YEAR 7 - SCIENCE CURRICULUM MAP

Autumn Term

Themes covered:
B8 Organisms Part 1 – KO8 – Movement and Cells (KS3 NC: Structure and function of living organisms)
P1 Forces Part 1 – KO1 Speed and gravity. (KS3 NC: Motion and Forces)
C5 Matter Part 1 – KO5 Particle model, separating mixtures (KS3 NC: The particulate nature of matter and Pure and impure substances)

KS2 NC Content links:
B8 Organisms – KS2 NC: Animals including humans
P1 Forces – KS2 NC: Forces
C5 Matter – KS2 NC: States of matter, Properties and changes of materials

KS2 NC: Working scientifically
Enquiry Processes:
- Analyse
- Communicate
- Enquire
- Solve

Required practical activities: _ (KS3 NC: Working Scientifically, Scientific attitudes, Experimental skills and investigations, Analysis and evaluation and Measurements)
- Using microscopes
- ***Using a Newtonmeter***
- Filtration

Homework:
UHS End of topic exam style questions **x3**
CGP workbook pages (topic specific)
Literacy Foci:
- Working scientifically and topic specific Key Vocabulary
- Key exam command words
- 6 mark extended writing questions

Numeracy Foci:
- Graphical skills – Drawing and Interpretation
- Use of the formula: ***Work done = force X distance***
- Percentages
- Unit conversions

Spring Term

Themes covered:

B9 Ecosystems Part 1 – KO9 Interdependence (KS3 NC: Interactions and interdependencie
P2 Electromagnets Part 1 - KO2 Voltage and resistance, current (KS3 NC: Electricity– Current electricity and Static electricity)
C6 Reactions Part 1 – KO6 Acid and alkalis, Metals and non-metals (KS3 NC: Chemical reactions)

KS2 NC Content links:
B9 Ecosystems – KS2 NC: Living things and their habitats
P2 Electromagnetism– KS2 NC: Forces and magnets
C6 Reactions – KS2 NC: Properties and changes of materials

KS2 NC: Working scientifically
Enquiry Processes:
- Analyse
- Communicate
- Enquire
- Solve

Required practical activities: DPR KO 11-15 **(KS3 NC: Working Scientifically, Scientific attitudes, Experimental skills and investigations, Analysis and evaluation and Measurements)**

- ***Showing Magnetic Fields***
- ***Testing pH***

Homework:
UHS End of topic exam style questions **x4**

Literacy Foci:
- Working scientifically and topic specific Key Vocabulary
- Key exam command words
- 6 mark extended writing questions

Numeracy Foci:
- Graphical skills – Drawing and Interpretation
- Data analysis
- Unit conversions

Summer Term

Themes covered:

B10 Genes Part 1 - KO10 Variation, Human reproduction. (KS3 NC: Reproduction, Genetics and Evolution)
P4 **Waves Part 1** – KO4 Sound, Light (KS3 NC: Sound and light waves)
P3 Energy Part 1 – KO3 Energy costs, energy transfer (KS3 NC: Energy changes and transfers)
C7 Earth Part 1 – KO7 Earth Structure, the universe (KS3 NC: Earth and atmosphere)

KS2 NC Content links:

P3 Energy – KS2 NC: N/A
B10 Genes – KS2 NC: Plants, Animals including humans
C7 Earth – KS2 NC: Earth and Space

KS2 NC: Working scientifically
Enquiry Processes:
- Analyse
- Communicate
- Enquire
- Solve

Required practical activities: KS3 NC: Working Scientifically, Scientific attitudes, Experimental skills and investigations, Analysis and evaluation and Measurements)
- Testing energy in food

Homework:
UHS End of topic exam style questions **x2**

Literacy Foci:
- Working scientifically and topic specific Key Vocabulary
- Key exam command words
- 6 mark extended writing questions

Numeracy Foci:
- Graphical skills – Drawing and Interpretation
- Data analysis
- Use of the formula: ***Power = energy/time***
- Use of the formula: ***Cost= power X time X price***
- Unit conversions

