



Supporting My Child in Science

Mrs K Johnson

2ND in Science and KS3 Lead &

Dr J Armstrong

Year 9 Science and KS4 Separate Sciences Lead

Jesmond Park Academy

What will my child be studying this year?

At Jesmond Park Academy we have developed a bespoke KS3 curriculum based on the AQA KS3 syllabus and the AQA KS4 specifications.

Our aim is to deliver a knowledge rich spiral curriculum, which allows continuous learning from Y7 to Y13.

YEAR 8 Teaching Overview

AUTUMN TERM (Sept – Dec)

Main	1. Introduction to Science 2. MATTER – Elements and the Periodic Table	OCTOBER HALF TERM	3. REACTIONS – Types of reactions 4. ORGANISMS – Digestive system	CHRISTMAS HOLIDAYS
Single	a. ECOSYSTEMS - Photosynthesis		a. ECOSYSTEMS – Photosynthesis b. EARTH – structure and resources	

SPRING TERM (Jan - Apr)

YR8 SUMMATIVE ASSESSMENT 1 WEEK BEGINNING
5th January 2026

Main	5. FORCES – Resultant forces 6. FORCES – Pressure	FEBRUARY HALF TERM	7. GENES – Evolution 8. REACTIONS – Chemical change	EASTER HOLIDAYS
Single	EARTH – structure and resources (cont.)		c. EARTH - Climate	

SUMMER TERM (Apr -

YR8 SUMMATIVE ASSESSMENT 2 WEEK BEGINNING
20th April 2026

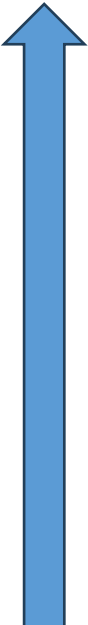
Main	9. ORGANISMS – Breathing, respiration and movement	MAY HALF TERM	10. WAVES – types and properties 11. GENES – Inheritance and Evolution 12. ENERGY – Heating and Cooling	SUMMER HOLIDAYS
Single	d. ELECTROMAGNETS. - Magnetism		e. ENERGY - Work	

Thursday 15th April 2027

Y8 PARENTS EVENING

KS3 Assessment Grading

- Each student has been assigned a curriculum related expectation based on their EOKS4 target.
- This is the **minimum** CRE students should aim to achieve for them to meet their EOKS4 target.
- A students CRE target pathway will remain the same throughout KS3 due to the increasing demand in knowledge, understanding and skills built into our challenging curriculum.



Curriculum Related Expectation (CRE) Definition		Projected est. GCSE outcome
Excelling	You are working well above curriculum related expectation in the subject	GCSE Grade 8 to 9
Exceeding	You are working beyond curriculum related expectation in the subject	GCSE Grade 6 to 7
Achieving	You are working at curriculum related expectation in the subject	GCSE Grade 4 to 5
Developing	You are working towards curriculum related expectation in the subject	GCSE Grade 2 to 3
Emerging	You are beginning to work towards curriculum related expectation in the subject	GCSE Grade 1

How will my child be assessed in science?

Assessment is a very important part of our curriculum.

2 types of assessment at Jesmond Park Academy

1. Formative assessment

- Designed to be low stakes for the students (not graded)
- Allow staff to easily identify and address any gaps in knowledge and/or areas of misconception.

2. Summative assessment

- Graded assessments
- Used to track student progress and encourage and support all students to be successful in science.



I know that... section

Formative assessment

- Multi-choice test based on the knowledge goals for each topic.
- Self-assessed by student in red pen
- Staff to review answers and highlight in green 3 EBIs questions that students should focus on when revising the topic.

Y8 Periodic table Assessment

1. I know that an element is made from...

- ☐ A. several different types of atoms.
- ☐ B. only one type of atom.
- ☐ C. made of two different types of atoms joined together.
- ☐ D. made of different types of compounds.

