



Park Community School



2021-2022

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Department Aims and Vision

The main aims of the science department are:

1. To ensure that all pupils are engaged and enjoy being in science. Promote awe and wonder of science.
2. To promote the real-life applications of science in everyday life.
3. To allow students to work as scientists, by using practical skills to enhance the learning of content.



The vision of the department consists of the 4Cs, these are consistency, curriculum, challenge and collaboration.

- **Consistency** in our teaching and our approach to the success of all pupils.
- Having a broad and engaging **curriculum** to ensure that we allow pupils to solve problems and apply knowledge to a range of different contexts. Allowing students to ask questions and to promote awe and wonder in KS3.
- To **challenge** the thinking of students and promote independence in and out of the classroom.
- To **collaborate** and share good practice and to celebrate the strengths of the department and also give support and develop our weaknesses when necessary.

Science Curriculum

Intent

Science has something to offer every student, suiting all abilities and all aspirations. Our aim is to develop worldly citizens through boosting cultural capital.

During KS3 in science, we promote awe and wonder. We want our students to be curious about the world around them and be confident to ask questions and investigate a range of possibilities.

Our curriculum is designed to build upon the learning in KS2 and enable students to develop the necessary skills when working as a scientist. Vocabulary is very important in science and we develop the amount of science specific words learnt by students and ensure these are practised by orally and in written work.

Once at KS4, we build upon the key skills and knowledge learnt in KS3 and continue to master these and apply to a range of contexts.

Implementation

We fully promote literacy and use fortnightly news articles on current issues/stories to promote cultural capital in KS3 and to allow students to understand the world around them. In KS3, we currently complete termly awe and wonder specific lessons; these are designed to allow exploration of students own questions.

We have a centralised SOW designed to ensure NC covered with appropriate levels of challenge. Includes working scientifically skills to be covered and assessed.

For KS4, we have a centralised SOW designed to ensure AQA specification is covered from grades 1-9.

We improve and master the working scientifically skills built upon from KS3, while covering the required practical elements of the course.

Clear focus on expanding scientific vocabulary to ensure fluency in both written and verbal answers.

Fully embedded maths skills that are required, with clear links with maths methods and vocabulary used.

Impact

During KS3, we want students who ready for KS4 with necessary skills and knowledge to build upon and are 'GCSE ready'.

Students have high aspirations and enjoyment of science when leaving KS3 and students are able to achieve age related expectations (ARE) or above and are fully prepared for their GCSE.

Once in KS4, our aim is to increase the number of students going onto study a science subject at higher education.

Department Expectations

Day to day

During non-contact time, it is the expectation that you work in the STEM office or in your classroom. This is to support other members of the department and to ensure that the area is kept calm and classes are taken in promptly.

All members of staff need to be a corridor presence at lesson changeovers.

All windows need to be closed at the end of the day, sinks checked, the desk kept clear, computer logged off and the screen turned off before leaving.

Meetings

Meetings start promptly at 2pm on a Tuesday in G01. Meetings last for 2 hours. Part of this meeting could be a year group, family or staff meetings. Time during this meeting will be used for the development of the department.

It is expected that **all** members of the team attend and are willing to complete appropriate minutes when requested. Planners and other note taking equipment (diary, pen and paper etc) should be brought to the meeting to ensure that key dates and actions are noted by all.

If a task needs to be completed between meetings, it is expected that this is done to the deadline. If there is an issue, this must be addressed prior to the meeting.

If you know you are unable to attend the meeting, apologies must be sent to LCO prior to the meeting with reasons. Phones, ipads etc should **not** be brought in or used in the meeting.

Sickness and Cover

If you are ill and are unable to come into work, you need to text LCO (078249936613) as early as possible. You are also required to ring in to the school (**023 92 489808**) and leave a message with *your full name, the day and date, a brief reason for the absence*. This is to ensure that cover teachers are notified to cover your lessons.

If you are able to set cover work then this should be emailed in by 8am so any photocopying can be done in the morning prior to any lessons starting. The correct cover sheet should be completed with a suitable amount of activities that can be completed. **No ipads can be used for cover.**

If you are unable to set cover, LCO must be informed as soon as possible in order for cover to be sorted on your behalf.

If you are absent due to a course, trip or other personal reason, cover should be left in school ready to be used. A copy should be left with LCO in case any issues arise.

Technicians

Guide for ordering equipment.

There are two technicians in the department, they are:

Claire Tomlinson (Senior Technician) - Monday, Tuesday, Wednesday.

- 750am until 410pm.

Nicky Marsh (Senior Technician) – Wednesday - 9am until 2pm.

Thursday, Friday – 9am-3pm

Key things to remember when ordering equipment:

- Orders should be in by lunch time on Thursday, especially if shopping is required.
- Please be aware that if more than one person orders the same equipment it will be given on a first come basis.
- If you are hoping to do a practical that is not on a SOW please discuss with us first to check we have what is required.
- Please use CLEAPPS before a practical. **Username: moon Password: nasa21**
- If it is practical you have not carried out with a class before, please ask and you will be able to practice first to ensure it is safe for use with a class.
- If you do not use your equipment in the lesson it was prepared for, please be aware that in busy times it may be taken for another class.
- Late requests are usually possible, but please check with us first.
- Please ensure that you count equipment in and out.
- There is a dust pan and brush in each lab, which should be used if there are any breakages. Glass bins are in each prep room.

