**9th Grade Environmental Science — Comprehensive October Lesson Plan**

Starting Monday, September 29, 2025

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| Teacher | School | Grade | Month/Year |
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# Core Standards Map (October Focus)

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| Standard | Description |
| HS-ESS3-1 | Construct explanations of how natural resource availability, natural hazards, and climate influence human activity. |
| HS-ESS3-2 | Evaluate competing design solutions for reducing human impacts on Earth systems. |
| HS-ESS3-3 | Develop models to illustrate relationships among Earth systems and human activity. |
| HS-ESS3-4 | Evaluate or refine technological solutions that reduce impacts of human activities. |
| HS-ESS3-6 | Use data to forecast climate change and associated impacts. |
| Science Practices | Asking questions, analyzing/interpreting data, argument from evidence, modeling, communication. |

# Weekly Unit Focus (Sept 29 – Oct 31, 2025)

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| Week | Focus | Standards | Assessments/Projects |
| Week of Sept 29 – Oct 3 | Introduction to Ecology & Ecosystems | HS-LS2 (review) | Ecosystem poster project; lab on abiotic/biotic factors |
| Week of Oct 6 – 10 | Energy Flow & Trophic Levels | HS-LS2-3 | Food web construction; energy pyramid calculations |
| Week of Oct 13 – 17 | Biogeochemical Cycles (Water, Carbon, Nitrogen) | HS-LS2-4 | Cycle diagramming; carbon footprint calculator |
| Week of Oct 20 – 24 | Human Impact on Ecosystems | HS-ESS3-1/3 | Case study analysis (deforestation, pollution); group debate |
| Week of Oct 27 – 31 | Climate Change & Sustainable Solutions | HS-ESS3-2/4/6 | Climate data analysis; sustainability action plan proposal |

# Materials & Resources

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| Textbook/Readings | Lab equipment | Charts/Diagrams | Digital projector |
| Notebooks | Internet access | Climate data sets | Case studies/articles |
| Poster paper | Markers | Graphing tools | Simulation software |

## Week of Sept 29 – Oct 3

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| --- | --- |
| Focus | Introduction to Ecology & Ecosystems |
| Standards | HS-LS2 (review) |
| Essential Questions | What defines an ecosystem? How do abiotic and biotic factors interact? |
| Labs/Activities | Outdoor field observation; lab classification of factors. |
| Assessments | Poster project on local ecosystem. |
| Differentiation | ELL supports: visuals, word banks; IEP: scaffolded instructions; Enrichment: independent research. |
| Tech Integration | Use simulations, online databases, collaborative docs. |
| Family/Community Connection | Encourage discussion of local environmental issues at home. |

## Week of Oct 6 – 10

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| Focus | Energy Flow & Trophic Levels |
| Standards | HS-LS2-3 |
| Essential Questions | How does energy flow through ecosystems? Why are food webs more accurate than food chains? |
| Labs/Activities | Food web building; pyramid energy calculation activity. |
| Assessments | Construct and present a food web poster. |
| Differentiation | ELL supports: visuals, word banks; IEP: scaffolded instructions; Enrichment: independent research. |
| Tech Integration | Use simulations, online databases, collaborative docs. |
| Family/Community Connection | Encourage discussion of local environmental issues at home. |

## Week of Oct 13 – 17

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| --- | --- |
| Focus | Biogeochemical Cycles |
| Standards | HS-LS2-4 |
| Essential Questions | How do matter and nutrients cycle through ecosystems? How do humans impact these cycles? |
| Labs/Activities | Water cycle demonstration; carbon footprint online tool. |
| Assessments | Quiz on cycles; footprint reflection essay. |
| Differentiation | ELL supports: visuals, word banks; IEP: scaffolded instructions; Enrichment: independent research. |
| Tech Integration | Use simulations, online databases, collaborative docs. |
| Family/Community Connection | Encourage discussion of local environmental issues at home. |

## Week of Oct 20 – 24

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| Focus | Human Impact on Ecosystems |
| Standards | HS-ESS3-1/3 |
| Essential Questions | How do human actions alter ecosystems? How can we mitigate negative impacts? |
| Labs/Activities | Case study analysis; pollution impact lab. |
| Assessments | Debate: solutions to deforestation/pollution. |
| Differentiation | ELL supports: visuals, word banks; IEP: scaffolded instructions; Enrichment: independent research. |
| Tech Integration | Use simulations, online databases, collaborative docs. |
| Family/Community Connection | Encourage discussion of local environmental issues at home. |

## Week of Oct 27 – 31

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| Focus | Climate Change & Sustainable Solutions |
| Standards | HS-ESS3-2/4/6 |
| Essential Questions | What evidence supports climate change? What sustainable solutions exist? |
| Labs/Activities | Analyze NOAA climate data; group sustainability proposal. |
| Assessments | Submit proposal and present findings. |
| Differentiation | ELL supports: visuals, word banks; IEP: scaffolded instructions; Enrichment: independent research. |
| Tech Integration | Use simulations, online databases, collaborative docs. |
| Family/Community Connection | Encourage discussion of local environmental issues at home. |

# Assessment & Data Tracker

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| Week | Assessment | Standard | Reteach Plan | Enrichment Plan |
| Week 1 | Ecosystem poster project | HS-LS2 | Small group reteach on abiotic/biotic | Independent project on biodiversity |
| Week 2 | Food web/pyramid poster | HS-LS2-3 | Additional practice with pyramid math | Extension: case study of top predator removal |
| Week 3 | Cycle quiz + footprint essay | HS-LS2-4 | Cycle modeling reteach | Advanced: global carbon budget analysis |
| Week 4 | Debate performance | HS-ESS3-1/3 | Practice debate rounds | Research-based paper |
| Week 5 | Sustainability proposal | HS-ESS3-2/4/6 | Reteach with model proposals | Present to community/board |

# Teacher Reflection (Weekly)

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| What worked well? |  |
| Evidence of learning |  |
| What needs reteaching? |  |
| Students to target |  |
| Materials to prep |  |
| Notes for next month |  |