

**Hungerhill Study Skills**

**Revision Strategies**

**Knowledge Organisers**

# What is a Knowledge Organiser?

A document that is usually no more than 2 sides of A4

Is based on a subject or topic and groups information into manageable chunks

Incorporates: essential facts, definitions, written sections, diagrams/images

Can be designed based on personal preference – colours/pictures/text

Reduces large topics into a concise format

# How would I use a Knowledge Organiser?

The breaking down  
of a large topic  
allows for focus on  
key  
facts/summaries

Provide a visual  
'map of information'  
that can be stored  
ready for recall at  
the required time

Create links  
between  
components within  
the topic

Develop the ability  
to analyse/evaluate  
different aspects of  
the topic.

# Further use of knowledge organisers

- There are many completed knowledge organisers that can be bought, found online or provided by teachers. These can be used for revision in numerous ways, for example:
  - Reading the information, covering up sections and attempting to re-write the information or say it out loud (not in your head – this isn't effective)
  - Ask someone to test you by asking you questions based on the information
  - Use the knowledge organiser to help you complete practice quizzes or exam questions
- It is also very beneficial to create your own knowledge organisers, as this way you have to re-read information and your brain has to work hard to summarise and organise the information, leading to better learning. You can then use your completed knowledge organiser as shown above.



# Let's have a look at some examples.

**AQA GCSE Biology (Combined Science) Unit 5: Homeostasis and Response Knowledge Organiser**

## Homeostasis

Homeostasis is the regulation of a constant internal environment. The conditions are maintained to ensure optimum conditions for metabolism and changes in response to both internal and external fluctuations.

In humans, homeostasis regulates the blood glucose (sugar) levels, the body temperature, CO<sub>2</sub> levels and water levels.

The levels are monitored and regulated by automatic control systems which can be nervous responses (coordinated by either nervous system) or chemical responses (coordinated by the endocrine system). Information about the environment is called a stimulus and is detected by a receptor. The information is processed by a central coordination system and a response is initiated by an effector.

## The Nervous Pathway

A stimulus is a change in the environment (internally or externally). In a typical response to stimuli, this information is received by the receptor and sent as an electrical impulse along a sensory neuron towards the central nervous system (CNS). The CNS is comprised of the brain and spinal cord. Here, the impulse is passed through relay neurons and a response to the stimulus is coordinated. This could be consciously or subconsciously. The CNS sends information about the response along a motor neuron as an electrical impulse. The effector receives the impulse and carries out the response.

[stimulus] → receptor → sensory neuron → CNS → motor neuron → effector → [response]

Examples of receptors include rod and cone cells within the eye which respond to light and allow us to see. Or it could be the cells in the skin which respond to pressure or temperature changes allowing us to feel.

An effector could be a muscle or a gland. In response, a muscle might contract to make a movement or a gland releases a chemical into the body.

## Synapses

A synapse is the gap where the ends of two neurons meet.

The information needs to be passed from one neuron to the next, but cannot be passed as an electrical impulse over the synapse (gap). Instead, the message is transmitted by chemical neurotransmitters.

When the electrical impulse arrives at the terminal of the first neuron, it causes a release of neurotransmitter chemicals into the synapse. They travel across the gap and bind to receptor sites on the terminal of the next neuron.

The receptor sites are specific for each type of neurotransmitter. A nerve impulse will only be created in the second neuron when a complementary chemical binds.

## The Human Nervous System

The nervous system allows a fast, short-lived response to a stimulus in the surroundings. The information is received by a receptor, passed along the neurons (nerve cells) as an electrical impulse and results in a response. You might have to label the parts of a typical neuron:

Labels: dendrites, cell body, nucleus, axon, myelin sheath, axon terminal.

---a, stretched-out fibre of cytoplasm which the electrical impulse will travel along  
---d it helps to insulate the

• The axon is the main part of the nerve cell. The impulse will travel along it.  
• Some axons are surrounded in a layer called the myelin sheath.  
• The branched endings, dendrites, carry information to the cell body.

**sensory neuron**

Page 1 of 6

**AQA GCSE Biology (Combined Science) Unit 2: Organisation**

## Principles of Organisation

cell	tissue	organ	organ system	organism
Cells are the basic building blocks of all living things.	A group of cells with a similar structure and function is called a tissue.	An organ is a combination of tissues carrying out a specific function.	Organs work together within an organ system.	Organ systems work together to form whole living organisms.

## Food Tests (Required Practical)

What are you testing for?	Which indicator do you use?	What does a positive result look like?