The perfect request sheet

Name	1	2	3	4	5
Mon	Year Grp, Room, No. in class. Demo or class set. List of equipment & ref to SOW.				
Tues					
Weds					
Thurs					
Fri					

Red lines – what this looks like in science

Strand	Expectation	How this can be seen in science.
Reading	Students are expected to read aloud	Including; exam questions, text on screen, textbooks, methods for practical's
	Teacher actively models reading	During I do activities or during the modelling of exam questions
	Reading materials are of a high quality	
	Summarise/ synthesise- reading model added	Key methods from required practical's
First 5	Teacher Greets at the door	G01 – Outside door, G02 – Technology side, G03 – Lined up at wall, G04 – lined up towards stairs, G05 – Lined up between doors, G06 – lined up outside door, G07 – lined up down stairs
	Do it Now task	Written/on slide prior to LOs.
	Objectives, Map & Keywords shared	LO's not written, title and keywords written. Keywords written in margin.
Classroom	Classroom tidy	Check equipment, sinks and floor
	Smart displays support learning	
	Seating plan in place	Boy/girl. Can change during investigations.
Teaching	Teaching is based on clear objectives	KS3 – National curriculum KS4 – Specification
	Directed questioning is used to hold students to account	Most students per lesson, name students and not always hands up.
	Modelling is used to promote progress i.e.: metacognitive and/ or WAGOLL	During question modelling activities OR exam questions fortnightly
	Students orally rehearse responses to questions	Kagen strategies (Round Robin, Think pair share, Rally robin)
	Students are expected to 'get stuck'/ think hard	4B's, assessments – applications to think hard Comfort, stretch, panic
	Take 5	Interleaving activities – will cover previous learning
Feedback	Frequent assessment of learning impacts progress	Assessments – Yr 7-9 as per scheme of work. Deep marking and feedback with allocated review time and completion of whole class feedback sticker.
	Regular written feedback given as per dept policy	In-flight marking per fortnight – each student book to be marked fortnightly during lesson time.
	Feedback is effective i.e.: impacts on progress	
	Review of assessments - class based and individual	Review time allocated in lessons – includes green penning for improvements and extension questions, exam questions
Final 5	Learning is reviewed/ summarised/ questioned	As plenary
	Students behind chairs in silence	
	Teacher dismisses at door	
Consequences	System used as necessary	Rewards given
	Low level disruption is addressed swiftly	
	Calm and consistent manner use of consequence system	

Schemes of Work - Overview

All schemes of work include:

1. Scheme of Work (produced in a PowerPoint format)
2. Front sheet for all schemes which contain National curriculum/specification content and all practical equipment required for the lesson.
3. Big Picture of scheme for students (in exercise books):
4. Assessments as prescribed per topic.
5. Years 7-9: Multiple choice tests (three times per year)
6. Homework (ms forms for KS3 fortnightly, Yr 10 weekly MCQ)

Rosenshine's Principles *(taken from Rosenshine's principles in action; Tom Sherrington 2019)*

The following is a list of instructional procedures that underpin our teaching and fundamentally link into our schemes of work;

- Begin a lesson with a short review of previous learning (Do now/starters/Take 5)
- Present new material in small chunks with student practice after each step
- Limit the amount of material students receive at one time
- Give clear and detailed instructions and explanations
- Ask a large number of questions and check for understanding (whole class involvement)
- Provide high level of active practice for all students
- Guide students as they begin to practice
- Think aloud and model steps (metacognition and oral rehearsal is promoted)
- Provide models of worked-out problems
- Ask students to explain what they had learned
- Check the response of all students
- Provide systematic feedback and corrections
- Use more time to provide explanations
- Re-teach material when necessary
- Prepare students for independent practice
- Monitor students when they begin independent practice

All teachers to have a model exercise book – use with visualiser, for WAGOLL's etc

Schemes of work



All schemes of work are written and are fully linked to National curriculum and exam specification. They include any keywords that should be covered in the scheme, the working scientifically skills that are covered and the assessments that would be completed.

The front sheet for each topic also shows any previous knowledge from KS2/KS3 and where this topic fits in to KS4.

See example below:

KS3 – Year 7

Organisms

<p>What's the science story?</p> <p>Organisms, living and dead, are made up of cells. Cells are made of molecules organised into membranes and other structures. Most cells are too small to be seen with the naked eye but can be seen using a light microscope. There are many different types of cells with different shapes and sizes, but all cells are made up of common parts: all cells have a genome and cytoplasm contained by a cell membrane; all animal and plant cells store their genome within a nucleus, and they also have mitochondria; plant cells additionally have a cell wall and can have chloroplasts and a vacuole. These parts have common functions in all cells.</p> <p>A single cell can carry out all the processes of life. An organism may be made up of a single cell or many cells working together. This is why scientists think of cells as the basic units of life. To stay alive, cells need a constant supply of energy and molecules for chemical reactions, and they need to get rid of waste. Molecules move through the cytoplasm by diffusion, and some molecules can enter and leave a cell by diffusing through the cell membrane.</p> <p>In a multicellular organism the cells are organised into tissues, organs and organ systems that work together to support the life processes of cells to keep the organism alive. Humans and other animals have a skeleton and muscles, which are types of tissue made up of cells. Bones provide support and protection for organs. Bones and muscles work together to enable humans to move around, and muscles have vital roles in organs and organ systems.</p>																														
<p>Previous knowledge:</p> <p>KS2 – Yr 5/6 Living things and habitats Animals, including humans</p>	<p>Next steps...</p> <p>KS3 Yr8 - Body systems Yr9 - Photosynthesis & Respiration</p> <p>KS4 Yr 10 - B1 Cell Biology Yr 10 - B2 Organisation</p>																													
<p>Keywords</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 25%;">Cell</td> <td style="width: 25%;">Chloroplast</td> <td style="width: 25%;">Diffusion</td> <td style="width: 25%;">Gametes</td> </tr> <tr> <td>Organism</td> <td>Vacuole</td> <td>Unicellular</td> <td>Gestation</td> </tr> <tr> <td>Nucleus</td> <td>Tissue</td> <td>Multicellular</td> <td>Pregnancy</td> </tr> <tr> <td>Cytoplasm</td> <td>Organ</td> <td>Hierarchy</td> <td>Pollination</td> </tr> <tr> <td>Cell membrane</td> <td>Organ system</td> <td>Antagonist</td> <td>Dispersal</td> </tr> <tr> <td>Mitochondria</td> <td>Magnification</td> <td>Menstrual cycle</td> <td>Ecosystem</td> </tr> <tr> <td>Cell wall</td> <td>Specialised</td> <td>Fertilisation</td> <td>Interdependence</td> </tr> </table>			Cell	Chloroplast	Diffusion	Gametes	Organism	Vacuole	Unicellular	Gestation	Nucleus	Tissue	Multicellular	Pregnancy	Cytoplasm	Organ	Hierarchy	Pollination	Cell membrane	Organ system	Antagonist	Dispersal	Mitochondria	Magnification	Menstrual cycle	Ecosystem	Cell wall	Specialised	Fertilisation	Interdependence
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Cell wall	Specialised	Fertilisation	Interdependence																											