YEAR 7 - SCIENCE CURRICULUM MAP

Autumn Term	Spring Term	Summer Term
Revision Opportunities – One week of revising and teaching students how to revise CGP KS3 Revision guides and Flash cards available to purchase via Parent pay Kerboodle online text ook **Enrichment/Life and work skills:** • Group work/collaboration (Practical work) **SMSC Opportunities:** • Safety in the laboratory: Students are taught how to keep themselves safe in practical situations during lessons. This is made fun for students by gradually increasing the level of practical activities to test safety skills and build on future enjoyment in lessons. • Work on current and potential difference done George Ohm's. **Assessments – Autumn** Baseline Test **DPR -** formatively assessed throughout term as well as End point assessment **Extra -Curricular opportunities and Trips:** • **Inter-house and Inter school competitions**	**Revision Opportunities** – One week of revising and teaching students how to revise KS3 Revision guides and Flash cards available to purchase via Parent pay Kerboodle online text book **Enrichment/Life and work skills:** • Group work/collaboration (Practical work) • Research skills • Time management (Practical work) • Awareness of electrical safety • British Science Week activities **SMSC Opportunities:** • Photosynthesis - What are the consequences of deforestation? This is linked to not buying recycled paper and the potential devastating impacts of deforestation is researched by students. • Contributions of various scientists in the development of the periodic table **Assessment – Spring** EOC Test/ EOC HWK **DPR -** formatively assessed throughout term as well as End point assessment **Extra -Curricular opportunities and Trips:** • **Science week Activities** • **Inter-house and Inter school competitions** • **Science Week**	**Revision and revisiting Opportunities** – One week of revising and revisiting previous taught topics, with a focus on key command words KS3 Revision guides and Flash cards available to purchase via Parent pay Kerboodle online text book **Enrichment/Life and work skills:** • Group work/collaboration (Practical work) • Problem solving Saving energy and reducing energy bills • Empathy • Environmental awareness **SMSC Opportunities:** • Inheritance • Sexual Health • **Assessment – Summer 1** EOC Test/ EOC HWK **Assessment – Summer 2** End of Year 7 -Summer Assessment **Extra -Curricular opportunities and trips :** • Science Museum Visit • **Big Bang Exhibition** • **Inter-house and Inter school competitions**

YEAR 8 - SCIENCE CURRICULUM MAP

Autumn Term	Spring Term	Summer Term – 1st Half
Themes covered: **B8 Organisms Part 2 – KO8** Breathing, Digestion (KS3 NC: Nutrition and digestion, Gas exchange systems, Health **C5 Matter Part 2** – KO5 Periodic table, Elements (KS3 NC: Atoms, elements and compounds, The periodic table) **P1 Forces Part 2**–KO1 Contact forces, pressure. DPR Physics KO4 to KO5 (KS3 NC: Forces, Pressure in fluids) **P2 Electromagnetism Part 2 – KO2** Magnetism , Electromagnets (KS3 NC: Magnetism) **KS2 NC Content links:** **B8 Organisms** – KS2 NC: Animals including humans **P1 Forces** – KS2 NC: Forces **C5 Matter** – KS2 NC: States of matter, Properties and changes of materials **P2 Electromagnetism**– KS2 NC: Forces and magnets **KS2 NC:** Working scientifically **Enquiry Processes:** • Analyse • Communicate • Enquire • Solve **Required practical activities: (KS3 NC: Working Scientifically, Scientific attitudes, Experimental skills and investigations, Analysis and evaluation and Measurements)** • 6..1.6 ***Making salts*** • 1.1.3. (***AT) Investigating the average speed of a trolley on a ramp*** **Homework:** Part 1 End of topic exam style questions **x3** DPR homework tasks **Literacy Foci**: • Working scientifically and topic specific Key Vocabulary • Key exam command words • 6 mark extended writing questions • **Numeracy Foci:** • Graphical skills – Drawing and Interpretation • Use of the formula: ***Speed = distance/time*** • Use of the formula: ***weight = mass/gravitational field strength*** • Percentages • Unit conversions • Balancing equations	**Themes covered:** **B9 Ecosystems Part 2 – KO9 Respiration, Photosynthesis (KS3 NC: Photosynthesis and cellular respiration)** **C6 Reactions Part 2** – KO6 Types of reaction, Chemical energy (KS3 NC: Chemical reactions and Energetics, Materials) **P3 Energy Part 2**–KO3 Work, Heating and cooling (KS3 NC: Energy and changes in systems) **KS2 NC Content links:** **B9 Ecosystems** – KS2 NC: Living things and their habitats **P3 Energy** – KS2 NC: N/A **C6 Reactions** – KS2 NC: Properties and changes of materials **Enquiry Processes:** • Analyse • Communicate • Enquire • Solve **Required practical activities: (KS3 NC: Working Scientifically, Scientific attitudes, Experimental skills and investigations, Analysis and evaluation and Measurements)** • 1.3.2 ***Investigating springs and elastic*** • 6.3.4 ***Conservation of mass*** • 6.4.1 ***Energy transfer in chemistry*** **Homework:** Part 2 End of topic exam style questions **x3** CGP workbook pages (topic specific) DPR homework tasks **Literacy Foci**: • Working scientifically and topic specific Key Vocabulary • Key exam command words • 6 mark extended writing questions **Numeracy Foci:** • Graphical skills – Drawing and Interpretation • Data analysis • Balancing equations • Calculating bond energies	**Themes covered:** C7 **Earth Part 2** – KO7 Climate, Earth resources DPR Chemistry KO8 to KO 10(KS3 NC: Materials, Earth and atmosphere) **P4 Waves Part 2 –KO4** Wave effects and wave properties. DPR Physics KO1 to KO (KS3 NC: Observed waves, Energy and waves) **B10 Genes Part 2** – KO10 Evolution, Inheritance. (KS3 NC: Genetics and Evolution) **KS2 NC Content links:** **B10 Genes** – KS2 NC: Plants, Animals including humans C7 Earth – KS2 NC: Earth and Space **KS2 NC:** Working scientifically **Enquiry Processes:** • Analyse • Communicate • Enquire • Solve **Required practical activities DPR KO 11-15 (KS3 NC: Working Scientifically, Scientific attitudes, Experimental skills and investigations, Analysis and evaluation and Measurements)** **4.2.3 Investigating refraction** **Homework:** Part 2 End of topic exam style questions **x 3** CGP workbook pages (topic specific)/Doddle online homework tasks Project covering: • C7 Earth – Earth and space **Literacy Foci**: • Working scientifically and topic specific Key Vocabulary • Key exam command words • 6 mark extended writing questions **Numeracy Foci:** Use of the formula**: Frequency = *1/Time period*** • Graphical skills – Drawing and Interpretation • Data analysis

