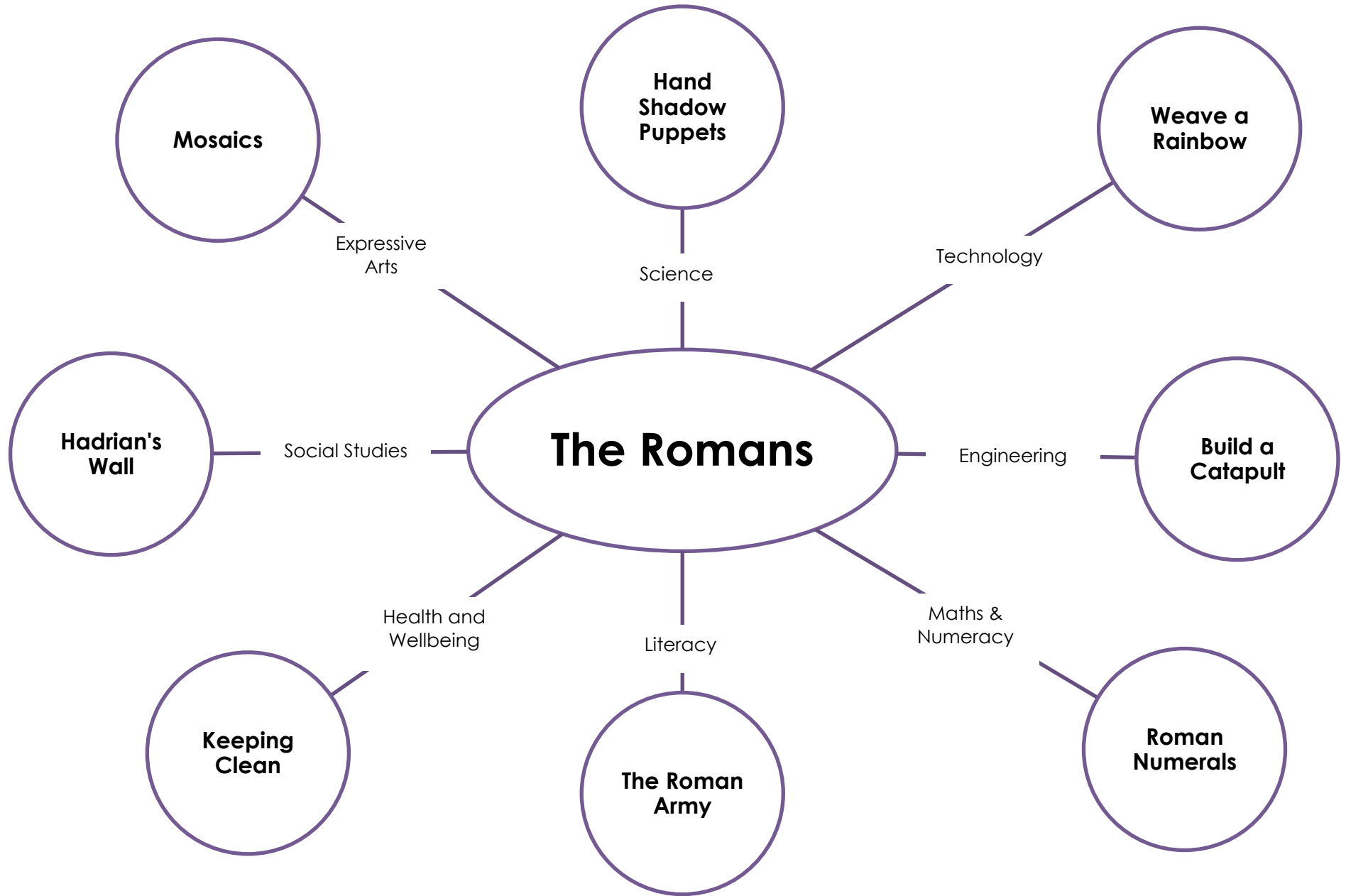


Learning from Home



Science Challenge



Hand Shadow Puppets

The Romans were able to tell the time by looking at the length of shadow that objects (including people) made at different times of day. But what are shadows and how are they formed?

To investigate we are going to be creating some shadow puppets.

You Will Need:

A partner (an adult or brother or sister), a torch, a flat plain light coloured surface like a wall or propped up sheet of white card, and your hands.



Method:

Take turns to shine a bright torch at the flat surface while the other person makes shadows with their hands. Notice how the shape of the shadow changes as you move your hand into different shapes. Why not have a go at making some of the shadows in the picture.

