

**Year 8 Curriculum mat 2020-2021**

	Autumn Term	Spring Term	Summer Term
Unit Length	<p><b><u>Biology</u></b> Interdependence Bioenergetics <b><u>Chemistry</u></b> Periodic table Chemical Reactions (1) <b><u>Physics</u></b> Energy 2</p>	<p><b><u>Biology</u></b> Nutrition <b><u>Chemistry</u></b> Chemical Reactions (2) <b><u>Physics</u></b> Waves</p>	<p><b><u>Biology</u></b> Genetics <b><u>Chemistry</u></b> Atmospheric Chemistry <b><u>Physics</u></b> Electricity</p>
Links to the National curriculum/Assessment Objectives	<p>In year 8, Pupils will be constantly assessed through the use of exam questions, and long answer questions to develop the skills required for the external exam. Formative assessment strategies every lesson used to bridge gaps and develop ongoing understanding. Lots of MCQ and deliberate practice exercises will always be retrieval. Use of Kos for home learning exercises. Pupils will have three assessment throughout the year. This will be made up of topics taught throughout the years and test the practical skills. Pupils will be challenged to apply knowledge of understanding to unfamiliar concepts. Assessments will be made from previous exam questions using exampro.</p>		
Description of the topic and key learning outcomes (key knowledge and understanding)	<p><b><u>Biology</u></b> <b><u>Interdependence</u></b> <b><u>Lesson 1 Predator prey Relationships</u></b> <b><u>Oak Resources</u></b></p> <p><b><u>Lesson 2 Food Chains and food webs</u></b> <b><u>Oak Resources</u></b> <a href="https://classroom.thenational.academy/lessons/food-chains-and-webs-64uk4e#">https://classroom.thenational.academy/lessons/food-chains-and-webs-64uk4e#</a> <b><u>Lesson 3 Ecosystems</u></b> <b><u>Oak Resources</u></b></p> <p><b><u>Lesson 4 Bioaccumulation</u></b> <b><u>Oak Resources</u></b></p> <p><b><u>Lesson 5 Sampling</u></b></p>	<p><b><u>Nutrition</u></b> <b><u>Lesson 1 Healthy Diet</u></b> <b><u>Oak Resources</u></b> <a href="https://classroom.thenational.academy/lessons/healthy-diet-part-1-6tjp2d">https://classroom.thenational.academy/lessons/healthy-diet-part-1-6tjp2d</a></p> <p><a href="https://classroom.thenational.academy/lessons/healthy-diet-part-2-6wt6cr">https://classroom.thenational.academy/lessons/healthy-diet-part-2-6wt6cr</a> <b><u>Lesson 2 Releasing Energy</u></b> <b><u>Oak Resources</u></b> <a href="https://classroom.thenational.academy/lessons/energy-release-71h3jc">https://classroom.thenational.academy/lessons/energy-release-71h3jc</a> <b><u>Lesson 3 Unhealthy Diet</u></b> <b><u>Oak Resources</u></b> <a href="https://classroom.thenational.academy/lessons/unhealthy-diet-6dtk0r">https://classroom.thenational.academy/lessons/unhealthy-diet-6dtk0r</a> <b><u>Lesson 4 Digestive System</u></b> <b><u>Oak Resources</u></b> <a href="https://classroom.thenational.academy/lessons">https://classroom.thenational.academy/lessons</a></p>	<p><b><u>genetics</u></b> <b><u>Lesson 1 Variation</u></b> <b><u>Oak Resources</u></b> <a href="https://classroom.thenational.academy/lessons/variation-75gk6t">https://classroom.thenational.academy/lessons/variation-75gk6t</a> <b><u>Lesson 2 Human Variation</u></b> <b><u>Oak Resources</u></b> <a href="https://classroom.thenational.academy/lessons/practical-human-variation-69jpac">https://classroom.thenational.academy/lessons/practical-human-variation-69jpac</a> <b><u>Lesson 3 Why is variation important</u></b> <b><u>Oak Resources</u></b> <a href="https://classroom.thenational.academy/lessons/why-is-variation-important-64wk4t">https://classroom.thenational.academy/lessons/why-is-variation-important-64wk4t</a> <b><u>Lesson 4 Genetics</u></b> <b><u>Oak Resources</u></b> <a href="https://classroom.thenational.academy/lessons/dna-74tkgd">https://classroom.thenational.academy/lessons/dna-74tkgd</a> <b><u>Lesson 5 Inheritance</u></b> <b><u>Oak Resources</u></b> <a href="https://classroom.thenational.academy/lessons/inheritance-cngkjt">https://classroom.thenational.academy/lessons/inheritance-cngkjt</a></p>

