Classical Studies

Transition Year Unit

SECTION 1

What is Classical Studies? A case study of Ancient Cyprus

Section 1 Table Quiz

Round 1

1. Which of the following cultures do we learn about in Classics?
    a. Greek
    b. Egyptian
    c. Roman

2. Which language did the ancient Romans speak?
    a. Irish
    b. Welsh
    c. Latin

3. The letters alpha and omega are part of which language?
    a. Greek
    b. Spanish
    c. German

4. Which of the following are included in studying the ancient world?
    a. Historical documents
    b. Inscriptions
    c. Coins

Round 2

1. Sir Arthur Evans is a famous
    a. Musician
    b. Archaeologist
    c. Scientist

2. In which city can you find the Parthenon?
    a. Rome
    b. Athens
    c. Cairo

3. Which of the following was a famous building in the ancient world?
    a. The White House
    b. Colosseum
    c. Sydney Opera House
Bonus point: What events were staged in this building?

4. The eruption of Mount Vesuvius buried which city in AD 79?
    a. Pompeii
    b. Dublin
    c. Sparta

Section 1 Table Quiz

Round 3

1. Who wrote the epic poems the Iliad and the Odyssey?
    a. Aristotle
    b. Socrates
    c. Homer
Bonus point: Which great war was the Iliad about?

2. Plato is a famous Greek philosopher – what century was he born in?
    a. 5th century BC
    b. 5th century AD
    c. 21st century AD

3. Which of the following is not a famous figure from the ancient world?
    a. Alexander the Great
    b. Cleopatra
    c. Leonardo da Vinci

4. Romulus and Remus are the mythical founders of which city?
    a. Rome
    b. Alexandria
    c. Athens

Round 4

1. Which of the following is not an ancient Roman god?
    a. Jupiter
    b. Minerva
    c. Cú Chulainn

2. Ares is the Greek god of what?
    a. Wisdom
    b. Agriculture
    c. War

3. Venus is the Roman equivalent of which Greek goddess?
    a. Hera
    b. Aphrodite
    c. Athena

4. Who is the Greek god of the dead?
    a. Hermes
    b. Apollo
    c. Hades

Section 1 Table Quiz Answer Sheet

Team Name:

_____

Team animal mascot:

_____

Round 1

1. _____

2. _____

3. _____

4. _____

Round 2

1. _____

2. _____

3. _____

Bonus Question: _____

_____

4. _____

Round 3

1. _____

Bonus Question: _____

_____

2. _____

3. _____

4. _____

Round 4

1. _____

2. _____

3. _____

4. _____

1.1 Language

➡️ This is a compilation of symbols which have been found for **Cypro-Minoan**, an ancient language dating to **c. 1500 BC** in the **Late Bronze Age in Cyprus**!

➡️ It has **not yet been fully deciphered** – a few symbols have been determined based on similarities with other languages!

➡️ Can you spot any images? For example, is there an image that could have been used to mean 'person'? Draw these images and note what you think they might mean. Do your classmates agree with your interpretations?

Source: Cypro-Minoan signs, after Steele, Philippa M. *Writing and Society in Ancient Cyprus*. Cambridge: Cambridge University Press, 2019, p. 103, Table 3.1.

Code breakers!

1. In groups, allot one symbol of Cypro-Minoan for each of the 26 letters of the English alphabet [ignore the boxes with the three dots (…)].
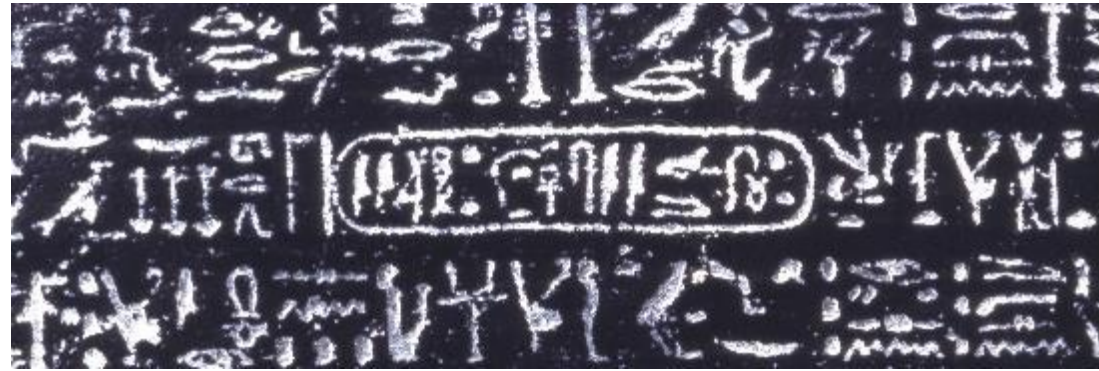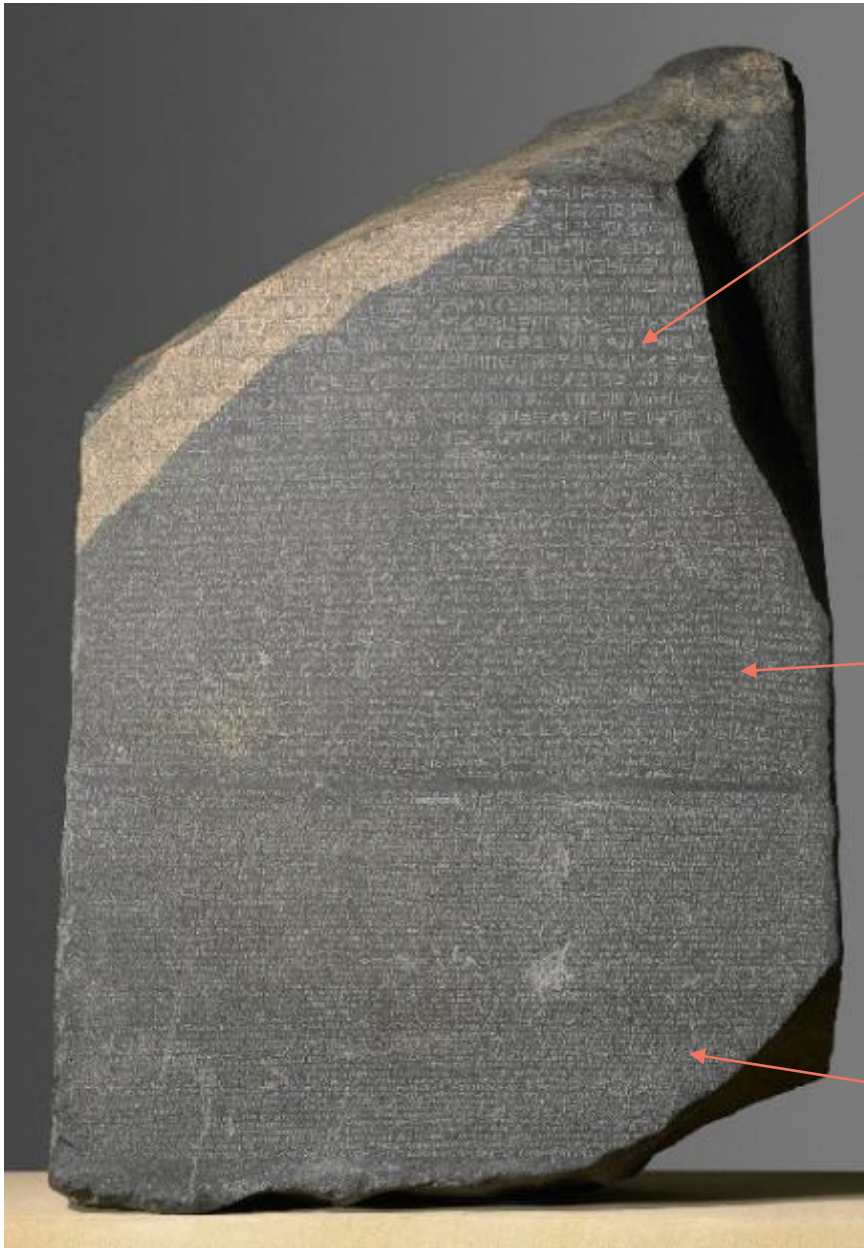
A:

B:

C:

D:

E:

F:

G:

H:

I:

J:

K:

L:

M:

N:

O:

P:

Q:

R:

S:

T:

U:

V:

W:

X:

Y:

Z:

2. Write a sentence below to your teammates using this 'code'!
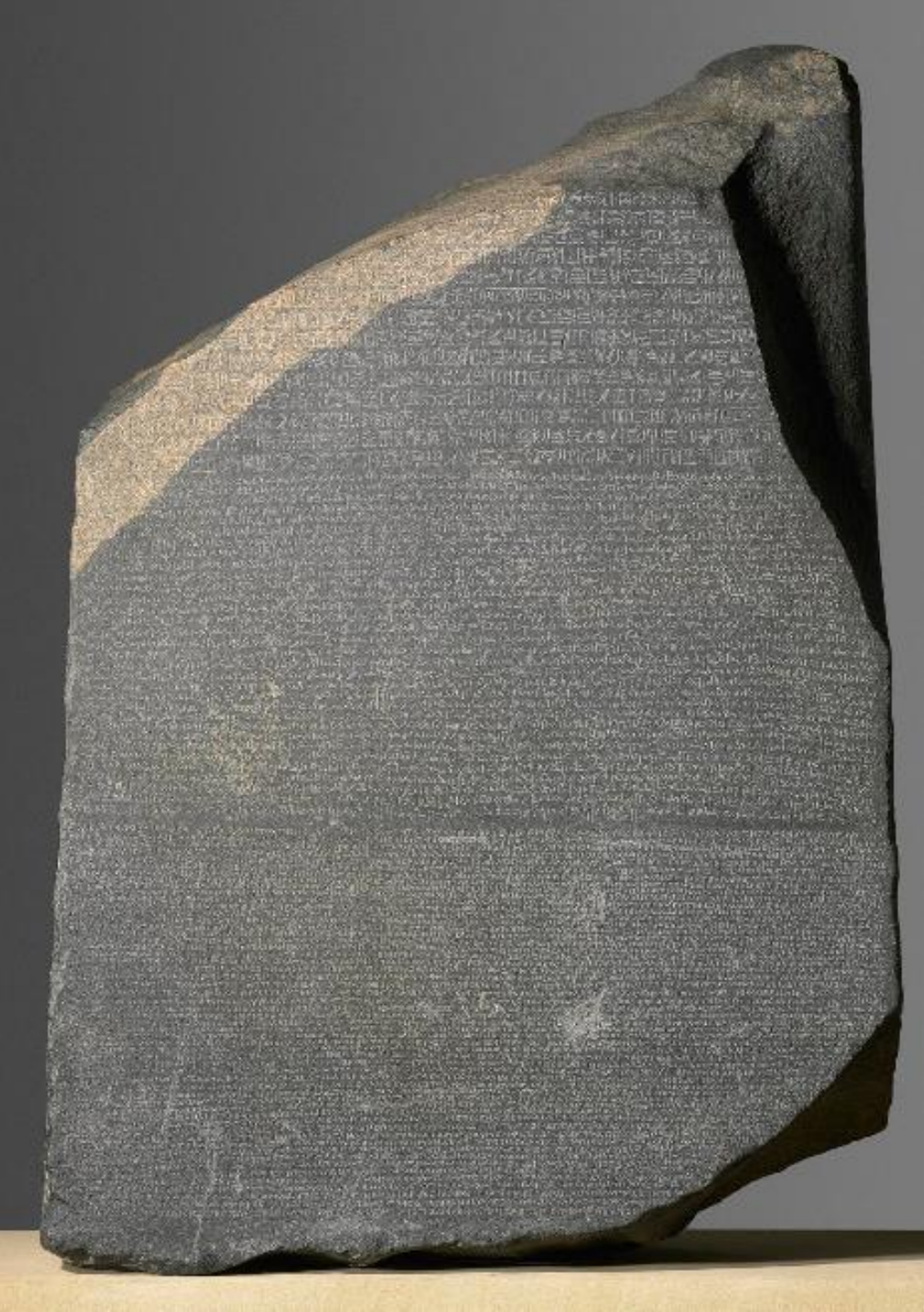
Rosetta Stone

- ⚜ A decree carved into stone in the 2nd century BC in three different languages: **hieroglyphics**, **Demotic** (Egyptian) and **ancient Greek**.

- ⚜ As Demotic and Ancient Greek could be read, this provided a key for deciphering Egyptian hieroglyphics!

- ⚜ The stone was found in **1799** by **Napoleonic troops in Egypt** and was taken by the British when the French in Egypt surrendered to the British not long after this.

- ⚜ Today, it resides in the **British Museum**, in London, where it is visited by thousands of people every year!

1. **Hieroglyphics**

2. **Demotic (Egyptian)**

3. **Ancient Greek**

Source: https://blog.britishmuseum.org/everything-you-ever-wanted-to-know-about-the-rosetta-stone/?gclid=EAIaIQobChMIuYn8vbyG6wIVkOvtCh2BZwE1EAAYASAAEgK3zPD_BwE, Accessed 6/8/20, 12:31.
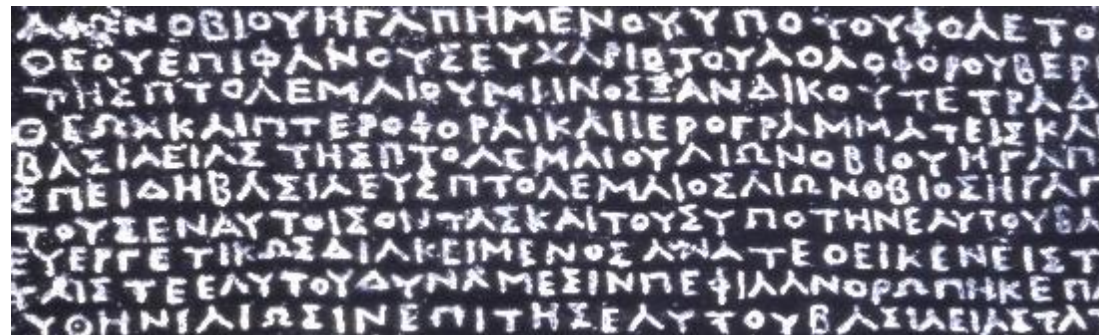
Phaistos Disk

- A **fired clay disk** that was discovered in the early 1900s in the **Minoan palace of Phaistos in Crete**.

- It could date as far back as **1850 BC**!

- Both sides of the disk are covered in **c. 242 symbols** set in a spiral pattern. These would have been stamped into the clay before it was fired.

- In total, there are **45 individual symbols**, and, despite many attempts, the disk remains **undeciphered**!

Image source: Phaistos Disk (https://commons.wikimedia.org/wiki/File:Phaistos_Disc_-_Heraklion_Archaeological_Museum_by_Joy_of_Museums.jpg).

1.2 Art and artefacts: Mosaics in the House of Dionysus

- ❖ The **House of Dionysus** is in Paphos in the southwest of Cyprus. The area in which it is located is a **UNESCO World Heritage site**.

- ❖ The House of Dionysus (c. 2,000m^2) dates to the 2nd–4th century AD and is famous for its **mosaics** (images made from numerous small tiles, stones, etc.).

- ❖ The scenes depicted in mosaics can tell us a lot about a society and its interests.

Mosaic 1: Hunter and leopard

Mosaic 2: Scylla, a sea-monster with the upper body of a woman, a belt of dogs sprouting from her waist, and a monstrous fish tail. She would eat sailors as they sailed past!