The Science:

Materials can be **opaque**, **translucent**, or **transparent**. If an object is opaque, no light can pass through it. A translucent object allows some light through but not all. The light is scattered meaning you cannot see clearly through it. A transparent object allows all the light through meaning that you can see right through it.

Your shadows were made because your hand blocked the light. Your hand is opaque!

Click here to watch some videos explaining more about **1**. Transparent, translucent and opaque materials <https://www.youtube.com/watch?v=8rmMOjIGjI> and **2**. Shadows and shadow puppets: <https://www.youtube.com/watch?v=2zfrbCdV8sl>

Extra Challenges:

1. Have a go at creating some different hand shadow puppets – can your partner guess what they are?
2. Make some puppets using different materials at home. Which materials work best? Try to explain to a grown up why that might be the case.

Activity and image from www.stem.org.uk/

Technology Challenge



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Weave a Rainbow

The Romans believed in more than one God / Goddess and the Goddess of Rainbows was known as Iris. She was also believed to be the messenger of the gods, carrying messages between the heavens and earth. Rainbows were thought to be messages.

You will need:

- A paper plate (non-shiny is best)
- Coloured crayons / pencils / pens/ paint
- Pencil
- Ruler
- Scissors
- Something circular to draw around (like the inside of a large roll of tape)
- Wool in a variety of colours



Adult Support Required!

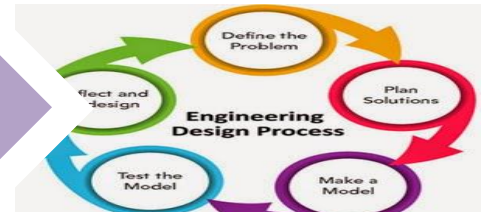
Instructions:

1. Using your pencil and ruler, draw a line across the middle of your paper plate. Then cut the paper plate in half with your scissors
2. Colour in the front of your plate half.
3. On the back of your plate, draw a semi-circle in the middle using the roll of tape (or similar object) as a guide. With the ruler, draw lines from the semi-circle to the edge, to make wedges. We have used 6 – you don't want to make the wedges too thin. Use the scissors to cut the lines of the wedges from the outside to the semi-circle.
4. Choose your first colour of wool. Tie wool around a wedge, keeping the knot to the back,
5. Weave your wool under and over the wedges. When you get to the end, bring your wool back in the opposite direction, this time going over the wedges you previously went under, and under the wedges you previously went over. Repeat until the strip of your first colour is as wide as you want it.
6. When your strip of colour is finished, weave to the end of a row, and tie your wool in a knot behind. Start the process with a new colour.
7. When you have finished your rows of colour, tidy up and loose ends and admire your rainbow. You could add a hanging loop to display on your wall or in your window. Perhaps you could add cotton wool clouds too?



Activity and images from TES

Engineering Challenge



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Build a Catapult

The Romans used catapults as weapons about 2,000 years ago! In this activity you can try your hand at building yourself some catapult technology.

You Will Need:

- Lollypop sticks (8)
- Rubber bands (at least 5)
- Glue
- Plastic bottle cap to hold a cotton ball
- Cotton ball (or a small ball of scrunched up paper.)
- Small open area with a flat surface such as a table or floor.



1



2



4



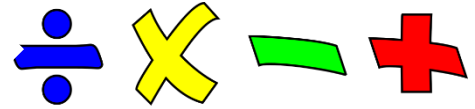
Activity and photos from www.sciencebuddies.org/

Instructions:

1. Take six lolly sticks stacked on top of each other. Secure these sticks together by wrapping rubber bands around both ends of the stack. You will anchor the launching stick to this stack. (As described in step 4.)
2. To add the launching stick, take one stick and attach it across the stack you just made, around the middle, so you get a cross shape. You can do this with one or two rubber bands that are crossed in an X over the sticks. If you cross it this way, the sticks will stay nicely perpendicular. (At right angles)
3. Next, add the base by attaching a stick to one end of the launching stick with a rubber band. If it were not for the stack of sticks in between, the launching stick would fall flat on top of the base. Now the launching stick and the base form a V shape lying on its side with the stack of sticks in the middle.
4. Put your catapult on its base, locate the end of the launching stick that sticks up and glue the bottle cap on there, so it forms a small cup to hold the projectile / missile. (Cotton ball)
5. Wait until the glue is dry.
6. Put your catapult in an open area with a sturdy, flat surface such as a table or an open space on a hard floor. Clear about a meter of open space for the cotton ball to fly and land.
7. Place a cotton ball in the launching cup, push the cup down just a little bit and let go.

