Year 4 Home Learning – Monday 6th July 2020

Please email us your work to:
Year4@highworthcombined.co.uk

REMARKABLE WRITING! THIS CAN BE COMPLETED WITHOUT THE INTERNET TOO!

There are many forces at work in our world that have been investigated by scientists.

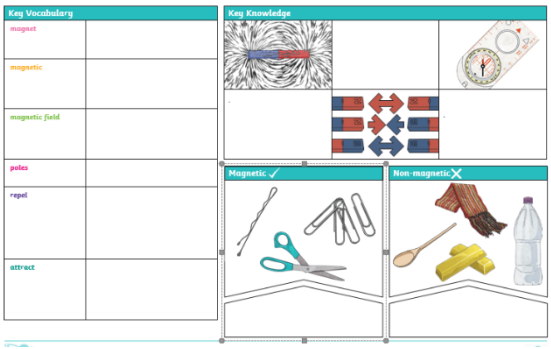
You can remind yourself about forces by reading the information attached below and using the forces text and knowledge organiser with the matrices on the website. You can also use this clip:
https://www.youtube.com/watch?v=kmtDbF3b4ns

Today, we are going to focus on MAGNETISM. There is information about magnets attached below and you can also use these clips:
Learner guides and class clips: https://www.bbc.co.uk/bitesize/topics/zyttyrd
Magnets: https://www.youtube.com/watch?v=yXCeuSiTOug

We would like you to create a knowledge organiser all about magnets. You can use the template like this one to help you (attached as a pdf on the website) or you could create your own.

Remember this is SCIENCE based so you will need to include scientific vocabulary.

CHALLENGE: design an investigation about magnets and write it up so someone else could complete it.



SUPER SCIENCE!

Here are some fabulous forces investigations for you to try!

GRAVITY:
This one is probably best tried outside (just in case!):

Make gravity-free water! Can you turn a cup of water upside-down without the water pouring out? Put a piece of cardboard over the end of a full glass of water, making sure there are no air bubbles. Turn the glass upside down. Take away the hand holding the cardboard. **Try this:** Try changing the amount of water in the cup. Does adding more water to the cup make it easier or harder to prevent the water from spilling?

MAGNETS:
You could try making your own magnet by following the instructions attached below.
You could try this exciting investigation too … https://www.youtube.com/watch?v=9AU7gkt5XW0

GET CREATIVE!

Can you make a science themed fortune teller (chatterbox?)
There is an example you could make attached as a pdf on the website,
but the challenge is to create one of your own for magnets and / or forces!

MARVELLOUS MATHS!

Attached below are some more quick recap maths questions to help you practice all your marvellous maths skills.

CHALLENGE:

Arabic	Attic Greek
0.25	Ↄ
0.5	C
1	I
5	ΓΠ
10	Δ
50	Γ[Δ]
100	H
500	Γ[H]
1 000	X
5 000	Γ[X]
10 000	M
50 000	Γ[M]

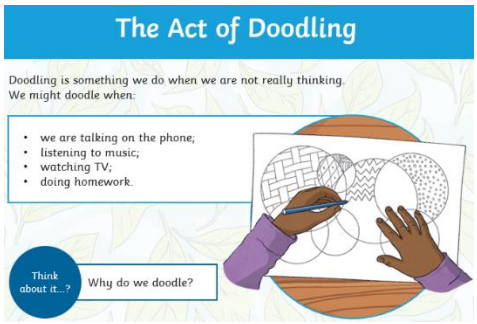
These are the Attic symbols used by the Ancient Greeks.

Can you write the following in Attic symbols?

- Your age
- The year you were born
- The number of pupils in your class/school
- Your house number
- The number of legs on a spider

Can you write some of your own questions using these symbols?

WONDERFUL WELLBEING!



It is a time to let your mind wander while creating something unique and beautiful. Colour in the different patterns only when the whole sheet is covered.