For each lesson, there are objectives;

KS3 – They are aimed at *Age related expectations (ARE)* and *At greater depth (AGD)*

KS4 – They are aimed at grade 4, grade 6 and grade 8.

They also cover practical or demonstration that could be covered. Equipment is clearly listed for ordering with the technicians.

KS3 – Year 7

Lesson No. and Title	Learning objectives	National Curriculum	Working scientifically skills	Practical equipment
<p>1. Observing cells</p> <p><i>Possible exit ticket - microscopes</i></p>	<p>ARE – To explain how to use a microscope and state the magnification.</p> <p>AGD – To calculate a range of magnifications.</p>	<ul style="list-style-type: none"> cells as the fundamental unit of living organisms, including how to observe, interpret and record cell structure using a light microscope 		<p>PRAC—Observe prepared slides under microscope Microscopes and prepared slides</p> <p>WS8 – Reading and using a given method</p> <p>WS10 – Selecting the correct equipment</p>
<p>2. Cells</p>	<p>ARE – To correctly draw and label a plant and animal cell.</p> <p>AGD – To explain the functions of the components of animal and plant cells.</p>	<ul style="list-style-type: none"> the functions of the cell wall, cell membrane, cytoplasm, nucleus, vacuole, mitochondria and chloroplasts 		

Exercise books

There are 4 different exercise books used in science:

1. Year 7, 8, 9 - Orange book (periodic table on the back cover)
2. KS4 Biology – Green book (common cells on back cover)
3. KS4 Chemistry – Pale pink book (periodic table on the back cover)
4. KS4 Physics – Blue book (physics equations on back cover)

All centre pages include:

- How to draw a graph
- Exam command words
- Common scientific words



On the inside cover of all books, there will be an assessment page to stick in. It must be completed by the student as each assessment is completed. An example is shown below:



Year 7 Assessments

What grade are you working at?

What do we have evidence for?

Topic	Assessment	Grade	Effort Rating
Identity 	1. DNA Discovery		☆☆☆☆☆
	2. Variation in a family		☆☆☆☆☆
	3. Adaptations of a bear		☆☆☆☆☆
	4. Evolution and extinction		☆☆☆☆☆
Reactions 1 	1. Acids and Alkalis		☆☆☆☆☆
	2. Neutralisation		☆☆☆☆☆
	3. Solubility		☆☆☆☆☆
	4. Separating mixtures		☆☆☆☆☆

For each assessment students enter their grade into the table.

They must score their effort for that particular task (score out of 5)

KS4 Big picture

BIG PICTURE

There are six papers: two biology, two chemistry and two physics. Each of the papers will assess knowledge and understanding from distinct topic areas.

Physics Paper 1

Area of specification	Subtopics	Required Practical
Energy	Energy changes in a system, and the ways energy is stored before and after such changes Conservation and dissipation of energy National and global energy resources	Specific heat capacity
Electricity	Current, potential difference and resistance Series and parallel circuits Domestic uses and safety Energy transfers	Resistance I-V characteristics
Particle model of matter	Changes of state and the particle model Internal energy and energy transfers Particle model and pressure	Density
Atomic structure	Atoms and isotopes Atoms and nuclear radiation Hazards and uses of radioactive background radiation	

Physics Paper 2

Area of specification	Subtopics	Required Practical
Forces	Forces and their interactions Work done and energy transfer Forces and elasticity Pressure Forces and motion Momentum	Force and extension in a spring
Waves	Waves in air, fluids and solids Electromagnetic waves	Waves – in liquid and solid
Magnetism and electromagnetism	Permanent and induced magnetism, magnetic forces and fields The motor effect	None

These will be the end of topic tests scores and grades.
Includes test number and title of test.

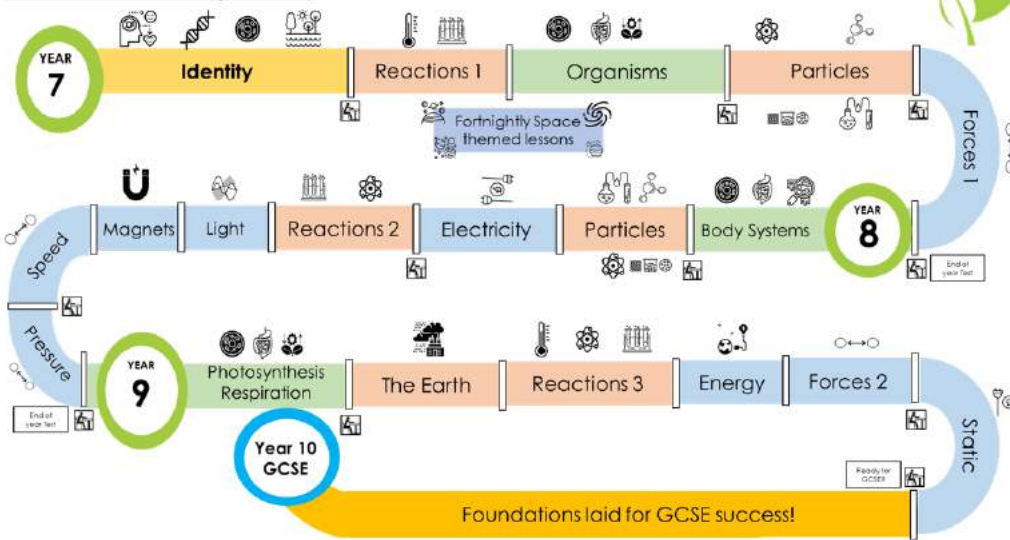
How it is assessed:

- Written exam: 1hr 15minutes
- Foundation and Higher tiers
- 70 marks
- 16.7% of GCSE

A mixture of multiple choice, structure, closed short answer and open response.

KS3 Big picture

KS3 Science Learning Journey



Working Scientifically Skills	7	8	9
WS1 Scientific methods			Y
WS2 Draw/Interpret diagrams			Y
WS3 Make predictions			Y
WS4 Ethical arguments			Y
WS5 Risk perception			Y
WS6 Peer review			Y
WS7 Hypothesis	Y	Y	Y
WS8 Method	Y	Y	Y
WS9 Variables	Y	Y	Y
WS10 Selecting equipment	Y	Y	Y
WS11 Hazards	Y	Y	Y
WS12 Errors	Y	Y	Y
WS13 Constructing tables	Y	Y	Y
WS14 Graphs	Y	Y	Y
WS15 Data	Y	Y	Y
WS16 Using equations	Y	Y	Y
WS17 Make conclusions	Y	Y	Y
WS18 Converting units	Y	Y	Y
WS19 Prefixes and powers	Y	Y	Y

7	8	9	Knowledge linked to GCSE
Y	Y	Y	Cell Biology
Y	Y	Y	Organisation
Y	Y	Y	Bioenergetics
Y	Y	Y	Homeostasis and response
Y	Y	Y	Inheritance, variation and evolution
Y	Y	Y	Ecology
Y	Y	Y	Atomic structure and the periodic table
Y	Y	Y	Bonding, structure and the properties of matter
Y	Y	Y	Chemical changes
Y	Y	Y	Energy changes
Y	Y	Y	The rate and extent of chemical change
Y	Y	Y	Chemical analysis
Y	Y	Y	Chemistry of the atmosphere
Y	Y	Y	Energy
Y	Y	Y	Electricity
Y	Y	Y	Particle model of matter
Y	Y	Y	Forces
Y	Y	Y	Waves
Y	Y	Y	Magnetism and electromagnetism

These should be discussed with students in the first lesson and referred back to as often as possible. For KS4, once topics or required practicals are completed, they should be ticked off.

Exercise book expectations:

1. Exercise books are hole punched and treasury tags used to collate tests only.
2. Assessments will be stuck into books (not folded and stuck on one page) with the relevant model answer and feedback. (Assessments are printed on purple paper)
3. All other worksheets used need to be stuck neatly into books. Ideally trimmed to fit on one page of exercise book.
4. Pencil and ruler are used to draw any diagrams and tables.
5. Title and date should be in books but objectives do not need to be written but must be discussed with class at the beginning of the lesson and referred back to at the end of the lesson.
6. Keywords for the lesson should be written in the margin clearly.

See WAGOLL below:

Wednesday 11th
Dec 2019

key words

Epidermis
Phloem
Xylem
Palisade
sponge-Mesophyll
Phyll
Stomata
Guard cell

Do now
petals have a large surface area to allow for more uv rays to be absorbed so photosynthesis can take place.

In the stem is the Xylem and the phloem. Xylem transfers water and the phloem transfers nutrients.

Seed allows for new life to grow. ✓

Plant Cell

- barrier.	epidermal	the epidermal surface. its creates a waxy surface. creating a waterproof -
	Palisade Mesophyll	This contains a lot of chloroplasts which carry out photosynthesis.
	spongy Mesophyll	this tissue has some chloroplasts but has a large air space to make the diffusion easier.
	Xylem	This carries water and dissolved mineral ions.
	Phloem	The phloem carries the sap.
	Meristematic tissue	This grows at the tips this tissue is made up of rapidly dividing cells.

Take 5 ✓

Oxygen + glucose = waste products of carbon and water

$$6\text{O}_2 + \text{C}_6\text{H}_{12}\text{O}_6 \rightarrow 6\text{H}_2\text{O} + 6\text{CO}_2$$

Assessments

Assessments are used with all classes and should be completed at identified points. They are used to check the progress of the class and ensure that key concepts are fully understood by all.

Below is an example of a KS3 assessment:

Year 7 - Identity Assessment 1

The image below shows the four scientists involved in the discovery of DNA. Name the scientists and summarise their contribution to the DNA model we know today.



During the lesson

Students would be given the assessment at the end of a sequence of learning to check understanding.

It is completed at the end of the lesson and given in to the teacher to mark.

It must be marked prior to the next lesson ready for feedback and any improvements or extension activities to be given.

In between the lesson

When marking each piece of work, the feedback sheet for each student should be highlighted. This includes highlighting included statements in **green** and missing information in **pink**.

On the student's assessment, spellings and any key information that is incorrect should be highlighted in **pink** and any great sentences should be highlighted **green**.

Extension questions should be identified, common spelling mistakes and any other questions that could be used to further understanding of the key concept.