Click here to watch a video version of the instructions:
<https://www.youtube.com/watch?v=aAuN5ZnL4yE>

Maths & Numeracy Challenge



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Roman Numerals

These symbols are the building blocks of Roman numerals: **I, V, X, L, C, D** and **M**

I = 1 **II** = 2 **III** = 3 **IV** = 4 **V** = 5 **VI** = 6 **VII** = 7 **VIII** = 8 **IX** = 9 **X** = 10 **L** = 50
C = 100 **D** = 500 **M** = 1000

Task: Using the above information to help you, can you work out the following? (Write the answer in numbers and roman numerals.)

Examples: X + IV is the same as 10 + 4 = 14 (**XIV**), L + XL = 50 + 40 = 90 (**XC**)

1. III + V =

2. VII + X =

3. VI + II =

4. L + X =

5. VIII + II =

6. X + X =

7. C – L =

8. X – III =

9. V – IV =

10. VII – III =

11. How old are you? Write this as a roman numeral.

12. How many letters are in your first name? Write this as a roman numeral.



Click here for an interactive bingo game which uses Roman Numerals:
<https://www.romanbaths.co.uk/know-your-numerals>

Activity and Image from TES

Tip: You can check if you are correct by typing the number into **GOOGLE** (or other search engine) and asking what the equivalent is in Roman Numerals.

Literacy Challenge



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The Roman Army

Read through the information then answer the questions.

Activity and images from TES



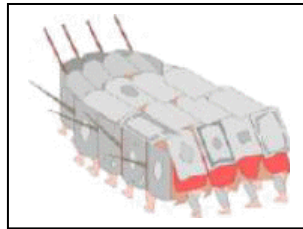
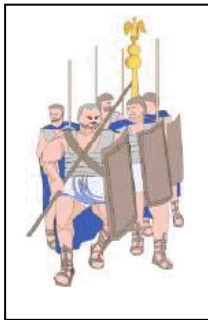
The Romans managed to conquer so many countries because they had such a good army. The emperor used the army to protect Rome and to control the people it had conquered. Some soldiers were away from their families for long periods of time

Organisation of the Army

The army was organised in a very simple way: 800 Legionnaires (Roman Citizens who were in the army) would form a Legion. The Legion would be split into centuries (80 men) controlled by a Centurion. The centuries would then be divided into smaller groups with different jobs to perform.

Roman soldiers had to be tough. They were expected to march up to 20 miles per day in line, wearing all their armour and carrying their food and tents.

When a soldier had served in the army for 25 years, he could then become a citizen of Rome.

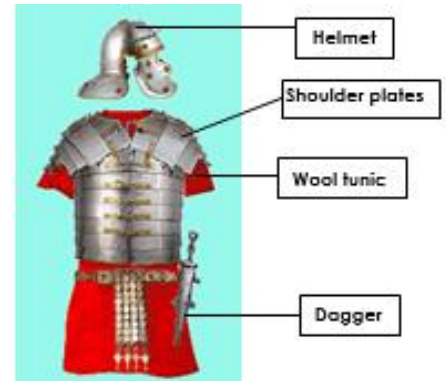


Roman soldiers were trained to fight well and to defend themselves. If the enemy shot arrows at them they would use their shields to surround their bodies and protect themselves.

Activity A

1. What was the army used for?
2. Why did Roman soldiers carry daggers?
3. How many men were in a century?
4. Which weapons were used by Roman soldiers?

They fought with short swords, daggers for stabbing and a long spear for throwing. They also carried a shield for protection as well as wearing armour.



Activity B

1. How did the Roman army help to build the Empire?
2. What were the advantages of being a Roman soldier?
3. What were the disadvantages of being a Roman soldier?



Extension

List the qualities required of a successful Roman soldier. e.g., Bravery



Health & Wellbeing Challenge

Keeping Clean

It is very important for our health to keep ourselves clean. If we didn't wash, we would start to look dirty and we would also start to smell. Yuk!

Most of us have running water and a bath or shower at home, some people have both. This makes it easier for us to stay clean.

Click here to find out what might happen if we didn't wash:

<https://www.bbc.co.uk/bitesize/topics/zbdcy9q/articles/z7dxjvh>

In Ancient Roman times, water was expensive, and people didn't have it delivered to their houses like we do. They also didn't have baths and showers at home, so how did they keep clean?