Mosaic 3: Leopard with an animal head in its teeth

Mosaic 4: Peacock

Mosaic 5: The four seasons

Mosaic 6: Orpheus, a musician and poet in Greek mythology

This mosaic comes from a different house in the Paphos Archaeological Park – the House of Orpheus

1.3 Mythology: Aphrodite

2-minute quiz

1. Who were the king and queen of the Greek gods?
   a. Jupiter and Juno
   b. Zeus and Hera

2. Poseidon was the Greek god of what?
   a. The sea
   b. The sky

3. Mercury was the Roman messenger god – who was the Greek equivalent?
   a. Ares
   b. Hermes

4. Pluto is another name for which Greek god of the dead?
   a. Hades
   b. Apollo

5. This Roman god of war is also a delicious chocolate bar
   a. Snickers
   b. Mars

1.4 History
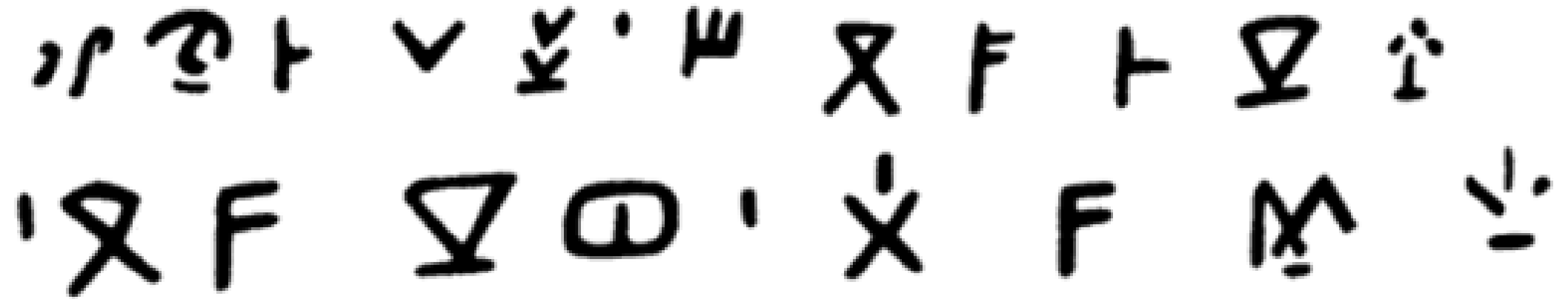
Graffiti

This is an example of **ancient Cypriot graffiti** that was found on the **Great Pyramid in Egypt**!

The graffito may have been written by a **Cypriot mercenary or a traveller**

The translation (to the right) tells us that it is two people's names!

ka-ra-ta-to-ro-se ' o-sa-ta-si-no

Kratandors, son of Stasinos

te-mi-to-i ' mo-ra-to-ro

Themitō, son of Morandros

Coin 1

Image source: Ancient Cypriot coin (http://www.wildwinds.com/coins/greece/cyprus/t.html)

- 4th century BC

- Depicts the head of **Aphrodite** on one side, and **Apollo**, seated on the omphalos, on the other.

- Apollo is crowned with a **laurel wreath** and holds an **arrow** in his right hand, and near his left hand is his **bow**.

- The Greek reads: ΝΙΚΟΚΛΕΟΥΣ ΠΑΦΙΟΝ, 'Nicocles of Paphos'. Nicocles allied himself with Ptolemy I (pharaoh of Egypt), and his rule was ultimately taken from him by Ptolemy.

Coin 2

- 1st century AD, minted under the rule of **Vespasian** (emperor of Rome, AD 69–79).

- The coin depicts the head of **Vespasian**, wearing a **laurel wreath**, on one side, and the **temple of Aphrodite at Paphos**, with a cone representing the cult statue on the other.

- This side includes the words ΚΟΙΝΟΝ ΚΥΠΡΙΩΝ (meaning 'common Cypriots', relating to the union of Cypriot cities for decision-making purposes).

Kyrenia Shipwreck

- ⛵ Shipwreck off the **coast of Kyrenia in Cyprus**
- ⛵ Discovered in 1965 by fishermen
- ⛵ The ship likely sank in the **4th or 3rd century BC**
- ⛵ It was a **Greek merchant vessel** carrying many **amphoras**, a type of vase which was used for transporting food and drink

Amphoras (above) and the hull of the ship (right)

1.5 Literature: The *Cypria*

The Judgement of Paris

Thetis and **Peleus**, the parents of the Greek hero **Achilles** (the greatest of the Greek warriors during the Trojan War), got married. The **goddess Strife** was not invited to the wedding. In anger, she threw a **golden apple** into the crowd and said it was for the fairest goddess. Three goddesses claimed it:

(i) **Aphrodite** – the goddess of love
(ii) **Athena** – the goddess of war and wisdom
(iii) **Hera** – the goddess of marriage (and queen of the gods)

Image source: Detail from London, British Museum E178. © The Trustees of the British Museum.

To settle the dispute, **Zeus**, the king of the gods, declared that Trojan Paris would judge the contest. Paris was asked to pick the fairest goddess, and all three goddesses attempted to bribe him:

(i) Aphrodite promises him the **most beautiful woman in marriage (Helen)**
(ii) Athena offers him **skill and wisdom in war**
(iii) Hera offers him **kingship**

Paris chose Aphrodite, and he was given Helen. Unfortunately, Helen was already married, and her abduction by Paris sparked the Trojan War…

In the *Cypria*, all the above is presented as Zeus' plan to begin the **Trojan War.**
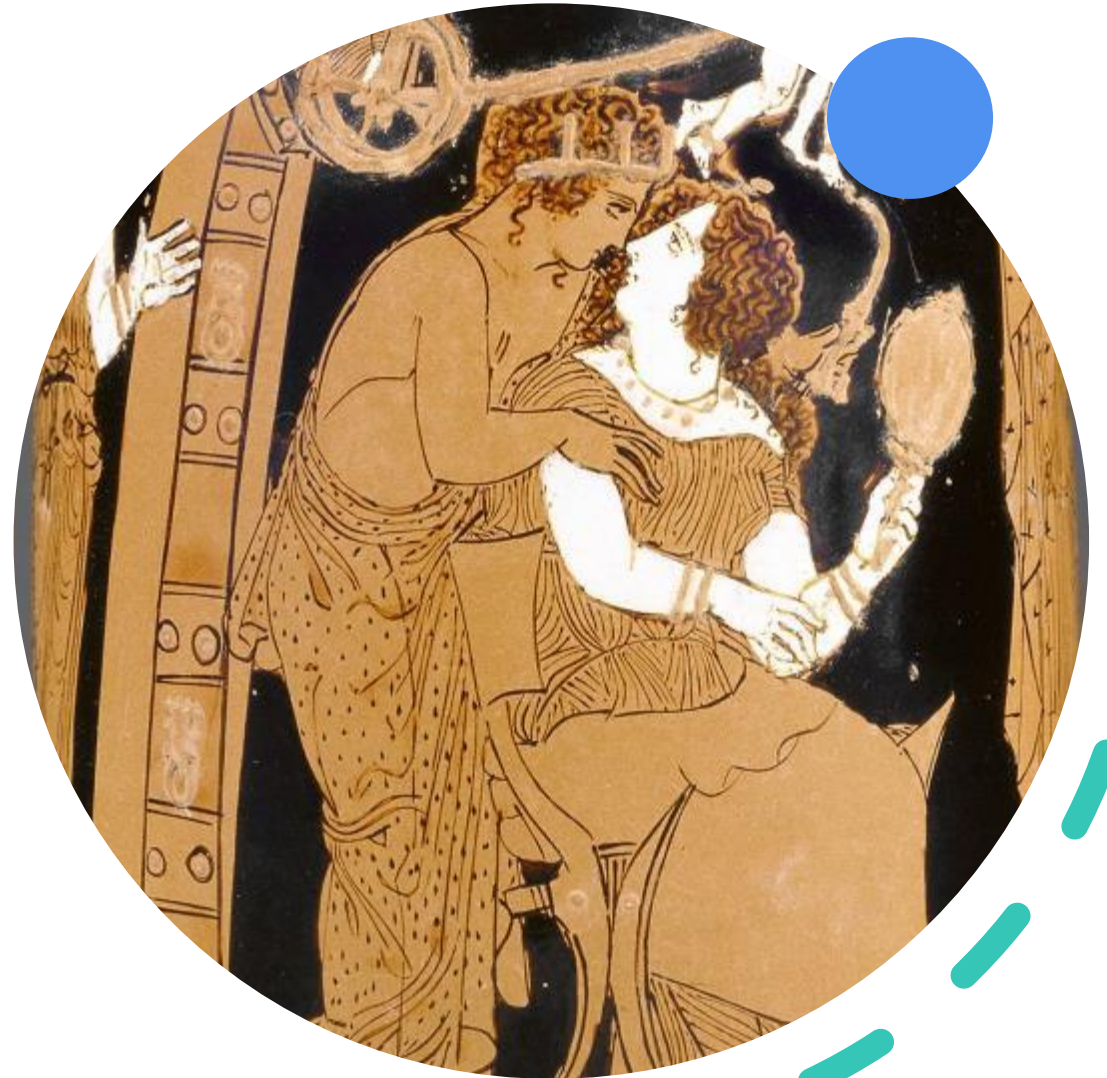
Odysseus' trickery

Helen is married to **Menelaus**, the king of Sparta. When she is abducted by **Paris**, Menelaus turns to his brother **Agamemnon**, the king of Mycenae, for help.

Agamemnon gathers many kings and leaders to help, but one holds out: **Odysseus**, king of Ithaca.

The summary of the *Cypria* states merely that Odysseus is caught out pretending to be mad so that he will not have to join the expedition. Other sources tell us the following story:

Palamedes was sent to Ithaca to fetch Odysseus for the expedition against Troy. He found Odysseus ploughing a field in a chaotic manner. He had attached both an ox and a donkey to the same plough (these would pull at very different rates) and he was sowing the field with salt instead of seeds. Palamedes saw through his ruse and placed Odysseus' child Telemachus in front of the plough, and Odysseus stopped to avoid hurting Telemachus, thereby revealing his sanity!

Image source: Detail from New York (NY), Metropolitan Museum: 41.83. Public domain.

Chigi Vase

The earliest known depiction of the **Judgement of Paris** can be found on the so-called **'Chigi Vase'**, which is a **mid–late 7th-century BC** (c. 640 BC) vase found in a tomb in Italy.
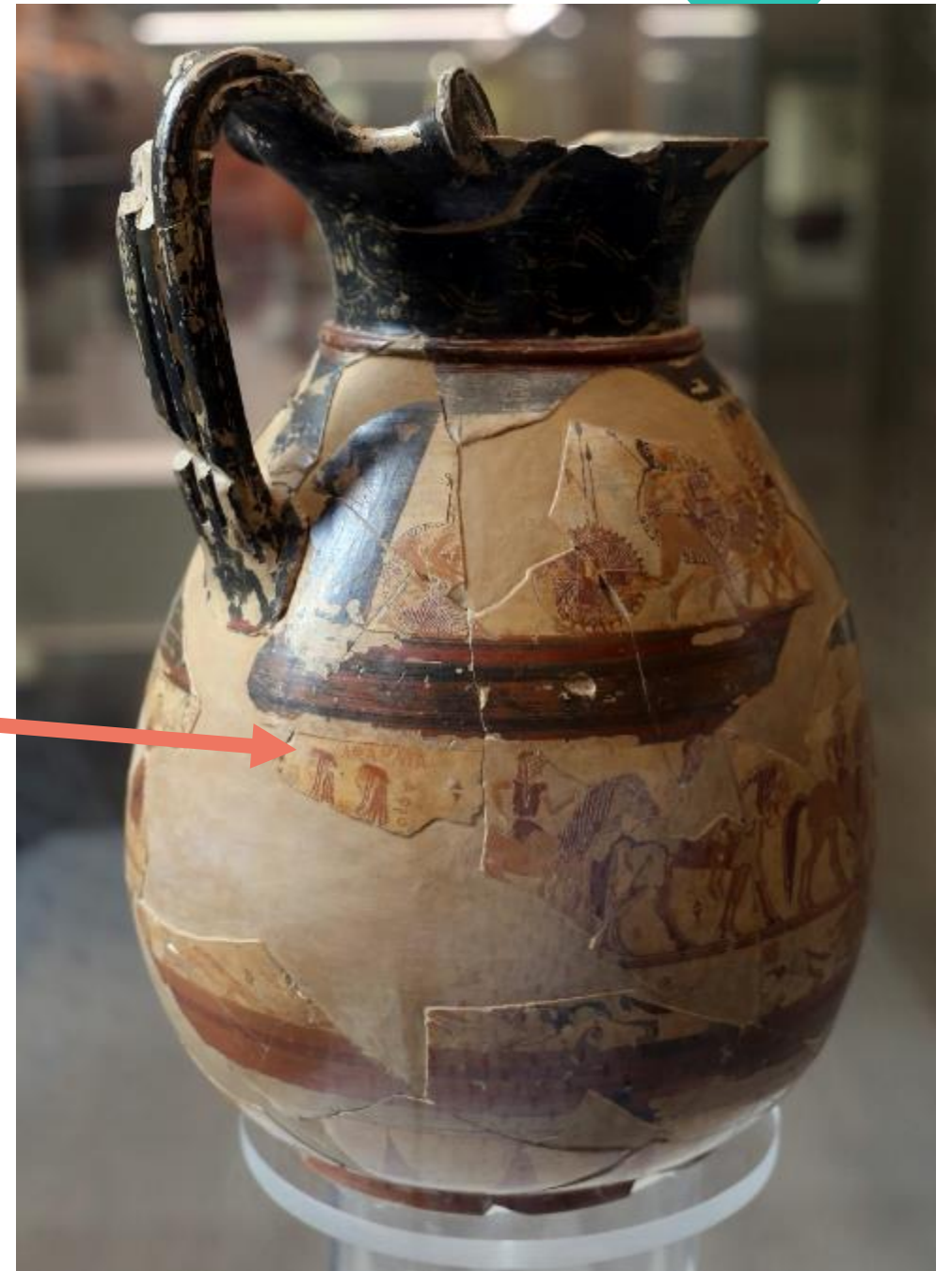
ΑΘΑΝΑΙΑ = Athena

ΑΦΡΟ... = Aphro[dite]

SECTION 2

People and the world around us

2.1 Travel in the ancient Roman world

http://orbis.stanford.edu/
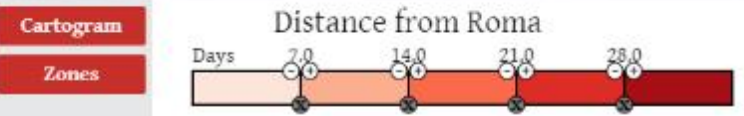
2.2 People on the edges of the world

"There appeared a **multitude of water-monsters**, larger and more terrible in appearance than the elephants, who dragged the men through the watery waves down to the river bottom, and tore them to bloody pieces with their mouths, and snatched them all away so that none of us knew where any of them had gone."

Who or what am I!?