Remember, small patterns will take longer to colour in.

You could even have a go at drawing your own shapes to complete with mindfulness patterns.

There is a sheet below you could use to get your doodling started or you can start from a blank piece of paper!

SPLENDID SPAG!

Noun, Verb, Adjective Game:
Write each of these three words for common parts of speech on a small square of paper — noun, verb, and adjective. Nouns are words for objects, places, people, or ideas (e.g. cup, house, sister); verbs are words for actions (e.g. sing, write, go); and adjectives are describing words (e.g. blue, old, ugly). Shuffle the three paper squares and place them face down on the table. The first player selects a page from the dictionary at random and then turns over one of the paper squares. You must then find a word on the open dictionary page that fits the given part of speech.

Match the Roman numerals to the digits.

VII	60
XVI	7
C	100
LX	16

Write the number which is one thousand more.

8 → ☐

4,368 → ☐

17 → ☐

Calculate the answers.

50 ÷ 10 = ☐

3 ÷ 100 = ☐

8 ÷ 10 = ☐

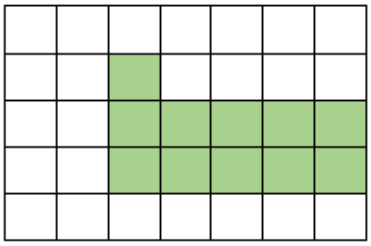
Calculate the answer.

6 eighths + 1 eighth= ☐

4 ninths – 3 ninths = ☐

What is the area and perimeter of this shape?

Grid squares are 1cm by 1cm - not to scale.



Area: ☐ cm^2

Perimeter: ☐ cm

429 x 5 = ☐

The temperature is 10 degrees Celsius.

What will the temperature be if...

It drops by 8 degrees? ☐ °C

It drops by 20 degrees? ☐ °C

It drops by 11 degrees? ☐ °C

What fraction of this shape is shaded?

☐

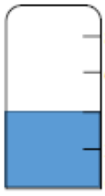
Calculate the answer.

36 ÷ 4 = ☐

66 ÷ 6 = ☐

96 ÷ 8 = ☐

Susie has this amount of water.
She needs a litre and a half.



How much more water does she need?

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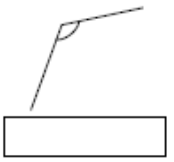
Label the angles with acute or obtuse.



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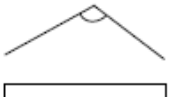

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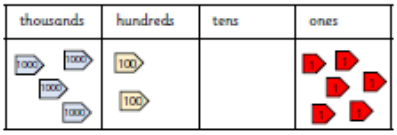
What is the difference between 899 and 495? ☐

231 + 8,888 = ☐

What number do the arrows represent?



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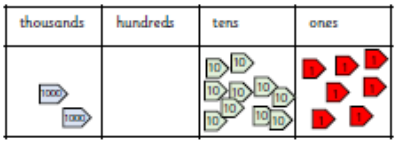

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What are Forces and Magnets?

Forces

Forces are all around us. They are acting on anything and everything. We already know that we can push, pull, stretch and even twist something to make it move or make it change shape. There are more different types of forces that are acting on things that we can't even see.

Gravity

We have all heard of gravity, but what actually is it? Gravity is a force that acts on anything that is on Earth. Gravity is a pulling force. It pulls all the objects to the centre of the Earth. This is what keeps us and all objects on Earth and is the reason we don't float off into the air. The idea that Gravity is acting on everything was first discovered by a man called Isaac Newton and so it's called Newton's law. You can read more about Isaac Newton below.

Gravity acts on everything on Earth.

Friction

Friction is a force that is applied to objects when they come into contact with a surface. When one thing is trying to slide over another, friction occurs.

Discovering Force

Isaac Newton was a scientist who lived in the 17th century. He made many discoveries in his lifetime involving mathematics, optics and movement. Isaac was also very knowledgeable about space and astronomy. Arguably his most famous discovery was that of force.