YEAR 8 - SCIENCE CURRICULUM MAP

Autumn Term	Spring Term	Summer Term – 1st Half
Revision Opportunities – One week of revising and revisiting topics with a focus on key command words KS3 Revision guide and flash cards available to purchase via Parent pay **Enrichment/Life and work skills:** • Group work/collaboration (Practical work) • Problem solving (P1 Forces – Pressure and moments calculations) • Self -awareness (B8 Organisms - Awareness of substance misuse and its implications) • Independence and Research skills (B8 Organisms How drugs and alcohol affect the body) • Presentation skills (Presentation on drugs and alcohol) **SMSC Opportunities:** • Inheritance • Sexual Health **Assessment – Autumn 1** Year 7 Knowledge Retrieval Quiz **Assessment – Autumn 2** EOC Test/ EOC HWK (P1, C5 and B8) **DPR -** formatively assessed throughout term as well as End point assessment for – **Extra -Curricular opportunities and Trips:** • **Whipsnade Zoo Trip**	**Revision Opportunities** – One week of revising and revisiting topics with a focus on key command words KS3 Revision guide and flash cards available to purchase via Parent pay **Enrichment/Life and work skills:** • Group work/collaboration (Practical work) • Critical thinking and decision making (C6 Reactions – Energy transfers in Chemistry practical) • Problem solving (C6 Reactions – Balancing equations) • Environmental awareness (C6 Reactions - Impacts of combustion) **SMSC Opportunities:** • Photosynthesis - What are the consequences of deforestation? This is linked to not buying recycled paper and the potential devastating impacts of deforestation is researched by students. **Assessment – Spring 1** EOC Test/ EOC HWK (P2, C6 and B9) **Assessment – Spring 2** **DPR -** formatively assessed throughout term as well as End point assessment for -P2, C6 and B9 EOC Test/ EOC HWK (P2, C6 and B9) **Extra -Curricular opportunities and Trips: TBC** • **Science week activities and competitions**	**Revision Opportunities** – One week of revising and revisiting topics with a focus on key command words KS3 Revision guide and flash cards available to purchase via Parent pay **Enrichment/Life and work skills:** • Group work/collaboration (Practical work) • Environmental awareness (C7 Earth – Global warming and climate change) • Being open minded (B10 Genes – Evolution) **SMSC Opportunities:** **COP26 –**Simple steps we can take every day to make life more sustainable and they all add up. **Assessment – Summer 1** EOC Test/ EOC HWK (P3, C7 and B10) **DPR -** KO 2 – KO6 formatively assessed throughout term as well as End point assessment for -P2, C5 and B9 **Assessment – Summer 2** **End of year exam** **Topics : P1,P2,P3,C5,C6,C7,B8,B9,B10** **Extra -Curricular opportunities and Trips:** • **Science Museum Trip** • **Drop-down day Science competitions** • **Summer School science activities**