**Oak Resources**

<https://classroom.thenational.academy/lessons/estimating-populations-6gu3cc>

**Lesson 6 Random Sampling**

**Oak Resources**

<https://classroom.thenational.academy/lessons/random-sampling-cgvk8d>

**Lesson 7 Pollinators**

**Oak Resources**

**Lesson 8 Pollinators and food Security**

**Oak Resources**

<https://classroom.thenational.academy/lessons/plants-as-food-61k34d>

**Lesson 9 Ecology Revision**

**Oak Resources**

<https://classroom.thenational.academy/lessons/revision-part-1-68w30d>

**Lesson 10 Mini Assessment**

**Unit 5 Bioenergetics**

**Lesson 1 Photosynthesisi**

**Oak Resources**

<https://classroom.thenational.academy/lessons/photosynthesis-64t3cc>

**Lesson 2 Structures of the leaf**

**Oak Resources**

<https://classroom.thenational.academy/lessons/the-leaf-6dh36d>

**Lesson 3 Plant minerals**

**Oak Resources**

**Lesson 4 Uses of glucose**

**Oak Resources**

<https://classroom.thenational.academy/lessons/uses-of-glucose-60wkae>

**Lesson 5 Aerobic Respiration**

**Oak Resources**

[s/the-digestive-system-6wv30t](https://classroom.thenational.academy/lessons/the-digestive-system-6wv30t)

**Lesson 5 Adaptations and the digestive system**

**Oak Resources**

<https://classroom.thenational.academy/lessons/adaptations-of-the-small-intestine-cgwkae>

**Lesson 6 Enzymes**

**Oak Resources**

<https://classroom.thenational.academy/lessons/enzymes-6nk62e>

**Lesson 7 Enzymes and temperature**

**Oak Resources**

<https://classroom.thenational.academy/lessons/effect-of-temperature-on-enzymes-crwpc>

