Year 6 – Science- Classifying Critters

Autumn 1 Knowledge Organiser

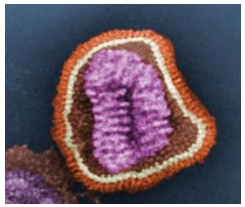
HeathfieldSchools'Partnership

This Science unit follows on from previous studies of living things and their habitats in Year 4. This unit will deepen the children's understanding of classifying organisms based on similarities and differences. They will learn about the importance of classification and how we use classification keys. The children will also learn about micro-organisms, including viruses, bacteria, fungi and yeast. They will be able to recognise examples of helpful and harmful microorganisms.

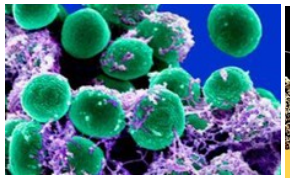
Key Knowledge

- Taxonomists classify living things into categories based on similarities and differences.
- Carl Linnaeus was a Swedish Scientist that first published a system for classification. We now use an adapted version, The Linnaeus System.
- The number of organisms in each group gets smaller until just one type of animal in the species group.
- Scientists are able to observe and understand characteristics of living things more clearly.
- Microorganisms can be found all around us. They can be found in almost every habitat on Earth.

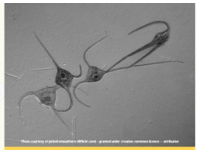
A virus:



A bacteria:



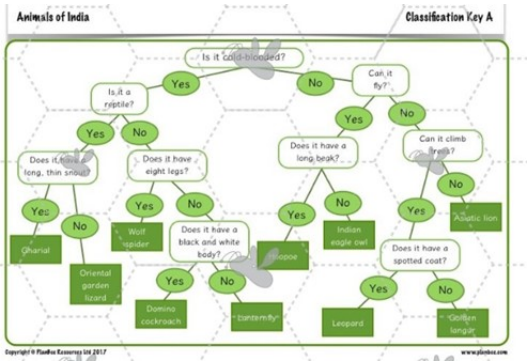
A magnified image of a household dust mite.



Plankton are microscopic organisms drifting in fresh or sea water, including plants and animals.

Yeast is a microscopic fungus that can be used to raise bread dough.

Mould is the common word for any fungus that grows on food or other materials.



Helpful microorganisms:

Bacteria used to ferment milk in cheese making.

Yeast ferments carbohydrates in grapes to make wine.

Microorganisms feed on leaves/plants to create compost.

Harmful microorganisms:

Food poisoning caused by bacteria on undercooked food.

The influenza virus causes flu symptoms.

Athlete's foot is caused by a fungus that grows between the toes.

Key Vocabulary

The Linnaeus System: Adapted version of a system for classifying all living things developed first by Carl Linnaeus.

Classification key: A series of questions used to identify a living thing or decide which group it belongs to.

Microorganisms: Tiny living things that are not visible to the naked eye.

Virus: Example of a microorganism.

Bacteria: Example of a microorganism.

Fungi: Example of a microorganism.

Yeast: Microscopic fungus used to raise bread.

Phytoplankton: Example of a microorganism in fresh or sea water.

Key Questions

What is a taxonomist?

What is the Linnaeus system? How does it work?

What is a classification key? How does it work? Explain an example of a classification key.

What are mircroorganisims? Can you give examples of micro-organisms?

How are microorganisms helpful?

How are microorganisms harmful?

Year 6 – Science—Staying Alive

Autumn 2 Knowledge Organiser

HeathfieldSchools'Partnership

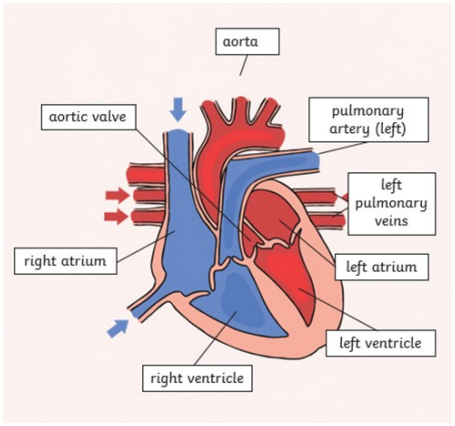
This Science unit follows on from previous studies of skeletons, muscles and the digestive system in Year 4. This unit will deepen the children's understanding of the major functions of the human body including the circulatory system and having a healthy body. They will learn about the importance of being healthy through diet, exercise and avoiding harmful substances The children will also plan thei own investigation to explore the effects of exercise on the body.

Key knowledge

Circulation

The ***circulatory system*** is a system, which includes the ***heart***, ***veins***, ***arteries*** and ***blood*** transporting substances around the body.