The spreadsheet also needs to be completed. This includes for each assessment point, if it is clearly understood a 2, partially understood a 1, not at all understood a 0. This will calculate a total and a grade. Teachers should use the spreadsheet to help further identify common areas of misunderstanding to inform teaching.

Back in lesson

Assessment - FEEDBACK

AO1 - WT	AO2 - ARE	AO3 - AGD
Number of scientists named in discovery of DNA structure.	Franklin and Wilkins worked together.	Wilkins and Franklin used x-rays to study DNA.
Specific names given: Watson, Crick, Wilkins, Franklin.	Watson and Crick worked together as partners.	Watson and Crick used x-ray images in their studies.
	Watson and Crick used the findings of Franklin and Wilkins in their own studies.	In 1953 Watson and Crick published about the structure being a double helix (two strands coiled)

Extension:

Keyword spelling

Students are issued with their individual feedback sheet. It should be clear where areas of strength are and areas for development, according to the coloured highlighting.

Students are the expected to green pen in missing information, correct incorrect information or to re-write their response if appropriate.

Extension questions should also be completed in green pen, these should be written on the board for students to answer in the given space. The questions should be class specific and linked to the given topic/task.

WAGOLL's may be used where necessary and strong students work shared using the visualiser.

Grades need to be recorded in the front of exercise books and effort levels given.

A follow up question/task may be used to show the concept is fully understood.

Assessments – Testing

KS3

Year 7, 8 and 9 are tested three times per year and these tests consist of a range of multiple-choice questions targeted on key concepts that should be secured. The other questions are a range of application questions.

Testing weeks:

KA1 – wc 6th December

KA2 – wc 28th March

KA3 – wc 23rd May

KS4 – Year 10

Year 10 will complete past exam papers twice throughout the year. They will test knowledge from the current year and previous years learning. There may be additional testing throughout the year if required.

Testing weeks:

KA1 – wc 15th November

KA2 – N/A

KA3 – wc 13th June

KS4 – Year 11

Year 11 have two mock fortnights scheduled and they will complete as many past papers as possible during these weeks.

Mock fortnights:

KA1 – wc 1st November

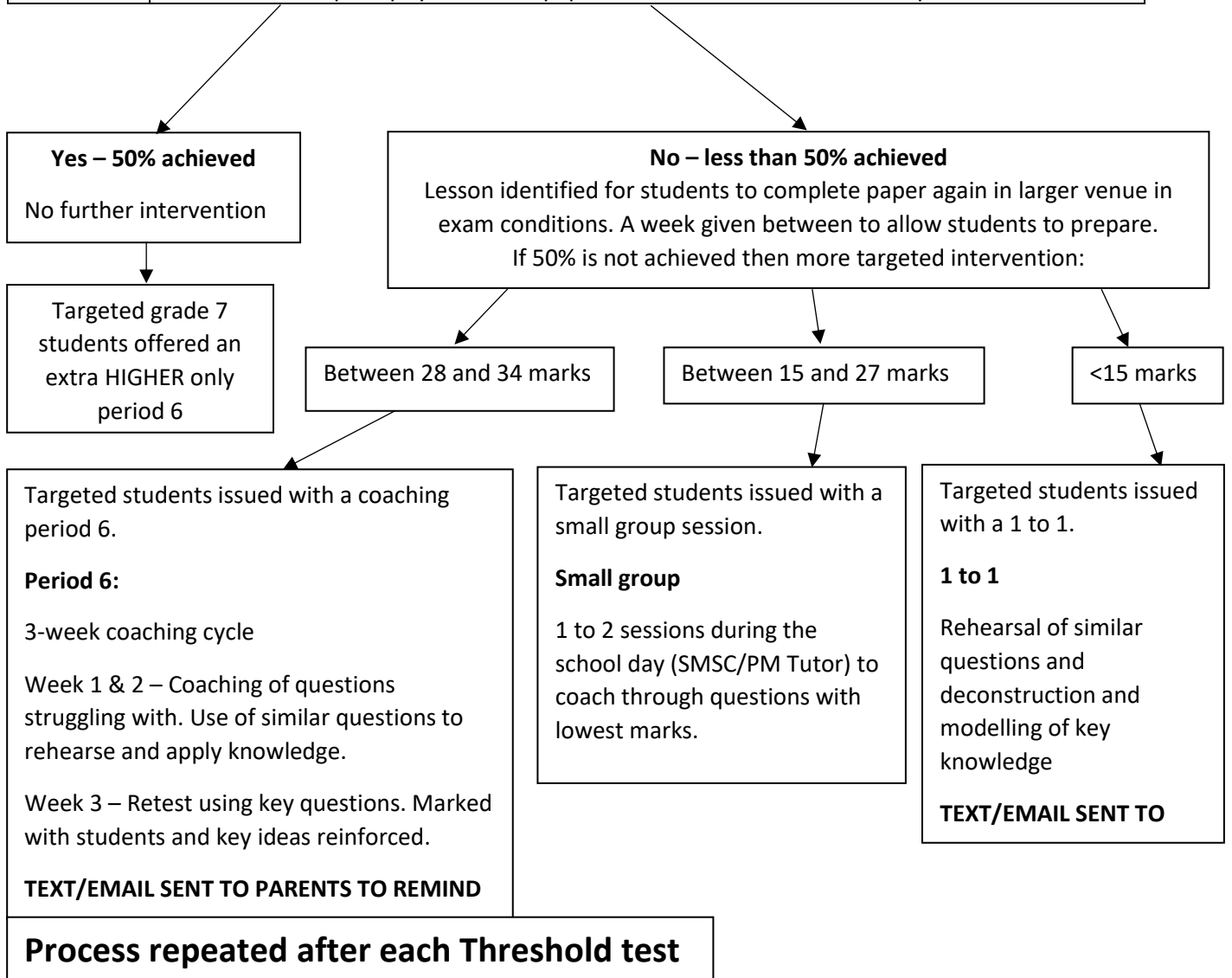
KA2 – wc 31st January

Threshold Testing in Science 2021-2022

Rationale - to promote confidence and gather information on any gaps/misconceptions students may have.