Quotation 1

In the fifth year of campaigning he crossed in the leading ship and in repeated and successful battles reduced tribes up to that time unknown: he also manned with troops that part of the British coast which faces **Hibernia**, in hope of future action rather than out of fear; for **Hibernia**, I believe, which lies between Britain and Spain and also commands the Gallic Sea, would unite, to their mutual advantage, the most effective portions of our Empire. That island, compared with Britain, is of smaller dimensions, but it is larger than the Mediterranean islands. In regard to soil, climate, and the character and ways of its inhabitants, it is not markedly different from Britain: we are better informed, thanks to the trade of merchants, about the approaches to the island and its harbours. Agricola had given shelter to one of the petty chieftains whom faction had driven from home, and under the cloak of friendship held him in reserve to be used as opportunity offered. I have often heard my father-in-law say that with one legion and a fair contingent of irregulars **Hibernia** could be overpowered and held, and that the occupation would be useful with regard to Britain also; for so Roman troops would be everywhere and liberty would sink, so to speak, below the horizon.
(Tacitus, Agricola 24; trans. M. Hutton [Loeb Classical Library], slightly adapted)

Quotation 2
Besides some small islands round about Britain, there is also a large island, **Ierne**, which stretches parallel to Britain on the north, its breadth being greater than its length. Concerning this island I have nothing certain to tell, except that its inhabitants are more savage than the Britons, since they are man-eaters as well as heavy eaters, and since, further, they count it an honourable thing, when their fathers die, to devour them, and openly to have intercourse, not only with the other women, but also with their mothers and sisters; but I am saying this only with the understanding that I have no trustworthy witnesses for it; and yet, as for the matter of man-eating, that is said to be a custom of the Scythians also, and, in cases of necessity forced by sieges, the Celti, the Iberians, and several other peoples are said to have practised it. (Strabo 4.5.4; trans. H.L. Jones [Loeb Classical Library])

Quotation 3
The most savage peoples among them are those who dwell beneath the Bears and on the borders of Scythia, and some of these, we are told, eat human beings, even as the Britons do who dwell on **Iris**, as it is called. (Diodorus Siculus 5.32; trans. C.H. Oldfather [Loeb Classical Library])

THE WORLD
according to
ERATOSTHENES
B.C. 220
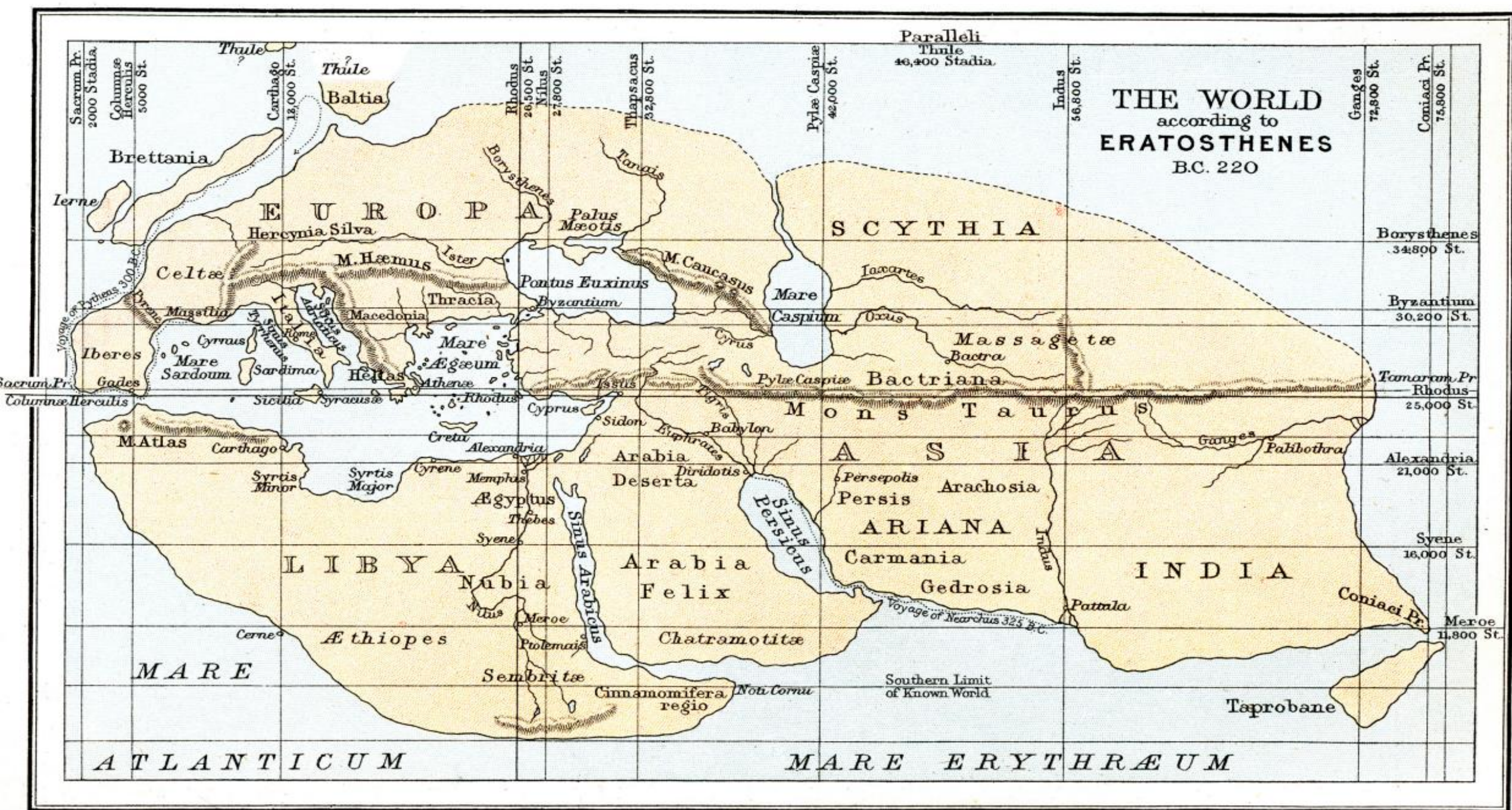
Blemmyae = a tribe of **headless men** with **eyes in their chests**.

Skiapodes = A tribe of men with **one large leg and foot** which they held over their head to shade themselves from the sun.

2.3 The natural world

A wily octopus...

1. In the fishponds at Carteia an octopus was in the habit of getting into their uncovered tanks from the open sea and there foraging for salted fish—even the smell of which attracts all sea creatures in a surprising way, owing to which even fish-traps are smeared with them—and so it brought on itself the wrath of the keepers, which owing to the persistence of the theft was beyond all bounds. Fences were erected in its way, but it used to scale these by making use of a tree, and it was only possible to catch it by means of the keen scent of hounds. These surrounded it when it was going back at night, and aroused the guards, who were astounded by its strangeness: in the first place its size was unheard of and so was its colour as well, and it was smeared with brine and had a terrible smell; who would have expected to find an octopus there, or who would recognize it in such circumstances? They felt they were pitted against something uncanny, for by its awful breath it also tormented the dogs, which it now scourged with the ends of its tentacles and now struck with its longer arms, which it used as clubs; and with difficulty they succeeded in despatching it with a number of three-pronged harpoons. (Pliny's *Natural History* 9.48, trans. H. Rackham)

2. In appearance the octopus is most repulsive, having a large, ugly head, a fierce-looking mouth, armed with a pair of powerful horny jaws, shaped much like a parrot's beak, atopped with two diabolical eyes set close together, which are positively capable of sending forth a demoniac glare when angered. The grotesque head is mounted on a somewhat oval body, from which radiate eight arms, usually united at the body base by a membrane. The arms or tentacles are provided with rows of suckers, with which it clasps and clings to its prey with uncanny strength and quickness. As a rule, it will not give battle to man unless angered or injured, but when challenged will fight to the last, doing its best to pull the object of its wrath beneath the surface of the waters.

3. A creepy sea monster caught by a young fisherman has astounded the internet with people unable to explain it. The footage shows the slimy creature with what appears to be tentacles like an octopus.
But only three are visible compared to an octopus' eight. It also has a giant head with what seems to be a monstrous mouth and breath portals where the eyes should be. The creature seems small as it is no bigger than the width of two planks of wood.

Hydra

Large snake-like body with numerous heads. These regrow when cut off.

Chimaera

Lion's body and head, a goat's head growing from its back, and a snake as a tail.

Siren

Half bird, half woman. Lured sailors to their destruction on the rocks with its song.

❓ Do you know any other "monsters" from the ancient world?

2.4 Food in the ancient world

Food, glorious food...part 1

Which of these are meant to taste good and which are meant to be a cure for something!?

MENU

(i) Honey-water, fresh mead and vinegar (Athenaeus, *Deipnosophistae* 2.59)

(ii) Onions in wine (Homer, *Iliad* 11.630)

(iii) Wine, grated goat's cheese and white barley meal. (Homer, *Iliad* 11.638–41)

(iv) Boiled cabbage with oil (Athenaeus, *Deipnosophistae* 2.70)

Food challenge

Create a **breakfast**, **lunch** and **main meal** using only the following ingredients (and without the use of electricity or gas!). You can add up to **three additional ingredient** that they think would have been available in the ancient world.

- ✓ Figs
- ✓ Raisins
- ✓ Wheat
- ✓ Onions
- ✓ Lentils
- ✓ Grapes
- ✓ Cheese
- ✓ Fish
- ✓ Garlic

Food, glorious food...part 2

Which were real dishes in the ancient Roman world, and which are made up?

MENU

(i) Dormice rolled in honey and poppy-seeds

(ii) Flamingo, especially the tongue

(iii) Jellyfish omelette

(iv) Dolphin meatballs

(v) Roast giraffe

Recipes

1. Pancakes with milk

Ingredients:
8 egg
600ml milk
100ml oil
a little bit of honey
a little bit of ground pepper

Method:
1. Mix eggs, milk and oil until you have a pancake dough.
2. Fry in a pan and serve topped with honey and a little pepper.

2. Rolls

Ingredients:
500g wheat flour
300ml grape juice
2 tbsp anise seeds
2 tbsp cumin seeds
100g lard
50g grated cheese
ca. 20 bay leaves

Method:
1. To the flour, add anise and cumin seeds, the lard and cheese.
2. Work it together until you have a reasonable dough.
3. Form rolls, then put one bay leaf under each of them.
4. Bake 30–35 minutes at 180°C.

2.5 Sport in the ancient world

Vocabulary check!

agōn (ἀγών) = contest
This is where we get the word '**agony**' from!

gumnos (γυμνός) = naked
Many sports were performed completely naked. This is where we get the word '**gym**' from!

athleuō (ἀθλεύω) = I contend for a prize
This is where we get the word '**athletics**' from!

'Gladiator' comes from 'gladius', the Latin word for '**sword**'!

'Colosseum' comes from 'colosseus', the Latin word for '**gigantic**'!

GYM? WHAT'S A GYM?

2.5 Sport in the ancient world

Stephanitic Games

Stephanos (στέφανος) = 'crown'

In ancient Greece, there were four **Stephanitic Games**, which rotated yearly. These were held at religious sanctuaries and had crowns of leaves as prizes:

Olympia (Olympian Games, sacred to Zeus, established 776 BC, but possibly as late as 700 BC) = Olive crown

Delphi (Pythian Games, sacred to Apollo, established c. 586 BC) = Laurel crown

Isthmia (Isthmian Games, sacred to Poseidon, established c. 580 BC) = Pine crown

Nemea (Nemean Games, sacred to Zeus, established c. 573 BC) = Celery crown

Image source: Detail from London, British Museum F163. © The Trustees of the British Museum.

The Olympic Games

❧ The Greeks believed that the Olympic Games were first established in **776 BC**.

❧ They were held in **Olympia in Greece**, and dedicated to **Zeus**, the king of the gods.

❧ As with the modern Olympics, the Games were held **once every four years**.

❧ The Olympic Games were **open to free Greek males**, and, therefore, excluded women, non-Greeks and slaves.

❧ The image to the left shows a plan of the Sanctuary of Zeus at Olympia in the 5th century BC.

Footraces

Originally the only event was the footrace known as the **stadion**.

The place where the race took place was also known as the stadion! This is where we get the word 'stadium' from!
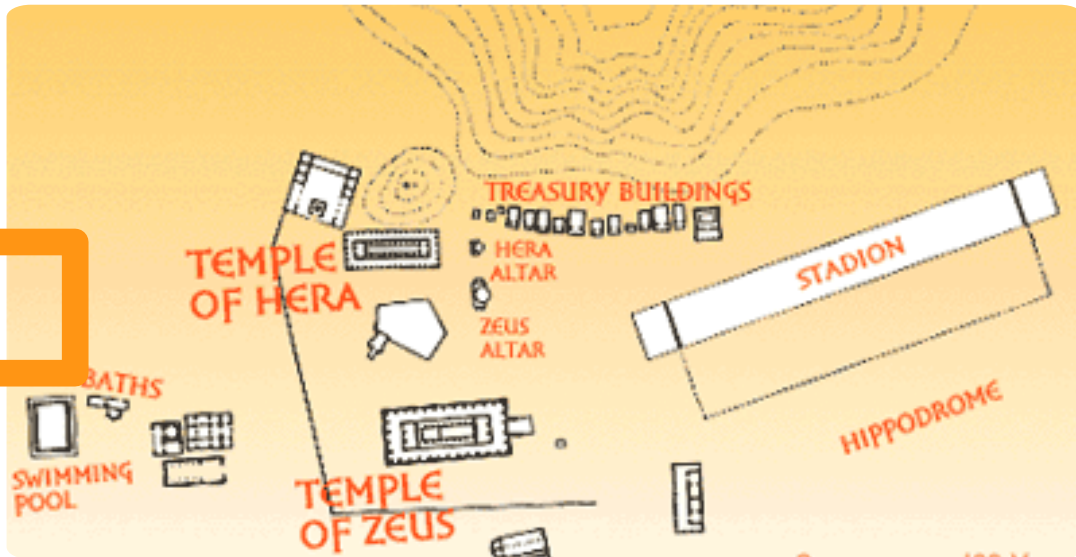
Image source (above): London, British Museum B609. © The Trustees of the British Museum

Image source (right): https://www.penn.museum/sites/olympics/olympicsexism.shtml, Accessed 10/8/20, 21:52
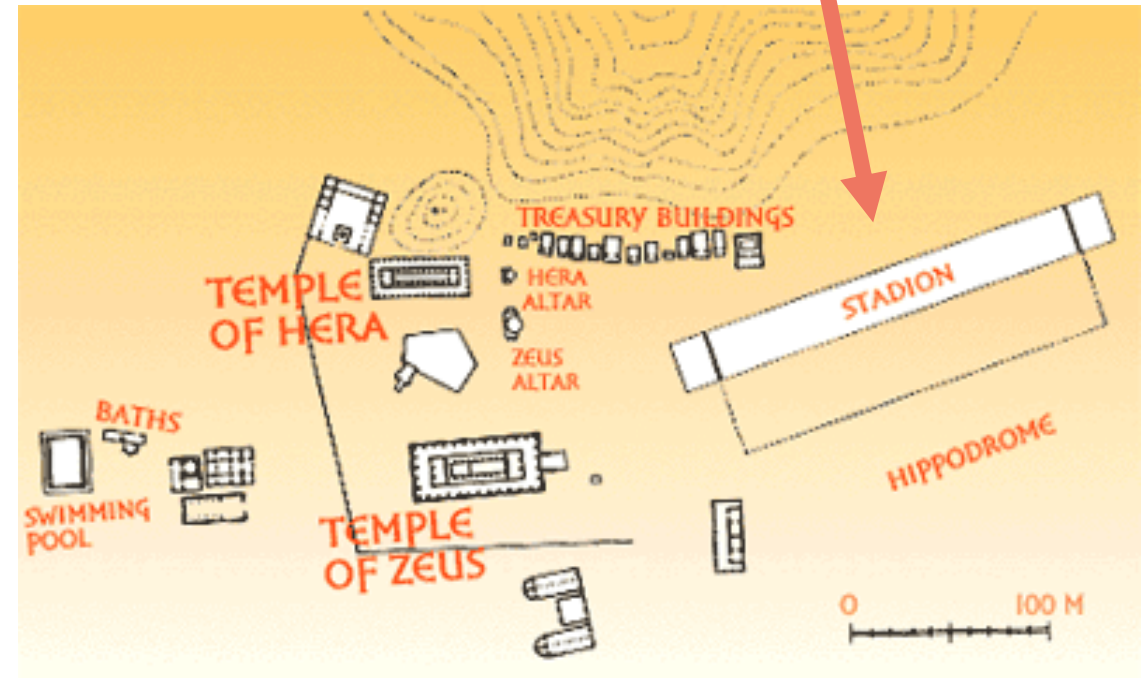
Hoplitodromos

- Not added to the competition until c. 520 BC

- Competitors ran about 400 m while carrying shields and wearing helmets!

Vocabulary check!

Hoplitodromos – a **hoplite** was a heavily armed foot soldier, and **dromos** relates to the Greek verb for 'run'

Wrestling

Objective: starting from an upright position, throw opponent to the ground **three** times

Rules were freer than today, but referees carried **rods** in case of any rule breaking:'…at the games those who start before the signal are beaten with rods.' (Herodotus 8.59)

To the right is the famous statue of the **'The Wrestlers'** – this is a later Roman copy of an ancient Greek statue which does not survive. There are numerous copies of this statue, including one in the National Gallery, Dublin!

Boxing

- Far **fewer rules** than today

- Boxers fought until one person was knocked out or conceded

- Boxers did not wear gloves, but rather **wrapped stripes of leather** around their wrists and knuckles, but not their fingers

Pankration

- A combination of **boxing** and **wrestling**

- Very little was off limits: 'They bend ankles and twist arms and throw punches and jump on their opponents. All such practices are permitted in the pankration except for biting and gouging.' (Philostratos, *Pictures in a Gallery* 2.6)

- In the image to the right, you can see an illegal move being performed! The referee has raised his rod in order to beat the cheater!

Vocabulary check!

