**Environmental Science 20 – Units plans**

**\*Unless otherwise noted resources obtained from Sun West Moodle.**

**Unit 1: What is Environmental Science**

ES20-ES1 examine the methods, mindsets and purposes of environmental science

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| **Lesson** | **Procedure** | **Resources** |
| **What is Environmental Science** | Discussion  Case Study |  |
| **What is Environmental Science Feedlot PBL (7 days)** | Reveal a new disclosure each day then allow 2 days for presentation polishing and 1 days for presenting. |  |

**Unit 2: Aquatic Ecosystems**

ES20-AS1 Analyze the function and condition of freshwater aquatic systems such as rivers, streams, lakes, wetlands and water sheds

ES20-AS2 Assess the importance of maintaining healthy water for humans and the environment

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| **Lesson** | **Procedure** | **Resources** |
| **1. Fresh Water Ecosystems** | Introductory notes  David Suzuki – Save my Lake Documentary with Response assignment |  |
| **2. Ocean Ecosystems** | Fill in notes and then Ocean Bully Case study |  |
| **3. Dissolved Oxygen** |  |  |
| **4. Eutrophication**  Aging in Lakes | **Combined with DO –** Notes and Crossword |  |
| **5. Measuring Water Quality** | A snapshot in time cooper river  Group activity  Question Sheet | **Project Wet pg. 381** |
| **6. Field Trip – Water Watch Dogs** | **Travelled to** Hiemark’s Dam. Took water samples and gained knowledge of the area.  Filled in Field notebook -- Formative | Water watch Dogs |
| **7. Humans and Water – The Use of Water** | Notes and Solo Activity | Resource Management Protecting your drinking water |
| **8. Ecological Issues** | **Notes**  **Crossword**  **Casestudy** | Cross word and Fish for the Future case study (ck12) |
| **9. Water Pollution** | Notes: Read through together  Mercury: Do Questions 1 and 2  Ted Talk – How we wrecked the ocean with viewing questions. | Mercury a global concern  https://www.ted.com/talks/jeremy\_jackson?language=en |
| **10. Water Treatment** | Video: <https://www.youtube.com/watch?v=laJYq_Mfk7Q>  Types of Water Treatment Jigsaw  Casestudies | Water Treatment casestudies – Google drive |
| **11. Test/Project** |  |  |

**Unit 3: Terrestrial Ecosystems**

ES20-TE1 Analyze the importance of soil as an integral component of terrestrial ecosystems

ES20-TE2 Examine the role plants play in an ecosystem, including ways in which humans use plants

ES20-TE3 Recognize the need for intact habitat to support animal populations and diversity

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| **Lesson** | **Procedure** | **Resources** |
| **1. Biomes** | 1. Fill in notes  2. Biome Reading and Chart Activity | **Moodle** |
| **2. Classification of Plants** | 1. notes  2. crossword | **Moodle** |
| **3. Plant Structure and Function** | 1. notes  2. worksheet  3. plant cell colouring | **Moodle**  **Biology corner** |
| **4. Observing Plants Lab** | 1. practice microscope lab  2. plant cell lab | **Moodle/bio 30 lab**  **Biology corner** |
| **5. Roots, Stems and Leaves** | 1. notes  2. worksheet  3. leaf anatomy colouring  4. word search | **Moodle**  **Biology corner** |
| **5b. Photosynthesis** | 1. photosynthesis online simulation  2. notes and paper activity for Gregg |  |
| **6. Animals and Ecosystems: Stewardship** | 1. Stewardship notes  2. Animal Chart |  |
| **7. Saskatchewan Local Organisms** |  | Owl Assignment google drive |
| **8. Community Interactions and Keystone Species** | 1. Moodle notes with crossword  2. Paragraph assignment |  |
| **9. Evolution and Biodiversity** | 1. Textbook reading  2. Study guide assignment |  |
| **10. Soil as an Ecosystem** | 1. Notes from Ag in the Classroom  2. Chart from |  |
| **11. Roles of Organisms in Soil** | Bonus: Case Study  Start Module 2 from AITC:  1. Do Station 1 |  |
| **12. Degradation and Soil Stewardship** | 1. Notes from AITC with Cross word  2. Stations 2 and 3 |  |
| **13. Sustainable Agriculture** | 3. Complete stations 4, 5, 6 and 7 |  |
| **14. Environmental Issues: Invasive Species** | 1. Notes – read through together  2. Mountain Pine Beetle Map Activity |  |
| **15. Pesticides**  **16. Vanishing Bees – Case Study** | 1. Notes with word search  2. Watch videos and answer viewing questions |  |
| **17. Alternative Pest Control** | 1. Read through notes together  2. Chart and pdf file activity |  |
| **18. Biomimicry** | 1. Ted Talk with viewing questions  2. Assignment – paragraph hand in |  |
| **19. Unit Project** | Pick an outcome and design a project to show your knowledge and understanding |  |

**Unit 4: Atmosphere and Human Health**

ES20-AH1 Assess the impact of human activities on indoor and outdoor air quality and the need for regulations and mitigating technologies to minimize risks to human health

ES20-AH2 Analyze the production, reliability and uses of geoscience data to investigate the effects of a changing climate on society and the environment

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| **Lesson** | **Procedure** | **Resources** |
| **1. Introduction to Climate Change** | [**https://www.youtube.com/watch?v=hfBMUd-Es0M**](https://www.youtube.com/watch?v=hfBMUd-Es0M) **and handout** |  |
| **2. What is Climate Change/Tackling Climate Change** | American Pika Disclosure 1 – with notes |  |
| **3. Systems in the Environment** | Notes and Crossword |  |
| **4. The Importance of Equilibrium** | American Pika Disclosure 2 |  |
| **5. Feedback Loop Assignment** | Notes and poster assignment |  |
| **6. The Effects of Climate Change on Ecosystems** | Notes and questions |  |
| **7. The Arctic is Changing** | Notes and personal response | The Arctic Matters Text reading – Google Drive |
| **8. Carbon Dioxide** | American Pika Disclosure 3 |  |
| **9. Climate Change and Plants (2parts)** | American Pika Disclosure 4 |  |
| **10. Current Response to Climate Change** |  |  |

**Unit 5: Human Population and Pollution**

ES20-HP1 Investigate technologies and processes used for mitigating and managing resource use, waste generation and pollution associated with a growing human population

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| **Lesson** | **Procedure** | **Resources** |
| **1. Human Population and the Environment** | **Notes and RapaNui Case Study** | Video: How many people can live on planet earth |
| **2. Sustainability** | **Ag in the Classroom Germination Activity** |  |
| **3. Ecological Footprint** | **Notes and Personal Footprint Survey** | Personal Ecological Footprint survey (Google Drive) |
| **4. Economics and the Environment** |  |  |
| **5. Population and the Environment (2 parts)** |  |  |
| **6. The Original Lorax** | **The Lorax Reflection** | **Watch The Lorax** |
| **8. Ecosystem Health and Human Health** | **An Audit of School Waste** |  |
| **9. Tackling Climate Change** |  |  |

**Final Project:**

**Pick an outcome or study a career.**