

Beach Clean-Up Lending Library Curriculum Guide (as cited from the 2016 Science and Technology/Engineering Grades Kindergarten to 12 Massachusetts Curriculum Framework*)

General Academic Guidelines

- **HS-LS2-7:** Analyze direct and indirect effects of human activities on biodiversity and ecosystem health, specifically habitat fragmentation, introduction of non-native or invasive species, overharvesting, **pollution**, and climate change. Evaluate and refine a solution for reducing the impacts of human activities on biodiversity and ecosystem health.
 - Clarification Statement: Examples of solutions can include captive breeding programs, habitat restoration, **pollution mitigation**, energy conservation, and ecotourism.

Grade Specific Guidelines

Pre-K

- **ESS2-1:** Raise questions and engage in discussions about how different local environments (including water) provide homes for different types of living things.
- **ESS2-2:** Observe and classify non-living materials, natural and human made, in the local environment.
- **ESS3.C Human impacts on Earth systems- Disciplinary Core Idea:** Things people do can affect the environment but they can make choices to reduce their impacts
- **ESS3-2:** Observe and discuss the impact of people's activities on the local environment.

Kindergarten

- **ESS3.C Human impacts on Earth systems- Disciplinary Core Idea:** Things people do can affect the environment but they can make choices to reduce their impacts
- **ESS2-2:** Construct an argument supported by evidence for how plants and animals (including humans) can change the environment.
- **ESS3-3:** Communicate solutions to reduce the amount of natural resources an individual uses.
 - Clarification Statement: Examples of solutions could include reusing paper to reduce the number of trees cut down and recycling cans and bottles to reduce the amount of plastic or metal used.

First Grade

- **ESS3.C Human impacts on Earth systems- Disciplinary Core Idea:** Things people do can affect the environment but they can make choices to reduce their impacts

Second Grade

- **ESS3.C Human impacts on Earth systems- Disciplinary Core Idea:** Things people do can affect the environment but they can make choices to reduce their impacts

Third Grade

- **ESS3.C Human impacts on Earth systems- Disciplinary Core Idea:** Societal activities can help protect Earth's resources and environments

Fourth Grade

- **ESS3.C Human impacts on Earth systems- Disciplinary Core Idea:** Societal activities can help protect Earth's resources and environments

Fifth Grade

- **ESS3.C Human impacts on Earth systems- Disciplinary Core Idea:** Societal activities can help protect Earth's resources and environments
- **ESS3-1:** Obtain and combine information about ways communities reduce human impact on the Earth's resources and environment by changing an agricultural, industrial, or community practice or process.
 - Clarification Statement: Examples of changed practices or processes include treating sewage, reducing the amounts of materials used, capturing polluting emissions from factories or power plants, and preventing runoff from agricultural activities.

Sixth Grade – Eighth Grade

- **ESS3.C Human impacts on Earth systems- Disciplinary Core Idea:** Human activities have altered the biosphere, sometimes damaging it, although changes to environments can have different impacts for different living things. Activities and technologies can be engineered to reduce people's impacts on Earth

Ninth Grade – Tenth Grade

- **ESS3.C Human impacts on Earth systems- Disciplinary Core Idea:** Sustainability of human societies and the biodiversity that supports them requires responsible management of natural resources

Additional Skills & Information Competencies

Environmental Literacy/ Sustainability

- Interactions between living and non-living environments (I.e. litter and marine life)
- Understand and use scientific evidence to make informed decisions regarding environmental issues
- Understand our natural resources, connected systems, and how to balance environmental needs across communities
- Allow students to critically think about issues facing the environment

Science and Engineering Practices:

- Asking Questions and Defining Problems
- Developing and using models

References

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