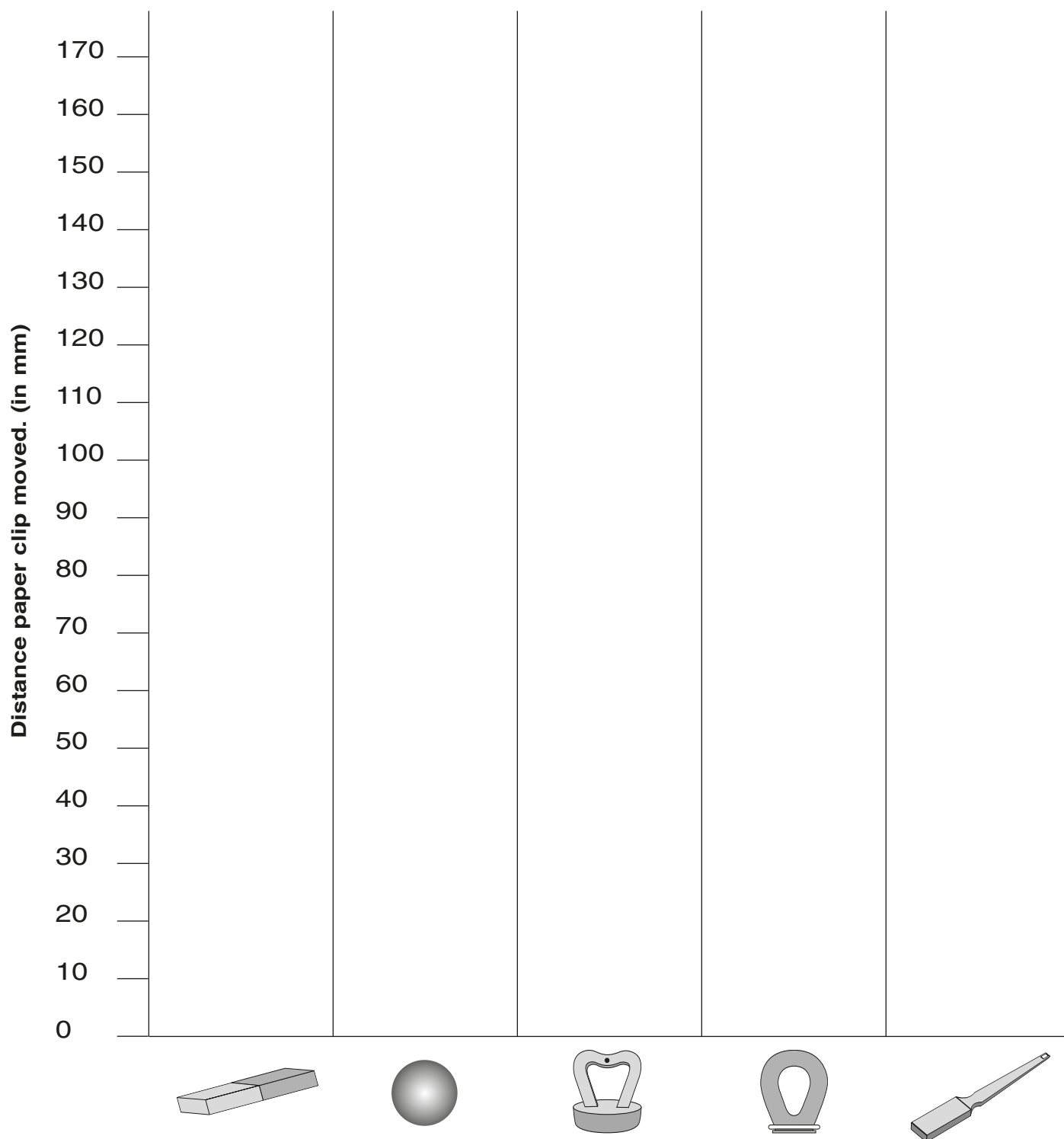
How Strong Is The Force? Part 2

Card
8

You will need:

Results from part 1 to complete the bar chart below.

