### IB ESS Year 2 - MHS Subject Group Overview

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<tr>
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<tr>
<th>Time Frame</th>
<th>7 weeks</th>
<th>2 weeks</th>
<th>5 weeks</th>
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<th>7 weeks</th>
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| Standards/IB Topics | Topic 4 4.1 Intro to Water Systems 4.2 Access to Freshwater 4.3 Aquatic Food Production Systems 4.4 Water Pollution | Topic 6 6.1 Intro to the Atmosphere 6.2 Stratospheric Ozone Smog 6.3 Photochemical Smog 6.4 Acid Deposition | Topic 7 7.1 Energy Choices and Security 7.2 Climate Change-Causes and Impacts 7.3 Climate Change –Mitigation and Adaptation | Topic 2.5 Investigating Ecosystem Practical Work IA Proposal and Design | Topic 3 3.1 An Introduction to Biodiversity 3.2 Origins of Biodiversity 3.3 Threats to Biodiversity 3.4 Conservation of Biodiversity | Topics 1 – 8 S1/S2 Review |

| Content Specific Information (texts, documents, methods) | Statement of Inquiry Most freshwater systems are naturally oligotrophic (nutrient poor). | Phenomenon: Water use has been growing at more than twice the rate of population increase in the last century, and, although there is no global water scarcity as such, an increasing number of regions are chronically short of water. | Crosscutting Concepts: Energy and Matter | Crosscutting Concepts: Patterns, Energy and Matter, Stability and Change, Cause and Effect | Crosscutting Concepts: 1. Cause and Effect, 2. Systems and System models | Crosscutting Concepts: 1. Cause and Effect, 2. Systems and System models |

| Statement of Inquiry | The internal assessment, worth 20% of the final assessment, consists of one scientific investigation. This individual investigation will cover a topic that is commensurate with the level of the course of study. | Statement of Inquiry: The atmosphere is a dynamic system that is essential to life on Earth. | Statement of Inquiry: The choice of energy sources is controversial and complex. | Statement of Inquiry: Ecosystems can be better understood through investigation and analysis of changes through time. | Statement of Inquiry: Global biodiversity is decreasing rapidly due to human activity. | Statement of Inquiry: It is not just population growth that causes an increase in food demand; standard of living is important too. |


Published: August, 2023

Resources, materials, assessments not linked to SGO or unit planner will be reviewed at the local school level.
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### Components
- **Set by IB ESS Guide**

### 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

### Measuring biodiversity diversity indices
- Hotspots
- Origins of Biodiversity
- Plate Tectonics
- Natural Selection
- Speciation
- Mass Extinction
- Conservation
- Evolution
- Threats to biodiversity
- Impacts of loss of biodiversity
- Conservation efforts

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### Common Assessments/Major Projects

#### SEP
- Asking Questions and Defining Problems
- Engage in Argument from Evidence

#### Major Projects
- Hydrologic Cycle – diagram and discuss human impact
- Water distribution and storages
- Ocean Circulation
- Compare fishing methods and food

#### Internal Assessment:
- Discussion of environmental issue of choice
- Communication of information in a coherent and logical way

#### Major Projects
- Case studies
- Research Group project

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### Systems and System models

#### CORE IDEAS
- Soil Quality systems
- Terrestrial food production systems
- Food choices
- Soil degradation
- Conservation and soil management strategies

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<td>production- Natural vs Fisheries Spiral back to Apo Island Case Study</td>
<td>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</td>
<td>Conclusion Discussion and Evaluation of assessment and the environmental issue of choice Communication of information in a coherent and logical way</td>
<td>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</td>
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<td>Level Specific Differentiation</td>
<td>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.</td>
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*IA & IB Exam Graded on IB scale by mark scheme*
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