



# Ancient Greece – Science Ideas Web

Age range: 5–7 years

## Nutrition – eating the right foods

Soldiers in ancient Greece needed energy to fight and for long marches into battle. They ate foods like barley, onions, salted meat and cheese.

② Do you think the Greek soldiers had a healthy diet? ② How do you think it could be improved? ② Can we do a survey to find out which types of food we ate for lunch today?

## Conditions for growing plants

Ancient Greek philosopher Thales of Miletus noticed that healthy plants grew on the land that the river Nile in Egypt had flooded.

② Which plants can we grow in our school? ② Can we make a picture diary to show what our plants look like each week? ② Can we find out about what plants need to grow and stay healthy?

## Weather

Aristotle studied the weather and wrote down all the things he noticed about air, water, the sun, rainbows, thunder and lightning. He also came up with ideas about the water cycle, suggesting that water from the oceans turned into rain.

② Can we make a table to show what the weather is like where we live and in Greece this week? ② What do you think the weather will be like tomorrow? ② How does the weather here and in Greece change over the year?

## Life cycles of animals and plants

Aristotle studied chicks hatching and wrote down all the things he observed. He did this because he wanted to know how the different parts of the chicks developed while they were in the egg.

② Can you observe a creature at different stages of its life cycle? ② What can you see? ② What can you hear? ② What changes can you see after one day, two days and so on? ② Can we create a set of drawings or photographs to record what we see?

## Distinguishing between an object and its material

We know about how the ancient Greeks lived because we have found things they used, buried in the ground, like clay pottery and metal coins. Not everything that they used has survived.

② Which materials would last a long time if we buried them? ② Let's bury some things and find out! ② How many ways can we sort objects into different groups (eg size, shape, material)? ② Are there any objects that fit into more than one group?

## Changes in materials

Ancient Greek people used clay to make pots and jugs. They would squash and bend the clay to make it the right shape, then heat it so it became hard.

② Can we change the shape of a piece of clay? ② What happens if we leave it in a warm place? ② Can you explain why this happens? ② Which materials can be bent and stretched? ② Can we create a table to show what we can do to different materials?

## Identifying and grouping everyday materials

Rich Greek soldiers wore armour made from metal and poor soldiers wore armour made from cloth. They also carried shields made from wood and metal, and wore helmets and leg guards made from metal.

② Why do you think metal is a good material for making a shield, helmet or leg guard? ② Can we make a table to show what our clothes are made from?

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## Sounds and their sources

Children in ancient Greece were often given gifts when they were born, including rattles in the shape of animals such as pigs. The rattles were made from clay with small beads inside.

② Can we make our own rattles? What will we use to make them? ② How can we make a loud sound? ② How can we make a quiet sound?

## Seasonal change

In Greek mythology, the goddess Demeter helped plants to grow. When her daughter, Persephone, was at home it would be spring and the plants would grow. Persephone lived in the underworld for six months each year. When Persephone was away, Demeter would be sad and it would be winter.

② Can we make a table to show what time the sun rises and sets in spring, summer, autumn and winter? ② What happens to the plants in our local area in spring, summer, autumn and winter?



Written by: Kirsty Hird,  
Burlington Junior School, Bridlington



Edited by:



Millgate House Education





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Age range: 7–9 years

## Keeping teeth healthy

Hippocrates was an important Greek doctor. He suggested that people should rub their teeth with peppermint powder and remove any pieces of food to keep them clean and healthy.

② What would you say to Hippocrates about his ideas if he was alive today? ② What advice would we give him about how to keep his teeth healthy?

## Functions of the skeleton

In ancient Greece, children used the ankle bones of sheep or goats to create a game called 'knucklebones'. They would take it in turns to throw knucklebones into the air and catch them on the back of their hand, or throw the bones into a small hole in the ground.

② Why do you think children used ankle bones for their game? ② Why wouldn't they use shoulder blades or ribs? ② What would happen if humans didn't have skeletons?

## Light reflection from surfaces

Ancient Greek scientist Euclid wrote a book called *Optica* in around 300 BC. Euclid described what happened when light was reflected from different surfaces.

② What do you see when we shine light on a mirror? ② Which materials reflect the most light? ② Can we make a table of different uses for reflective materials?

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## Grouping living things

Aristotle made many detailed studies into a vast range of animals, including cuttlefish, whales and bees, dividing them into two types: those with blood and those without.

② How can we sort plants and animals from our local environment into different groups? ② Can we make a guide to some of the plants and animals that live in our local area?

## Changes of state: melting

There is evidence that many bronze statues were produced in ancient Greece. However, very few remain today. Most were melted down so that the valuable metal could be reused for a different purpose.

② Can we make a table to show

- materials that melt when they are heated?
- whether all the materials start melting at the same temperature?
- whether we can always get the original material back again after melting something?

