IB ESS Year 2- MHS Subject Group Overview

Unit Name	**Unit 1 Land**	**Unit 2** **IA Proposals**	**Unit 3** **Atmosphere and Climate Change**	**Unit 4** **Natural Resources**	**Unit 5** **IA Work**	**Unit 6** **Human Population and Urban Systems**	**Review & Exams**

Time Frame	7 weeks	2 weeks	5 weeks	5 weeks	2 weeks	5 weeks	7 weeks
Standards/ IB Topics	Topic 5 5.1 Land 5.2 Agriculture and food	Topics: 2.5 / 8 Objectives 1, 2, 3, 4	Topic 6 6.1 Introduction to the atmosphere 6.2 Climate change: causes and impact 6.3 Climate change: mitigation and adaptation 6.4 Stratospheric ozone	Topic 7 7.1 Natural Resources: uses and management 7.2 Energy sources-uses and management 7.3 Solid Waste	Topic 2.5 Investigating Ecosystem Practical Work IA Proposal and Design	Topic 8 8.1 Human populations 8.2 Urban systems and urban planning 8.3 Urban air pollution	Topics 1 – 8 S1/S2 Review
Content Specific Information (texts, documents, methods)	**Statement of Inquiry** Soils are complex systems whose degradation threatens food security and ecosystem function. **Phenomenon** Desertification is expanding in areas like the Sahel, reducing agricultural productivity.. **Crosscutting Concepts** ● Energy and matter	**Scientific investigation** The internal assessment, worth 20% of the final assessment, consists of one scientific investigation. This individual investigation will cover a topic that is commensurate e with the level of the course of study. Student work is internally assessed by the teacher and externally	**Statement of Inquiry** The atmosphere is a dynamic system that is essential to life on Earth. **Phenomenon** Changing the atmosphere affects how much water trees need. **Crosscutting Concepts** ● Patterns ● Energy and Matter ● Stability and Change ● Cause and Effect ● Systems and System models **CORE IDEAS** Atmosphere atmospheric composition ozone UV radiation	**Statement of Inquiry** The choice of energy sources is controversial and complex. **Phenomenon** Climate change is making the epic California drought worse. **Crosscutting Concepts** ● Cause and Effect ● Stability & Change ● Energy and Matter **CORE IDEAS** Energy Choice and Security Climate Change - Causes and Impacts	**Statement of Inquiry** Ecosystems can be better understood through investigation and analysis of changes through time. **Phenomenon:** Environmental systems, issues, and changes allow for inquiry and investigation. **Crosscutting Concepts**: ● Cause and Effect ● Systems and System Models **CORE IDEAS:** Ecological Investigations Sampling strategies	**Statement of Inquiry** Global biodiversity is decreasing rapidly due to human activity. **Phenomenon:** The term "biodiversity' refers to the fact that heterogeneity at different ecological levels is a fundamental property of natural systems. **Crosscutting Concepts** ● Cause and Effect ● Stability & Change **CORE IDEAS** Biodiversity Species Diversity Genetic Diversity	**Statement of Inquiry** It is not just population growth that causes an increase in food demand; standard of living is important too. **Phenomenon** Twenty African nations have banded together to build a monumental Great Green Wall of Africa **Crosscutting Concepts** ● Energy and Matter ● Stability and Change ● Cause and Effect