**Lesson 8 Carbohydrates**

**Oak Resources**

<https://classroom.thenational.academy/lessons/carbohydrates-64r30c>

**Lesson 9 Protein**

**Oak Resources**

<https://classroom.thenational.academy/lessons/protein-and-fats-cnj30t>

**Lesson 10 Alcohol**

**Oak Resources**

<https://classroom.thenational.academy/lessons/alcohol-70wpcc>

**Lesson 11 Smoking**

**Oak Resources**

<https://classroom.thenational.academy/lessons/smoking-74u34r>

**Lesson 12 Revision**

**Oak Resources**

<https://classroom.thenational.academy/lessons/review-point-part-1-c4w30r>

<https://classroom.thenational.academy/lessons/review-point-part-2-c4rpat>

**Lesson 13 Mini Assessment**

**Oak Resources**

**Lesson 6 Classification**

**Oak Resources**

<https://classroom.thenational.academy/lessons/inheritance-cngkjt>

**Lesson 7 Competition**

**Oak Resources**

**Lesson 8 Natural Selection**

**Oak Resources**

<https://classroom.thenational.academy/lessons/natural-selection-6mrp6d>

**Lesson 10 Evolution**

**Oak Resources**

<https://classroom.thenational.academy/lessons/evolution-evidence-6djp8c>

**Lesson 11 Biodiversity**

**Oak Resources**

<https://classroom.thenational.academy/lessons/biodiversity-c4u3ct>

**Lesson 12 Revision**

**Oak Resources**

**Lesson 13 Mini Assessment**

**Oak Resources**

**Atmospheric Chemistry**

**Lesson 1 Earth Structure**

**Oak Resources**

<https://classroom.thenational.academy/lessons/structure-of-the-earth-cgt3gd>

**Lesson 2 Igneous Rock**

**Oak Resources**

<https://classroom.thenational.academy/lessons/igneous-rocks-61k30e>

**Lesson 3 Sedimentary Rock**

**Oak Resources**

<https://classroom.thenational.academy/lessons/sedimentary-rocks-64tp4d>

**Lesson 4 Metamorphic**

<https://classroom.thenational.academy/lessons/aerobic-respiration-crt64e>

### **Lesson 6 Anaerobic Respiration**

#### **Oak Resources**

<https://classroom.thenational.academy/lessons/anaerobic-respiration-6cu3cc>

### **Lesson 7 Carbon Cycle**

#### **Oak Resources**

<https://classroom.thenational.academy/lessons/the-carbon-cycle-6gtkac>

### **Lesson 8 Chemosynthesis**

#### **Oak Resources**

### **Lesson 9 The circulatory System**

#### **Oak Resources**

<https://classroom.thenational.academy/lessons/the-effects-of-exercise-on-respiration-cgrk6t>

### **Lesson 10 The respiratory system**

#### **Oak Resources**

### **Lesson 11 The respiratory system issues**

#### **Oak Resources**

<https://classroom.thenational.academy/lessons/how-does-the-intensity-of-exercise-affect-breathing-rate-an-investigation-c8v3jc>

### **Lesson 12 Exercise**

#### **Oak Resources**

<https://classroom.thenational.academy/lessons/the-effects-of-exercise-on-respiration-cgrk6t>