A bar graph to show which magnet pulled (attracted) the paper clip frog the furthest.



The _____ magnet had the strongest pull.

Pond Dipping

Card
9

You will need:

- A plastic cased magnet
- A pair of scissors
- Some colouring pencils
- Some paper clips
- A large box or container with some shredded paper or sawdust inside.
- A piece of string

Photocopy the sheet.

Colour and cut out the different pond animals.

Fit a paper clip to each picture

Put the animals into a large box or container (the pond!)

Use a plastic cased magnet attached to a piece of string. (The fishing rod!)

Put sawdust or lots of shredded paper in the box/container to represent the water and pond weed.

How many points can you get in five dips?

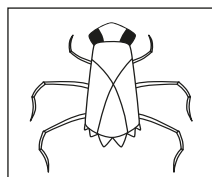
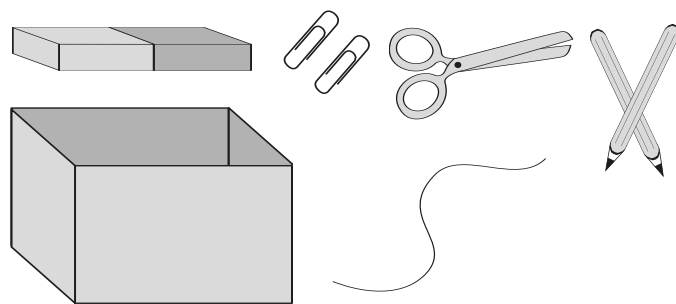
Can you think of a way to record your points?

Go dipping and add up your points.

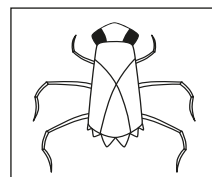
Water Boatman	= 2 points
Water Snail	= 5 points
Newt	= 20 points
Frog	= 10 points
Tadpole	= 2 points

Can you find out more about these pond creatures?

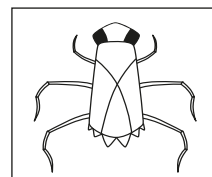
Why are there only a few newts?