## Effect of pH on the Rate of Reaction of Amylase (Required Practical)

Iodine is used to test for the presence of starch. If starch is present, the colour will change to blue-black.

The independent variable in the investigation is the pH of the buffer solution.

The dependent variable in the investigation is the time to complete (how long it takes for all the starch to be digested by the amylase).

Procedure: Label a test tube with the first value of pH buffer (e.g., pH 5) and stand it in the test tube rack. Add 2 drops of iodine solution to each of the 12 wells of the spotting tiles, place a drop of iodine solution in each well. Using a measuring cylinder, measure 2cm<sup>3</sup> of amylase and pour into the test tube. Using a measuring cylinder, measure 1cm<sup>3</sup> of the buffer solution and pour into the test tube. Stand for five minutes and then use the thermometer to measure the temperature. Make a note of the temperature.

## The Digestive System

The purpose of the digestive system is to break down large molecules into smaller, soluble molecules, which are then absorbed into the bloodstream. The rate of these reactions is increased by enzymes.

## Percentages - Calculator

**Key Words:**  
Annum: Per year.  
Interest: Extra monetary amount that is added on.  
Depreciate: When an item goes up in price.

### Simple Interest

Simple interest is where the percentage is found from the starting amount and this same value is added on each year.

**Example:** Jess' bank gives her 5% simple interest each year. If she has £300 in the bank, how much interest will she receive in 2 years?

**Step one:** Complete percentage of amount for 5% of £300.  
 $5\% \times 100 = 0.05 \times 300 = £15$

**Step two:** Times this amount by the number of years.  
 $£15 \times 2 = £30$   
Answer = £30

### Compound Interest

Compound interest is where the percentage is found from the new amount in the bank at the start of every year.

**Example:** Jess' bank gives her 3% compound interest each year. If she has £850 in the bank, how much interest will she have in the bank after 4 years?

**Step one:** Add the percentage to 100% then convert to a decimal by dividing by 100.  
 $3\% + 100\% = 103\% = 1.03$

**Step two:** Use the formula: Amount  $\times$  decimal years.  
 $850 \times 1.03^4 = 956.6824885$   
Answer = £956.68

### Reverse percentages

**Example:** A top is £60 in a 20% sale. What was the original price?

**Step one:** Put the percentage the top is now equal to the new price. If the top is reduced by 20% it is now 80% of the original price.  
80% = £60

**Step two:** Divide each side by the percentage to find 1% of the original price.  
 $\div 80 \rightarrow 80\% = £60 \rightarrow 1\% = 0.75 \rightarrow 80$

**Step three:** Times 1% by 100 to find 100% of the original price.  
 $\times 100 \rightarrow 1\% = £0.75 \rightarrow 100\% = £75$   
Answer = £75

### Percentage of amount

**Example:** Find 13% of £350

**Step one:** Divide your percentage by 100.  
 $13\% \div 100 = 0.13$

**Step two:** Multiply your amount by the divided percentage.  
 $0.13 \times 350 = £45.50$

### Percentage increase

**Example:** Increase 250cm by 25%

**Step one:** Add the percentage to 100%.  
 $100\% + 25\% = 125\%$

**Step two:** Divide your new percentage by 100.  
 $125\% \div 100 = 1.25$

**Step three:** Multiply your amount by the divided percentage.  
 $1.25 \times 250 = 312.5cm$

### Percentage decrease

**Example:** decrease 500ml by 30%

**Step one:** Take away the percentage from 100%.  
 $100\% - 30\% = 70\%$

**Step two:** Divide your new percentage by 100.  
 $70\% \div 100 = 0.7$

**Step three:** Multiply your amount by the divided percentage.  
 $0.7 \times 500 = 350ml$

# Here's an example from science

Topic broken down into chunks

**AQA GCSE Biology (Combined Science) Unit 5: Homeostasis and Response Knowledge Organiser**

### Homeostasis

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In humans, homeostasis regulates the **blood glucose** (sugar) levels, the **body temperature**, **CO<sub>2</sub>** levels and **water** levels.

The levels are monitored and regulated by automatic control systems which can be either **nervous system** or chemical responses (coordinated by the **endocrine system**). Information about the environment is called a **stimulus** and is detected by a **receptor**. The information is processed by a **central coordination system** and a response is initiated by an **effector**.

### The Nervous Pathway

A stimulus is a change in the environment (internally or externally). In a typical response to stimuli, this information is received by the receptor and sent as an electrical impulse along a sensory neuron towards the central nervous system (CNS). The CNS is comprised of the brain and spinal cord. Here, the impulse is passed through relay neurons and a response to the stimulus is coordinated. This could be consciously or subconsciously. The CNS sends information about the response along a motor neuron as an electrical impulse. The effector receives the impulse and carries out the response.