- Exam paper is split into two sections. This is completed by HOD/2iC and printed by pdp.
- Common lesson is identified for ALL classes to complete on a weekly basis.

Week 1 - 2	<ul style="list-style-type: none"> • The separate parts of the paper is completed with the class. • This is completed in silence. • Once finished, teacher (using visualiser) models the answers to class. • This will include annotating the question with any and all prior knowledge gathered from the question. To promote retrieval practise. • No scores need to be collected
<p>Students are to take each part of the paper home to use for revision. Videos made deconstructing and modelling these questions to support further students.</p>	
Week 3	<ul style="list-style-type: none"> • Students sit the whole paper in silence during lesson time. (ideally during a double lesson) • Expectation is for ALL students to achieve 50% or above (35/70) • Teacher promptly marks the paper and enters scores onto the dept tracker.



Period 6 in Science 2021-2022

Rationale – To address misconceptions in skills and knowledge and ensure weaker areas are addressed.

- Students chosen for period 6 are those at or close to grade boundaries and primarily those are the 4-3 and 5-4 boundary.
- HOD/2iC identify students after KA drops and from results of threshold testing.
- Period 6 sessions happen on a weekly basis and attendance is closely monitored.
- Staffing – period 6 sessions are run in teaching pairs and on a rotation.

Period 6 protocol	Key information
1. Students identified from year 10 KA3/mock data. 2. Students identified from year 11 KA1/KA2/mock data.	HOD/2iC identify 80-100 students who are targeted to achieve a grade 4-4 and above. Using KA3/mock data, those students currently not at this grade will be listed to possibly be in the firsts round of period 6. Approx 25-30 students identified for first period 6 sessions running between 4-6 weeks (per half term) After first half term, data from KA/mocks will then inform those students being chosen for the following rounds of period 6. Period 6 tracker will updating weekly, parents must be text/emailed to inform child has been invited and to update with attendance.

Period 6:

During the 4-6 period 6 sessions, the sequence below will be followed:

Week	Content	Further information
1	Students will complete approx. 3 exam questions on key content covered in previous year (at least 1 question on each exam identified by HOD/2iC). Teacher to mark these questions ready for the next session. Scores entered into the period 6 tracker.	Topics to be covered: Biology paper 1, Chemistry paper 1 and Biology paper 2. These have been covered during year 9/10 and during lockdowns.
2-5	During the next few sessions, reteaching of key areas not understood from exam questions.	SOW could be used during these sessions and extra homework can be given to promote retention. Extra question exams can be used but as models or as teaching opportunities.
6	In the final session, students will complete the same questions from the first session. Questions marked as a group and feedback given. Scores entered into the period 6 tracker promptly.	Students complete in silence.

Assessments – Judging progress

KS3

To ensure consistency across the department this will be judged using the assessment tracker and further checked through moderation of books and assessments in department meetings.

The tracker will calculate overall grades for each assessment, allowing an average to be calculated at each key assessment point.

Name	Class	Target	SEN	PP	1. Diet						2. Digestive system									
					WT	ARE	AGD	WT	ARE	AGD	WT	ARE	WT	ARE	AGD	AGD				
Adams, Emily-Louise			SEN Support	Yes																
Agha, Curtis				Yes																
Aldous, Aidan			SEN Support	Yes																
Allen, Maisie			SEN Support	No																
Anderson, Harmony				Yes																
Andrews-Male, Sammy-Jo			SEN Support	Yes																
Ash, Ava				No																
Ash, George				Yes																
Avis, Bailey				No																

The tracker would be used to give clear areas for development when at parents evening and feeding back to the individual. It will allow teachers to identify underachievers and those that need extra support. It will be reviewed regularly and discussed at department meetings.

KS3/KS4 Grades

To support with assigning grades to KS3 students, the following guidance must be followed:

KS3 Grade	KS4 AO	Activity
Working Towards	AO1	Recalling Listing Stating Identifying Defining Naming
Age Related Expectation	AO2	Describing Comparing Constructing Predicting Calculate independently
At Greater Depth	AO3	Explaining in detail Justifying Evaluating Concluding Rank with reasons Linking key concepts

Homework

KS3

Homework for Year 7,8 and 9 is given on a fortnightly basis on a Week A (specific day to be confirmed).

It will consist of a 10 mark MS forms quiz set on MS teams and a copy of the questions printed for those without internet. The score will be written in the margin of exercise books on a fortnightly basis and recorded by the teacher in the teacher planner. (Scores will be uploaded to dept tracker at end of each fortnight)

Questions Responses

Elements (20 Points)

Please read each question carefully.

1. An element is... (1 Point)

- made up of different atoms
- made up of the same atoms ✓

2. Which is the correct symbol for Barium? (1 Point)

- Ba ✓
- BA
- bA
- ba

MS Form quizzes are graded as follows:

WT – 1-3 points

ARE – 4-6 points

AGD – 7-10 points

Students who completed homework regularly will be sent reward postcards and rewarded at the end of each term.

KS4

Homework for Year 10 and 11 will be set using MCQ's on MS Forms on a weekly basis. It will cover content previously covered to promote retrieval practice and revision.

Scores should be recorded in exercise books weekly and rewards given to those achieving the highest scores.

