CURRICULUM PLAN

GEOLOGY

BRAMHALL HIGH SCHOOL

Curriculum Intent

Geology at Bramhall High School provides the foundations for understanding the science of 'how the Earth works'. It combines the three traditional sciences along with its own discrete subject content, looking at a case study of the Earth.

The syllabus includes the processes which shape the Earth's surface, the evolution of life, dinosaurs, mass extinction events, planetary geology, the internal elements of the Earth, what our geological past can tell us about the future and economic aspects such as mineral exploration and extraction. The geology department believes strongly in learning outside the classroom, and we offer a range of fieldtrip experiences throughout the course.

It is our intent that students who follow the GCSE geology curriculum will:

- be well prepared for the final examinations, leaving with positive outcomes for post-16.
- understand how the physical world around them operates.
- understand the concepts of 'deep time' and be able to make evidenced predictions about the future.
- have a strong scientific background knowledge.
- foster an inquisitive scientific mind.

YEAR 10

Term	Programme of Learning	Links to the National Curriculum / Specification / Additional	Assessments	What extra learning opportunities are planned?	Disciplinary Literacy
		WJEC Eduqas GCSE (9-1) in Geology			
Term 1a	**Principles of Geology and Minerals (1.1, 2.1, 2.3)** • The Rock Cycle. • Geological time. • The three laws of mapping. • Absolute and relative dating. • Mineral identification.	1.1 Minerals 2.1 The Rock cycle 2.3 Geochronological principles.	• Mineral Identification write up. • Principles of geology test.	Research homework	Lithification Superposition Uniformitarianism Absolute dating Relative dating Radiometric
	Igneous Rocks and Processes (1.2) • Classification. • Acidic vs Basic volcanoes. • Pyroclastic material. • Igneous intrusions. • Features of lava flows.	1.2 Igneous rocks and processes.	• "Identifying Igneous rocks" CPR. • "Basaltic vs Andesitic volcanoes" CPR. • Igneous test.		Composition Viscosity Pyroclastic Extrusive Intrusive Sill Dyke Pluton Baked Margin

	• Igneous textures.				Crystalline Porphyritic Phenocryst Vesicle
Term 1b	**Plate Tectonics (2.2)** • What is a plate. • How the plates move. • The layers of the Earth. • Evidence for plate tectonics (including magnetic stripes). • The plate boundaries	2.2 Plate Tectonics	• "Why do the plates move?" CPR. • "Magnetic Stripes" CPR • Plate boundary exam questions • Plate Tectonics test.		Lithosphere Asthenosphere Thermal convection Ocean Ridge Heat Flow Rift valley Abyssal Plain Transform fault Subduction Fractionation Benioff zone
Term 2a	**Earth Hazards and their mitigation (4.1)** • Earthquake hazards. • Tsunami hazards. • Hazard risk. • Hazard prediction.	4.1 Earth Hazards and their mitigation	• Tsunami exam question CPR • "How does development impact a hazard?" CPR. • Earth hazards test.	Aquinas annual lecture potential topic	Mitigation Richter Mercalli Focus Epicenter Development

Term 2b	**Sedimentary Rocks and Processes (1.3)** • Classification. • Interpretation of palaeo-environments. • Formation of limestone. • Sedimentary structures. • Coal. • Salt formation. **Geological Mapping and landforms (1.5)** • Folding. • Faulting. • Unconformities. • Plotting geological data. • Drawing cross sections. • Writing a geological history.	1.3 Sedimentary rocks Sections a-f 1.5 Deformational structures	• Interpreting palaeo-environments CPR. • Sedimentary rocks and processes test. • Geological Cross Section. • Geological Mapping test.	Elements of this topic are covered in our fieldwork investigation.	Porosity Permeability Bedding Desiccation cracks Erosion Deposition Oolitic Evaporite Palaeo-environments Antiform Synform Axial Plane Symmetrical Asymmetrical Fold Fault Unconformity Lateral continuity Concordant Discordant