2. I know that an atom is made from...

- ☐ A. Protons, neutrons, and molecules
- ☐ B. Protons, electrons, and neutrons
- ☐ C. Neutrons, electrons, and compounds
- ☐ D. Electrons, neutrons, and cells

3. I know that the atomic number of an element tells us...

- ☐ A. the number of neutrons in an atom
- ☐ B. the number of protons in an atom
- ☐ C. the number of electrons in an atom
- ☐ D. the mass of the atom

4. I know how to calculate the number of neutrons in an atom.

- ☐ A. Subtract the atomic number from the mass number.
- ☐ B. Add the atomic number to the mass number.
- ☐ C. Subtract the mass number from the atomic number.
- ☐ D. Divide the mass number by the atomic number.

5. I know that the electrons are...

- ☐ A. located in the nucleus and have a positive charge.
- ☐ B. located on the shells/orbitals and have a positive charge.
- ☐ C. located in the nucleus and have a negative charge.
- ☐ D. located on the shells/orbitals and have a negative charge.

6. I know that the periodic table is a ...

- ☐ A. list of all known molecules
- ☐
- ☐

Name: _____ Class: _____

7. I know that the periodic table is arranged in ...

- ☐ A. Rows called groups and columns called periods.
- ☐ B. Rows called periods and columns called groups.
- ☐ C. Rows called elements and columns called atoms.
- ☐ D. Rows called atoms and columns called elements.

8. I know that the elements in group 1 known as the ...

- ☐ A. Halogens
- ☐ B. Alkali metals
- ☐ C. Noble gases
- ☐ D. Transition metals

10. I know that as you go down group 1 the reactivity of the element...

- ☐ A. decreases
- ☐ B. It increases.
- ☐ C. It stays the same.
- ☐ D. It disappears.

11. I know that the elements in group 7 known as the ?

- ☐ A. Halogens
- ☐ B. Alkali metals
- ☐ C. Noble gases
- ☐ D. Transition metals

12. I know that as you go down group 1 the reactivity of the element...

- ☐ A. decreases
- ☐ B. It increases.
- ☐ C. It stays the same.
- ☐ D. It disappears.

FOLD HERE AND GLUE INTO BOOK



I know how to... section

Formative assessment

- Mainly working scientifically skills-based questions from past GCSE papers.
- Maximum 15 marks and teacher assessed in green pen.

Y8 Periodic Table: Apply section

Q1. Sodium and potassium are Group 1 elements.

(a) What is the name of Group 1 elements? Tick (✓) **one** box.

Alkali metals

☐

Halogens

☐

Noble gases

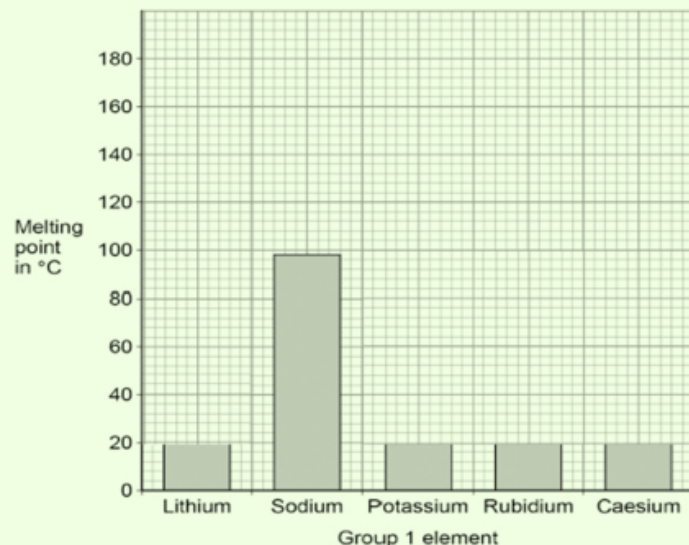
☐

(1)

(b) Complete the bar chart below by adding the data from the table to represent the melting points of Group 1 elements.

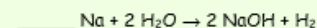
(2)

Group 1 Element	Melting points/ °C
Lithium	180
Sodium	X
Potassium	64
Rubidium	40
Caesium	28



(d) Sodium reacts with water to produce sodium hydroxide and hydrogen.