Pankration
Pan (πᾶν) = all
Kratos (κράτος) = power/might. We will come across this word later when we discuss democracy!
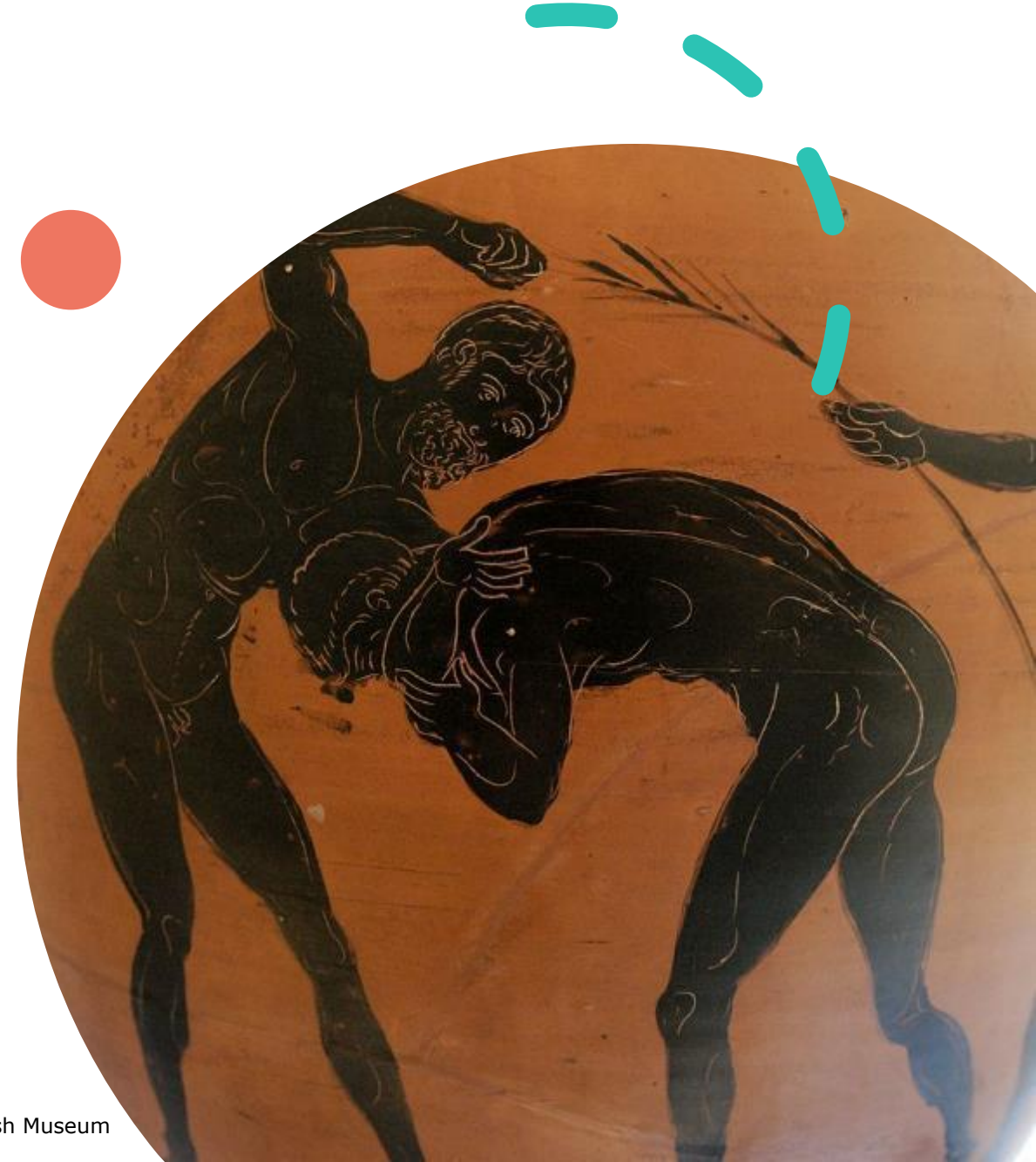
Image source: London, British Museum B606. © The Trustees of the British Museum

Four-horse chariot race

- ↻ Very expensive

- ↻ Did laps of the **hippodrome** and turned around a post – possibly did 12 laps (c. 14 km)

- ↻ Charioteer was usually a **professional driver** or a **slave**

- ↻ The **winner** was recorded as the **owner of the horses**, i.e. not the driver! (see next slide for a story about this!)

Vocabulary check!

Hippodrome
Hippos (ἵππος) = horse
Dromos comes from the ancient Greek word for 'run'

INTERMISSION

The amazing story of Cynisca!

- Cynisca was a Spartan princess whose horses won the chariot race at the Olympic Games twice, most likely in 396 and 392 BC.

- As the owner of the horses receives the victory, a woman won at the male-only Olympics!

- Cynisca's victory epigram was inscribed on a statue base at Olympia:

'Kings of Sparta were my fathers and brothers, and I, Cynisca, winning the race with my chariot of swift-footed horses, erected this statue. **I assert that I am the only woman in all Hellas [Greece] who won this crown**.'
(Olympia: Olympia: Archaeological Museum no. 197, Λ529)

Image source: https://www.metmuseum.org/art/collection/search/247959, Accessed 10/8/20, 22:39

Pentathlon

Five events, and **one** winner!

1. Stadion race (running)
2. Wrestling
3. Discus
4. Jump
5. Javelin throw

Vocabulary check!

Pentathlon
Pente (πέντε) = five
Athlon relates to *athleuō* (ἀθλεύω) = I contend for a prize

Image source: London, British Museum B134. © The Trustees of the British Museum

Pentathlon athletes, holding, from left to right: halteres (carried while doing the jump), a spear/javelin, a discus, a spear/javelin

Musical competition!

♪ This was never part of the Olympic Games, but was an important part of the **Pythian and Isthmian Games**

♪ **Kithara singing** (left)– singer accompanied himself on the kithara (lyre).

♪ An **aulos** (flute) competition was added later.

The Heraea Games

- Women were **excluded** from the Olympic Games
- Evidence from the 2nd century AD that they had their own version, called the **Heraean Games** (named after **Hera**, the queen of the gods)
- This festival also took place **every four years** and participation was limited to **unmarried young women**.
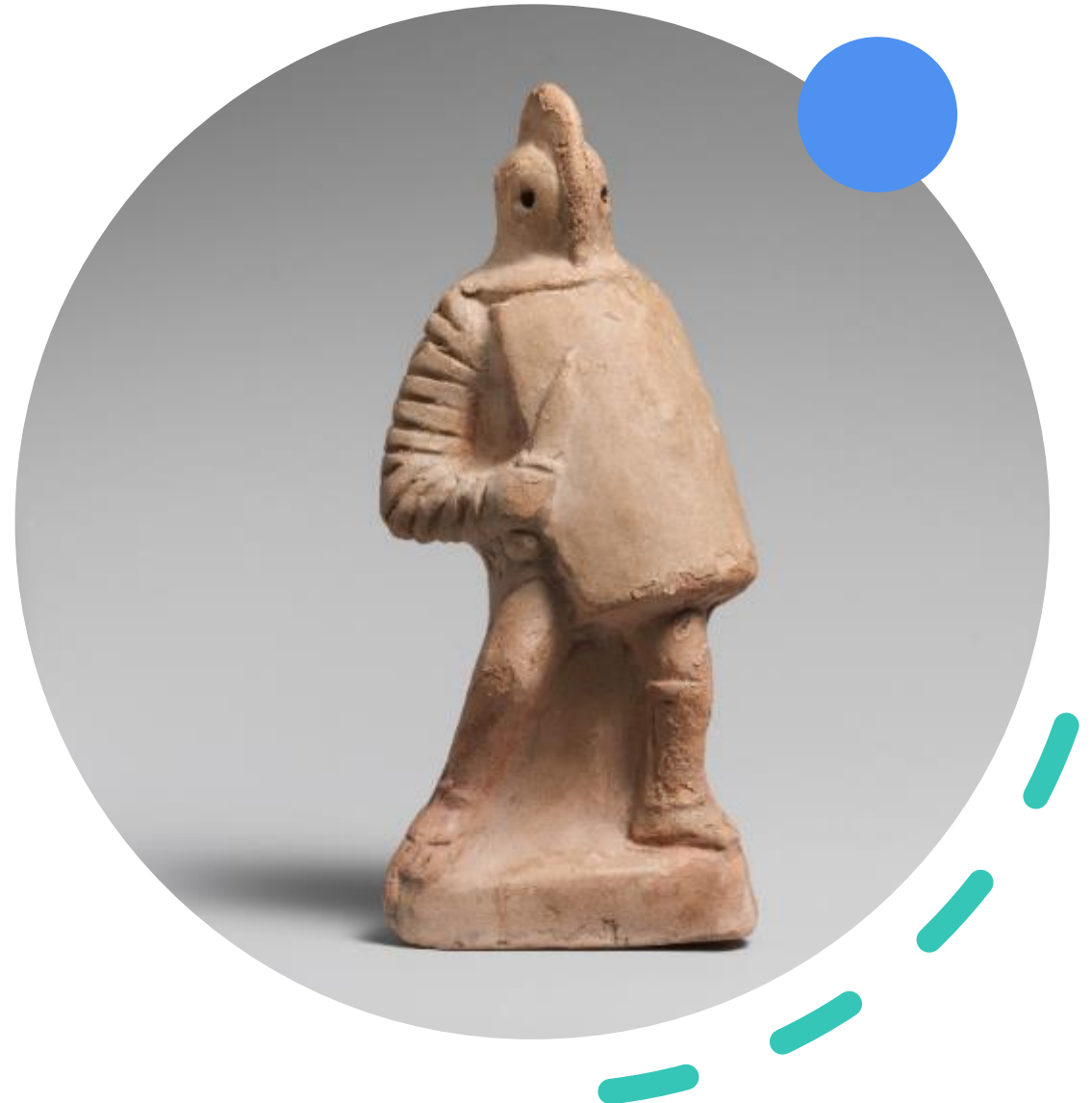
The [Heraea] games consist of foot-races for maidens. These are not all of the same age. The first to run are the youngest; after them come the next in age, and the last to run are the oldest of the maidens. They run in the following way: their hair hangs down, a tunic reaches to a little above the knee, and they bare the right shoulder as far as the breast. These too have the Olympic stadium reserved for their games, but the course of the stadium is shortened for them by about one-sixth of its length. To the winning maidens they give crowns of olive and a portion of the cow sacrificed to Hera. They may also dedicate statues with their names inscribed upon them. Those who administer to the Sixteen [those responsible for the Heraea] are, like the presidents of the games, married women.

Pausanias, *Description of Greece* 5.16 (trans. W.H.S. Jones [Loeb Classical Library])

Gladiators

✓ Gladiators were **men and women** who fought other gladiators or animals in arenas (most famously the **Colosseum**) throughout the **Roman world** for the sake of **entertainment**.

✓ Most gladiators were **slaves**, but some were people who **freely volunteered** to take part.

✓ The popularity of the games is evident in their frequent depiction in **art and graffiti**.

✓ Gladiatorial games were very **violent** and often resulted in **death**.

✓ **Exotic animals** were frequently slaughtered in the arena.

Image source: Metropolitan Museum of Art, 10.210.78. Public domain.

Gladiator mosaic from the House of the Gladiators in Kourion, Cyprus (3rd century AD)

SECTION 3

Knowledge and advancement in the ancient world

3.1 STEM in the ancient world

STEM Table Quiz

Round 1

1. Pythagoras is connected with which subject?
   a. History
   b. Mathematics
   c. Biology

2. Which of these is a famous mathematician and inventor?
   a. Hannibal
   b. Julius Caesar
   c. Archimedes

3. Who is known as the 'father of geometry'?
   a. Homer
   b. Augustus
   c. Euclid

4. Empedocles asserted that there are four natural elements – air, water, earth and?
   a. Wind
   b. Fire
   c. Iron

Round 2

1. The ancient Greeks commonly propped up the roofs of their temples with:
   a. Hope
   b. Brick walls
   c. Columns

2. The earliest example of what was found in a shipwreck off the coast of Antikythera?
   a. Alarm clock
   b. Analogue computer
   c. Camera

3. Which of the following was not used to tell time in the ancient world:
   a. Water clock
   b. Sundial
   c. Wind chime

4. What did the Romans use to channel water across vast distances:
   a. Aqueducts
   b. Roads
   c. Wagons

STEM Table Quiz

Round 3

1. The Romans helped perfect which common building material?
    a. Concrete
    b. Bricks
    c. Steel

2. Which of the following aspects of civil engineering are the Romans not famous for?
    a. Sewage system
    b. Roads
    c. Railways

3. Numerals such as I, II, III, IV and V were invented by what people?
    a. Egyptians
    b. Greeks
    c. Romans

4. Alexandria once housed the tallest example of this structure in the world:
    a. Lighthouse
    b. Temple
    c. Pyramid

Round 4

1. Who introduced a new calendar which was based on the solar year?
    a. Alexander the Great
    b. Julius Caesar
    c. Cleopatra

2. Which of the following planets is not named after an ancient god?
    a. Mars
    b. Jupiter
    c. Earth

3. Eratosthenes calculated the circumference of what in the 3rd century BC?
    a. The moon
    b. The earth
    c. His stomach

4. What did Aristotle believe was the centre of the solar system?
    a. The sun
    b. The moon
    c. The earth

STEM Table Quiz Answer Sheet

Team Name:

_____

Team animal mascot:

_____

Round 1

1. _____

2. _____

3. _____

4. _____

Round 2

1. _____

2. _____

3. _____

4. _____

Round 3

1. _____

2. _____

3. _____

4. _____

Round 4

1. _____

2. _____

3. _____

4. _____

3.2 Mechanisms in the ancient world

Water clocks

- Water clocks **date back thousands of years** and were known all over the ancient world.
- A water clock measures time through the **flow of water into or out of a vessel**, whereby the amount of water is then measured.
- One of the simplest water clocks was known as an **outflow water clock** (see image to the left). This involved a vase with a hole near its base which would allow water to flow out if not stoppered.
- Such water clocks were used, for example, in Athenian courts to measure how long someone was given to speak!


Vocabulary check!