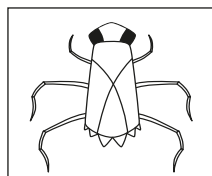
2 points



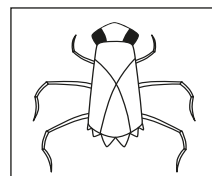
2 points



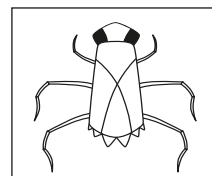
2 points



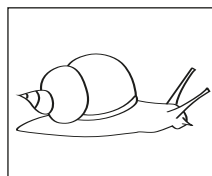
2 points



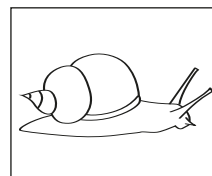
2 points



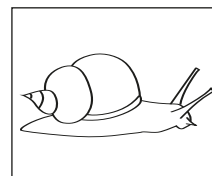
2 points



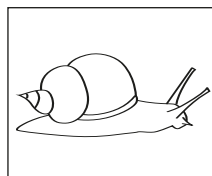
5 points



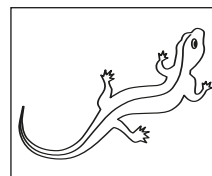
5 points



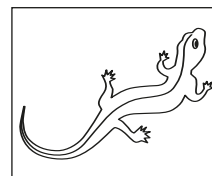
5 points



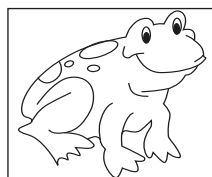
5 points



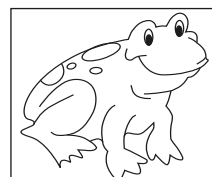
20 points



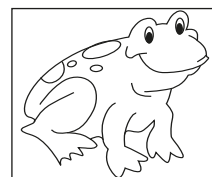
20 points



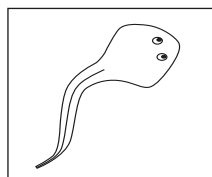
10 points



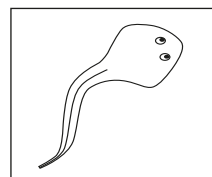
10 points



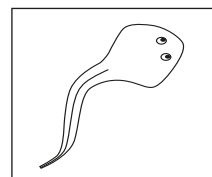
10 points



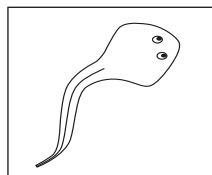
2 points



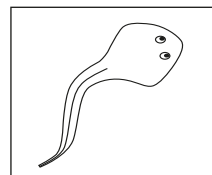
2 points



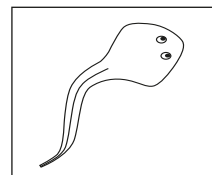
2 points



2 points



2 points



2 points

Floating Rings

Card
10

You will need:

- Floating ring magnets and pole

What happens when you put the rings on the pole?

Do they push together (**attract**), pull apart (**repel**) or **both**?

All magnets have a north and south pole, which allows them to **attract** or **repel** each other. Like or the same poles always repel each other while opposite poles attract.

Can you make all the rings float above each other?

Why do you think the rings float?

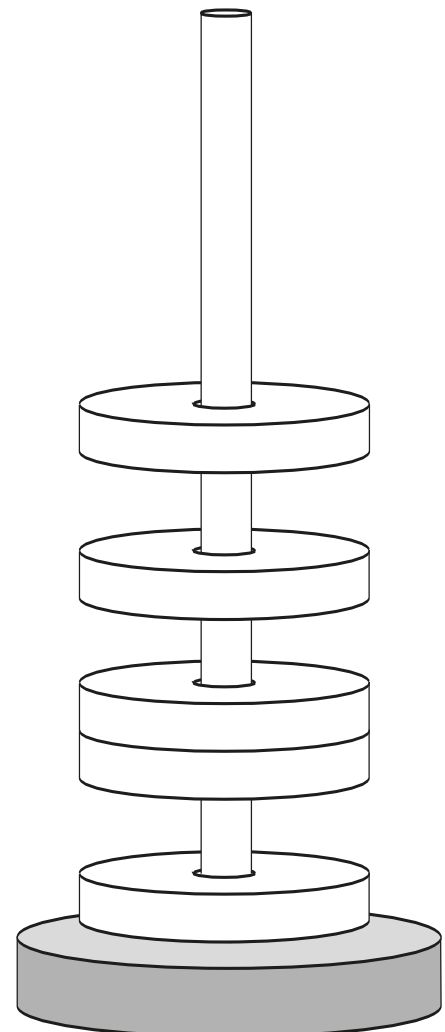
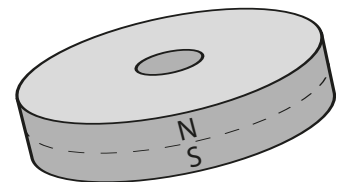
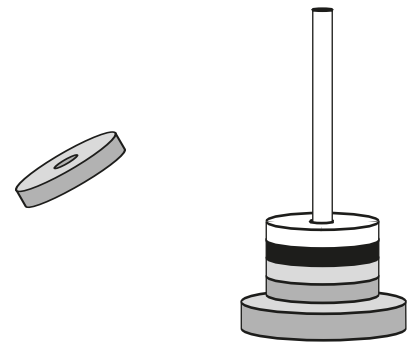
The rings float because:

Can you make all the rings stick together?

Why did the rings stick together?

The rings stuck together because:

Can you draw in the north (N) and south (S) poles on this drawing?



Homeward Bound!