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### Synapses

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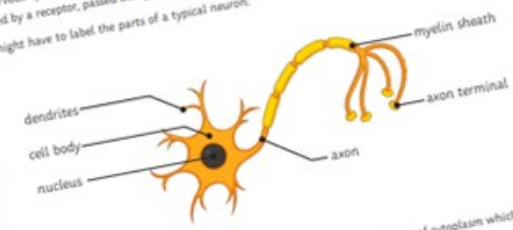
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- The axon is the main part of the nerve cell. It is a long, stretched-out fibre of cytoplasm which the electrical impulse will travel along.
- Some axons are surrounded in a layer of fatty cells called the myelin sheath and it helps to insulate the electrical impulse.
- The branched endings, dendrites, connect the neurons together to create a network.

sensory neuron	relay neuron	motor neuron
		

Page 1 of 6

Science

visit twinkl.com

Pictures and colour used to aid memory

# WILLIAM SHAKESPEARE KNOWLEDGE ORGANISER

## Overview

**William Shakespeare (1564-1616)** was a British **playwright and poet** (he wrote plays and poems).

He is often considered to be the **most talented writer** of all time. His plays and poems are still studied and performed 400 years later!

Shakespeare lived in the **16<sup>th</sup> and 17<sup>th</sup> centuries**, throughout the reigns of Queen Elizabeth I and King James I. They are both known to have watched his plays.

Some of his most famous plays include **Romeo and Juliet**, **Macbeth**, **Hamlet** and **Much Ado About Nothing**.

Some of the phrases that Shakespeare wrote have become a part of our **everyday language**!

A portrait thought to be of William Shakespeare, from around 1600.



## Times in His Life

### Early Life

-Shakespeare was born in Stratford-upon-Avon in 1564, although we don't know the exact date!

-He was the son of John Shakespeare, who was a successful glover. William was the 3<sup>rd</sup> of 8 children!

-He is thought to have been educated at King's New School.

### Marriage and Move

-At the age of 18, Shakespeare married 26-year-old Anne Hathaway.

-They are known to have had at least 3 children.

At some point around 1592, Shakespeare moved to London and began writing.

### Elizabethan Work

-The reign of Queen Elizabeth was a largely happy time in Britain, and this is shown in Shakespeare's works from the time, he wrote lots of comedies.

-His plays began to be performed by his theatre group, the Lord Chamberlain's Men, in 1594. They were known to be popular.

-Shakespeare wrote many sonnets at this time, and Romeo and Juliet in 1595.

### Jacobean Work

-After the death of Queen Elizabeth, her relative King James of Scotland came to rule in England. This was a darker time, and Shakespeare wrote more tragedies.

-James became the official patron of The Chamberlain's Men, and so their name was changed to 'The King's Men.' The Globe Theatre had been built at this point, and so most of Shakespeare's plays were performed there - a sign of his popularity.

## Answers to Important Questions and Key Vocabulary

What kind of poems did Shakespeare write?



-Shakespeare wrote a type of poem called a sonnet.  
-Sonnets are poems of 14 lines, which are normally about love.

Shakespeare wrote a particular type of sonnet, which is now called a Shakespearean Sonnet. There are three stanzas (paragraphs) which each have 4 lines, and rhyme ABAB. After this, there are two final lines that rhyme together (a rhyming couplet).

Was Shakespeare popular during his life?



-There is no doubt that Shakespeare was a popular playwright at the time that he was alive - his plays were performed in some of the best spots in central London! However, he has become more and more popular as his works have stood the test of time!

What are Shakespeare's most famous plays?



-Romeo and Juliet is possibly Shakespeare's most famous play. It is a tragedy about two young people who are in love, but their families do not like one another!

-Another famous Shakespeare play is Macbeth, about a soldier (Macbeth) who killed the King so that he could be king himself. Things do not turn out so well for Macbeth!

What else do we know about Shakespeare?



-Considering that he is now so famous, we know little about William Shakespeare as a person.

-Shakespeare lived a long time ago, when there was no photography, TV, or social media!

-He was not from a famous family, and so many of his early records either don't exist or have been lost!