Balance the equation for the reaction.



(1)

(e) Sodium and potassium both react with water.

Figure 2 shows sodium reacting with water.

Figure 2



Compare what is seen when sodium reacts with water and when potassium reacts with water.

(4)

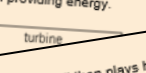
(Total 9 marks)

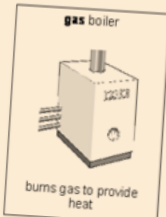
50 minute test paper

- Consists of multiple exam style questions from past SATs and GCSE papers.
- Assessments will test knowledge and understanding of content while also assessing working scientifically skills.
- Questions will increase in demand from Emerging to Excelling.

Q4. The drawings below show six ways of providing energy.

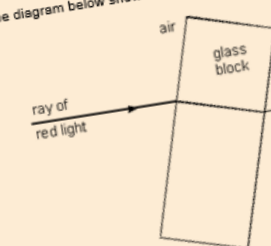
The pupil then plays her flute at a **higher pitch and more quietly**.
Which diagram below shows the pattern that would be seen on the oscilloscope?

A  **B** 

C  **D** 

E 

Q6. (a) The diagram below shows a ray of red light entering



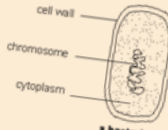
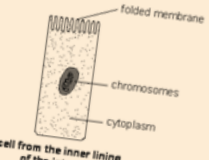
Q9. (a) The diagram shows a sperm cell. Sperm cells are adapted for fertilisation.



Sperm cells use their tails to swim towards an ovum (egg). Give one other way the sperm cell is adapted for fertilisation.

.....

(b) The diagrams below show two other cells.

(i) Look at the diagrams above. What is the difference between the location of the genetic material in the bacterium and in the cell from the lining of the intestine?

.....

(ii) What is the function of the genetic material in a cell?

.....

(c) Cells in the lining of the intestine are adapted to absorb digested food. How does the folded membrane of these cells enable them to absorb the maximum amount of digested food?

.....

How can I support my child with their science?

General advice

1. Check your child's planner and frog each week.
 - Discuss any planner comments with a focus on how to improve.
 - Talk to them about their homework.
2. Ask them what they have been learning in science.
 - Ask them to bring home their books to show you.
 - If they open up and say they are struggling email their teacher.
3. Encourage them to attend P7's such as Science Club
(Thursday in S7 with Miss Morris – after half term)



Demo VLE

If you need any support
setting up your
Parental Frog account.

Contact Andy Holburn (E-Learning manager)
aholburn@jesmondparkacademy.org.uk

Revision Support

Before any summative assessment, students will be given a revision list. This is a list of all the topics that may be assessed in the test.



Jesmond Park Academy

Revision Homework: SUMMATIVE ASSESSMENT 1

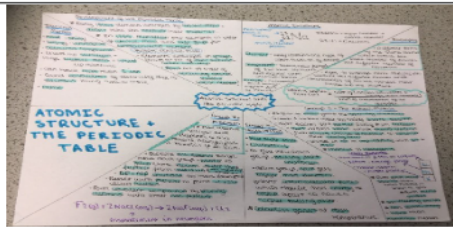
Task Objective: To revise the key concepts required for your summative assessment

To prepare for your forthcoming science test you will need to revise the following topics:

MATTER: Periodic table • Atomic structure • What are elements • Structure of the periodic table	ECOSYSTEMS: Photosynthesis • Word equation • What photosynthesis is • Factors affecting photosynthesis
MATTER: types of reaction • What are compounds • Writing word equations • Balancing equations • Chemical and physical changes • Reactivity of metals • Displacement reactions	Digestive system • Balanced diet • Food labels • Digestive system • Enzymes and how they work • Digestive enzymes

Revision Tips:

- Make a revision poster to summarise all key points
- Make small flashcards to help memorise content
- Use BBC Bitesize to revise the key ideas and the end of topic quizzes to test your knowledge
- Don't forget to see you teacher if you have any questions!