Card
11

You will need:

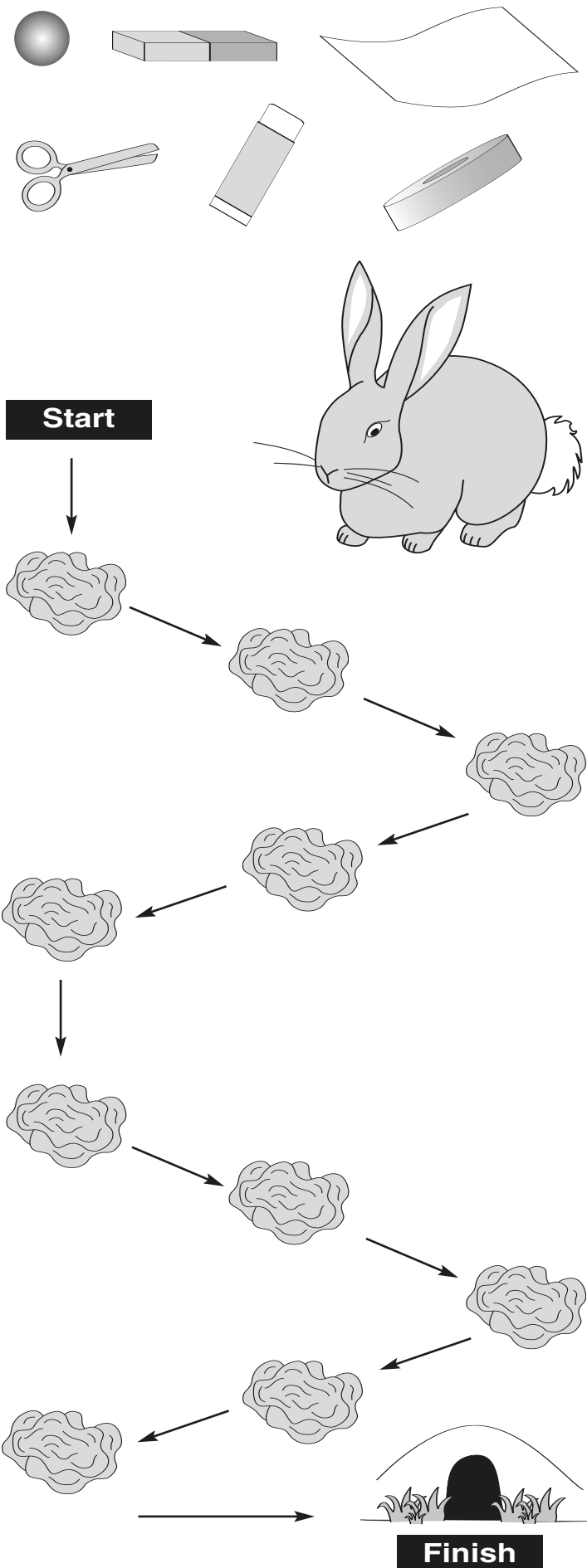
- A magnetic marble
- A plastic cased magnet
- A piece of card
- A pair of scissors.
- Some glue
- Sellotape.

Help the rabbit get to its burrow by using the magnet to make him hop home from one lettuce to the next.

Cut out the rabbit and glue it to a piece of card.

Sellotape a magnetic marble to the rabbit as a tail.

Make the rabbit jump using a plastic cased magnet's north or south poles.



Floating Magnets

Card
12

You will need:

