**2017.18 Ecology, Quarter 4**

**Big Ideas/Key Concepts:**
- Analyze and evaluate the human impact of ecosystems and the role society plays in helping sustain the environment.

<table>
<thead>
<tr>
<th>Standards</th>
<th>Student Friendly “I Can” Statements</th>
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<tbody>
<tr>
<td><strong>Human Impact on Energy, Water, Air and Climate</strong>&lt;br&gt;CLE 3255.4.4 Summarize the human impact on ecosystems.</td>
<td><strong>Human Impact on Energy, Water, Air and Climate</strong>&lt;br&gt;I can research how human activities have affected ecosystems.</td>
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<tr>
<td><strong>CLE 3255.5.5 Identify how humans impact terrestrial and aquatic biomes.</strong></td>
<td>I can trace and explain the matter cycle and energy flow of how burning fossil fuels contributes to acid deposition.</td>
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<td>I can model how deforestation can lead to soil erosion and flooding.</td>
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<td>I can research and explain how the use of fertilizer can contribute to oxygen depletion in aquatic ecosystems.</td>
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<td>I can research the natural greenhouse effect and explain how it has been altered by humans.</td>
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<td>I can analyze and evaluate environmental impacts of different energy sources (renewable vs. nonrenewable).</td>
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<td>I can research human threats to each of the major terrestrial, marine and freshwater biomes and make predictions based on my findings.</td>
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<td></td>
<td>• fragmentation</td>
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<td>• poaching</td>
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CLE 3255.6.3 & CLE 3255.6.4
Evaluate your personal impact on the environment and choices you can make to lessen your impact on the environment.

ECO.WCE.16: Research the local watershed and how wastewater, municipal solid and hazardous waste are handled.

CLE 3255.Inq.2 Design and conduct scientific investigations to explore new phenomena, verify previous results, test how well a theory predicts, and compare opposing theories.

CLE 3255.Inq.3 Use appropriate tools and technology to collect precise and accurate data.

CLE 3255.Inq.4 Apply qualitative and quantitative measures to analyze data and draw conclusions that are free of bias.

CLE 3255.Inq.5 Compare experimental evidence and conclusions with those drawn by others about the same testable question.

CLE 3255.Inq.6 Communicate and defend scientific findings.

Environmental Politics & Engineering
CLE 3255.6.2 Examine state, national, and international efforts to maintain natural species and ecosystems.

- salinization
- desertification

I can describe examples of choices I can make to lessen my personal impact on the environment.

I can construct an argument in support of protection of native species, and prepare an evidence-based rebuttal for counter arguments.

I can research my local watershed and how wastewater, municipal solid, and hazardous waste are handled.

I can examine my ecological footprint and the issues surrounding environmental and socially responsible behaviors.

I can design and conduct scientific investigations to explore new phenomena, verify previous results, test how well a theory predicts, and compare opposing theories.

I can use appropriate tools and technology to collect precise and accurate data.

I can apply qualitative and quantitative measures to analyze data and draw conclusions that are free of bias.

I can compare experimental evidence and conclusions with those drawn by others about the same testable question.

I can communicate and defend scientific findings.

Environmental Politics & Engineering
I can compare and contrast through research, the purposes of the Montreal Protocol, Kyoto Treaty, Lacey Act, and Endangered Species Act.
ECO.WCE.17: Research and communicate information on environmental engineering.

CLE 3255.T/E.1 Explore the impact of technology on social, political, and economic systems.

CLE 3255.T/E.2 Differentiate among elements of the engineering design cycle: design constraints, model building, testing, evaluating, modifying, and retesting.

CLE 3255.T/E.3 Explain the relationship between the properties of a material and the use of the material in the application of a technology.

CLE 3255.T/E.4 Describe the dynamic interplay among science, technology, and engineering within living, earth-space, and physical systems.

I can develop a timeline that illustrates major local, national, and international environmental legislation enacted to sustain biodiversity.

I can research and communicate information on environmental engineering.

I can explore the impact of technology on social, political, and economic systems.

I can differentiate among elements of the engineering design cycle: design constraints, model building, testing, evaluating, modifying, and retesting.

I can explain the relationship between the properties of a material and the use of the material in the application of a technology.

I can describe the dynamic interplay among science, technology, and engineering within living, earth-space, and physical systems.

**Honors Addendum**

*Note for Teachers of Honors: Do not teach this Honors Addendum at the end of the quarter. Embed the Honors Addendum within the regular Scope & Sequence.*

**Human Impact on Energy, water, air and climate**

CLE 3255.4.4 Summarize the human impact on ecosystems.

CLE 3255.5.5 Identify how humans impact terrestrial and aquatic biomes.

**Human Impact on Energy, water, air and climate**

I can research how ozone depletion affects living organisms. (E.g. Increased skin cancer and cataracts).

I can design or utilize a designed model ecosystem for conducting experiments about human impact on an ecosystem.

I can research issues in my community surrounding the adoption of environmentally and socially responsible behaviors (eg. Proper waste disposal, using fuel efficient transportation, planting native species, purchasing locally grown food, reducing/eliminating dependence on “one use” products) and communicate my findings to my community.
I can propose and promote solutions for environmentally and socially responsible behaviors that lessen human impact on terrestrial and aquatic ecosystems.

Environmental Politics & Engineering
I can research and paraphrase the major U.S. and international laws pertaining to maintaining biodiversity in ecosystems.