

Standard 5-ESS3 Earth and Human Activity

<https://www.nextgenscience.org/dci-arrangement/5-ess3-earth-and-human-activity>

The chart below makes one set of connections between the instruction outlined in this article and the *NGSS*. Other valid connections are likely; however, space restrictions prevent us from listing all possibilities. The materials, lessons, and activities outlined in the article are just one step toward reaching the performance expectation listed below.

Performance Expectation:

5-ESS3-1. Obtain and combine information about ways individual communities use science ideas to protect the Earth’s resources and environment.

Dimension	Connections to Classroom Activity
ESS3.C: Human Impacts on Earth Systems Human activities in agriculture, industry, and everyday life have had major effects on the land, vegetation, streams, ocean, air, and even outer space. But individuals and communities are doing things to help protect Earth’s resources and environments. (5-ESS3-1)	- Students researched how trees are cut down to make paper. - Students evaluated ways individuals and communities strive to protect the environment. - Students applied their learning to engage in an engineering challenge.
Science and Engineering Practice. Obtaining, Evaluating, and Communicating Information Constructing Explanations and Designing Solutions.	- Students researched and synthesized information from online sources to explain how individuals and communities apply science concepts to protect the Earth’s resources and environment. - Students designed solutions to address the problem of paper pollution.
Disciplinary Core Idea	

ESS3.C: Human Impacts on Earth Systems• Human activities in agriculture, industry, and everyday life have had major effects on land, vegetation, streams, oceans, air, and even outer space. But individuals and communities are doing things to help protect Earth’s resources and environments.

ETS1.A: Defining and Delimiting Engineering Problems• Possible solutions to a problem are limited by available materials and resources (constraints).

ETS1.C: Optimizing the Design Solution

Different solutions need to be tested in order to determine which of them best solves the problem, given the criteria and the constraints.

Students designed and engineered wearables to reduce paper pollution.

Students made decisions about the parameters and constraints of the engineering challenge regarding material selection and resources.

Crosscutting Concept

Cause and Effect

Students extended their understanding by designing a solution to address paper pollution.

Connections to the *Common Core State Standards* (NGAC and CCSSO 2010)

ELA

Compare and contrast the overall structure (e.g., chronology, comparison, cause/effect, problem/solution) of events, ideas, concepts, or information in two or more texts.

CCSS.ELA-LITERACY.RI.5.5

Mathematics

Analyze patterns and relationships.

CCSS.MATH.CONTENT.5.OA.B.3