Teaching groups

<u>7 P band</u>		<u>7 S band</u>		<u>7 N band</u>	
7S1/Sc1	JMC	7S2/Sc1	LFI	7S3/Sc1	ZTH
7S1/Sc2	MTU/TSH	7S2/Sc2	TSH	7S3/Sc2	JMC
7S1/Sc3	BRE	7S2/Sc3	BRE		

<u>8 P band</u>		<u>8 S band</u>		<u>8 N band</u>	
8S1/Sc1	LFI	8S2/Sc1	JMC	8S3/Sc1	BRE
8S1/Sc2	LCO	8S2/Sc2	TSH	8S3/Sc2	TSH
8S1/Sc3	SBN	8S2/Sc3	ZTH		

<u>9 P band</u>		<u>9 S band</u>	
9S1/Sc1	MTU	9S2/Sc1	SBN
9S1/Sc2	BRE	9S2/Sc2	ZTH
9S1/Sc3	LCO	9S2/Sc3	MTU
9S1/Sc4	LFI		

<u>Year 10</u>	
10S1/Sc1 (TRIPLE)	LCO
10S1/Sc2	MTU
10S1/Sc3	JMC
10S1/Sc4	LFI
10S2/Sc1	JBY/LFI
10S2/Sc2	ZTH
10S2/Sc3	MTU
10S3/Sc1 (INPS)	ZTH/JMC/LCO

<u>11 P band</u>		<u>11 S band</u>	
11S1/Sc1	LFI	11S2/Sc1	MTU
11S1/Sc2	ZTH	11S2/Sc2	JBY
11S1/Sc3	JMC	11S2/Sc3	LCO
11S3/Sc1 (INPS)	ZTH		

Assessment Schedule – KS3

Week commencing	Year 7	Year 8	Year 9		
6 th Sept	<p style="text-align: center;"><u>Identity</u></p> <p>1. DNA Discovery 2. Variation in a family</p>	<p style="text-align: center;"><u>Body Systems</u></p> <p>1. Diet 2. Digestive system 3. Breathing and gas exchange</p>	<p style="text-align: center;"><u>Photosynthesis and Respiration</u></p> <p>1. Photosynthesis and leaf structure 2. Aerobic and anaerobic respiration in living organisms</p>		
13 th Sept					
20 th Sept					
27 th Sept					<p style="text-align: center;"><u>Earth</u></p> <p>1. Rocks 2. Recycling materials</p>
4 th Oct					
11 th Oct					
18 th Oct					
Half Term					
1 st Nov	<p style="text-align: center;"><u>Identity</u></p> <p>3. Adaptations of a bear 4. Evolution and extinction</p>	<p style="text-align: center;"><u>Particles</u></p> <p>1. States of matter 2. Diffusion</p>	<p style="text-align: center;"><u>Reactions 3</u></p> <p>1. Metals and acids 2. Displacement reactions</p>		
8 th Nov					
15 th Nov		<p style="text-align: center;"><u>Electricity</u></p> <p>1. Current and potential difference 2. Series and Parallel</p>			
22 nd Nov					
29 th Nov					
6 th Dec					
13 th Dec					
Xmas Holiday					
3 rd Jan	<p style="text-align: center;"><u>Reactions 1</u></p> <p>1. Acids and Alkalis 2. Neutralisation 3. Solubility 4. Separating mixtures</p>	<p style="text-align: center;"><u>Reactions 2</u></p> <p>1. Chemical compounds 2. The periodic table 3. Group 1 metals</p>	<p style="text-align: center;"><u>Energy</u></p> <p>1. Energy transfers 2. Generating electricity</p>		
10 th Jan					
17 th Jan			<p style="text-align: center;"><u>Forces 2</u></p> <p>1. Hooke's Law 2. Gravity and planets</p>		
24 th Jan					
31 st Jan					
7 th Feb					
14 th Feb					
Half term					
28 th Feb	<p style="text-align: center;"><u>Organisms</u></p> <p>1. Animal and plant cells 2. Unicellular 3. Fertilisation 4. Flower fertilisation 5. Feeding relationships</p>	<p style="text-align: center;"><u>Light</u></p> <p>1. Reflection 2. Refraction</p>	<p style="text-align: center;"><u>Static</u></p> <p>1. Static and the Van de Graaff</p>		
7 th Mar					
14 th Mar			Air brick		
21 st Mar					
28 th Mar					
4 th April					
Easter Holiday					
25 th April	<p style="text-align: center;"><u>Forces</u></p> <p>1. Forces 2. Floating</p>	<p style="text-align: center;"><u>Magnets</u></p> <p>1. Electromagnets</p>	GCSE Skills		
2 nd May					
9 th May					
16 th May					
23 rd May					
Half Term					
6 th June	<p style="text-align: center;"><u>Particles</u></p> <p>1. States of matter 2. Diffusion</p>	<p style="text-align: center;"><u>Speed</u></p> <p>1. Distance-time graphs and speed</p>	GCSE Skills		
13 th June					
20 th June		<p style="text-align: center;"><u>Pressure</u></p> <p>1. Gas pressure</p>			
27 th June					
4 th July					
11 th July					
18 th July					

Curriculum Route – KS4

Week commencing	Year 10 + INSP	Year 10 Triple	Year 11 + INSP
6 th Sept	B1	B1	C5 C6
13 th Sept			
20 th Sept		B2	B2
27 th Sept	C8		
4 th Oct	C9		
11 th Oct	B3		C10
18 th Oct	Half Term		
1 st Nov	B2	B3	P1
8 th Nov	B3		
15 th Nov		B4	
22 nd Nov	B4	C1	P2
29 th Nov			
6 th Dec			
13 th Dec	Xmas Holidays		
3 rd Jan	C1	C2	P3
10 th Jan			
17 th Jan		C2	C3
24 th Jan			
31 st Jan	C4		C4
7 th Feb			
14 th Feb	Half Term		
28 th Feb	C3	C4	P6
7 th Mar	C4	C5	
14 th Mar		B5	P7
21 st Mar		B6	
28 th Mar			
4 th April	C5		
Easter Holidays			
25 th April	B5	B6	
2 nd May		B7	
9 th May			
16 th May	B6	P1	
23 rd May			
Half Term			
6 th June	B6	P1	
13 th June			
20 th June		Airbrick	
27 th June	WEX		
4 th July			
11 th July	B7	P2	
18 th July			