In Greek, a water clock is known as a klepsydra (κλεψύδρα), which means 'water thief'! (kleptō (κλέπτω), 'I steal' + hydōr (ὕδωρ), 'water')


Image source: http://www.agathe.gr/democracy/the_speakers.html, Accessed 11/8/20, 9:30
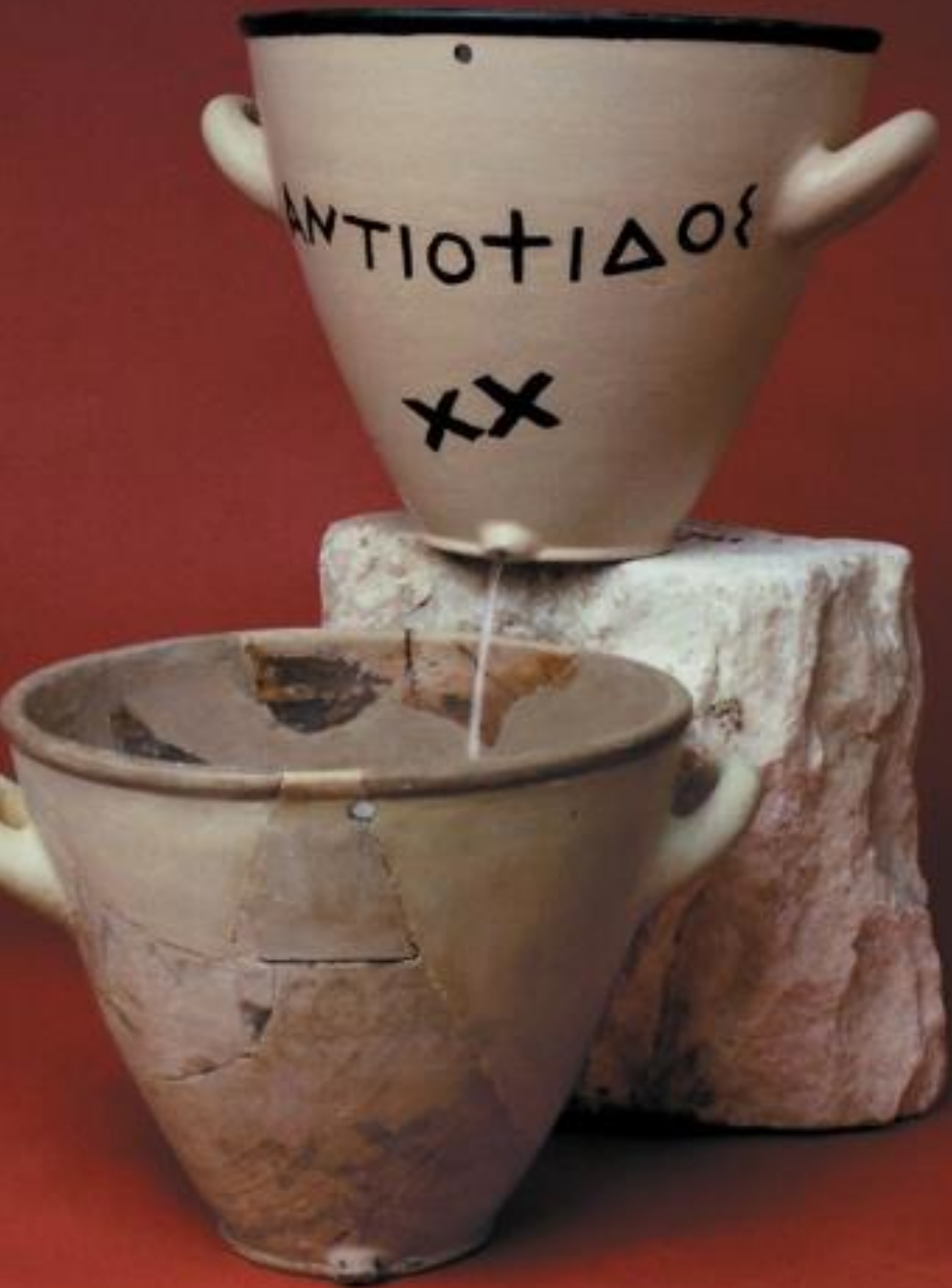
Antikythera Mechanism

- In 1900, divers off the coast of the **island of Antikythera in Greece** (located between Crete and mainland Greece) discovered a **shipwreck** that dated from circa **60 BC**
- The ship had been sailing from Asia Minor to Rome when it sank
- The most famous discovery in the shipwreck = the **Antikythera Mechanism** (82 fragments have been found)
- Known as the world's **first analogue computer**
- The mechanism reflects technology developed during the 3rd and/or 2nd centuries BC by drawing on older **Near Eastern astronomy from Mesopotamia and Egypt**
- It tracks the **movements of the sun, moon and planets** and can predict **lunar and solar eclipses** within a 12-hour margin of error!
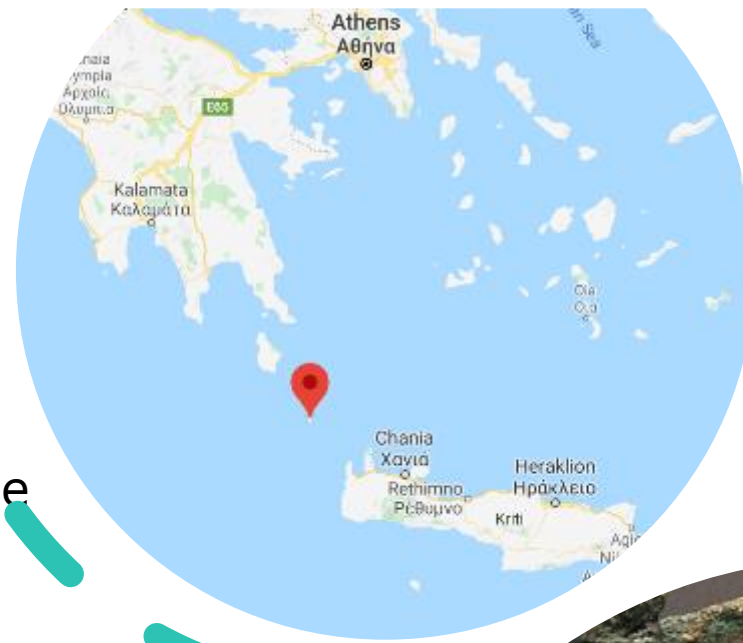
Watch the video on the right for more information on the **Antikythera Mechanism**.
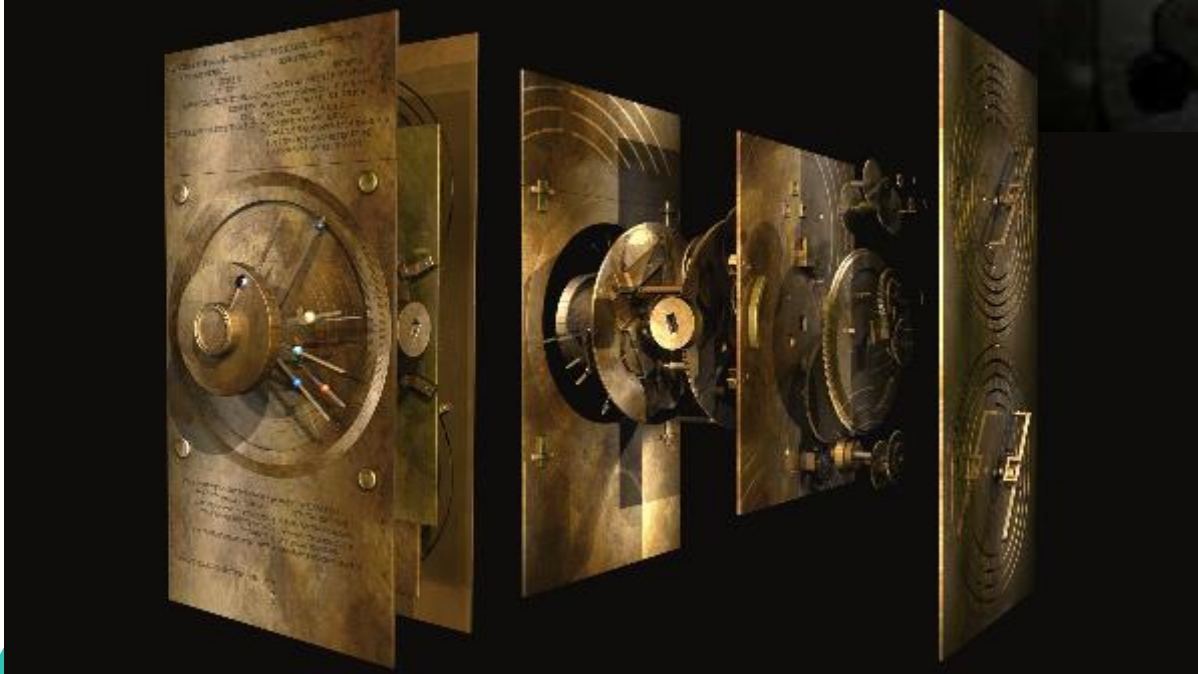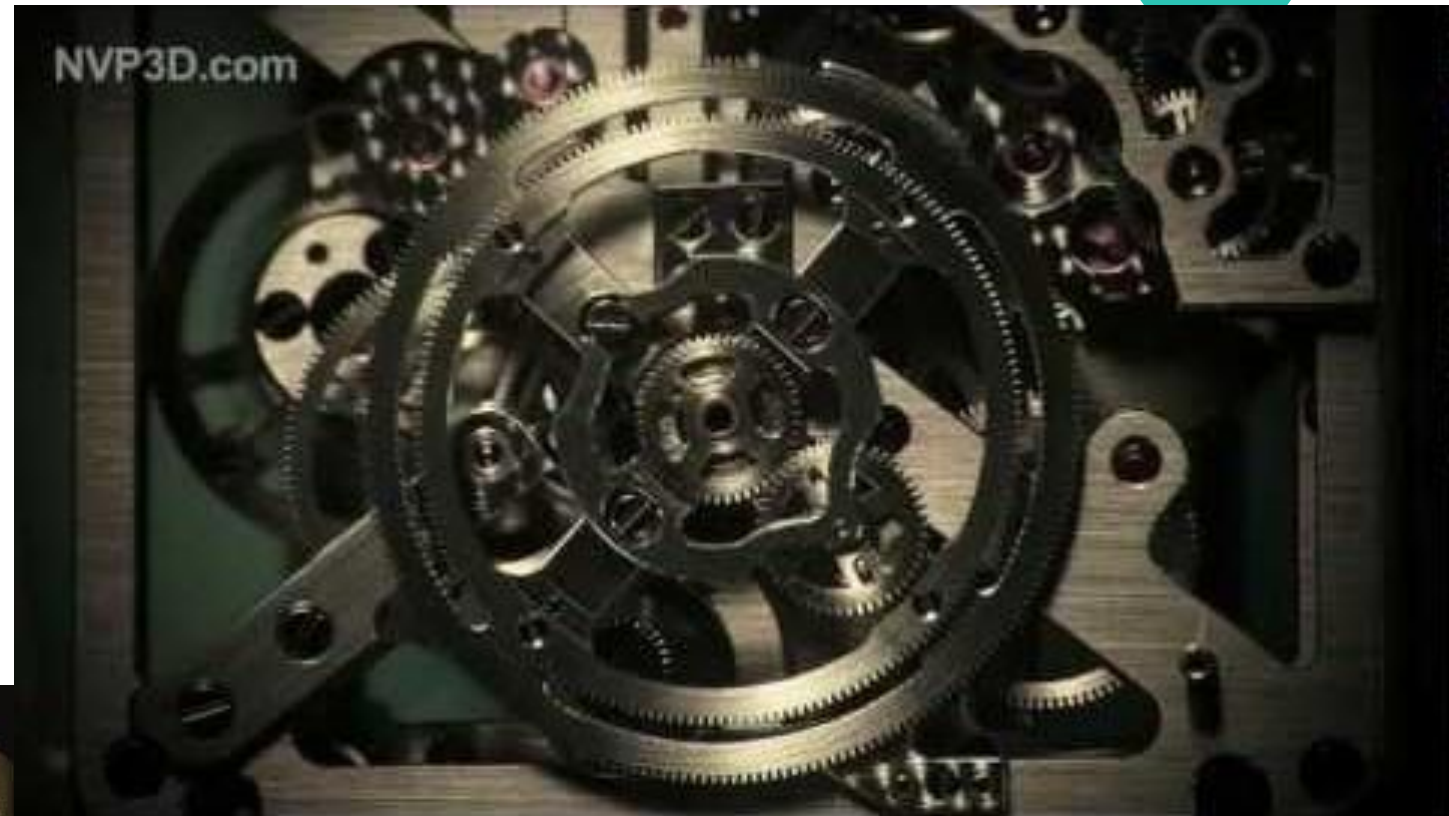
Graphic reconstruction of the Antikythera Mechanism.

Archimedes' Screw

This is a machine which can **transfer water from a low level to a higher one**.

The machine is essentially a **screw-shaped device** within a hollow cylinder, and it is still used today!
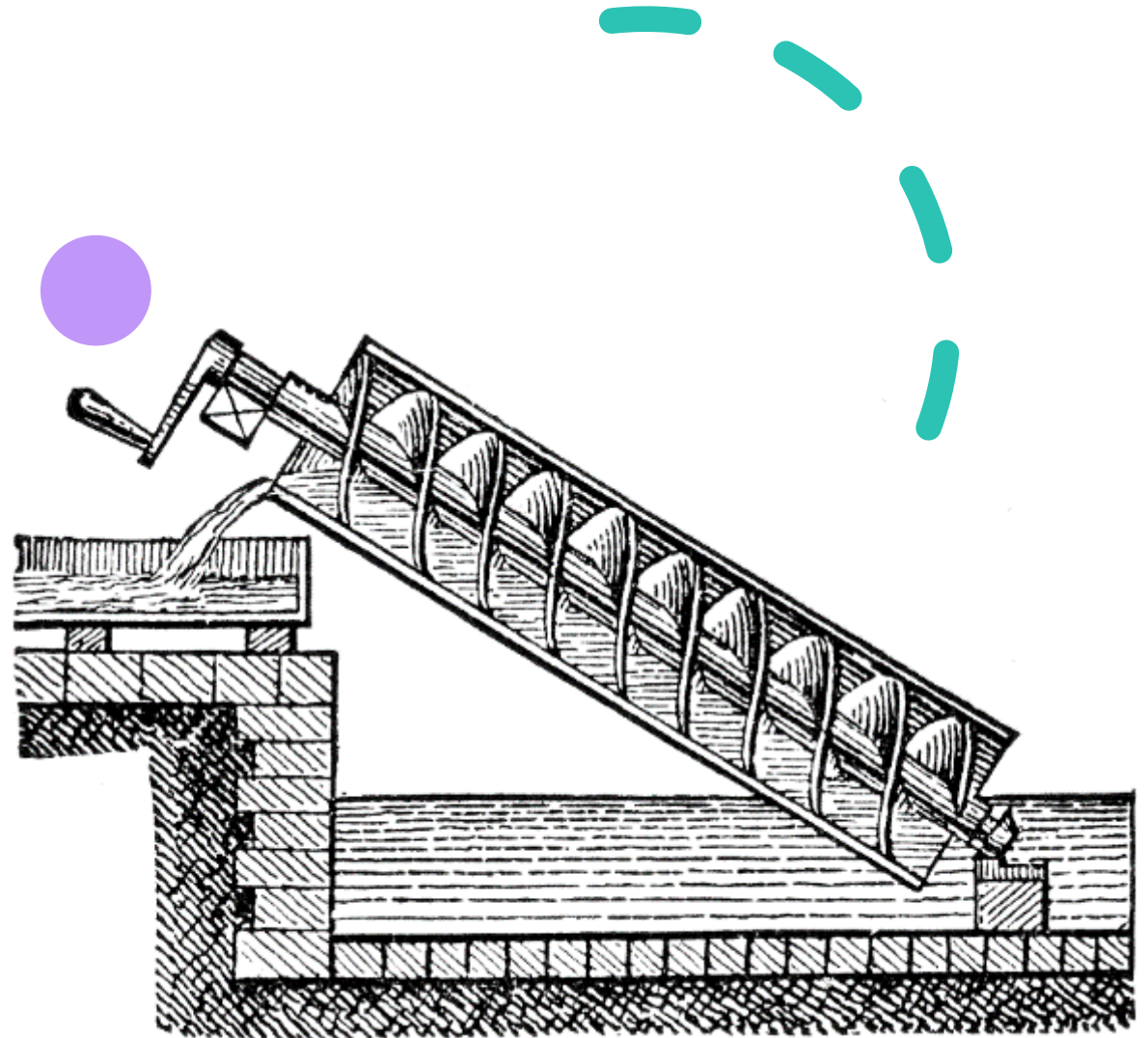
3.3 Art and sculpture in the ancient world

Pottery painting (Greece)

The ancient Greeks used various types of pots and vases to hold, for example, their food, wine, water and olive oil.

Often, these pots were very **richly decorated** by talented artists, who depicted scenes of both **daily life** and **mythology**.

We will look at three pottery types:

1. Geometric pottery: the earliest pottery to use human figures in Greece; dates to the 8th century BC

2. Geometric pottery developed into **black-figure pottery** (figures were rendered using black paint)

3. Slightly later, but also overlapping with black-figure pottery, **red-figure pottery** uses black to outline the figures, which take on the 'red' colour of the pottery.

1. Geometric pottery

- Dates to the **8th century BC** in ancient Greece and is so called because of the lines and shapes used for decoration.

- When humans and animals were depicted on such pottery, they were rendered in a largely **unrealistic and simplified style**.

- The most common themes for such images were **funerals and battles**.

- These remained popular in ancient Greek pottery as the painting styles developed.