YOU MUST PROVIDE EVIDENCE OF YOUR REVISION



Online tutorial links: view slide show and click link

ECOSYSTEMS: Photosynthesis	YouTube links
Word equation	• Photosynthesis (youtube.com)
What photosynthesis is	
Factors affecting photosynthesis	• Factors affecting the rate of Photosynthesis - GCSE Biology (9-1) (youtube.com)
Digestive system	YouTube links
Balanced diet	Food groups, nutrients and eating a balanced diet Primary Science - Live Lessons (youtube.com)
Food labels	
Digestive system	Digestive System (youtube.com)
Enzymes and how they work	Enzymes in digestion (youtube.com)
Digestive enzymes	
MATTER: Periodic table	YouTube links
Atomic structure	Structure of the atom (youtube.com)
What are elements	Atoms, Elements, Compounds and Mixtures (youtube.com)
Structure of the periodic table	The Periodic Table (Groups 1, 7 and 0) (youtube.com)
MATTER: types of reaction	YouTube links
What are compounds	• Atoms, Elements, Compounds and Mixtures (youtube.com)
Writing word equations	• Chemical Reactions (youtube.com)
Naming Compounds	• Naming Compounds (youtube.com)
Balancing equations	• GCSE Chemistry - Balancing Chemical Equations #4 (youtube.com)
Chemical and physical changes	• Physical and Chemical Changes (youtube.com)
Reactivity of metals	• Key Stage 3 Science (Chemistry) - The Reactivity Series and Metal Extraction (youtube.com)
Displacement reactions	• Displacement Reactions (youtube.com)

Revision

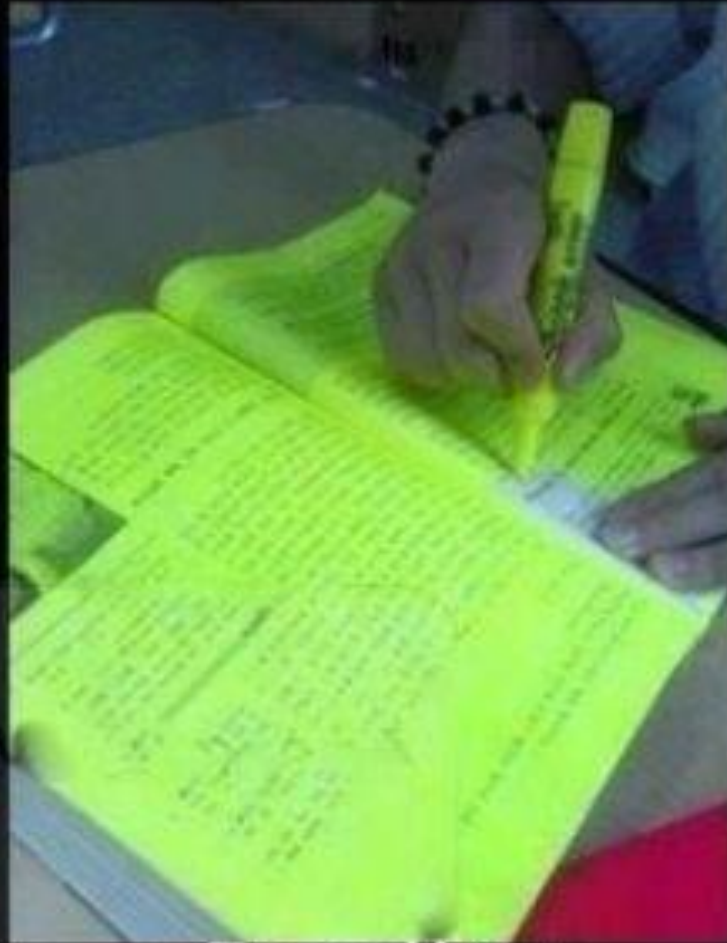
What students think happens with revision...