## Changes of state: evaporating

Perfume played an important role in ancient Greece. It was used as part of religious ceremonies and to keep healthy. Perfume came from plants like rose and cinnamon.

② Can you explain how we can smell perfume when it has been sprayed? ② How far away can we be and still smell the perfume? ② How quickly does perfume evaporate and its smell fade? ② Do different liquids evaporate at the same rate?

## Comparing and grouping rocks

The ancient Greeks believed the goddess Athena protected their city, Athens. They built her a stone temple, called Parthenon. The temple still stands on a high rocky hill above the city.

② Can we make a table to show the properties of different types of rocks? ② Which rocks would be the best for building with? Why? ② Which rocks are used for building in our town? ② How have they changed over time?

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## Sound: pitch and volume

Plays performed in theatres were very popular during ancient Greek times. The actors often wore masks to show the audience how the character was feeling. As well as eye holes, the masks had large holes where the mouth was.

② Why do you think the masks had a mouth hole? ② Can we draw some pictures to explain what might happen to the actor's voice with and without the mouth hole in the mask?

## Pushes and pulls

In Greek mythology, Sisyphus was punished by the gods. He had to roll a huge stone to the top of a hill. Whenever he reached the summit, the stone would roll back down and Sisyphus would have to begin his tiring journey up the hill once more.

② How far and how fast can you push a stone on different surfaces? ② Which surface is the easiest to push a stone on? ② Can we change a surface so it is easier to move the stone?



Written by: Kirsty Hird,  
Burlington Junior School, Bridlington





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Age range: 9–11 years

## Exercise and healthy lifestyles

In ancient Greece, boys did athletic activities like running, wrestling and throwing spears to keep fit, enter athletic competitions and prepare for life as a soldier.

- ② Why do you think it was important for boys to be fit and healthy? ② How do the children in our class keep fit and healthy?
- ② Can we do a survey to find out what types of exercise are most common in our class?

## Adaptation, evolution and fossils

Ancient Greek philosopher Anaximander had a theory of evolution: all living things began as a type of slime, possibly in the oceans. When the oceans dried up, the slime evolved to create different species, including humans.

- ② How would you explain the difference between a fossil and a plaster cast around a broken leg? ② Can we invent a new animal that would survive well in a hot country like Greece?

## Effects of gravity

Ancient Greek philosopher Aristotle suggested that all objects have a natural state. Objects on Earth always seek their natural state, which is to be on the ground. If an apple comes loose from a tree, Aristotle said it will fall to the ground because it is seeking its natural state.

- ② How do you think Aristotle would explain a helium balloon? ② What would you say to Aristotle about his ideas if he was alive today?
- ② Can we draw a labelled diagram of the forces acting on the apple when it falls?

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## Human circulatory system

Ancient Greek physician Herophilos was the first to come up with the idea that it was the brain that controlled the movement of the limbs – not the heart, like most people believed. Herophilos' colleague Erasistratus observed that blood moved through the veins.

- ② Can we make a model to show how the circulatory system works? ② Can we find out what happens when a blood vessel in the heart or the brain gets blocked by a clot?

## Irreversible changes

In Greek mythology, there was a hideous creature called Medusa. If someone looked directly at her, they would be turned to stone. The hero Perseus used the shiny side of his shield to view Medusa's reflection so he didn't have to look directly at her.

- ② Medusa's powers created an irreversible change. How many examples of irreversible changes can we find? ② How many ways can we think of to change a material into another material?

## Properties of metals

Ancient Greek people used metals like bronze, gold and silver for making armour, weapons, statues, cooking utensils and jewellery.

- ② Can we create a table to show what different metals are used for and why their properties are useful? ② Can we find out which metals conduct electricity? ② How can we find out if all metals are magnetic?

## Atomic structure

Ancient Greek called Leucippus and Democritus suggested that all matter was made from tiny, indivisible particles called atoms.

- ② Can we find out more about the history of atomic theory? ② What would you say to Leucippus and Democritus about their ideas if they were alive today? ② Can we find out how modern scientists have improved their ideas?

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## The Earth and the sun

In ancient Greece, most people believed that the Earth was flat. Thales was a philosopher and mathematician who suggested that the Earth was spherical. Most people didn't believe him.

- ② How do we know that the Earth is spherical? ② What evidence can we collect to show that Thales is correct? ② Can we make a model to show how day and night occur on Earth? ② Would our model still work if the Earth is flat?

## Light and shadows

In 300 BC, the mathematician Euclid studied light and wrote book about what he found out. In this book, he suggested that light always travels in straight lines.

- ② Can we draw some pictures to show how we see an object? ② What would the picture look like if light doesn't travel in straight lines?
- ② What difference do you think it would make? ② Can we draw some pictures to explain why shadows have the same shape as the objects causing them?



Written by: Kirsty Hird,  
Burlington Junior School, Bridlington



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