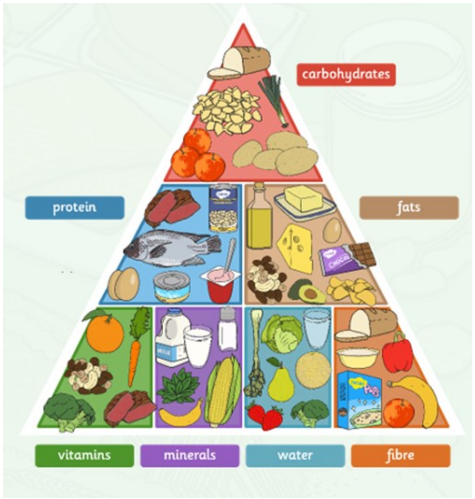
The ***heart*** pumps ***de-oxygenated blood*** to the ***lungs*** to get ***oxygen***.



Healthy Eating

Nutrients are substances that animals need to stay alive and healthy.

A ***healthy diet*** involves eating the right types of ***nutrients*** in the right amounts.



Exercise

Regular exercise is important because it:

- strengthens ***muscles*** incluing the heart muscle
- improves ***circulation***
- increases the amount of ***oxygen*** around the body
- releases brain chemicals which help you feel calm and relaxed
- helps you sleep more easily strengthens bones

Drugs

A ***drug*** is any substance that has an effect on you body when it enters your system.

Alcohol

Alcohol is a ***drug*** produced from grains, fruits and vegetables when they are put through a process called fermentation.

Smoking

Smoking is very unhealthy. Cigarettes contain something called ***nicotine***, which is extremely ***addictive,*** and that is why people find it very hard to stop once they have started.

Key Vocabulary

Circulation—the system that transports blood around the body

Oxygenated blood— blood with oxygen (carried by arteries)

Deoxygenated blood—blood with no oxygen (carried by veins)

Capillaries—the smallest blood vessels

Nutrients—substances animals need to stay alive

Food groups—nutrients needed to stay healthy such as protein and fibre

Nicotine—an addictive substance in cigarettes

Key Questions

What is the heart? What does the heart do?
What is the circulatory system?

What are nutrients?
How are nutrients broken down?
What is a healthy diet or a balanced diet?
What nutrients should you eat? Why?
Why is regular exercise important?
What is a drug? What are legal drugs?
What are illegal drugs?
What are the problems with drinking too much alcohol?
Why is smoking additive?
What are the negative effects of smoking?

Science – Enquiry Approaches
Knowledge Organiser

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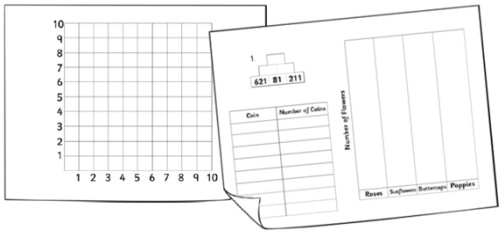
Scientific enquiry approaches are part of our science curriculum and are the different ways that we can carry out scientific investigations.

Observing over time

We measure events and changes in living things, processes or materials. These observations (using our senses) may take place over different periods of time; minutes, hours, weeks or months. several weeks or months.

How does the moon appear to change shape during a week?

Pattern Seeking



We conduct investigations where there are variables we cannot control (practically or ethically).

We don't look for cause and effect in Pattern Seeking, but possible relationships may be identified.

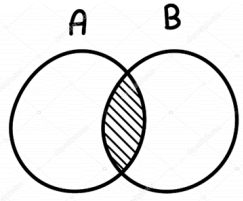
Do sounds get quieter the further away you are from the sound source?

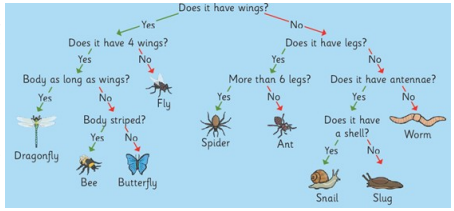
Researching using Secondary Sources

Sometimes we research when we ask questions that can not be answered practically. We can use secondary sources, such as books, the internet, or an expert.

What are the main parts of the circulatory system and what are their functions?

Identifying and Classifying





Identification: Naming things by looking at differences.

Classification: Organising things into group by making connections and looking at similarities or differences.

How can we classify animals using a classification key?

Fair testing

One variable (independent variable) is changed and all other variables must be controlled. The variable that is changed is quantitative (numbered).

How does the size of the parachute effect the time it takes to fall?

Comparative testing

One variable (independent variable) is changed and all other variables must be controlled. The variable that is changed is qualitative (words).

Which material is the best thermal insulator?