Summer Term – 2nd Half

Practical skills investigations x3: (KS3 NC: Working Scientifically, Scientific attitudes, Experimental skills and investigations, Analysis and evaluation and Measurements)
Biology – Reaction times
Chemistry – Reactivity of metals
Physics – Bouncing balls

Enquiry Processes:

- Analyse
- Communicate
- Enquire
- Solve

Homework:
Extended writing practice - ***How to write a method (9 marks) x3***

Literacy Foci:

- Working scientifically Key Vocabulary
- How to write a plan
- Extended writing – ***methods, conclusions and evaluations***

Numeracy Foci:

- Presenting data
- Graphical skills – Drawing and Interpretation
- Data analysis
- Conclusions and evaluations

Enrichment/Life and work skills:

- Group work/collaboration (Joint numeracy project with the Maths department)
- Critical thinking and decision making (Evaluations and justifications - Practical skills investigations)
- Problem solving (Calculating means, selecting appropriate graphs to present data collected in practical investigations)

Assessment – Summer 2
Year 8 Summer Assessment **End of year exam**
Topics : KO1 to KO7 for P1,P2,P3,C5,C6,C7,B8,B9,B10

Extra- Curricular opportunities and Trips:

- **Science CREST Award Club (all year)**
- **Virtual science club –via TEAMS -Young Scientist**
- **Science Museum Trip**
- **Drop-down day Science competitions**
- **Summer School science activities**

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YEAR 9 – BIOLOGY CURRICULUM MAP

Autumn Term (14 weeks)

Themes covered:

B8.5: Cell structure and transport

Key Concepts: microscopy, cell Structure, cell Differentiation, animal and plant Cells, eukaryotic and prokaryotic cells, specialised animal and plant cells, transport in cells by diffusion, osmosis, and active transport.

KS3 NC Content links:

- B8 **Organisms Part 1** – Cells (KS3 NC: Structure and function of living organisms)

Enrichment/life and work skills: Group work/Collaboration / Practical Work, Research skills, Public speaking , Empathy. Science week activities exploring cutting edge advances in Biology plus exciting activities to engage and motivate the students.

DPR - KO1

Homework:

- Assigned tasks as per SOW and Seneca and kerboodle.
- End of topic exam style questions

Revisiting, revising, remembering opportunities

•Assigned tasks on kerboodle
•Regular interleaving tasks during lessons.
•Exam practice questions

Assessments:

- Exam h.w. Questions
- End of topic Exam based on KOs from Topic B8.5

Literacy Foci:

- Working scientifically and topic specific Key Vocabulary and nomenclature
- Key exam command words
- 6 mark extended writing questions

Numeracy Foci:

- Graphical skills – Drawing and Interpretation
- using an appropriate number of significant figures in calculations
- SI units and IUPAC chemical nomenclature
- using prefixes and powers of ten for orders of magnitude (e.g. tera, giga, mega, kilo, centi, milli, micro and nano)
- Unit conversions

Working scientifically:

- Using a microscopy and investigating osmosis and diffusion. Opportunities to plan investigations, to obtain evidence and to analyse data.

Required practical activities: (Working Scientifically assessing Scientific attitudes, Experimental skills and strategies, Analysis and evaluation, Vocabulary, units, symbols and nomenclature)

- ***Looking at cells***
- ***Investigating osmosis in plant cells***

Spring Term (12 weeks)

Themes covered:

Topic B8.6: cell division

Key Concepts:

- growth and differentiation, potential uses of stem cells, as well as the disadvantages and objections to the use of stem cells

- **B8.7: Organisation and digestive system**

Key Concepts:

- principles of organisation: tissue, organ, and organ system,

KS3 Content links:

• B8.1 - 8.2 Cell structure and transport -cell differentiation, specialised cells and adaptations, diffusion and exchange surfaces

Enrichment/life and work skills: Group work/Collaboration / Practical Work, Research skills, Public speaking , Empathy. Science week activities exploring cutting edge advances in Biology plus exciting activities to engage and motivate the students.

DPR – KO2,

Homework:

- Assigned tasks as per SOW and Seneca and kerboodle.
- End of topic exam style questions

Revisiting, revising, remembering opportunities

•Assigned tasks on kerboodle
•Regular interleaving tasks during lessons.
•Exam practice questions

- **Assessments:**
- Exam h.w. Questions
- End of topic Exam based **on KOs of B8.5 and B8.6 (Cell Biology and Cell Division).**

Literacy Foci:

- Working scientifically and topic specific Key Vocabulary and nomenclature
- Key exam command words
- 6 mark extended writing questions

Numeracy Foci:

- Graphical skills – Drawing and Interpretation
- using an appropriate number of significant figures in calculations
- SI units and IUPAC chemical nomenclature
- using prefixes and powers of ten for orders of magnitude (e.g. tera, giga, mega, kilo, centi, milli, micro and nano)
- Unit conversions

Working scientifically:

- Opportunities to plan to analyse data and evaluate the use of STEM cells.