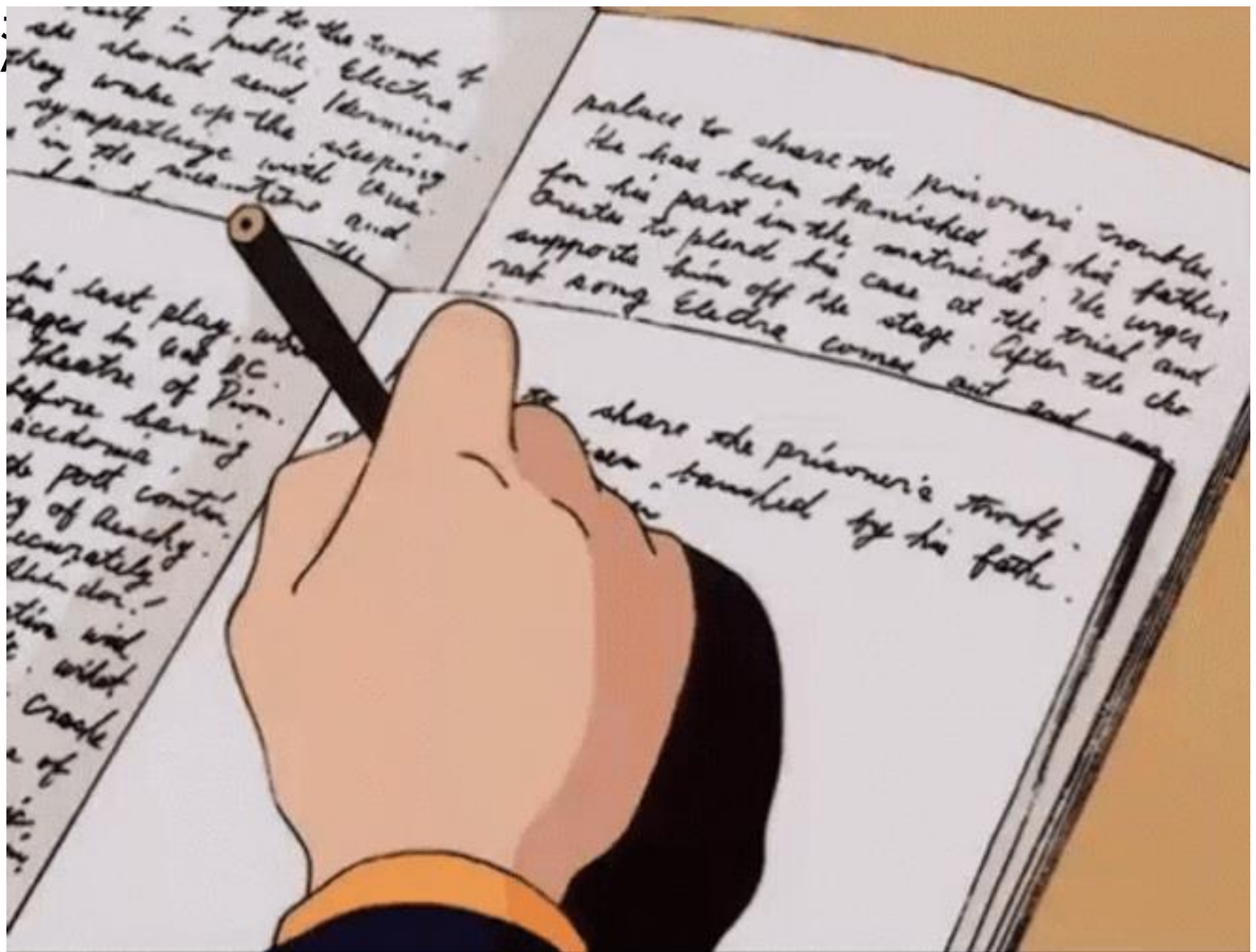
Summarizing before exam.