Term 3a	**Palaeontology (1.3, 2.3, 2.5)** • Trilobites. • Coral. • Graptolites. • Zone fossils and their use in dating. • Dinosaurs. • Mass extinction events. • Evolution and cladograms. • Lagerstätten. • Case study of the Burgess Shale. • Hominids – case study of Lucy.	1.2 Sedimentary rocks and their fossil content (g) 2.3 Geochronological principles (b and c) 2.5 The origin and development of life on Earth	• Trilobites CPR • Zone Fossils • Palaeontology test.	Aquinas annual lecture potential topic.	Evolution Mass Extinction Trace Fossils Photic zone Zone fossil Cladogram Lagerstätten Terrestrial

Term 3b	**Fieldwork investigation** • Fieldwork skills. • Fieldwork trip (provisionally Castleton). • Investigation write up.	Carry out a directed investigation in line with the requirements of the '**fieldwork statement'**	• Fieldwork write up.	External fieldwork day. Switzerland trip – we offer a curriculum enrichment trip which covers many elements of the course at the end of Year 10.	Exposure Risk Assessment

YEAR 11

Term	Programme of Learning	Links to the National Curriculum / Specification / Additional	Assessments	What extra learning opportunities are planned?	Disciplinary Literacy
Term 1a	**Planetary Geology (3.1)** • Comparing Earth with its planetary neighbours. • Features of Mars. • Features of Venus. • Types of meteorites and how they can be used to interpret geological information.	3.1 Planetary geology	• Comparing Earth with Mars and Venus • Asteroid impact CPR.	Research homework	Meteorites Asteroid Comet Planetary Biosphere
	Metamorphic Rocks and Processes (1.4) • Classification. • Regional and Contact metamorphism. • Foliation.	1.4 Metamorphic rocks and processes.	• Contact or Regional Metamorphism. • Metamorphism test.		Metamorphism Contact Regional Orogeny Aureoles Foliation

Term 1b	**Earth Resources and Engineering (4.2)** • Economic resources. • Hydrothermal deposits. • Mineral exploration. • Geophysical techniques. • Geochemical techniques. • Oil and gas traps. • Water supply. • Landfill sites. • Processing limestone. • Solution mining.	4.2 Earth resources and engineering	• Oil and gas exam question. • Solution mining CPR • Earth resources test.	Aquinas annual lecture potential topic	Dissolve Solution Precipitation Resource Economic viability Correlation Borehole Geophysical Geochemical Source rock Reservoir rock Cap rock Salt dome Fracking Dip of strata Joints Water table Geomembrane Hydrothermal Subsidence Solution mining Screening Calcining Aggregate

Term 2a	**Climate Change and sea level 2.4)** • Icehouse vs. Greenhouse. • Positive feedback cycles. • Indicators of past sea level – drowned forests and raised beaches. • The greenhouse effect. • Carbon sequestration.	2.4 Global climate and sea level change.	• Enhanced greenhouse effect CPR • Evidence for the change in Britain's climate CPR • Climate change test.		Icehouse Greenhouse Latitude Drowned forest Raised beach Enhanced greenhouse effect. Carbon sink Albedo Positive feedback Eustatic change Carbon sequestration Carbon capture
Term 2b	**Britain through time. (1.3, 2.3, 2.4)** • Evidence for Britain's geological past.	1.3 Sedimentary rocks and their fossil content. (e) 2.3 Geochronological processes 2.4 Global climate and sea level change (b)	• Britain's northward drift CPR.	Easter 'booster day'	Palaeo-environment. Latitude Equator

	Revision • Revision guide • Topic revision • Creating personalised revision banks.	N/A	• Unit tests	Revision MS Stream videos available for students to watch at home to revise each topic.	N/A
Term 3a	**Past Exam Paper Practice**	N/A	• Past papers		N/A

Term 3b	**Examination** **Geology GCSE comprises two exam papers:** 1) **Component 1 – Geological Principles.** One hour and fifteen- minute on-screen assessment. 2) **Component 2 – Investigative Geology.** One hour and thirty minutes. Written examination. **The content is the same for both exams. It is examined using different methods across the two components.**	N/A			N/A