Marietta City Schools

2025-2026 District Unit Planner

Teacher(s)	IB ESS PLC	**Subject Group and Course**	Group 4 - ESS		
Course Part and Topic	Land	**SL or HL / Year 1 or 2**	SL Year 2	**Time**	7 weeks
Unit Description and Texts		**DP Assessment(s) for Unit**			
• Oxford Textbook Topic 5 5.1 Land 5.2 Agricultural and food **Phenomenon** Desertification is expanding in areas like the Sahel, reducing agricultural productivity..		• Formative/Summative assessment quizzes and activities/reports to check for understanding - Based in IB exam questions and format • production- Natural vs Fisheries • Spiral back to Apo Island Case Study			

INQUIRY: establishing the purpose of the unit

Transfer Goals
List here one to three big, overarching, long-term goals for this unit. Transfer goals are the major goals that ask students to "transfer" or apply their knowledge, skills, and concepts at the end of the unit under new/different circumstances, and on their own without scaffolding from the teacher.
Statement of Inquiry Soils are complex systems whose degradation threatens food security and ecosystem function.

ACTION: teaching and learning through inquiry

Content / Skills / Concepts - Essential Understandings	Learning Process *Check the boxes for any pedagogical approaches used during the unit. Aim for a variety of approaches to help facilitate learning.*
<u>Students will know the following content:</u> ● The soil system may be illustrated by a soil profile that has a layered structure. ● Soil system stores include organic matter, organisms, nutrients, minerals, air and water. ● Transfers of material within the soil include biotic mixing, leaching, and mobilization. ● Soils have inputs like leaf litter, clay and precipitation and outputs include biotic uptake and soil erosion. ● The structure and properties of sandy, loamy, and clay soils differ. ● The sustainability of terrestrial food production systems is influenced by many factors. ● Inequalities, cultural choices, availability of land, and technology all affect food production yields. ● Increased sustainability can be achieved by reducing meat consumption, improving food <u>Students will develop the following skills:</u> ● Outline the dynamic soil system in a system diagram. ● Explain the soil ecosystem. ● Compare and contrast soil structures and their effects on plants. ● Analyze tables and graphs that illustrate inputs, outputs, and transfers in food systems.	Learning experiences and strategies/planning for self-supporting learning: ☒ Lecture □ Socratic seminar ☒ Small group/pair work ☒ PowerPoint lecture/notes Individual presentations Group presentations ☒ Student lecture/leading □Interdisciplinary learning Details: *Students will learn through a combination of labs, team/small group work, activities surrounding soil types and horizons.* Other(s): Link and spiral other topics via projects i.e. water **Formative assessment(s):** Quizzes In class activities Exit Tickets (Exam style questions)

• Compare and contrast food production systems (case study) • Evaluate environmental impacts of food production systems. • Discuss the links between cultural systems and food systems. • Evaluate strategies to increase sustainability in food production systems. • Explain the relationship between ecosystem succession and soil fertility. • Discuss the influences of human activities on soil fertility and soil erosion. • Evaluate soil management strategies in a named commercial farming system and in a named subsistence farming system. <u>Students will grasp the following concepts:</u> • The soil system is a dynamic ecosystem that has inputs, outputs, storages and flows. • The quality of soil influences the primary productivity of an area. • The sustainability of food production systems is influenced by socio-political, economic and ecological factors. • The supply of food is inequitably available and land suitable for food production is unevenly distributed. This can lead to conflict. • Political, economic, and ethical choices throughout the food system play roles in determining outcomes for the environment and human society. • Fertile soils require significant time to develop through the process of succession. • Human activities may reduce soil fertility and increase soil erosion. • Soil conservation strategies exist and may be used to preserve soil fertility and reduce soil erosion.	
	Summative assessments: **Lab** Summative assessment over each subtopic and over Topic 5

	Differentiation: ☒ Affirm identity - build self-esteem ☒ Value prior knowledge ☒ Scaffold learning ☒ Extend learning Details: ● *SWD/504 – Accommodations Provided* ● *ELL – Reading & Vocabulary Support* ● *Intervention Support* ● *Extensions – Enrichment Tasks and Project*

Approaches to Learning (ATL)

Check the boxes for any explicit approaches to learning connections made during the unit. For more information on ATL, please see the guide.

☒ Thinking

☒ Social

☒ Communication

☒Self-management

☒ Research

Details: This topic provides students with a vast amount of information that can be studied in many ways. The ATLs used for this subtopic will vary depending on the individual students and groups approach to showing their understanding of the material

Language and Learning *Check the boxes for any explicit language and learning connections made during the unit. For more information on the IB's approach to language and learning, please see the guide.*	TOK Connections *Check the boxes for any explicit TOK connections made during the unit*	CAS Connections *Check the boxes for any explicit CAS connections. If you check any of the boxes, provide a brief note in the "details" section explaining how students engaged in CAS for this unit.*
☒ Activating background knowledge ☒ Scaffolding for new learning ☒ Acquisition of new learning through practice □ Demonstrating proficiency Details: *Students will acquire new vocabulary dealing with soil, agriculture, and food* *Connections:* *ESS: Food production systems and food choices (5.2); climate change—causes and impacts (7.2); sustainability (1.4); resource use in society (8.2); biodiversity and conservation (topic 3); solid domestic waste (8.3)*	☒ Personal and shared knowledge ☒ Ways of knowing ☒ Areas of knowledge ☒ The knowledge framework Details: Students will focus on the methodology (Systems and models) for the course.	☒ Creativity ☒ Activity ☒ Service Details: *Students will discover ways to reduce soil erosion and identify soil horizons and types.* *Students will learn and complete a soil texture triangle to determine best soil types for agriculture.*

Resources

List and attach (if applicable) any resources used in this unit

- Oxford Environmental Systems and Societies ISBN 978-0-19-833256-5
- Biozone Environmental Science Student Workbook ISBN 978-1-927173-55-8

- Hodder Education Environmental Systems and Societies Study and Revision Guide
  ISBN 978-1-471-89973-7
- IB ESS Schoology Group

REFLECTION: considering the planning, process, and impact of the inquiry

What worked well *List the portions of the unit (content, assessment, planning) that were successful*	**What didn't work well** *List the portions of the unit (content, assessment, planning) that were not as successful as hoped*	**Notes / Changes / Suggestions** *List any notes, suggestions, or considerations for the future teaching of this unit*