expectation



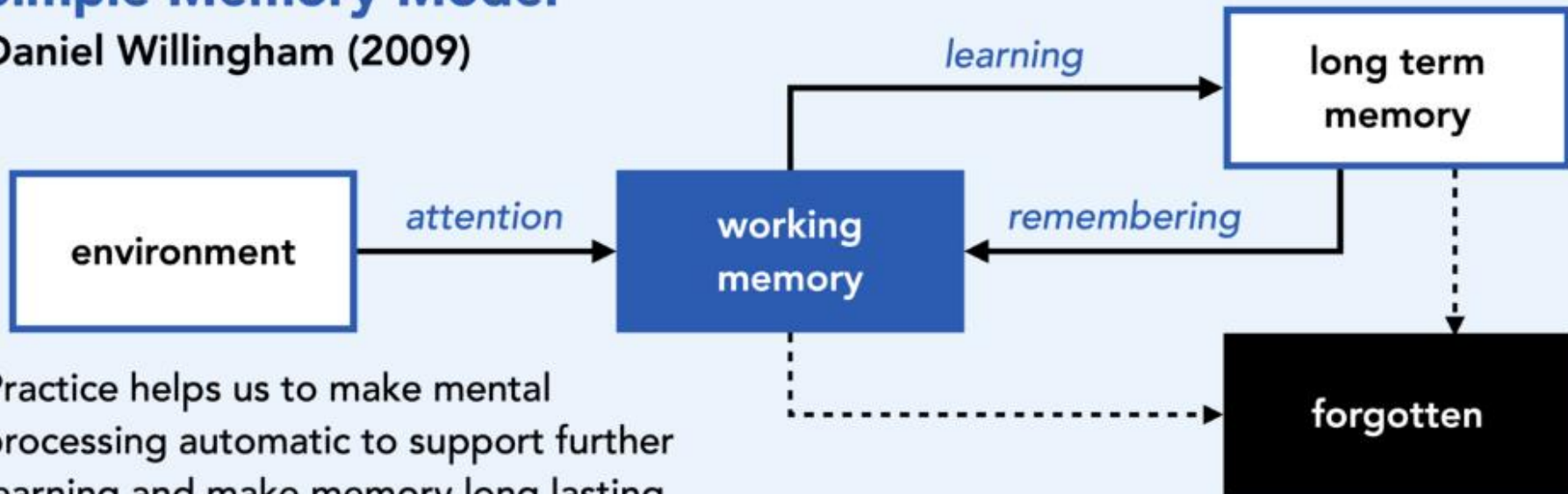
Reality



Best form of revision is retrieval practice ...

Simple Memory Model

Daniel Willingham (2009)



Practice helps us to make mental processing automatic to support further learning and make memory long lasting.

3 'R's: Remember It, Recall It, Retain It.

Promote revision strategies that get your child to actively retrieve their learning.

Example: Flashcards.

Cards with question and the front and answers on the back.

ORGANISM: Digestion

Food

You need to eat a wide variety of foods to get all the food substances that we need. When we do this, we are said to have a **balanced diet**. Carbohydrates, proteins, fats and oils (lipids), vitamins and minerals are **nutrients**, which means that they provide the raw materials for making other substances that the body needs.

Substance needed	Examples	Why it is needed	Good source
Carbohydrates	Starch, sugars	For energy (in respiration)	Grains, bread, rice, potatoes
Protein		For growth and repair (building new substances)	Meat, fish, beans
Vitamins	Vitamin C	For health	Fruits and vegetables (e.g. oranges contain lots of vitamin C)
Minerals	Calcium	For health	Fruits, vegetables and dairy products (e.g. milk contains calcium)
Fibre		For health (helps to stop constipation)	Wholemeal bread, wholegrain rice, celery and other fibrous vegetables
Water		For health (water dissolves substances and fills up cells)	

We can do tests to find out which substances are in foods. For example, starch makes iodine solution go a blue-black colour.

Nutrition information labels on foodstuffs tell us what the food contains. The labels also tell us how much energy is stored in the substances that make up the food. The amount of energy is measured in kJ.

- levels of a
- age (broad)
- whether it's

Food labels tell us how many calories (energy) are in a food. People often use the word 'calories' to mean 'energy'.

Digestion

Digestion is the process by which food is broken down into small molecules that can be used by the body.