### **Lesson 13 Revision**

#### **Oak Resources**

<https://classroom.thenational.academy/lessons/mid-topic-review-60tk0t>

### **Lesson 14 Mini Assessment**

#### **Oak Resources**

## **Chemical Reactions 1**

### **Lesson 1 Indicators of chemical reactions**

#### **Oak Resources**

## **Chemical Reactions**

### **Lesson 1 Acids and Alkalis**

#### **Oak Resources**

<https://classroom.thenational.academy/lessons/acids-and-alkalis-chk38d>

### **Lesson 2 pH Scale**

#### **Oak Resources**

<https://classroom.thenational.academy/lessons/ph-scale-60r3gc>

### **Lesson 3 Neutralisation**

#### **Oak Resources**

<https://classroom.thenational.academy/lessons/neutralisation-6xjpac>

### **Lesson 4 Metals and acids**

#### **Oak Resources**

<https://classroom.thenational.academy/lessons/metals-and-acids-6hhp8r>

### **Lesson 5 Metals and water**

#### **Oak Resources**

### **Lesson 6 Oxidation Reaction**

#### **Oak Resources**

<https://classroom.thenational.academy/lessons/oxidation-6tj68d>

### **Lesson 7 Displacement**

#### **Oak Resources**

<https://classroom.thenational.academy/lessons/displacement-71j36r>

### **Lesson 8 Metal Ores**

#### **Oak Resources**

<https://classroom.thenational.academy/lessons/metal-ores-60tp4t>

### **Lesson 9 Revision**

#### **Oak Resources**

<https://classroom.thenational.academy/lessons/revision-1-65k64d>

### **Lesson 10 Mini Assessment**

#### **Oak Resources**

## **Oak Resources**

<https://classroom.thenational.academy/lessons/metamorphic-rocks-6dj6cc>

### **Lesson 5 Rock Cycle**

#### **Oak Resources**

<https://classroom.thenational.academy/lessons/metamorphic-rocks-6dj6cc>

### **Lesson 6 Combustion**

#### **Oak Resources**

### **Lesson 7 Earths Atmosphere**

#### **Oak Resources**

<https://classroom.thenational.academy/lessons/the-earths-atmosphere-6nk34t>

### **Lesson 8 Carbon Cycle**

#### **Oak Resources**

<https://classroom.thenational.academy/lessons/the-carbon-cycle-6gtkac>

### **Lesson 9 Greenhouse effect**

#### **Oak Resources**

<https://classroom.thenational.academy/lessons/the-greenhouse-effect-c4wpct>

### **Lesson 10 Ceramics**

#### **Oak Resources**

<https://classroom.thenational.academy/lessons/types-of-material-68tp2d>

### **Lesson 9 Revision**

#### **Oak Resources**

### **Lesson 10 Mini Assessment**

#### **Oak Resources**

## **Electricity**

### **Lesson 1 Static**

#### **Oak Resources**

<https://classroom.thenational.academy/lessons/static-electricity-6rvkjr>

### **Lesson 2 The national Grid**

<https://classroom.thenational.academy/lessons/indicators-of-a-chemical-reaction-cct3ad>

### **Lesson 2 Elements**

#### **Oak Resources**

<https://classroom.thenational.academy/lessons/elements-c4rkje>

### **Lesson 3 Compounds**

#### **Oak Resources**

<https://classroom.thenational.academy/lessons/compounds-6nj32c>

### **Lesson 4 Atoms and the periodic table**

#### **Oak Resources**

<https://classroom.thenational.academy/lessons/atoms-6hjkek>

### **Lesson 5 Making Compounds**

#### **Oak Resources**

<https://classroom.thenational.academy/lessons/making-compounds-74rkcc>

### **Lesson 6 Balancing Equations**

#### **Oak Resources**

<https://classroom.thenational.academy/lessons/symbol-equations-6xh64e>

### **Lesson 7 Conservation of mass**

#### **Oak Resources**

<https://classroom.thenational.academy/lessons/conservation-of-mass-68vk8t>

### **Lesson 8 Endothermic and Exothermic reactions**

#### **Oak Resources**

### **Lesson 9 Revision**

#### **Oak Resources**

<https://classroom.thenational.academy/lessons/review-part-1-6ngked>

### **Lesson 10 Assessment**

#### **Oak Resources**

## **Periodic Table**

### **Lesson 1 atoms**

## **Waves**

### **Lesson 1 Types of wave**

#### **Oak Resources**

<https://classroom.thenational.academy/lessons/sound-waves-cdhkgc>

### **Lesson 2 Spectrum Of light**

#### **Oak Resources**

<https://classroom.thenational.academy/lessons/colour-cru3at>

### **Lesson 3 Colour**

#### **Oak Resources**

<https://classroom.thenational.academy/lessons/filters-cmr66t>

### **Lesson 4 The eye**

#### **Oak Resources**

<https://classroom.thenational.academy/lessons/vision-c5jkcd>

### **Lesson 5 Sound waves**

#### **Oak Resources**

<https://classroom.thenational.academy/lessons/sound-waves-cdhkgc>

### **Lesson 6 Pitch and sound**

#### **Oak Resources**

<https://classroom.thenational.academy/lessons/pitch-and-frequency-cgvk6c>

<https://classroom.thenational.academy/lessons/amplitude-and-volume-60vkec>

### **Lesson 7 The Ear**

#### **Oak Resources**

<https://classroom.thenational.academy/lessons/the-ear-cmv3gt>

### **Lesson 8 Radiation**

#### **Oak Resources**

<https://classroom.thenational.academy/lessons/radiation-70t6ac>

### **Lesson 9 Revision**

#### **Oak Resources**

## **Oak Resources**

<https://classroom.thenational.academy/lessons/renewable-energy-resources-chj3ar>