Appendix A – Working Scientifically skills

	Main skill	Details	Example
WS1	Scientific methods	How theories change over time, does the data support the theory or not	Big bang, Evolution
WS2	Draw/Interpret diagrams	Use a model to make predictions	
WS3	Make predictions	Make prediction using a model	
WS4	Ethical arguments	Rights and wrongs of technology	IVF, gene therapy, GM foods , selective breeding
WS5	Risk perception	Hazards of new technology	
WS6	Peer review	The importance of peer reviewing data - not biased	Vaccines, drug testing
WS7	Hypothesis	Suggest a hypothesis to explain given observations or data	
WS8	Method	Describe, write and use correct equipment AND evaluating the method used	
WS9	Variables	identify independent, dependent and control	
WS10	Selecting equipment	Select the correct most accurate equipment and describe why it is used, read off scales	Measuring cylinders, thermometer, stop watches
WS11	Hazards	Table completed to show hazard, risk and precaution - What, why and how	
WS12	Errors	Being precise, are results valid - systematic error, random error	
WS13	Constructing tables	Draw own table correctly	
WS14	Graphs	Draw all types of graph correctly - including LOBF if needed	
WS15	Data	Calculate means, ranges and uncertainty	
WS16	Using equations	Use given equations correctly	
WS17	Make conclusions	Write a conclusion using the data - must link to prediction or hypothesis	
WS18	Converting units	Convert from any unit	mm, cm, nm, kg, g, mg, kJ, J
WS19	Prefixes and powers		

Appendix B – AQA Combined Trilogy (8464)

Exam	Topics covered	Exam date
Biology Paper 1	Cell biology Organisation Infection and response Bioenergetics	
Chemistry Paper 1	Atomic structure and the periodic table Bonding, structure, and the properties of matter Quantitative chemistry Chemical changes Energy changes	
Physics Paper 1	Energy Electricity Particle model of matter Atomic structure	
Biology Paper 2	Homeostasis and response Inheritance, variation and evolution Ecology	
Chemistry Paper 2	The rate and extent of chemical change Organic chemistry Chemical analysis Chemistry of the atmosphere Using resources	
Physics Paper 2	Forces Waves Magnetism and electromagnetism	

Appendix C – Dept meeting agendas

Week commencing		Agenda
6 th Sept	A	1. Dept expectations 2. First lessons 3. Lesson prep AOB
13 th Sept	B	Staff meeting 1 Coaching
20 th Sept	A	1. Moderation – year 7/8 books 2. T and L 3. Subject CPD 4. Open evening AOB
27 th Sept	B	Open evening prep
4 th Oct	A	1. Moderation – year 9 books 2. T and L 3. Subject CPD 4. Twilight 1 feedback AOB
11 th Oct	B	Coaching
18 th Oct	A	1. Moderation – year 10/11 books 2. T and L 3. Subject CPD AOB
Half Term		
1 st Nov	B	Staff meeting 2 Coaching
8 th Nov	A	1. Moderation – year 7/8 books 2. T and L 3. Subject CPD 4. Twilight 2 feedback 5. Year 11 exam marking – time given AOB
15 th Nov	B	Coaching
22 nd Nov	A	1. Moderation – year 9 books 2. T and L 3. Subject CPD 4. Twilight 3 feedback AOB
29 th Nov	B	Coaching
6 th Dec	A	1. Moderation – year 10/11 books 2. T and L 3. Subject CPD 4. KS3 data entry AOB
13 th Dec	B	Coaching
Xmas Holidays		
3 rd Jan	A	Staff meeting 3
10 th Jan	B	Coaching
17 th Jan	A	1. Moderation – year 9 books 2. T and L 3. Subject CPD AOB
24 th Jan	B	Coaching
31 st Jan	A	1. Moderation – year 10 books 2. T and L 3. Subject CPD 4. Twilight 4 feedback

		AOB
7 th Feb	B	Coaching
14 th Feb	A	1. Moderation – year 11 books 2. T and L 3. Subject CPD AOB
Half Term		
28 th Feb	B	Staff meeting 4 Coaching
7 th Mar	A	1. Moderation – year 7 books 2. T and L 3. Subject CPD AOB
14 th Mar	B	Coaching
21 st Mar	A	1. Moderation – year 8/9 books 2. T and L 3. Subject CPD 4. Twilight 5 feedback AOB
28 th Mar	B	KS3 data entry - meeting Coaching
4 th April	A	1. Moderation – year 10/11 books 2. T and L 3. Subject CPD AOB
Easter Holidays		
25 th April	B	Staff meeting 5 Coaching
2 nd May	A	1. Moderation – year KS3 books 2. T and L 3. Subject CPD AOB
9 th May	B	Coaching
16 th May	A	1. Moderation – year KS4 books 2. T and L 3. Subject CPD 4. Twilight 6 feedback AOB
23 rd May	B	KS3 data entry - meeting Coaching
Half Term		
6 th June	A	Staff meeting 6
13 th June	B	Coaching
20 th June	A	1. Moderation – year 9/10 books 2. T and L 3. Subject CPD AOB
27 th June	B	Coaching
4 th July	A	1. Moderation – year 7 2. T and L 3. Subject CPD AOB
11 th July	B	Coaching
18 th July	A	

Notes

Notes