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			human activities contributing to ozone depletion pollution management photochemical smog acid deposition	Climate Change - Mitigation and Adaptation	Measuring abiotic and biotic factors Investigating changes along an environmental gradient Estimation of biomass and different trophic levels Population estimations (motile and non-motile organisms) Graphical analysis and interpretation Species diversity indices Human impacts	Urbanization, population growth, and consumption patterns drive global environmental change and demand sustainable solutions. **Phenomenon:** Megacities like Lagos face immense strain on infrastructure and natural resources. **Crosscutting Concepts** ● Cause and Effect ● Stability & Change	● Energy and Matter ● Stability and Change ● Cause and Effect ● Systems and System models
Common Assessments/ Major Projects	production- Natural vs Fisheries Spiral back to Apo Island Case Study	**SEP** ● Planning and Carrying out investigations ● Asking Questions and Defining Problems **Internal Assessment:** Discussion of environmental issue of choice Communication of information in a coherent and logical way	**SEP** ● Asking Questions and Defining Problems ● Developing & Using Models ● Planning and Carrying out investigations ● Engage in Argument from Evidence **Major Projects** Case studies Research Group project	**SEP** ● Asking Questions and Defining Problems ● Developing & Using Models ● Engage in Argument from Evidence ● Obtaining, evaluating & communicating information **Major Projects** Energy Resources: (Earth Energy	**SEP** ● Asking Questions and Defining Problems ● Developing & Using Models ● Planning and Carrying out investigations ● Engage in Argument from Evidence **Internal Assessment:** Results: Data Collection Analysis: Statistics and Graphical	**SEP** ● Asking Questions and Defining Problems ● Developing & Using Models ● Engage in Argument from Evidence ● Analyzing & interpreting data ● Use mathematics and computational thinking **Major Projects** Case Histories of different species – extinct, endangered, and	**SEP** ● Asking Questions and Defining Problems ● Developing & Using Models ● Analyzing & interpreting data ● Engage in Argument from Evidence **Major Projects** Soil System Diagram – inputs,

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		The internal assessment (IA) counts as 25% of the overall grade in the course.		Summit Poster Interpretation of Graphs Feedback Loops and Climate Change Ocean Circulation and Jet Stream Global Temperature Changes (Personal Viewpoint Essay: Global Warming) Misconception Review Impacts of Climate Change Ecological Footprint	Conclusion Discussion and Evaluation of assessment and the environmental issue of choice Communication of information in a coherent and logical way The internal assessment (IA) counts as 25% of the overall grade in the course.	conservation status Design and Manage protected areas – conservation and preservation Think-Pair-Share – Types of Biodiversity ompare/Contrast ecosystems and communities – Diversity Indices Hotspot data interpretation and Analysis Natural Selection/Plate Tectonics cological Time Scale – Mass Extinction Events	outputs, storages, and flows – Use Soil texture triangular graph to identify soil type and texture Sustainability of terrestrial food production systems Compare and Contrast agricultural and subsistence farming systems (use, efficiency, advantages, disadvantages, etc) Soil Conservation Measures ● IA & IB Exam Graded on IB scale by mark scheme
Level Specific Differentiation	Marietta City Schools teachers provide specific differentiation of learning experiences for all students. Details for differentiation for learning experiences are included on the district unit planners.						

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Resources	• Oxford Environmental Systems and Societies • Biozone Environmental Science Student Workbook • Hodder Education Environmental Systems and Societies Study and Revision Guide • IB ESS Schoology Group	• Oxford Environmental Systems and Societies • Biozone Environmental Science Student Workbook • Hodder Education Environmental Systems and Societies Study and Revision Guide • IB ESS Schoology Group	• Oxford Environmental Systems and Societies • Biozone Environmental Science Student Workbook • Hodder Education Environmental Systems and Societies Study and Revision Guide • IB ESS Schoology Group	• Oxford Environmental Systems and Societies • Biozone Environmental Science Student Workbook • Hodder Education Environmental Systems and Societies Study and Revision Guide • IB ESS Schoology Group	• Oxford Environmental Systems and Societies • Biozone Environmental Science Student Workbook • Hodder Education Environmental Systems and Societies Study and Revision Guide • IB ESS Schoology Group	• Oxford Environmental Systems and Societies • Biozone Environmental Science Student Workbook • Hodder Education Environmental Systems and Societies Study and Revision Guide • IB ESS Schoology Group	• Oxford Environmental Systems and Societies • Biozone Environmental Science Student Workbook • Hodder Education Environmental Systems and Societies Study and Revision Guide • IB ESS Schoology Group