### **Lesson 3 Resistance**

#### **Oak Resources**

<https://classroom.thenational.academy/lessons/resistance-c8u3ed>

### **Lesson 4 Resistance Investigation**

#### **Oak Resources**

<https://classroom.thenational.academy/lessons/measuring-resistance-65j3ge>

### **Lesson 5 Electrical Safety**

#### **Oak Resources**

### **Lesson 6 Wiring a plug**

#### **Oak Resources**

### **Lesson 7 Revision**

#### **Oak Resources**

<https://classroom.thenational.academy/lessons/electricity-review-crw66d>

<https://classroom.thenational.academy/lessons/magnetism-review-cnj3jd>

### **Lesson 8 Mini Assessment**

#### **Oak Resources**

**Oak Resources**

<https://classroom.thenational.academy/lessons/atoms-6hjked>

**Lesson 2 Elements**

**Oak Resources**

<https://classroom.thenational.academy/lessons/elements-c4rkje>

**Lesson 3 Electron Configuration**

**Oak Resources**

<https://classroom.thenational.academy/lessons/electron-configuration-c5k36r>

**Lesson 4 Development of the periodic table**

**Oak Resources**

<https://classroom.thenational.academy/lessons/development-of-the-periodic-table-6ww62e>

**Lesson 5 Physical and chemical properties**

**Oak Resources**

**Lesson 6 Metals and non-metals**

**Oak Resources**

Metals and non-metals

<https://classroom.thenational.academy/lessons/metals-and-non-metals-6xj64r>

**Lesson 7 Group 1**

**Oak Resources**

<https://classroom.thenational.academy/lessons/group-1-60w3cc>

**Lesson 8 Group 7**

**Oak Resources**

<https://classroom.thenational.academy/lessons/group-7-6gu62c>

**Lesson 9 Group 7 displacement reactions**

**Oak Resources**

<https://classroom.thenational.academy/lessons/group-7-displacement-69hk8r>

**Lesson 10 Group 0**

**Lesson 10 Mini Assessment**

**Oak Resources**

**Oak Resources**

<https://classroom.thenational.academy/lessons/group-0-64wk4e>

**Lesson 11 Revision**

**Oak Resources**

<https://classroom.thenational.academy/lessons/review-part-2-6gtpad>

**Lesson 12 Assessment**

**Oak Resources**

**Energy 2**

**Lesson 1 Renewable energy Resources**

**Oak Resources**

<https://classroom.thenational.academy/lessons/renewable-energy-resources-chj3ar>