Image source: London, British Museum 1912,0522.1 © The Trustees of the British Museum

This is an image of a '**prothesis**', the equivalent of a modern wake. The deceased lies on a bier, and mourners stand at either side with their hands raised to their head. In this image, a goat sits beneath the bier.
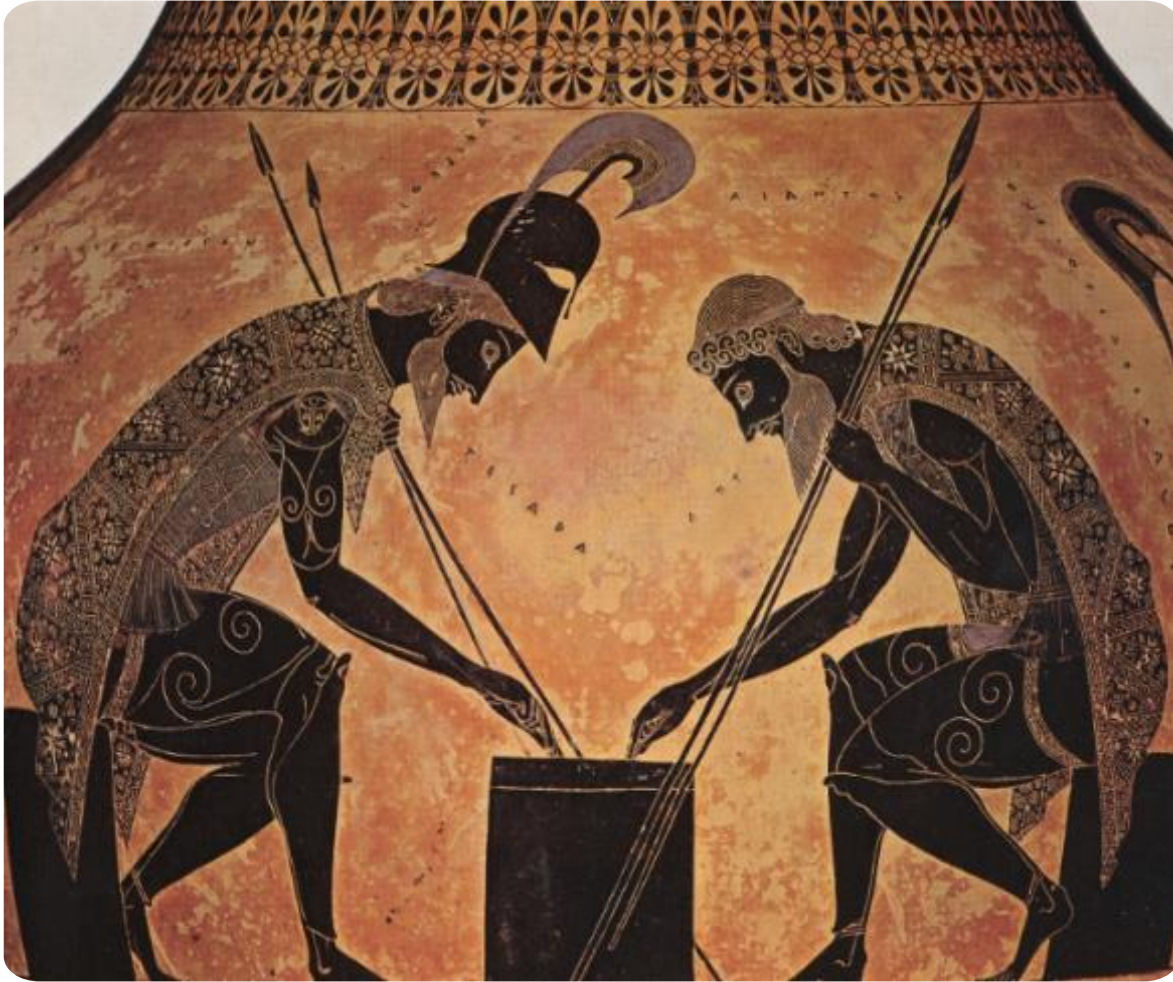
2. Black-figure pottery

- Most common **7th–5th century BC** in Greece.

- The style is **more naturalistic**, for the most part, than on Geometric pottery.

- The images of black-figure pottery are often **mythological** and include images of the gods and great heroes, e.g. the vase to the left depicts the Greek heroes Achilles and Ajax playing a game of dice during a break from battle!

- Watch the video below for an animation of this vase by the Panoply Vase Animation project!

More examples of black-figure vases
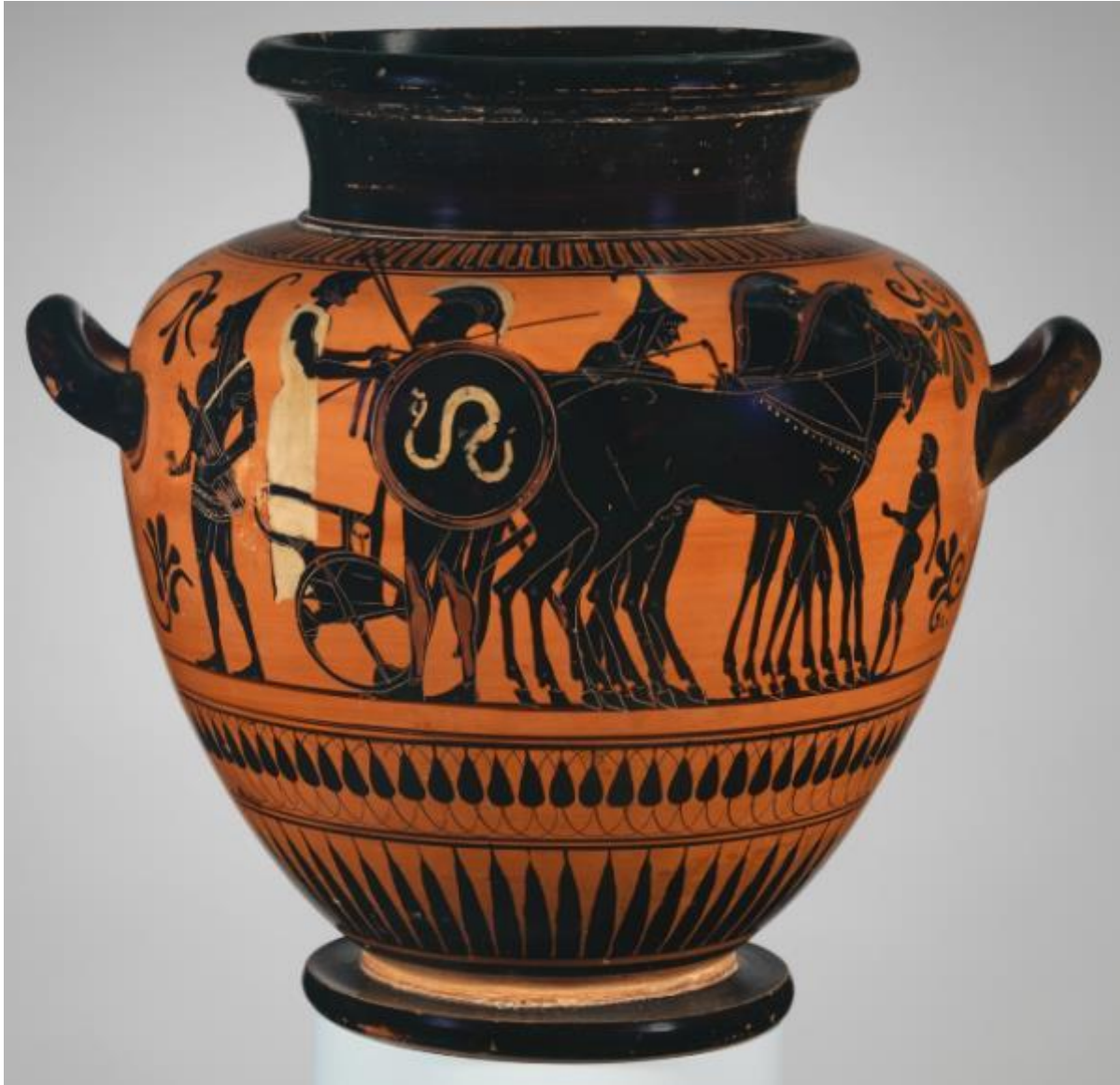
3. Red-figure pottery

- The red-figure style developed a little after and in conjunction with the black-figure style, in the **second half of the 6th century BC**

- It remained popular until the **3rd century BC**

- The themes of the illustrations remained largely the same, but there was another leap forward in the **naturalism** of the depiction

More examples of red-figure pottery

Sculpture (Rome)

Rome today is still full of the great artistic achievements of the ancient Romans.

The Romans **adopted and adapted styles from all over the known world**, for example from Greece and Egypt, to produce, for instance, sculptures, statues, pottery, bronze objects, mosaics and gems.

In this section, we will look at **relief sculpture** (whereby the sculpture projects from, but remains attached to, the background).

This can be found on some of the most recognisable artefacts from ancient Rome.
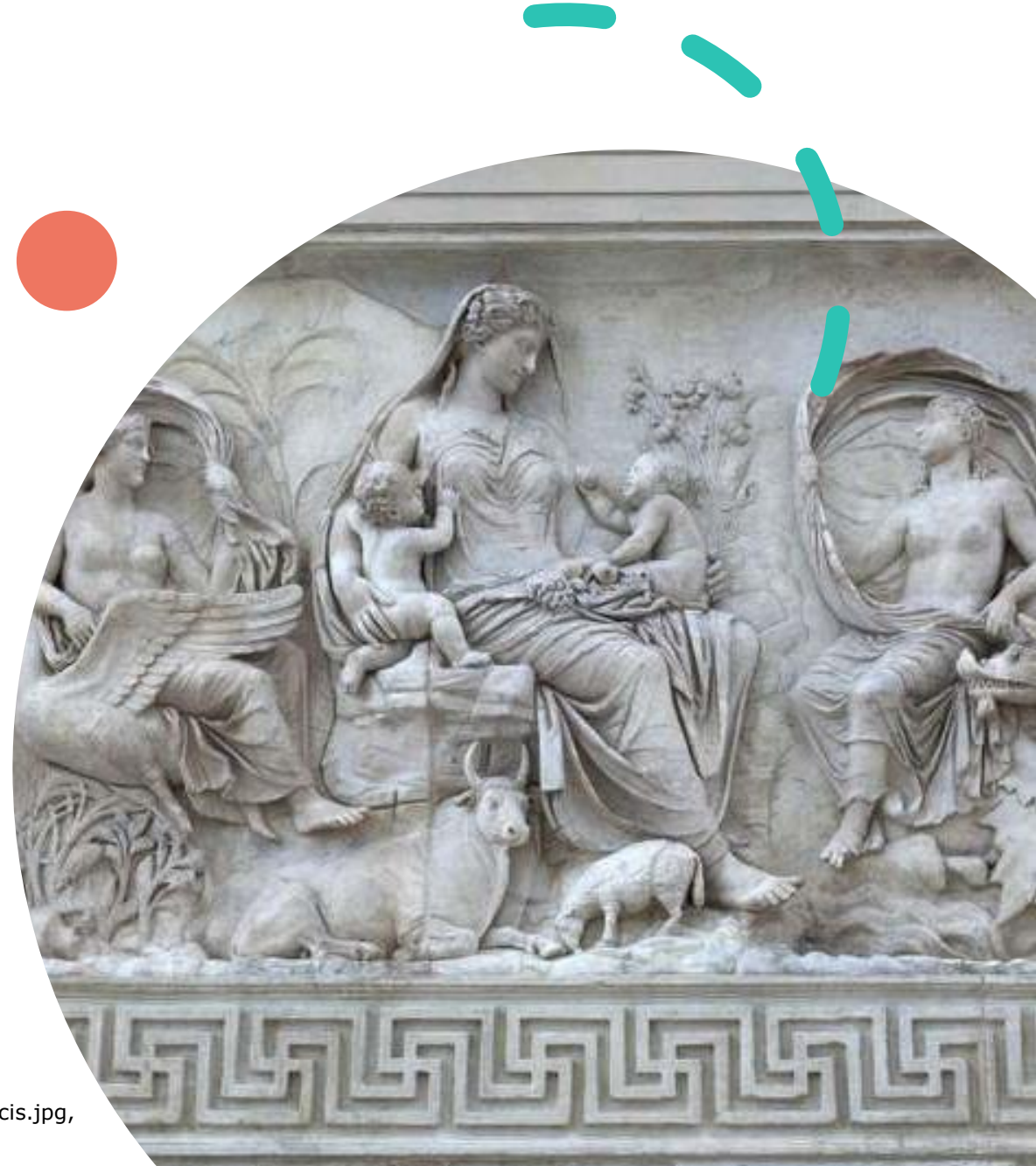
Trajan's Column

Trajan's Column was built (completed in **AD 113**) in Rome to commemorate **Emperor Trajan's** victory in the **Dacian Wars**.

Relief sculpture telling the story of the Dacian Wars scrolls the entire way up the column.

Trajan's Column still stands today!

Trajan, emperor of Rome, AD 53-117

Examples of relief sculpture on Trajan's Column

Image source: Artstor, library-artstor-org.ucd.idm.oclc.org/asset/AIC_980036

Image source: Artstor, library-artstor-org.ucd.idm.oclc.org/asset/SCALA_ARCHIVES_10310840429

Image source:
https://upload.wikimedia.org/wikipedia/commons/f/f5/Trajan%27s_Column_%28Roman_Soldiers_Building_a_Fortress%29.png, Accessed 1182, 154

Ara Pacis, Rome

Image source: Artstor, library-artstor-org.ucd.idm.oclc.org/asset/ASITESPHOTOIG_10312731378

- The Ara Pacis (Altar of Peace) is also known as the **Ara Pacis Augustae** – the Altar of Augustan Peace

- It was built and dedicated during the reign of **Emperor Augustus** – dedicated in **9 BC**

- It is an altar that was built by the ancient Romans and dedicated to **Pax, the goddess of peace**

- It would have been used for **religious practices**, including animal sacrifices

- The altar is covered in **rich relief sculpture**

- The altar was removed from its location and reassembled in the Museum of the Ara Pacis in Rome, where it can be seen today.

Examples of relief sculpture on the Ara Pacis

3.4 Medicine in the ancient world

Which of the following might cure a headache!?

1. Write down the following incantation/magic spell: 'Flee, pain in the head, vanish and flee under a rock.'

2. Procure the corner of a sheet used to wrap a dead body

3. Tie the skin of the head of a hyena around your head

4. Kiss a donkey

The gods as a source of disease: the god **Apollo** sends a plague amid the Greek warriors at Troy when they displease him:

Down from the peaks of Olympus he strode, angry at heart, with his bow and covered quiver on his shoulders. The arrows rattled on the shoulders of the angry god as he moved; and his coming was like the night. Then he sat down apart from the ships and let fly an arrow; terrible was the twang of the silver bow. The mules he attacked first and the swift dogs, but then on the men themselves he let fly his stinging arrows, and struck; and ever did the pyres of the dead burn thick. (Homer, *Iliad* 1.44–52; trans. A.T. Murray [Loeb Classical Library])

The 'humours' of Hippocrates

Hippocrates (a Greek physician in 5th–4th century BC) believed that the human body contained **four 'humours'**, and **imbalance** between these humours created illness.