Summer Term (13 weeks)

Theme covered:

Topic 3: Organisation and digestive system

Key Concepts: Chemistry of food, Catalysts and Enzymes, Factors Affecting enzyme action, How the digestive system works, Making Digestion Efficient.

KS3 NC Content links:

-B8.3 - B8,4 – Breathing, Digestion (KS3 NC: Nutrition and digestion, Gas exchange systems, Health)

Enrichment/life and work skills: Group work/Collaboration / Practical Work, Research skills, Public speaking , Empathy. Science trip :Big Bang Science Fair gives students to see research presentations from universities and tech companies as well as job opportunities in Science.

DPR –KO3

Homework:

- Assigned tasks as per SOW and Seneca and kerboodle.
- End of topic exam style questions

Revisiting, revising, remembering opportunities

•Assigned tasks on kerboodle
•Regular interleaving tasks during lessons.
•Exam practice questions

Assessment

- Exam h.w. Questions
- End of topic Test based on KOs of **B8.7 Organisation**
- End of Year exam to cover all the KO's from C3.5, C3.6, C3.7.

Literacy Foci:

- Working scientifically and topic specific Key Vocabulary and nomenclature
- Key exam command words
- 6 mark extended writing questions

Numeracy Foci:

- Graphical skills – Drawing and Interpretation
- using an appropriate number of significant figures in calculations
- SI units and IUPAC chemical nomenclature
- using prefixes and powers of ten for orders of magnitude (e.g. tera, giga, mega, kilo, centi, milli, micro and nano)
- Unit conversions

Working scientifically:

- Imvestigating the food groups that are contained in certain food stuffs and nalyse the energy requirements of people with different lifestyles. Opportunities to plan investigations, to obtain evidence and to analyse data.

Required practical activities: DPR KO 11-15

- **Investigate the effect of pH on the rate of reaction of amylase enzyme**

Extra -Curricular opportunities and Trips:

- Science trip : Big Bang Science Fair

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YEAR 9 – CHEMISTRY CURRICULUM MAP