## Key Vocabulary

Playwright

Poet

Actor

Chamberlain's Men

The Globe

Sonnet

Comedy

Tragedy

Theatre

Bard

Sonnet

Rhyming Couplet

## Top 10 Facts!

- Shakespeare's three children were called Susanna, Hamnet and Judith.
- In total, Shakespeare wrote 154 sonnets and around 40 plays.
- He was sometimes called 'The Bard of Avon.' A bard is another word for a poet.
- The Globe Theatre was shaped like an octagon, with eight sides.
- Not many people could read at the time, so Shakespeare hung up coloured flags to let people know the type of play to be performed.
- Shakespeare's first play was called Henry VI.
- Another theatre that Shakespeare's plays were performed in was Blackfriars Theatre.
- Some of Shakespeare's phrases that are still used today include 'wild goose chase', 'green-eyed monster', and 'neither here nor there.'
- A Midsummer Night's Dream is Shakespeare's most performed play.
- Some believe that Shakespeare never existed, and was a different writer using a pen name.

## William Shakespeare Timeline

- 1564: Shakespeare is born in Stratford-upon-Avon.
- 1582: Shakespeare married Anne Hathaway.
- 1592: The earliest records of Shakespeare in London.
- 1593: Shakespeare's first poems were published.
- 1594: Shakespeare's first plays were performed by Lord Chamberlain's men.
- 1599: The Globe Theatre was built in London.
- 1603: James I became King. Shakespeare's theatre group was renamed the 'King's Men.'
- 1609: Shakespeare's sonnets were published.
- 1611: He retired back to Stratford-upon-Avon.
- 1616: William Shakespeare died.

An example from English...



# An example from geography...

## F1: Ecosystem - Key terms

Key term	Definition
Ecosystem	A community of plants and animals that interact with one another and their physical environment.
Abiotic	Relating to non living things.
Biotic	Relating to living things.
Producer	An organism or plant that is able to absorb energy from the sun through photosynthesis.
Primary consumer	Creature that eats plant matter. Also known as a herbivore.
Secondary consumer	Creature that eats other animals. Also known as a carnivore.
Decomposer	An organism that breaks down dead plant and animal matter.
Food chain	The connections between different organisms that rely on each other as their food source.
Food web	A complex hierarchy of plants and animals relying on each other for food.
Biome	A large global ecosystem with flora and fauna adapting to their environment.

## G1: Tropical Rainforest - Vegetation

- The Emergent Layer:** Competition for light causes trees to grow fast. They are tall and straight. Buttress roots support these tall trees.
- The Canopy:** Plants on the forest floor are shade tolerant and able to cope in the darker conditions.
- The Understory:** Epiphytes grow high up on the branches of trees to gain access to the light.
- The Forest Floor:** Lianas wrap themselves around other trees to gain access to light. Plants have drip tips.

## G2: Water and Nutrient Cycle

## F2: Distribution of Biomes

Biome	Key Characteristics
Tropical Rainforests	• Along equator (Asia, Africa / South America). • 6% of earth's surface. • 25°C – 30°C and over 250mm rain per month.
Tropical Grasslands (Savanna)	• Between equator and tropics. • 20 – 30°C and between 500 – 1500 mm of rain per year. • Wet and dry seasons.
Deserts	• Tropics (Sahara and Australia). • Over 30°C and less than 500 mm per year rain. • 20% of land's surface.
Deciduous forests	• Higher latitudes (W Europe, N America, New Zealand). • 5 – 20°C and between 500 – 1500 mm rain per year. • 4 distinct seasons. • Lose leaves in the winter to cope with the cold.
Coniferous forest (Taiga)	• 60°N (Scandinavia / Canada). • Cone bearing evergreen trees. • No sunlight for part of the year.
Tundra	• Above 60°N (Arctic Circle). • Less than 10°C and less than 500mm per year rain. • Cold, icy and dry means 2 month growing season.

## G5: Effects of deforestation in the Amazon

<b>Economic development</b> <ul style="list-style-type: none"> <li>• Brings in jobs and income.</li> <li>• Destroys resources in the long term.</li> <li>• Livelihoods of locals destroyed.</li> <li>• 2008 \$6.9 billion from cattle.</li> <li>• Rubber tappers lost jobs.</li> <li>• Mercury from gold mining poisons fish.</li> </ul>	<b>Soil erosion</b> <ul style="list-style-type: none"> <li>• Land left unprotected from heavy rain leads to landslides and flooding.</li> <li>• Nutrients are washed away decreasing nutrients in the soil.</li> <li>• Rivers silt up.</li> </ul>
<b>Contribution to climate change</b> <ul style="list-style-type: none"> <li>• Trees cut down change the water cycle and make it drier.</li> <li>• Rainforests are the lungs of the earth and so when deforested there is more carbon dioxide in the air and less oxygen.</li> <li>• Burning also releases carbon dioxide into the air (greenhouse effect).</li> </ul>	<b>Others</b> <ul style="list-style-type: none"> <li>• Loss of biodiversity - 157 species a day.</li> <li>• Loss of indigenous tribes (90 since 1990).</li> <li>• Tribal people moving to towns and cities and have drugs and alcohol issues.</li> <li>• Loss of indigenous knowledge.</li> <li>• Conflicts between developers and indigenous people.</li> </ul>