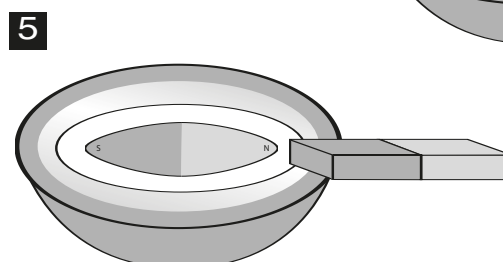
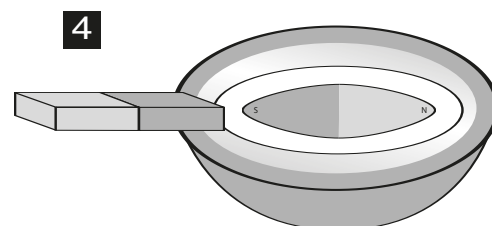
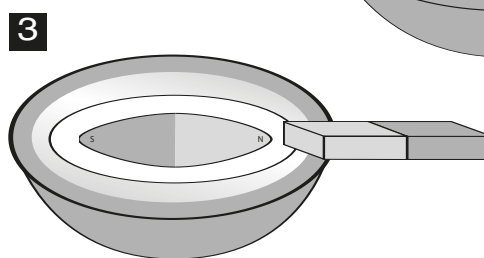
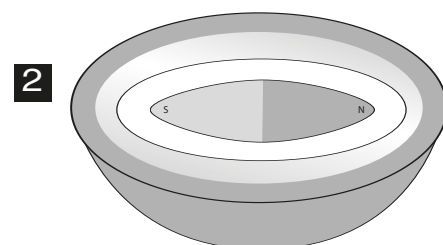
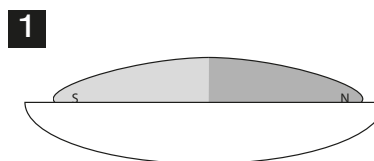
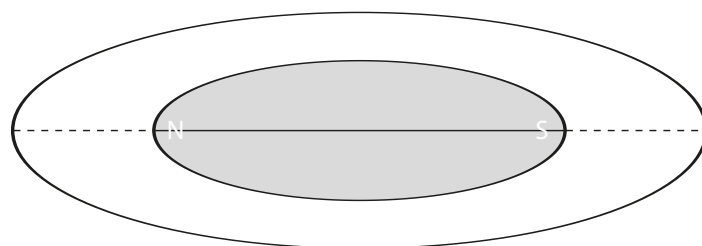
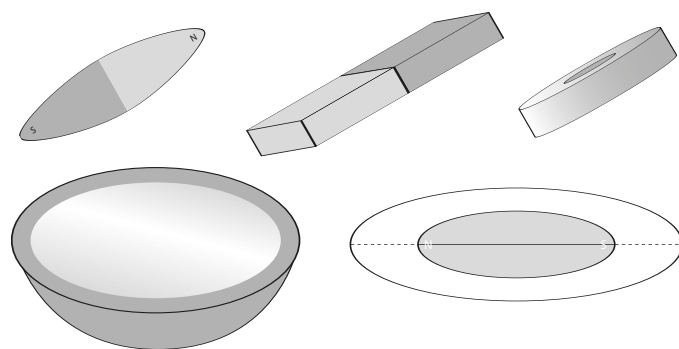
- Compass magnet
- Plastic cased magnet
- Model paper boat (optional)
- Tape.
- Bowl or container with water.

1. Make the boat and stick it to the Compass magnet.
(Cut out boat, cut dotted lines both sides. Fold and sellotape into shape)

Make sure the south and north poles on the boat match the magnet's poles.

2. Put the magnet in the water and see what happens.
3. Put the north (red) side of the plastic cased magnet near the red side of the compass magnet. Look what happens.
4. Now repeat using the south (blue) side of the plastic cased magnet.
5. Put the north and south poles together. What do you think will happen?

Write or draw what happened in the empty box below.



You will need:

- Super magnet
- Plastic cased magnet
- Some sheets of paper
- 1 Paper clip

1. Put the paper clip on the table.

Place two sheets of paper over the top of the paper clip.

Hold the super magnet over the paper.

Does it pick up the paper clip?

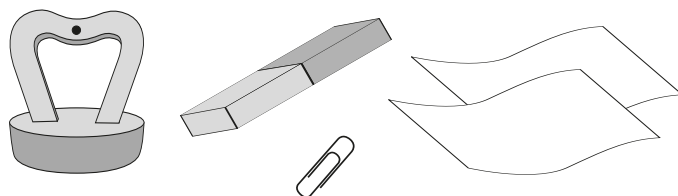
2. Repeat using the plastic cased magnet.