Autumn Term (14 weeks)	Spring Term (12 weeks)	Summer Term (13 weeks)
Themes covered: **C5.5: Atomic structure** **Key Concepts:** separation and purification techniques for mixtures (filtration, crystallisation, and simple distillation), structure of the atom, atoms, ions, and isotopes, electronic structure, symbol equations including state symbols. **KS3 NC Content links:** -C5.1 - C5.2 – Particle model, separating mixtures (KS3 NC: The particulate nature of matter and Pure and impure substances) -KS3 knowledge of the law of the conservation of mass **Enrichment/life and work skills:** Group work/Collaboration/Practical Work, Research skills, Public speaking , Empathy **DPR –** KO4 **Homework:** •Assigned tasks as per SOW and Seneca and kerboodle. •End of topic exam style questions **Revisiting, revising, remembering opportunities** •Assigned tasks on kerboodle •Regular interleaving tasks during lessons. •Exam practice questions **Literacy Foci:** • Working scientifically and topic specific Key Vocabulary and nomenclature • Key exam command words • 6 mark extended writing questions **Numeracy Foci:** • Graphical skills – Drawing and Interpretation • Using an appropriate number of significant figures in calculations • SI units and IUPAC chemical nomenclature • Unit conversions **Working scientifically:** • Separating mixtures practical. Opportunities to plan investigations, to obtain evidence and to analyse data. **Extra -Curricular opportunities and Trips:** • **Virtual science club –via TEAMS Aspiring Scientist** • **Inter-house and Inter school competitions**	**Themes covered:** **C5.6 Periodic Table** **Key Concepts:** Development of the periodic table, Electronic structures and the periodic table, Group 0, Group 1, and Group 7 elements, Group 7-the halogens, Explaining trends. **Higher-tier students** should also be able to identify trends in properties and reactivity in terms of the electronic structure of the elements. **GCSE chemistry students** should be able to compare the properties and reactions of the transition elements with the elements of Group 1, identify that some transition elements can form many different ions, and recognise that they are used as catalysts. **Topic 5.7: Structure and Bonding** **Key Concepts:** States of matter, Atoms into ions, Ionic Bonding **KS3 Content links:** C5.3 -5.4 – Periodic table, Elements (KS3 NC: Atoms, elements and compounds, The periodic table) **DPR -** KO5 **Enrichment/life and work skills:** Group work/Collaboration / Practical Work, Research skills, Public speaking , Empathy **Homework:** •Assigned tasks as per SOW, Kerboodle and Seneca •End of topic exam style questions **Revisiting, revising, remembering opportunities** •Assigned tasks on Kerboodle •Regular interleaving tasks during lessons. •Exam practice questions **Assessments:** • Exam h.w. Questions • End of topic Exam based on KOs from **Topic C5.5 and C5.6.** **Literacy Foci:** • Working scientifically and topic specific Key Vocabulary and nomenclature • Key exam command words, • 6 mark extended writing questions **Numeracy Foci:** • Graphical skills – Drawing and Interpretation • Using an appropriate number of significant figures in calculations • Balancing equations (use of ratios) **Working scientifically:** • Reactions of Group 1 and group 7 elements. Opportunities to plan investigations, to obtain evidence and to analyse data. **Extra -Curricular opportunities and Trips:** • **Inter-house and Inter school competitions - Science week** • **STEM and Brunel activities.** • **Science trip :Target Mars**	**Theme covered:** **Topic C5.7: Structure and Bonding** **Key Concepts:** Giant ionic structures, Covalent Bonding, Structure of simple molecules, Giant covalent structures, Fullerenes and graphene, bonding in metals, Giant metallic structures, nanoparticles **KS3 Content links:** KS3 knowledge of the law of the states of matter C5.3 -5.4 – Periodic table, Elements (KS3 NC: Atoms, elements and compounds, The periodic table) **Enrichment/life and work skills:** Group work/Collaboration / Practical Work, Research skills, Public speaking , Empathy **DPR –** KO6 **Homework:** • Assigned tasks as per SOW and Seneca and kerboodle. • End of topic exam style questions **Revisiting, revising, remembering opportunities** •Assigned tasks on kerboodle •Regular interleaving tasks during lessons. •Exam practice questions **Assessment** Exam h.w. Questions End of topic Exam based on **KO's for C5.7: Structure and Bonding** End of Year exam to cover all the KO's from C5.5, C5.6, C5.7. **Literacy/ numeracy foci:** •Reading skills/ Terminology and vocabulary /Writing skills /Analytical Skills **Working scientifically:** • Investigating properties of ionic and covalent compouinds. Opportunities to plan investigations, to obtain evidence and to analyse data. **Extra -Curricular opportunities and Trips:** • Science trip : Big Bang Science Fair

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YEAR 9 – PHYSICS CURRICULUM MAP

Autumn Term (14 weeks)

Themes covered:

P3.5 : Conservation and Dissipation of Energy

Key Concepts: Changes in energy stores, Conservation of energy, Energy and work, Gravitational potential energy stores, Kinetic energy and elastic energy stores, Energy dissipation, Energy and efficiency, Energy and Power

KS3 Content links: energy transfer in Key Stage 3

P3.3 - P3.4 – Work, Heating and cooling (KS3 NC: Energy and changes in systems)

Enrichment/life and work skills: Group work/collaboration/Practical Work, , Research skills, Public speaking , Empathy

Science trip : STEM trip to Brunel University

DPR - KO7

Homework:

- Assigned tasks as per SOW and Seneca and kerboodle.
- End of topic exam style questions

Revisiting, revising, remembering opportunities

•Assigned tasks on kerboodle

•Regular interleaving tasks during lessons.

•Exam practice questions

Literacy Foci:

- Working scientifically and topic specific Key Vocabulary
- Scientific Writing: Writing a plan, drawing a conclusion, evaluating method and presenting findings.

Numeracy Foci:

- Graphical skills – Drawing and Interpretation
- using an appropriate number of significant figures in calculations
- SI units/Unit conversions
- Use of formulae:
- work done = force × distance (moved along the line of action of the force)
- g.p.e. = mass × gravitational field strength × height $[E_p = m\ g\ h]$
- kinetic energy = 0.5 × mass × (speed)2 $[E_k = ½\ m\ v^2]$
- elastic potential energy = 0.5 × spring constant × (extension)^2
- $[E_e = ½\ k\ e]$
- efficiency = useful output energy transfer ÷ total input energy transfer
- power = energy transferred ÷ time
- power = work done ÷ time

Working scientifically:

- Investigating energy transfers. Opportunities to plan investigations, to obtain evidence and to analyse data

Spring Term (12 weeks)

Themes covered:

P3.6: Energy transfer by heating

Key Concepts: Energy transfer by conduction, Infrared Radiation, Specific Heat capacity, Heating and insulating buildings.