The Romans were very clever, and they actually invented baths. But they didn't have little baths, they had really big ones, like the size of swimming pools!

The Romans saw bathing as a social activity as well as a way of keeping clean. They built communal bath houses, where people could relax, meet up and have a chat. Business deals were also often struck in bath houses. Politicians would even meet there and decide upon new laws!

We use soap or shower gel to wash ourselves with, but the Romans didn't. They would rub themselves down with olive oil or have a slave do it for them and then a tool called a **strigil**, would be used to scrape the oil and dirt off their skin.

Click here to try a quiz about keeping clean:

<https://www.educationquizzes.com/ks1/science/staying-healthy-washing-and-bathing/>

Reasons for keeping clean:

How we keep clean:

How the Romans kept clean:

Task: Draw a table and write down reasons for keeping clean and the ways we do that today and how the Romans did it. You might want to do further research yourself first. You could use books if you have some or you could use the internet. **(Remember to ask an adult at home for permission first.)**

Image of a strigil from <https://en.wikipedia.org/>

Social Studies Challenge



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Hadrian's Wall

By the end of the first century **AD**, Rome had most of southern Britain under its control. However, it was a different story in Scotland. It was still controlled by fierce warrior tribes, who refused to bow down to the Roman Empire.

Scotland had valuable natural resources, like lead, silver and gold. The Romans could also get rich by charging the people they conquered taxes and forcing them to become slaves. But the tribes weren't about to give up their lands without a fight.

In Roman times, there was no such country as Scotland. The area of Britain now known as Scotland was called '**Caledonia**', and the people were known as the 'Caledonians'. Back then, Caledonia was made up of groups of people or tribes. Some tribes were happy to get on peacefully with the Romans, but others fought back.

In the summer of AD84 some Caledonian tribes joined forces and made a stand against the invading Roman army. The two sides fought at a place called **Mons Graupius** (the Grampian Mountains). The Romans were led by the Roman general **Julius Agricola** and the Caledonians were led by a fierce chief named **Calgacus**.

After the battle of Mons Graupius, most Caledonian tribes accepted the Roman occupation. Some tribes were bribed or given gifts by the Romans to accept their rule. However, some northern tribes continued to battle the Romans.



Antonine Wall

Hadrian's Wall

Their attacks were costing the Romans time and money. So, in AD122, the **Emperor Hadrian** ordered his soldiers to build a wall between Roman Britain and Caledonia. The Romans also built forts and stationed soldiers along the wall to keep watch and fend off any attacks.

In AD140 the Romans added another wall further north, between the River Clyde and the River Forth. It was called the Antonine Wall after the **Emperor Antoninus** but it was often attacked by the Caledonian tribes. In AD160 the Romans abandoned this wall and made **Hadrian's Wall** the border.

Task: Talk to an adult about why you think Emperor Hadrian didn't just keep attacking Scotland and built the wall instead?

Note: The term **AD** (sometimes called **CE**) means **Anno Domini** which is Latin for '**In the year of the Lord**' (**Jesus Christ**) The term is used to help us measure how much time has passed.

Click here to find out more:

<https://www.youtube.com/watch?v=475sbcUj9t4>

<https://www.youtube.com/watch?v=H0kmm0CpK1>

Info and image from TES

Expressive Arts Challenge



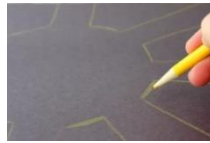
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Mosaics

Ancient Romans created beautiful mosaic artworks. According to the BBC, the mosaics used in Rome were home decorations and ranged from store-bought common designs to custom made designs. Today, you can make your own mosaic artwork with just some coloured paper and glue.

You Will Need:

- Black construction paper
- Pencil
- Various colours of paper
- Scissors
- Glue stick



Activity idea and photos from www.ehow.com/

Instructions:

1. Work out a mosaic design. Roman mosaics depicted gods and goddesses, gladiators, birds and a wide range of other designs. Draw the design in pencil on the black paper.
2. Cut the coloured paper into small pieces. 1 – 2 cm squared is about ideal. Cut strips and then cut the strips down into squares.
3. Glue the pieces of paper to the black construction paper. Use a glue stick and put the paper on the background according to your preferred colour combinations. Start from the outside, outlining the drawing and then work inwards.
4. Allow the glue to dry and then your mosaic is complete.

To learn more about the Romans and mosaics, click here:

<https://www.youtube.com/watch?v=dop7A0WCKgg>



Images from www.clipart-library.com