1. Sanguine – blood (responsible for courage, hope and love)

2. Choleric – yellow bile (associated with bad temper)

3. Melancholic – black bile (too much leads to sleeplessness and irritation)

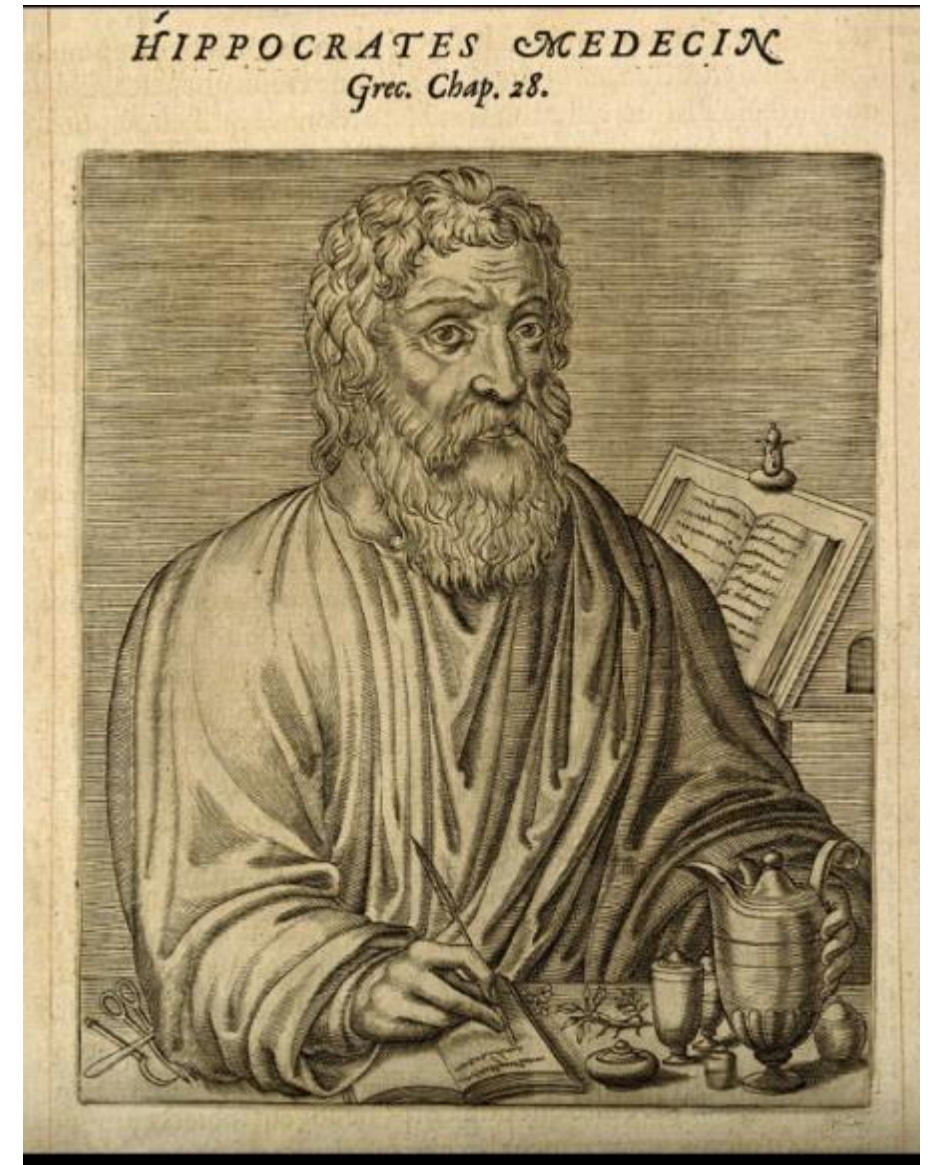**4. Phlegmatic** – phlegm (responsible for rationality; too much dulls the emotions)

HIPPOCRATES MEDECIN
Grec. Chap. 28.

During the second half of the 5ᵗʰ century BC, a **terrible plague** hits Athens. The best description of this plague comes from the historian **Thucydides**, who contracted and survived it!

[B]ut suddenly and while in good health, men were seized first with intense heat of the head, and redness and inflammation of the eyes, and the parts inside the mouth, both the throat and the tongue, immediately became blood-red and exhaled an unnatural and fetid breath. In the next stage sneezing and hoarseness came on, and in a short time the disorder descended to the chest, attended by severe coughing. And when it settled in the stomach, that was upset, and vomits of bile of every kind named by physicians ensued, these also attended by great distress; and in most cases ineffectual retching followed producing violent convulsions, which sometimes abated directly, sometimes not until long afterwards. Externally, the body was not so very warm to the touch; it was not pale, but reddish, livid, and breaking out in small blisters and ulcers. But internally it was consumed by such a heat that the patients could not bear to have on them the lightest coverings or linen sheets, but wanted to be quite uncovered and would have liked best to throw themselves into cold water—indeed many of those who were not looked after did throw themselves into cisterns—so tormented were they by thirst which could not be quenched; and it was all the same whether they drank much or little… (Thucydides 2.49; trans. C.F. Smith [Loeb Classical Library])

Roman hygiene

- Perhaps Rome's greatest contribution to medicine was…**hygiene**!

- The Romans are famous for their **sewage system and their baths** (also known as thermae) – communal washing facilities that are found all over the Roman Empire, including in the UK

- The baths were divided into different rooms, principally the **tepidarium** (warm room), the **caldarium** (hot room) and **frigidarium** (cold room), and they were used for both bathing and socialising

- Watch the video to the right for a virtual reconstruction of the **Baths of Caracalla** in Rome!

3.5 Wellbeing in the ancient world

Watch this video (by the Department of Classics and Ancient History at the University of Exeter) as a fantastic introduction to what **ancient medicine** can teach us about **modern wellbeing**!

Galen's six external factors for good health

1. Air and environment

2. Eating and drinking

3. Exercise

4. Sleeping and waking

5. Filling and emptying

6. State of mind

Roman toilets at Ostia

Mark Wahlberg's daily routine (from 2018)...

2:30am Wake up

2:45am Prayer time

3:15am Breakfast

3:40–5:15am Workout

5:30am Post-workout meal

6:00am Shower

7:30am Golf

8:00am Snack

9:30am Cryo chamber recovery

10:30am Snack

11:00am Family time/meetings/work calls

1:00pm Lunch

2:00pm Meetings/work calls

3:00pm Pick up kids from school

3:30pm Snack

4:00pm Workout #2

5:00pm Shower

5:30pm Dinner/family time

7:30pm Bed

SECTION 4
The past in the present

4.1 Keeping ancient languages alive – Greek and Latin

Ancient Greek

Letters 1-12

Greek Letter	Name	English equivalent
Α α	Alpha	a
Β β	Beta	b
Γ γ	Gamma	g (got; not germ)
Δ δ	Delta	d
Ε ε	Epsilon	e (pet)
Ζ ζ	Zeta	sd (wisdom)
Η η	Eta	hair
Θ θ	Theta	th
Ι ι	Iota	i
Κ κ	Kappa	k
Λ λ	Lambda	l
Μ μ	Mu	m

Letters 13-24

Greek Letter	Name	English equivalent
Ν ν	Nu	n
Ξ ξ	Xi	x
Ο ο	Omicron	o (pot)
Π π	Pi	p
Ρ ρ	Rho	r
Σ ς	Sigma	s
Τ τ	Tau	t
Υ υ	Upsilon	u
Φ φ	Phi	ph/f
Χ χ	Chi	cool
Ψ ψ	Psi	ps
Ω ω	Omega	more

1. Using the Greek alphabet chart, turn the names of the following four gods into Greek:

Zeus:

_____

Poseidōn:

_____

Aphroditē:

_____

Ares:

_____

2. 'Decode' these Greek names and words, changing from Greek to English. How many of these words do you recognise? Can you guess what they mean?

1. Ἀλέξανδρος _____

2. δημοκρατία _____

3. μοναρχία _____

4. ὀλιγαρχία _____

5. πόλις _____

6. πολιτεία _____

7. βάρβαρος _____

8. γένος _____

9. δραματικός _____

10. θέατρον _____

11. θεός _____

12. μέγας _____

13. μικρός _____

14. μήτηρ _____

15. μηχανή _____

16. μοῦσα _____

17. ξένος _____

18. πατήρ _____

19. φιλοσοφία_____
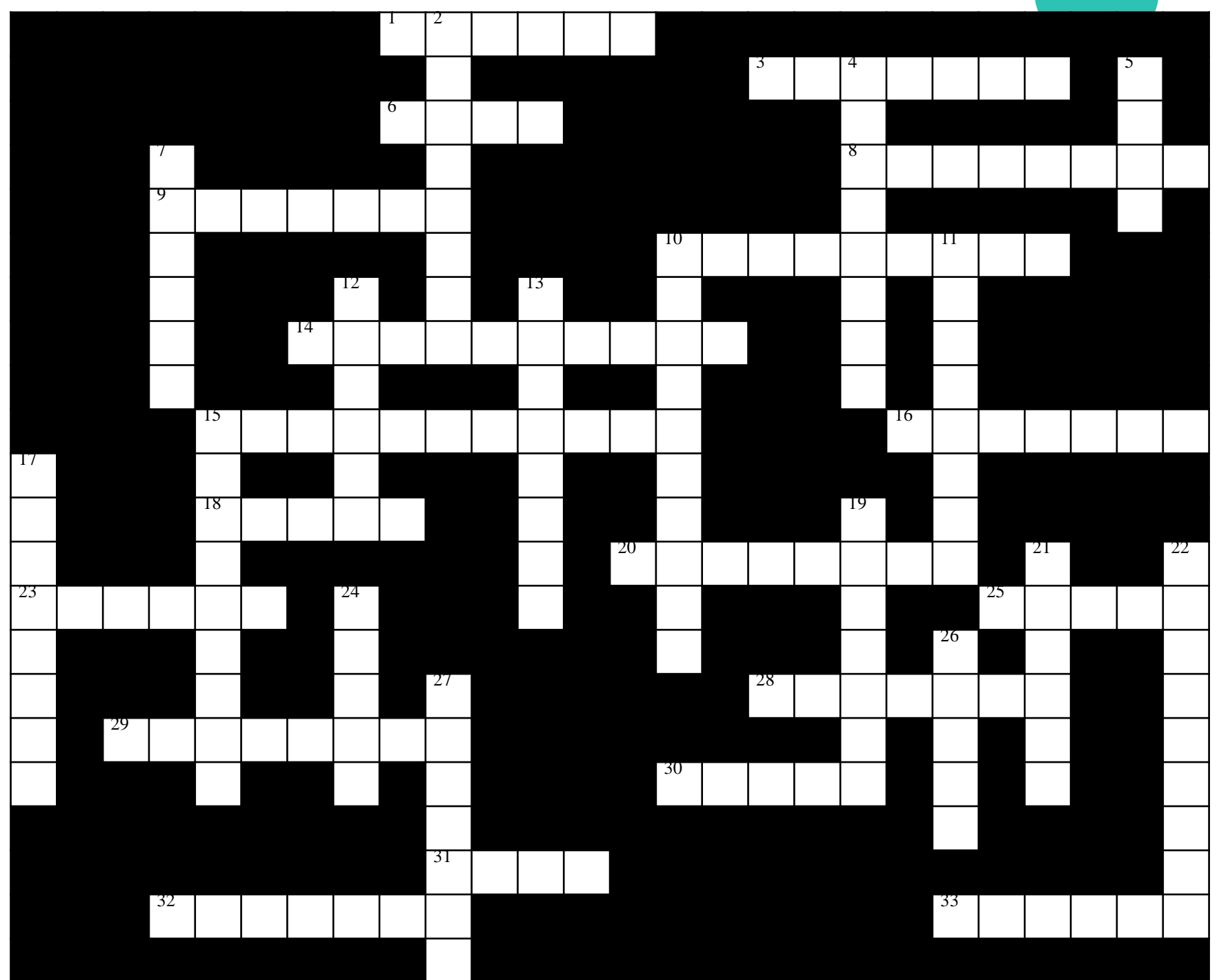
20. σοφία _____

Latin

The **Latin alphabet** is familiar to us from **English**.

Many of our English words come from Latin.

Use this crossword to figure out some common English words that come from Latin!

Across

1. Your brother's or sister's son (from *nephos*, 'grandson')

3. Common farm machine (from *trahere*, to drag')

6. If you owe money, you are in _____ (from *debere*, 'I owe')

8. It protects you from the rain (from *umber*, 'shadow')

9. Relating to water (from *acqua*, 'water')

10. Another name for 'enemy' (from *adversus*, 'opposite')

14. Something to watch programmes on (from videre, 'to see')

15. Relating to farming (from *agricola*, 'farmer')

16. One hundred years (from *centum*, 'one hundred')

18. Another word for 'shy' (from *timere*, 'to be afraid of')

20. You take this when you are ill (from *medicus*, 'doctor')

23. You see your reflection in this (from *mirare*, 'to marvel at, admire')

25. Not a consonant, but a _____ (from *vox*, voice)

28. Another word for 'storm' (from *tempestas*, 'season, period of time')

29. Someone who flees from something (from *fugere*, 'to flee/escape')

30. Opposite of rural (from *urbs*, 'city')

31. FE is the chemical symbol for this metal (from *ferrus*)

32. A very large house (from *manere*, 'to remain')

33. Part of a shirt (from *collum*, 'neck')

Down

2. What you do in the gym (from *exercitus*, 'army')

4. Star sign (from *acqua*, water')

5. Summer month named after Julius Caesar

7. A place to gamble (from *casa*, 'home')

10. Another word for 'teenager' (from *adulescens*, 'young man/woman')

11. People watching a play (from *audire*, 'to hear')

12. Star sign (from *geminus*, 'twins')

13. Famous British queen (from *vincere*, 'to conquer')

15. The study of the stars and planets (from *astrum*, 'star')

17. Someone who breaks the law (from *crimen*, 'judgement, offence')

19. You get _____ D from the sun (from *vita*, 'life')

21. You visit this person when ill (from *doctus*, 'taught, shelter')

22. Someone who fought in the Roman Colosseum (from *gladus*, 'sword')

24. He shoots arrows on Valentine's Day (from *cupio*, 'desire, long for')

26. Part of a bicycle (from *pes*, 'lower leg, foot')

27. Part of a room in a house (from *caelum*, 'sky')

Example of writing on an ancient artefact

This is a Roman tombstone (which is now in the UCD Classical Museum). It contains an inscription in Latin. It reads:

DIS MANIBUS

MAE   CIAE
PRO   CULAE
V. A. IIII   M.XI.D.XII
C. IULIUS   ONESIMUS
INFELI   CISS
NEPTI   SUAE
          POSUIT

To the spirits of the departed (and) to Maciae Proculae. She lived 4 years 11 months and twelve days; C. Julius Onesimus set this up for his most unfortunate granddaughter.

4.2 The ethics of artefacts in museums

Parthenon Marbles

🏛 The **Parthenon** is a temple built on the **Acropolis in Athens** in the **5th century BC** and dedicated to the **goddess Athena**

🏛 Over time, the Parthenon was used as a **military garrison**, converted into a **Christian church**, turned into a **mosque**, struck by a **mortar shell** and severely **damaged** by the removal and attempted removal of its sculptural decoration ('marbles')

🏛 In 1803, **Lord Elgin, the British Ambassador to the Ottoman Empire**, dismantled large pieces of sculpture from the Parthenon and transported them to Britain, where they have remained ever since, sometimes dubbed the 'Elgin marbles'

Image source: https://commons.wikimedia.org/wiki/File:The_Parthenon_in_Athens.jpg, Accessed 11/8/20, 11:18

Image source: https://artsandculture.google.com/asset/block-ix-of-the-west-frieze-pheidias-workshop/FwEMdYAEbAx2Xg, Accessed 11/8/20, 11:36

Example of marbles from the Parthenon. This is on display in the Acropolis Museum, Athens.

🏛 Lord Elgin removed the marbles with the permission of **Sultan Selim III**, although the legality of this remains controversial

🏛 The marbles taken by Lord Elgin are on display in the **British Museum, London**

🏛 Athens has long sought the return of these marbles

🏛 The new **Acropolis Museum in Athens** houses the original marbles which were not removed from the Parthenon (those on the Parthenon itself today are copies

Debate: should the British Museum keep or return the Parthenon marbles?

Return to Greece	Stay in the British Museum
The marbles are an integral part of Greece's culture	The marbles represent European civilization as a whole and not just that of Greece
Brexit may potentially lessen the amount of people visiting the marbles	London is a global hub, and keeping the marbles in the British Museum opens them up to more people
The marbles were taken under questionable circumstances	The marbles were removed with the permission of the then ruling Sultan
Pollution problems in London could potentially put the marbles at risk	Greece is arguably open to greater political and social instability, calling into question the safety of the marbles
The new Acropolis Museum is state of the art and can safely house the marbles	The British Museum is state of the art and can safely house the marbles

Image source: © The Trustees of the British Museum

An example of the Parthenon marbles held in the British Museum

4.3 The past in art

The Funeral of Patroclus by Jacques-Louis David (1778)

1. During the Trojan War (Greeks vs Trojans), Achilles was the greatest of the Greek warriors.

2. Agamemnon, the leader of the Greeks, slighted Achilles' honour by taking his war bride Briseis.

3. In retaliation, Achilles withdrew from the fighting and allowed his fellow Greek warriors to face near destruction at the hands of the Trojans, led by Hector.

4. Patroclus, Achilles' companion, dressed in Achilles' armour, hoping to frighten the Trojans by fooling them into thinking that Achilles had returned to the fighting.