Higher-tier only: More about infrared radiation

Higher-tier GCSE Physics students : will need to apply the concept of the Greenhouse Effect and its relationship to the wavelength of the radiation penetrating or being absorbed by Earth's atmosphere

KS3 Content links: energy transfer in Key Stage 3

P3.4 – conduction, convection and infra-red radiation. (KS3 NC: Energy and changes in systems)

Enrichment/life and work skills: Group work/collaboration/Practical Work, , Research skills, Public speaking , Empathy. Science week activities exploring cutting edge advances in Physics plus exciting activities to engage and motivate the students.

DPR - KO8

Homework:

- Assigned tasks as per SOW and Seneca and kerboodle.
- End of topic exam style questions

Revisiting, revising, remembering opportunities

•Assigned tasks on kerboodle

•Regular interleaving tasks during lessons.

•Exam practice questions

Assessments:

- Exam h.w. Questions
- End of topic Exam based on KOs from **Topic P3.5 and P3.6.**

Literacy Foci:

- Working scientifically and topic specific Key Vocabulary and nomenclature, Key exam command words,
- 6 mark extended writing questions

Numeracy Foci:

- Graphical skills – Drawing and Interpretation
- using an appropriate number of significant figures in calculations
- Use of formulae:
- change in thermal energy = mass × specific heat capacity × temperature change $[\Delta E = m\ c\ \Delta\theta]$

Working scientifically:

- Investigating energy transfers. Opportunities to plan investigations, to obtain evidence and to analyse data.

Summer Term (13 weeks)

Summer 1 -Theme covered:

Topic 3.7: Energy Resources Key Concepts: Energy demands, Energy from wind and water, Power from the sun and Earth, Energy and the environment, Big energy issues

Enrichment/life and work skills: Group work/collaboration/Practical Work, Research skills, Public speaking , Empathy. Science trip :Big Bang Science Fair gives students to see research presentations from universities and tech companies as well as job opportunities in Science.

DPR - KO9

Homework:

- Assigned tasks as per SOW and Seneca and kerboodle.
- End of topic exam style questions

Revisiting, revising, remembering opportunities

•Assigned tasks on kerboodle

•Regular interleaving tasks during lessons.

•Exam practice questions

Assessment

Exam h.w. Questions

End of topic Exam based on **KO's for P3.7: Emergy resources**

End of Year exam to cover all the KO's from P3.5, P3.6, P3.7.

Literacy Foci:

- Working scientifically and topic specific Key Vocabulary and nomenclature, Key exam command words,
- 6 mark extended writing questions

Numeracy Foci:

- Graphical skills – Drawing and Interpretation
- Using an appropriate number of significant figures in calculations
- Use of formulae met in P3.5 and P3.6

Working scientifically:

- Evaluating renewable and non- renewable energy sources.. Opportunities to plan investigations, to obtain evidence and to analyse data.

Extra -Curricular opportunities and Trips:

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YEAR 9 – BIOLOGY CURRICULUM MAP

Autumn Term (14 weeks)

Themes covered:

B8.5: Cell structure and transport

Key Concepts: microscopy, cell Structure, cell Differentiation, animal and plant Cells, eukaryotic and prokaryotic cells, specialised animal and plant cells, transport in cells by diffusion, osmosis, and active transport.

KS3 NC Content links:

- B8 **Organisms Part 1** – Cells (KS3 NC: Structure and function of living organisms)

Enrichment/life and work skills: Group work/Collaboration / Practical Work, Research skills, Public speaking , Empathy. Science week activities exploring cutting edge advances in Biology plus exciting activities to engage and motivate the students.

DPR - KO 1 – 4 formatively assessed throughout term as well as End point assessment.

Homework:

- Assigned tasks as per SOW and Seneca and kerboodle.
- End of topic exam style questions

Revisiting, revising, remembering opportunities

•Assigned tasks on kerboodle
•Regular interleaving tasks during lessons.
•Exam practice questions

Assessments:

- Exam h.w. Questions
- End of topic Exam based on KOs from Topic B8.5

Literacy Foci:

- Working scientifically and topic specific Key Vocabulary and nomenclature
- Key exam command words
- 6 mark extended writing questions

Numeracy Foci:

- Graphical skills – Drawing and Interpretation
- using an appropriate number of significant figures in calculations
- SI units and IUPAC chemical nomenclature
- using prefixes and powers of ten for orders of magnitude (e.g. tera, giga, mega, kilo, centi, milli, micro and nano)
- Unit conversions

Working scientifically:

- Using a microscopy and invbestigating osmosis and diffusion. Opportunities to plan investigations, to obtain evidence and to analyse data.