Albert Einstein, another very famous scientist, believed that Isaac Newton was the most intelligent man that ever lived. Isaac Newton made the discovery of gravity.

There is a famous story surrounding his discovery. It is said that Isaac Newton was sitting under an apple tree. An apple fell out of the tree prompting Isaac to think about why the apple fell straight down to Earth.

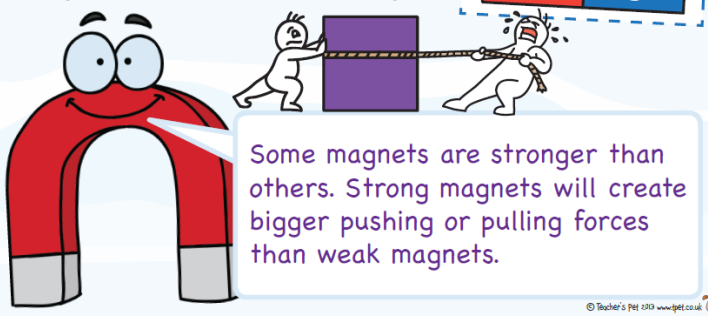
Now we can measure forces in newtons or in joules. We use a newton meter to measure the force something exerts.

Like this? Find more differentiated Magnets resources here.

MAGNETS

When two magnets are close, they create pushing or pulling forces on one another. These forces are strongest at the ends of the magnets.

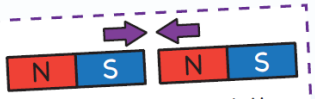
A magnet has two ends: the north pole and the south pole.



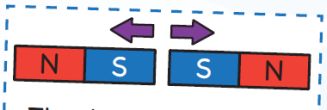
Some magnets are stronger than others. Strong magnets will create bigger pushing or pulling forces than weak magnets.

MAGNETS

What happens if we put 2 magnets together?



The south pole and the north pole attract each other.
The magnets move towards each other.



The two south poles repel each other.
The magnets move away from each other.

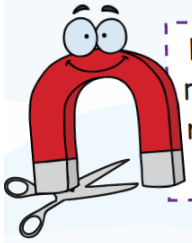
Will these attract or repel?

Just remember that **opposites attract**!

MAGNETS

So are all metals magnetic?

Magnets attract other magnets but they can also attract magnetic materials. Magnetic materials act like magnets when they are put close to a magnet.



Non-metallic materials are not magnetic materials.

Metals

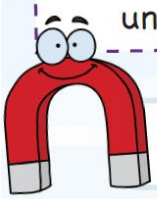
Magnetic	Non-magnetic
iron steel nickel	brass tin copper aluminium gold silver

Some metallic materials are magnetic but some are not magnetic.

MAGNETS in everyday life...

Magnetic forces are often very strong compared to other forces, so they can be used to lock doors and gates and even hold carriages together.

The 'Stealth' roller coaster ride at Thorpe Park accelerates to 80mph in under 2.3 seconds.



They use magnets to help the ride slow down and brake safely.

Make Your Own Magnet Activity

Follow the steps below to create your own magnets.

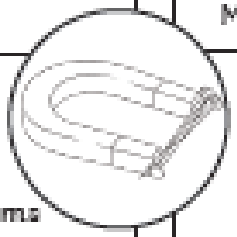
Before you begin, fill in your prediction at the bottom of the page for what you think may happen.

Did you know?
Magnetism can be passed from magnets to other magnetic items.

Objective: to magnetise the needles.

Equipment you will need:

- magnet
- 2 small needles
- some small magnetic items



Method:

1. Holding the needle, rub the magnet along it in the same direction at least thirty times.
2. Repeat this with the second needle, being careful to use the same end of the magnet.
3. Test your magnetised needles on small magnetic items.

My prediction:

The actual results:

What I was most surprised by:

Mindfulness doodling ….