**Lesson 2 Non Renewable resources**

**Oak Resources**

**Lesson 3 Energy and power**

**Oak Resources**

<https://classroom.thenational.academy/lessons/power-and-energy-chh6ar>

**Lesson 4 Power in the home**

**Oak Resources**

<https://classroom.thenational.academy/lessons/energy-in-the-home-70vkit>

**Lesson 5 Energy Revision**

**Oak Resources**

<https://classroom.thenational.academy/lessons/end-of-topic-review-c8w38c>

**Lesson 6 Mini Assessment**

**Oak Resources**

<p>Related Concepts (that are revisited)</p>	<p>PHYSICS: Other processes that involve energy transfer: change motion, dropping an object, completing an electrical circuit, stretching a spring, metabolism of food, burning fuels (Year 7)</p> <p>Comparing the starting with the final conditions of a system and describing increases and decreases in the amount of energy associated with movements, temperatures, changes in positions in a field, in elastic distortions and in in chemical compositions (Year 7)</p> <p>Using physical processes and mechanisms, rather than energy, to explain the intermediate steps that bring about such changes (year 7)</p> <p>BIOLOGY: Cell structure, specialised cells, microscopy, diffusion (year 7) Circulatory system (Year 6) What plants require to grow (Year 3)</p> <p>CHEMISTRY: Atoms, compounds, elements, mixtures (year 7) Difference between chemical and physical changes. Word equations (Year 7) Describe physical properties. Understanding about reversible and irreversible reactions (Year 5) Name materials and describe what they are made from. Describe physical properties. Describe and categorise</p>	<p>PHYSICS: Temperature difference between two objects. Heat transfer through conduction and convection (Year 8 energy)</p> <p>Spectrum of light, to understand that light travels in straight lines. Understanding of how we see objects and how shadows are formed (Year 6) Understand that we need light to see objects and the absence of light is darkness. Understand that light is reflected off surfaces and sun is a source of natural light. (Year 3) BIOLOGY: Principles of organisation (year 7) Organ systems Demonstrate that animals get their nutrition from other food sources (Year 3) Is able to describe the function of basic parts of the digestive system (Year 4) Understands the impact of diet, exercise, drugs and lifestyle choices on the body (Year 6)</p> <p>CHEMISTRY: state symbols (year 8), three states of matter (year 7) Difference between reversible and irreversible reactions (Year 6)</p>	<p>PHYSICS: Magnets as a push or pull, that magnets provide a force of attraction and repulsion. (Year 6) Understand that electricity is a flow of electricity through a circuit (Year 6)</p> <p>BIOLOGY: Photosynthesis and respiration when discussing cell structures (year 7), photosynthesis and respiration (year 8) Health (Year 8) The variation between individuals within a species being continuous or discontinuous, to include measurement and graphical representation of variation (Year 8)</p> <p>Understand that living things change adapt through time (Year 6)</p> <p>CHEMISTRY: state symbols (year 8), three states of matter (year 7) Name everyday materials, describe what objects are made from. Describe physical properties of materials. Can categorise objects by physical properties. (Year 1) Compare the suitability of everyday objects to function (Year 2) Compare and categorise rocks depending on appearance and physical properties. Can describe simply how fossils are formed (Year 3)</p>
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	objects depending on their physical properties (Year 2)	Difference between chemical and physical reactions (Year 8) Difference between elements, compounds and mixtures (Year 8) Conservation of mass(Year 8)	
Skills being taught	<b><u>Mathematical Skills:</u></b> Interpretation of data Drawing graphs and tables Analysing data <b><u>Literacy Skills</u></b> Key terms taught using decode it Written communication Oral Communication	<b><u>Mathematical Skills:</u></b> Interpretation of data Drawing graphs and tables Analysing data <b><u>Literacy Skills</u></b> Key terms taught using decode it Written communication Oral Communication	<b><u>Mathematical Skills:</u></b> Interpretation of data Drawing graphs and tables Analysing data <b><u>Literacy Skills</u></b> Key terms taught using decode it Written communication Oral Communication
Milestone assessments	Mini assessments to identify gaps in knowledge Quick quizzes Retrieval practice in DIN Lots of practice of exam questions in the lessons	Mini assessments to identify gaps in knowledge Quick quizzes Retrieval practice in DIN Lots of practice of exam questions in the lessons	Mini assessments to identify gaps in knowledge Quick quizzes Retrieval practice in DIN Lots of practice of exam questions in the lessons
Wider reading	GCSE Bitesize Exposure to reading for learning in the lesson So COOL Oak National academy	GCSE Bitesize Exposure to reading for learning in the lesson So COOL	GCSE Bitesize Exposure to reading for learning in the lesson So COOL
Literacy programme	Key terms taught Opportunities to read Science material in lessons Independent writing	Key terms taught Opportunities to read Science material in lessons Independent writing	Key terms taught Opportunities to read Science material in lessons Independent writing
JWS Science Resources	<b><u>Autumn</u></b> U:\Staff Drive\By Department\FACULTY\SCIENCE\YEAR 8\Autumn	<b><u>Spring</u></b> <a href="https://hap.jws.bham.sch.uk/HAP/myfiles/#U\Staff Drive\By Department\FACULTY\SCIENC">https://hap.jws.bham.sch.uk/HAP/myfiles/#U\Staff Drive\By Department\FACULTY\SCIENC</a>	<b><u>Summer</u></b> <a href="https://hap.jws.bham.sch.uk/HAP/myfiles/#U\Staff Drive\By Department\FACULTY\SCIENCE\YEAR 8\Summer">https://hap.jws.bham.sch.uk/HAP/myfiles/#U\Staff Drive\By Department\FACULTY\SCIENCE\YEAR 8\Summer</a>



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