Required practical activities: DPR KO 11-15 (Working Scientifically assessing Scientific attitudes, Experimental skills and strategies, Analysis and evaluation, Vocabulary, units, symbols and nomenclature)

- ***Looking at cells***
- ***Investigating osmosis in plant cells***

Extra -Curricular opportunities and Trips:

- **Virtual science club –via TEAMS Aspiring Scientist**

Spring Term (12 weeks)

Themes covered:

Topic B8.6: cell division

Key Concepts:

- growth and differentiation, potential uses of stem cells, as well as the disadvantages and objections to the use of stem cells

- **B8.7: Organisation and digestive system**

Key Concepts:

- principles of organisation: tissue, organ, and organ system,

KS3 Content links:

• B8.1 - 8.2 Cell structure and transport -cell differentiation, specialised cells and adaptations, diffusion and exchange surfaces

Enrichment/life and work skills: Group work/Collaboration / Practical Work, Research skills, Public speaking , Empathy. Science week activities exploring cutting edge advances in Biology plus exciting activities to engage and motivate the students.

DPR - KO 5 – 6 formatively assessed throughout term as well as End point assessment.

Homework:

- Assigned tasks as per SOW and Seneca and kerboodle.
- End of topic exam style questions

Revisiting, revising, remembering opportunities

•Assigned tasks on kerboodle
•Regular interleaving tasks during lessons.
•Exam practice questions

- **Assessments:**
- Exam h.w. Questions
- End of topic Exam based **on KOs of B8.5 and B8.6 (Cell Biology and Cell Division).**

Literacy Foci:

- Working scientifically and topic specific Key Vocabulary and nomenclature
- Key exam command words
- 6 mark extended writing questions

Numeracy Foci:

- Graphical skills – Drawing and Interpretation
- using an appropriate number of significant figures in calculations
- SI units and IUPAC chemical nomenclature
- using prefixes and powers of ten for orders of magnitude (e.g. tera, giga, mega, kilo, centi, milli, micro and nano)
- Unit conversions

Working scientifically:

- Opportunities to plan to analyse data and evaluate the use of STEM cells.

Extra -Curricular opportunities and Trips:

- **Virtual science club –via TEAMS -Aspiring Scientist**
- **Inter-house and Inter school competitions - Science week**
- **Science trip :Target Mars**

Summer Term (13 weeks)

Theme covered:

Topic 3: Organisation and digestive system

Key Concepts: Chemistry of food, Catalysts and Enzymes, Factors Affecting enzyme action, How the digestive system works, Making Digestion Efficient.

KS3 NC Content links:

-B8.3 - B8,4 – Breathing, Digestion (KS3 NC: Nutrition and digestion, Gas exchange systems, Health)

Enrichment/life and work skills: Group work/Collaboration / Practical Work, Research skills, Public speaking , Empathy. Science trip :Big Bang Science Fair gives students to see research presentations from universities and tech companies as well as job opportunities in Science.

DPR - KO 7 – 9 formatively assessed throughout term as well as End point assessment.

Homework:

- Assigned tasks as per SOW and Seneca and kerboodle.
- End of topic exam style questions

Revisiting, revising, remembering opportunities

•Assigned tasks on kerboodle
•Regular interleaving tasks during lessons.
•Exam practice questions

Assessment

- Exam h.w. Questions
- End of topic Test based on KOs of **B8.7 Organisation**
- End of Year exam to cover all the KO's from C3.5, C3.6, C3.7.

Literacy Foci:

- Working scientifically and topic specific Key Vocabulary and nomenclature
- Key exam command words
- 6 mark extended writing questions

Numeracy Foci:

- Graphical skills – Drawing and Interpretation
- using an appropriate number of significant figures in calculations
- SI units and IUPAC chemical nomenclature
- using prefixes and powers of ten for orders of magnitude (e.g. tera, giga, mega, kilo, centi, milli, micro and nano)
- Unit conversions

Working scientifically:

- Imvestigating the food groups that are contained in certain food stuffs and nalyse the energy requirements of people with different lifestyles. Opportunities to plan investigations, to obtain evidence and to analyse data.

Required practical activities: DPR KO 11-15

- **Investigate the effect of pH on the rate of reaction of amylase enzyme**

Extra -Curricular opportunities and Trips:

- **Virtual science club –via TEAMS -Aspiring Scientist**
- Science trip : Big Bang Science Fair