Summary Sheets

ORGANISM: Digestion

The gut

Food is digested in the gut.



Putting food in the mouth is called **chewing** or **mastication**. The teeth grind up the food and mix it with a **digestive juice** called **saliva**. Digestive juices contain enzymes.

Saliva is produced by the **salivary glands**. Saliva contains **amylase**, an enzyme.

In the stomach, strong acids are added to the food and more digestive juices are added to break down proteins.

Food is swallowed down the **gullet** (oesophagus) or **food pipe**. The muscles along the wall of the gullet get smaller (they contract).

FOLD HERE AND GLUE INTO BOOK

Y8 Periodic table Assessment

- I know that an element is made from...
 - ☐ A. several different types of atoms.
 - ☐ B. only one type of atom.
 - ☐ C. made of two different types of atoms joined together.
 - ☐ D. made of different types of compounds.
- I know that an atom is made from...
 - ☐ A. Protons, neutrons, and molecules
 - ☐ B. Protons, electrons, and neutrons
 - ☐ C. Neutrons, electrons, and compounds
 - ☐ D. Electrons, neutrons, and cells
- I know that the atomic number of an element tells us...
 - ☐ A. the number of neutrons in an atom
 - ☐ B. the number of protons in an atom
 - ☐ C. the number of electrons in an atom
 - ☐ D. the mass of the atom
- I know how to calculate the number of neutrons in an atom.
 - ☐ A. Subtract the atomic number from the mass number.
 - ☐ B. Add the atomic number to the mass number.
 - ☐ C. Subtract the mass number from the atomic number.
 - ☐ D. Divide the mass number by the atomic number.
- I know that the electrons are...
 - ☐ A. located in the nucleus and have a positive charge.
 - ☐ B. located on the shells/orbitals and have a positive charge.
 - ☐ C. located in the nucleus and have a negative charge.
 - ☐ D. located on the shells/orbitals and have a negative charge.
- I know that the periodic table is a...
 - ☐ A. list of all known molecules
 - ☐ B. a list of all known elements
 - ☐ C. a chart of all known compounds
 - ☐ D. a table of all known atoms

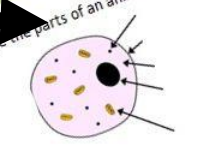
Name: _____ Class: _____

- I know that the periodic table is arranged in...
 - ☐ A. Rows called groups and columns called periods.
 - ☐ B. Rows called periods and columns called groups.
 - ☐ C. Rows called elements and columns called atoms.
 - ☐ D. Rows called atoms and columns called elements.
- I know that the elements in group 1 known as the...
 - ☐ A. Halogens
 - ☐ B. Alkali metals
 - ☐ C. Noble gases
 - ☐ D. Transition metals
- I know that as you go down group 1 the reactivity of the element...
 - ☐ A. decreases.
 - ☐ B. It increases.
 - ☐ C. It stays the same.
 - ☐ D. It disappears.
- I know that the elements in group 7 known as the?
 - ☐ A. Halogens
 - ☐ B. Alkali metals
 - ☐ C. Noble gases
 - ☐ D. Transition metals
- I know that as you go down group 1 the reactivity of the element...
 - ☐ A. decreases.
 - ☐ B. It increases.
 - ☐ C. It stays the same.
 - ☐ D. It disappears.

Cell Biology

Biology Paper 1

Name the parts of an animal cell



Cell Biology

Biology Paper 1

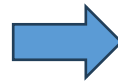
What is the definition of diffusion?

The movement of particles from an area of high concentration to an area of low concentration.

Promote revision strategies that get your child to actively retrieve their learning.

Example: Brain dump

On an A4 piece of paper, write down what you can remember from the topic.



Use the summary sheet (*one drive*) to add any info in red that they couldn't recall.



BRAIN DUMP

RETRIEVAL PRACTICE – NO NOTES ALLOWED!

Without looking in your books, write down everything you remember about _____



REPEAT!

Hopefully, each time they will remember more.