Further Investigation:

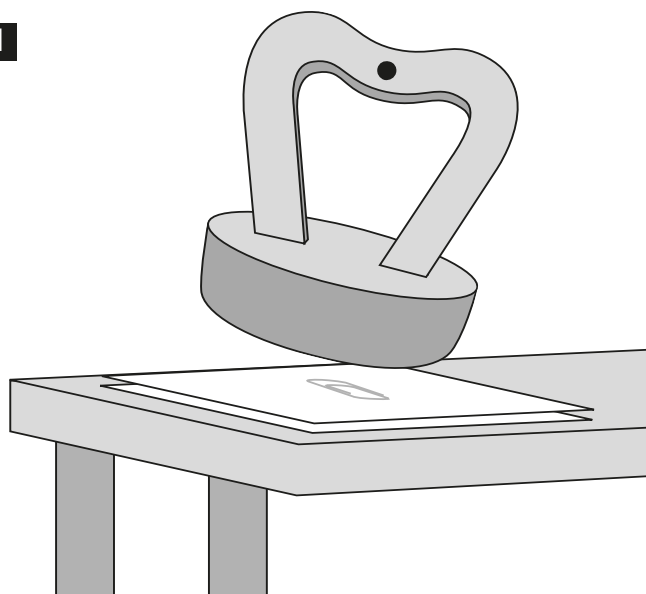
Can you think of a way to record what you are doing?

The super magnet will work through _____ sheets of paper.

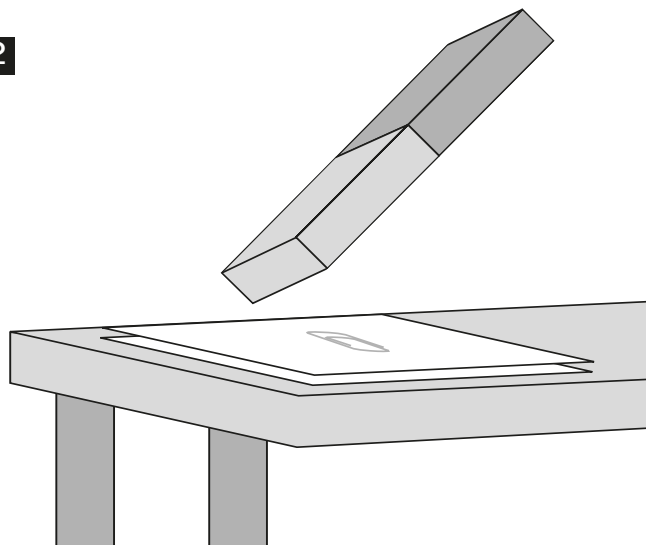
The plastic cased magnet will work through _____ sheets of paper.



1



2



All Strung Up

Card
14

You will need:

- Super magnet
- 1 plastic cased magnet
- Horseshoe magnet
- 1 wand magnet
- Set of magnetic marbles

How many marbles can you pick up 'in a line' using a plastic cased magnet?

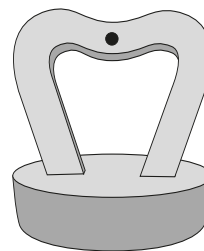
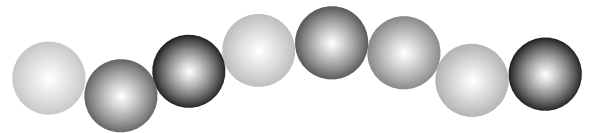
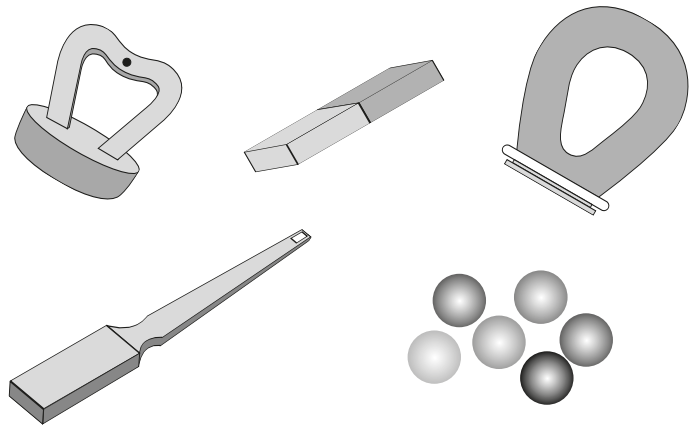
Is it easy to string the marbles?