## G4: Causes of deforestation in the Amazon

Commercial farming	Farming to sell produce for a profit. Cattle and crops. Responsible for 80% of Amazon deforestation. Ruins soil and nutrients
Logging	The business of cutting down trees and transporting the logs to sawmills. Selective logging and clear felling. Teak and Mahogany worth the most.
Mineral extraction	The removal of mineral resources from the earth. Gold, Bauxite, Oil and gas. Pollutes rivers and air. Trees above the mines and quarries are removed.
Subsistence farming	A type of agriculture producing food and materials for the benefit only of the farmer and his family or community. Small scale, often slash and burn.
Hydro - electricity	Dams have been built and large areas of rainforest destroyed by flooding.
Resettling	Since 1970 1 million people have been encouraged to move away from shanty towns and into the rainforest. They have been given land which has been cleared to allow farming.
Roads	The 4000km long Trans Amazonia Highway built 1970s. Opened up rainforest, but allowed loggers in.

## G6: Protecting the Amazon

- Selective logging. Only fell fully grown trees. Mark sustainable trees for sale.
- Conservation & education. WWF (NGO) educate and train conservation workers. Buy threatened areas.
- Ecotourism. Minimises damage to the environment and benefits locals. This creates incentive to protect the forest.
- International agreements. International Tropical Trade Agreement restricts trade in hard woods.
- Debt reduction. In 2010 the USA converted \$15.5 million from Brazil and used to protect forest.

## G4: Tropical Rainforest - Animals

- Jaguars have spotted fur. This camouflages them in the dappled shade of the forest floor.
- Parrots have strong, sharp beaks to help them crack open nuts.
- Spider monkeys have a prehensile tail that allows them to cling to branches. Sharp nails allow them to peel bark.
- Poison dart frogs are a bright colour to warn predators away.

## G7: Rainforest Climate

Temperatures are high all year ( around 28°C). Rainfall is around 2500mm per month.

## Unit 1b

# The Living World

AQA



## KNOWLEDGE ORGANISER.

**Lichtenstein's technique**, which often involved the use of stencils, sought to bring the look and feel of commercial printing processes to his work. Through the use of primary colours, thick outlines and Benday dots.

**Lichtenstein** endeavoured to make his works appear machine-made.

Reading Homeworks. Bold Colours

<https://artlistr.com/roy-lichtenstein-6-interesting-facts/>

[Britto.com/romeros-story](http://Britto.com/romeros-story)



Observational drawings



Benday dots



## Pop art

Pop Art was the art of popular culture. It was the visual art movement that characterized a sense of optimism during the post war consumer boom of the 1950's and 1960's. It coincided with the globalization of pop music and youth culture, personified by Elvis and the Beatles. Pop Art was brash, young and fun and hostile to the artistic establishment. It included different styles of painting and sculpture from various countries, but what they all had in common was an interest in mass-media, mass-production and mass-culture.



Pop Art appreciates popular culture, or what we also call "material culture." It does not critique the consequences of materialism and consumerism; it simply recognizes its pervasive presence as a natural fact.

**Pop Art, noun:** A type of modern art that started in the 1960s and uses images and objects from ordinary life.

Things to look for in a **Pop Art painting**:  
Bright colours, patterns, bold outlines, repeat patterns, faces, food and words.



**Useful Websites:**

[www.pinterest.com](http://www.pinterest.com)

[www.moma.org/popart](http://www.moma.org/popart)

**Some Artists to look at:**

Andy Warhol

Roy Lichtenstein


Keith Haring

Claes Oldenburg

Jasper Johns

# An example from art & design...

# Common pitfalls with using knowledge organisers



Once you have your completed knowledge organiser, what will you do with it? Simply reading the information isn't the best way to remember it. Try covering up sections and attempting to write out what you can remember, then check against the original section and make a note of the parts you forgot. Repeat until you can remember everything.

If you are making your own knowledge organiser, try not to make each section too crowded as this will make it harder to read, engage with and remember.

# How can students be supported?

- Quizzing – Ask student to recall or explain key vocabulary/facts found in the knowledge organiser.
- Linking concepts – select two elements from the knowledge organiser and ask student to explain how they are linked.
- Higher order questions – Use the words 'analyse'/'evaluate' when encouraging students to talk in depth about topics.