5. This initially worked, but Patroclus was ultimately killed in battle by Hector.
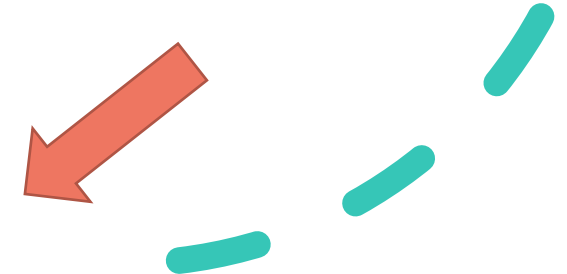
6. Achilles was distraught at Patroclus' death, and, after killing Hector in retribution, held an elaborate funeral for his companion, which involved human and animal sacrifices.
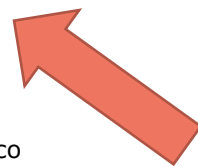
Achilles speaks to his men and to Patroclus (now dead):

'Myrmidons [the name of Achilles' warriors] of fleet steeds, my trusty comrades, let us not yet loose our single-hoofed horses from their chariots, but with horses and chariots let us draw near and mourn Patroclus; for that is the privilege of the dead. Then when we have taken our fill of dire lamenting, we will unyoke our horses and take our meal here all together.'

So he spoke, and they raised the voice of wailing all with one accord, and Achilles was the leader. Then thrice about the corpse they drove their fair-maned steeds, mourning; and among them Thetis [Achilles' mother – a sea nymph] roused desire of lamentation. Wetted were the sands and wetted the armor of the warriors with their tears; so mighty a deviser of rout was he for whom they mourned. And among them the son of Peleus was leader in the vehement lamentation, laying his man-slaying hands on the breast of his comrade: 'Hail, Patroclus, even in the house of Hades, for now I am bringing to fulfillment all that I promised you before: that I would drag Hector here and give him raw to dogs to devour, and of twelve glorious sons of the Trojans would I cut the throats before your pyre in my wrath at your slaying.'

(Homer, *Iliad* 23.4–23; trans. A.T. Murray [Loeb Classical Library])

***The Death of Milo of Croton*, by Jean Jacques Bachelier (1761)**

- **Milo of Croton** was a famous **Greek wrestler** who won numerous times at the **Olympian and Pythian Games**.

- He was renowned for his **strength** during his time.

- Today, we remember him more so for his death, which was a direct consequence of his pride in his strength.

- **Pausanias**, an ancient author from the 2nd century AD (hundreds of years after Milo's death) describes Milo's strength and death…

Pausanias describes Milo's strength…

He would grasp a pomegranate so firmly that nobody could wrest it from him by force, and yet he did not damage it by pressure … He used to perform also the following exhibition feats. He would tie a cord round his forehead as though it were a ribbon or a crown. Holding his breath and filling with blood the veins on his head, he would break the cord by the strength of these veins. It is said that he would let down by his side his right arm from the shoulder to the elbow, and stretch out straight the arm below the elbow, turning the thumb upwards, while the other fingers lay in a row. In this position, then, the little finger was lowest, but nobody could bend it back by pressure. (Pausanias 6.14.6–7; trans. W.H.S. Jones [Loeb Classical Library])

…and his death

They say that he was killed by wild beasts. The story has it that he came across in the land of Crotona a tree-trunk that was drying up; wedges were inserted to keep the trunk apart. Milo in his pride thrust his hands into the trunk, the wedges slipped, and Milo was held fast by the trunk until the wolves—a beast that roves in vast packs in the land of Crotona—made him their prey. (Pausanias 6.14.8; trans. W.H.S. Jones [Loeb Classical Library])

4.4 The past in our expressions

Expression 1: Achilles Heel

Achilles was the greatest of the Greek warriors during the Trojan War. His mother had dipped him in the Rive Styx to make him invulnerable. But, she missed one place on his body…

Expression 2: Opening Pandora's box

Pandora was the first woman created by the god Prometheus. As a wedding present, she was given a box with a special gift inside, but all was not what it seems…

Expression 3: Cross the Rubicon

In 49 BC, Julius Caesar was Governor of Gaul. He was ordered by the Roman Senate to return to Rome without his army – he was warned not to bring them across the Rubicon River, which was on the border between Gaul and Italy.
What do you think he did?

Expression 4: Beware of Greeks bearing gifts

After fighting the Trojans for 10 years, the Greeks made a large wooden horse, in which they hid some of their men. The remainder of the army pretended to sail away and leave Troy. The Trojans, believing the Greeks had gone, took the wooden horse inside the city walls. What do you think happened?

Expression 5: Spill the beans

Many believe this expression relates back to an ancient Greek voting system, whereby people cast a vote by putting either a white or a black bean in a jar. What could 'spill the beans' mean in this context?

Expression 6: Midas touch

Midas was the king of Phrygia. One day, he came across an old satyr (follower of the god Dionysus) named Silenus and treated him hospitably. In return, Silenus offered to grant a wish for Midas. Midas asked for the golden touch, whereby everything he touched would turn to gold. What problems could this cause!?

4.5 The past in our political systems

Vocabulary check!

Democracy – people power

dēmokratia (δημοκρατία) = *dēmos* (δῆμος; 'people') + *kratos* (κράτος; 'power; strength')

Monarchy – rule of one

monarchia (μοναρχία) = *monos* (μόνος; 'single, alone') + *archē* (ἀρχή; 'rule')

Oligarchy – rule of the few

oligarchia (ὀλιγαρχία) = *oligos* (ὀλίγος; 'few') + *archē* (ἀρχή; 'rule')

Plutocracy – rule of the wealthy

ploutokratia (πλουτοκρατία) = *ploutos* (πλοῦτος; 'wealth, riches') + *kratos* (κράτος; 'power; strength')

Tyranny

Turannēsis (τυράννησις; 'tyranny')

Senate

Senatus, from *senex* ('old man')

Communism

Relating to Latin *communalis*, from *communis* ('common')

Republic

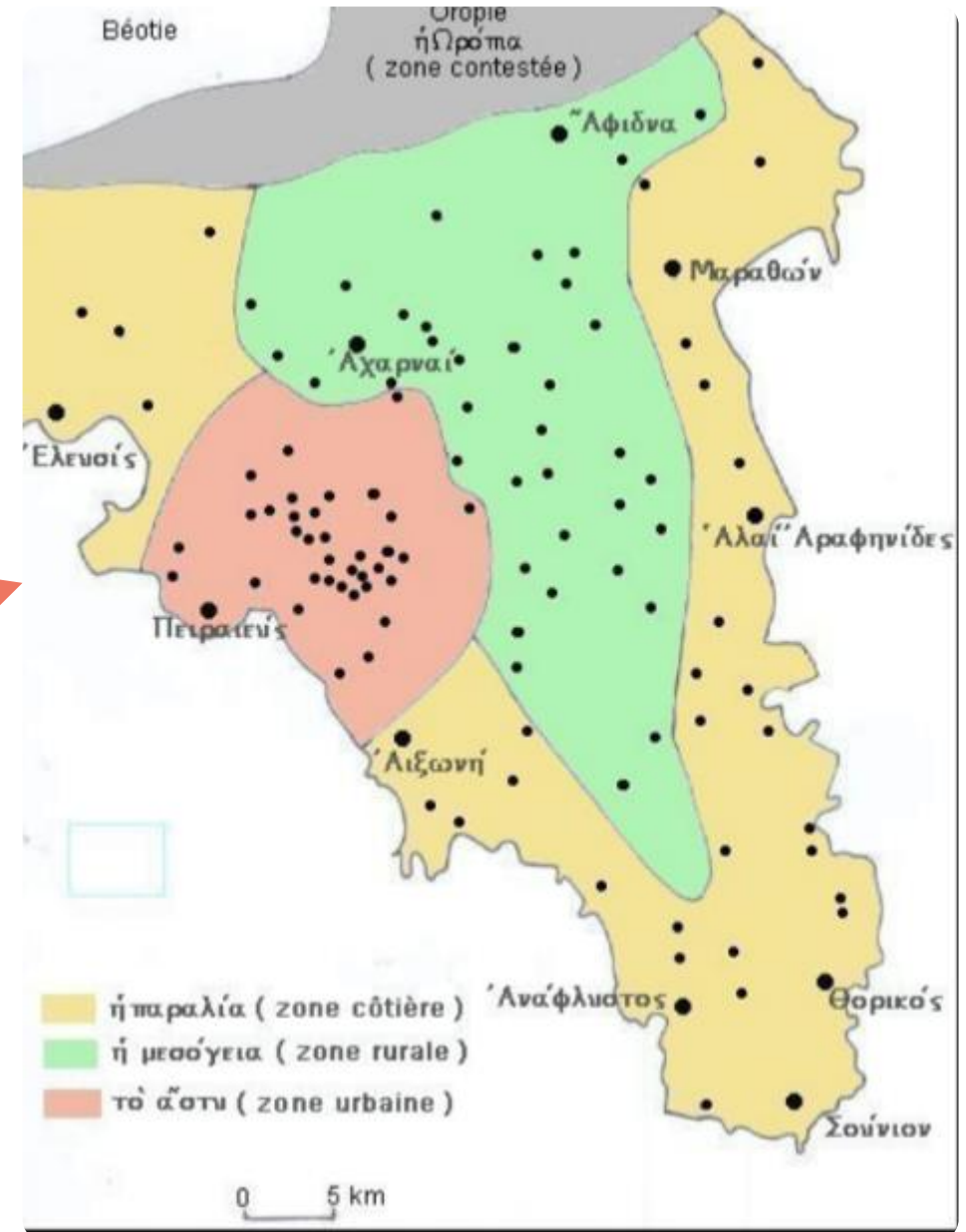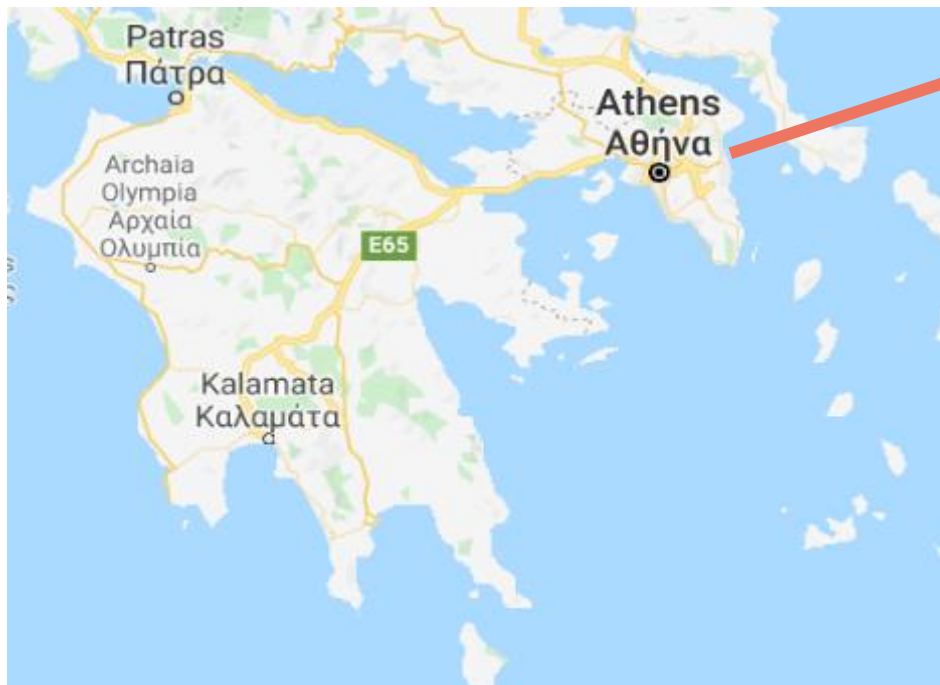Relating to the Latin *respublica*, from *res* ('entity, concern') + *publicus* ('of the people, public').

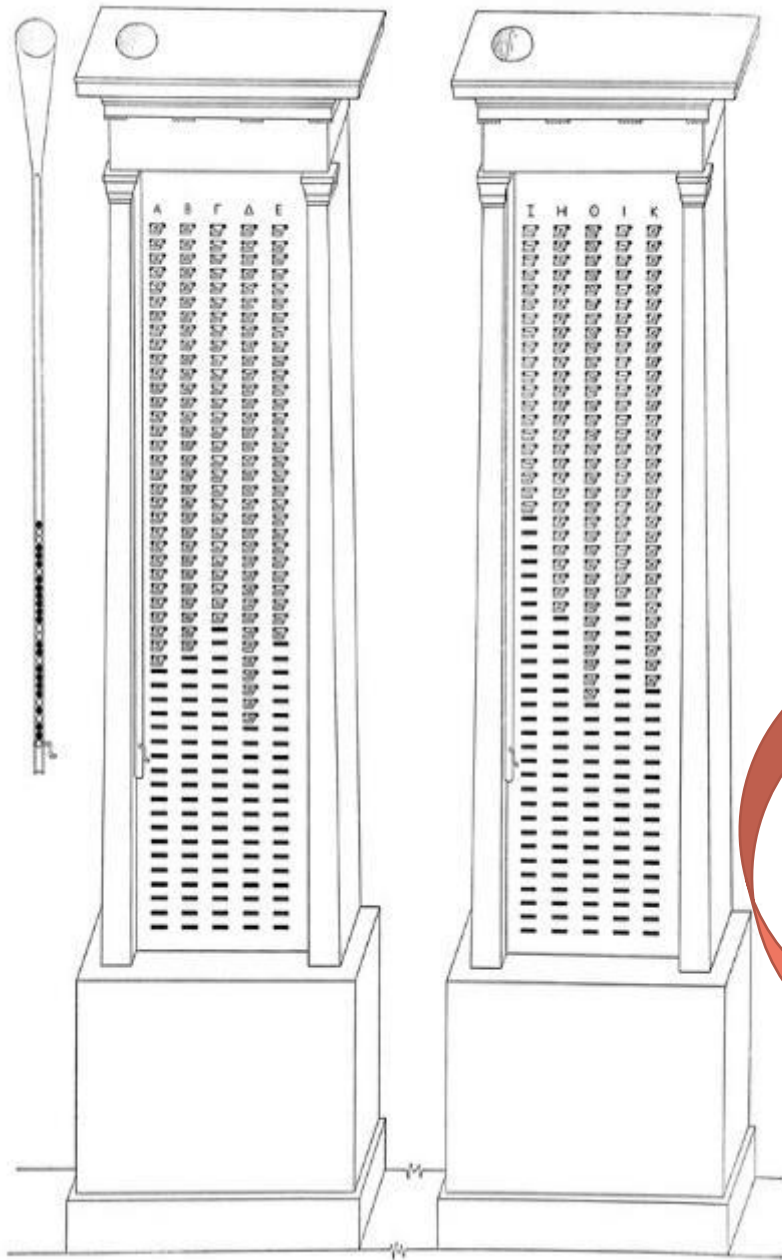# Cleisthenes' division of Athens and Attica

Yellow = coast
Green = interior
Red = city

Each of the **10 'tribes'** consisted of one group from each of the above, meaning each 'tribe' contained a cross-section of the population

Image source: https://eduscol.education.fr/odysseum/iv-organisation-administrative-et-territoriale#&gid=1&pid=1, Accessed 11/8/20, 12:02

Kleroterion

A *kleroterion* (κληρωτήριον) was an **'allotment machine'** and was one of the ways of picking people for councils, juries, etc.

There are 10 different rows, each representing one of the **10 tribes**.

The rows are full of slots. If, for example, someone wanted to be a juror for a law case, they would slot a **thin sheet of metal with their name on it** into one of the slots for their tribe. Once everyone has placed their name in an appropriate slot, the selection process begins…

Built into the structure is a **funnel** with a spigot on the end (as pictured to the left of the machine in the image).

This spigot is full of black and white pebbles, with white meaning **'select'**, and black meaning **'reject'**.

Open the spigot and examine the first pebble. If its colour signifies 'reject', the entire top horizontal row is rejected; if it signifies 'accept', the entire top row is accepted.

This continues row by row, releasing a new pebble for each, until as many people as are necessary have been chosen. If you end up without enough people, all the rejected names can be put back into the slots and the process started again!