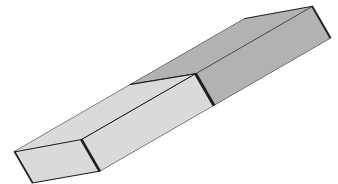
If not, why not?

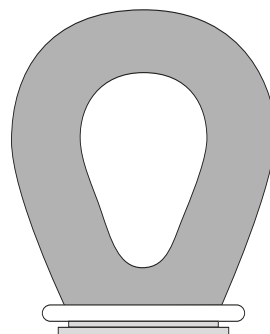
Think about the fact that they are magnets.

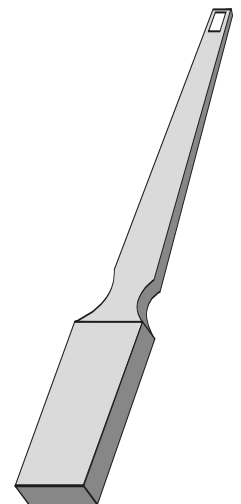
How many marbles can you pick up 'in a line' using each different type of magnet?

Write your answer under each picture.









Can You Find Magnetic North?

Card
15

You will need:

- Compass magnet
- 2 Wand magnets
- Two 30cm pieces of string.
- Some tape to write on.
- A bowl of water.

Tape the string to the wand

Let the wand hang down

Put the Compass magnet into a bowl of water and find north.

Face north in your room

Mark the side of the wand that is facing north using a piece of tape

Write north on the tape.

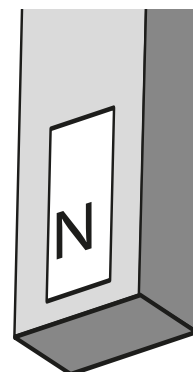
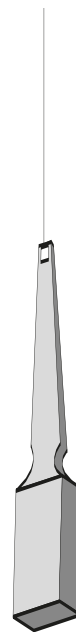
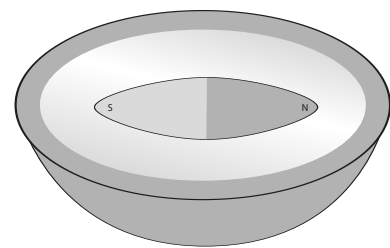
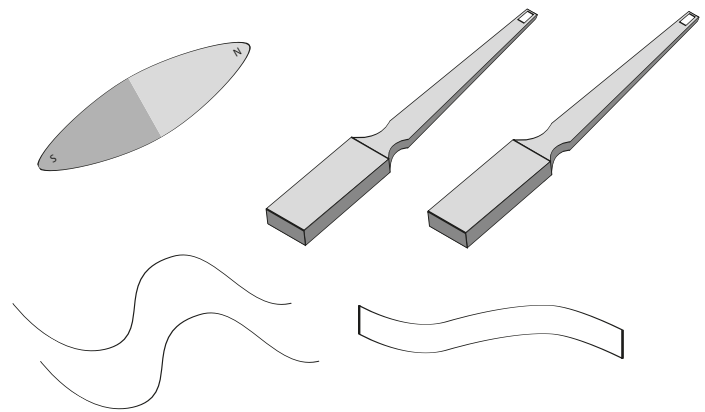
(Remember the sides of the wand show north and south not the ends.)

You have found the north seeking pole of the wand.

Repeat this with another wand.

Now match the two north seeking sides together.

Do they **attract** or **repel**?



Noisy Magnets

Card
16

You will need:

- Two ring magnets.

Put one Floating Ring magnet in each hand.

Place your hands near each other.

Throw the magnets in the air towards each other carefully.

What happened?

Can you do it again?

Why do you think the magnets made a noise?

Discuss with a partner and write down your explanation.

My explanation is:

Clue!

Think about the north and south poles of the magnets. Will they pull towards **attract** or push apart **repel**?

