

Saffron Walden County High School Curriculum

CURRICULUM SUMMARY



SAFFRON WALDEN
COUNTY HIGH SCHOOL

Year 12		AUTUMN TERM		SPRING TERM		SUMMER TERM	
		TERM 1A	TERM 1B	TERM 2A	TERM 2B	TERM 3A	TERM 3B
Humanities – Earth Science (Geology)	KNOWLEDGE DOMAIN	<p>Elements minerals and rocks</p> <p>Key idea 1 The Earth is composed of rocks which have distinctive mineralogies and textures</p>	<p>F2 Surface and internal processes of the rock cycle</p> <p>Key idea 1 The mineralogy and texture of sedimentary rocks result from surface processes as part of the rock cycle.</p> <ul style="list-style-type: none"> Physical and chemical weathering of rocks Surface materials are transported by erosional agents and are deposited as sediments <p>Key Idea 2 The formation and alteration of igneous and metamorphic rocks result from the Earth's internal energy</p>	<p>F3 Time and change</p> <p>Key Idea 1: The study of present-day processes and organisms enables understanding of changes in the geological past</p> <p>Key Idea 2: Geological events can be placed in relative and absolute time scales</p>	<p>F4 Earth structure and global tectonics</p> <p>Key Idea 1: The Earth has a concentrically zoned structure and composition</p> <p>Key Idea 2: The Earth's internal heat is the underlying cause of lithospheric plate motions that control global geological processes</p>	<p>G1 Rock-forming processes</p> <p>Key Idea 1: The generation and evolution of magma involve different processes.</p> <p>Key Idea 2: The mineralogy and texture of metamorphic rocks are determined by the composition of the parent rock and the conditions of metamorphism</p> <p>Key Idea 3: Sedimentary processes can be</p>	<p>G2 Rock deformation</p> <p>Key Idea 1: Geological structures are formed when rock material undergoes deformation</p>

			<p>Key Idea 3: Deformation results when rocks undergo permanent strain in response to applied tectonic stresses and can be interpreted using geological maps</p>			understood using scientific modelling.	
SKILLS DEVELOPED THROUGH THE KNOWLEDGE AND ENQUIRIES TAUGHT THIS HALF TERM	<p>Pupils will investigate the diagnostic properties of minerals.</p> <p>Measurement of the density of minerals</p> <p>Recognition, of the main rock-forming minerals (as specified on the exam board's mineral data sheet)</p> <p>Application of classification systems using distinguishing characteristics to identify unknown minerals.</p>	<p>Constructing and interpreting frequency tables and diagrams, bar charts and histograms.</p> <p>Understanding of the principles of sampling as applied to scientific data.</p> <p>Understanding of the measures of dispersion, including standard deviation and interquartile range</p> <p>Selection and use of a statistical test</p> <p>Identification of sedimentary structures in hand specimen</p> <p>Recognition and interpretation of structural features from photographs, diagrams, sections, geological maps and in the field</p>	<p>Analysis of modern and fossil assemblages to interpret the degree of transportation before burial</p> <p>Application of classification systems using distinguishing characteristics to identify unknown fossils.</p> <p>Production of scaled, annotated scientific drawings of fossils, using a light microscope, or hand lens observation.</p>	<p>Investigation of how the plate tectonics paradigm developed over time.</p> <p>Interpretation of the evidence for plate tectonic theory.</p> <p>Investigation of the relationships between earthquake data (focal depth, magnitude and distance from plate boundaries) using data on Google EarthTM.</p> <p>Evaluation of the possible mechanisms for plate movement (role of mantle convection, slab pull, ridge push).</p>	<p>Use of logarithms scale concerning quantities that range over several orders of magnitude.</p> <p>Interpretation of logarithmic plots</p> <p>Investigation of magma crystallisation and differentiation processes using phase diagrams</p> <p>Analysis of ocean survey data</p> <p>Analysis of simple pressure-temperature-time paths</p> <p>Investigation of contact metamorphism</p> <p>Analysis of metamorphic textures</p> <p>Application of the Hjulstrom graph.</p>	<p>Identification of plunge direction (of axis) and axial planar cleavage.</p> <p>Analysis of the relationship between fault type (normal, reverse/thrust, strike-slip) and the orientation of the principal stress components</p> <p>Calculations involving measurements of:</p> <ul style="list-style-type: none"> • true bed thickness • vertical bed thickness • width of outcrop • angle of dip. <p>Use of sin, cos and tan in physical problems</p>	

			<p>Production of scaled annotated field sketches at unfamiliar field exposures to record data relevant to an investigation.</p> <p>Measurement of dip and strike elements: dip angle, dip and strike directions of planar surfaces</p> <p>Recognition of fold elements: limb, hinge, axis, axial plane trace, fold symmetry (as a function of limb length), antiform, synform, anticline, syncline</p> <p>Use of geological maps, block diagrams, boreholes, cross-sections, and photographs to interpret the geology of an area</p> <p>Construction of geological cross-sections from simplified geological maps</p>				
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