ORGANISM: Digestion

Food

We need to eat a wide variety of foods to get all the food substances that we need. When we do this, we are said to have a **balanced diet**. Carbohydrates, proteins, fats and oils (lipids), vitamins and minerals are **nutrients**, which means that they provide the raw materials for making other substances that the body needs.

Substance needed	Examples	Why it is needed	Good sources
Carbohydrates	starch, sugars	For energy (respiration)	pasta, bread, rice, potatoes
Proteins	meat, fish, beans	For repair (tissues)	meat, fish, beans
Fats and vegetables	(e.g. oranges contain lots of vitamin C)	For energy (respiration)	fruits and vegetables
Fruits, vegetables and dairy products	(e.g. milk contains calcium)	For energy (respiration)	fruits, vegetables and dairy products
Wholemeal bread, wholegrain rice, celery and other fibrous vegetables		For energy (respiration)	wholemeal bread, wholegrain rice, celery and other fibrous vegetables

For example, starch makes iodine tests. For example, starch makes iodine tests. For example, starch makes iodine tests.

Food contains. The labels also tell us how we food. The amount of energy in person needs in a day depends on (kg).

Suits do) to energy than girls).

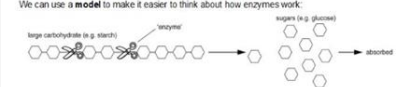
In use persuasive language.

Such fat may cause **heart disease** and can **raise** **cholesterol** and obesity are both forms of such as **scurvy**, which is due to a lack of vitamin C.

Digestion

Digestion turns large **insoluble** substances into small **soluble** ones. The organs of the **digestive system** help us digest food. Many of them produce **enzymes** (substances that are **catalysts** and help speed up food digestion).

We can use a **model** to make it easier to think about how enzymes work:

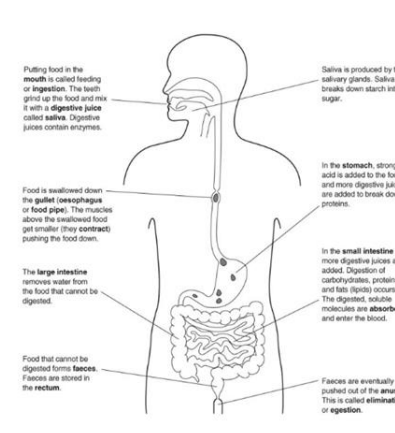


Summary Sheets

ORGANISM: Digestion

The gut

Food is digested in the gut.



Putting food in the mouth is called **feeding** or **ingestion**. The teeth grind up the food and mix it with a **digestive juice** called **saliva**. Digestive juices contain enzymes.

Food is swallowed down the gullet (oesophagus or food pipe). The muscles above the swallowed food get smaller (they contract) pushing the food down.

The large intestine removes water from the food that cannot be digested.

Food that cannot be digested forms **faeces**. Faeces are stored in the **rectum**.

To help absorb the digested food, the wall of the small intestine is folded and covered with **villi**. The cells have **microvilli**. These features all increase the **surface area**. The wall of the small intestine is also only one-cell thick, meaning that it is easy for small molecules to **diffuse** out of the small intestine and into the blood. The digested food molecules are carried in the **blood plasma**.

The surface area is the total area of the faces of a three-dimensional object.

Saliva is produced by the **salivary glands**. Saliva breaks down starch into sugar.

In the stomach, strong acid is added to the food and more digestive juices are added to break down proteins.

In the small intestine more digestive juices are added. Digestion of carbohydrates, proteins and fats (lipids) occurs. The digested, soluble molecules are **absorbed** and enter the blood.

Faeces are eventually pushed out of the anus. This is called **elimination** or **egestion**.

Mrs Claire Money (Head of faculty)

Cmoney@jesmondparkacademy.org.uk

Mrs Karley Johnson (Second in Science)

KJohnson@jesmondparkacademy.org.uk

Dr Jayne Armstrong

(Lead teacher for Y9 and GCSE separates lead)

JArmstrong@jesmondparkacademy.org.uk