

# NATIONAL SCIENCE EDUCATION STANDARDS

## Understanding Garbage and Our Environment

GRADE	CATEGORY	SUB-CATEGORY	STANDARD
5-8	Life Science	Populations And Ecosystems	Populations of organisms can be categorized by the function they serve in an ecosystem. Plants and some micro-organisms are producers-they make their own food. All animals, including humans, are consumers, which obtain food by eating other organisms. Decomposers, primarily bacteria and fungi, are consumers that use waste materials and dead organisms for food. Food webs identify relationships among producers, consumers, and decomposers in an ecosystem.
5-8	Physical Science	Properties And Changes Of Properties In Matter	A substance has characteristic properties, such as density, a boiling point, and solubility, all of which are independent of the amount of the sample. A mixture of substances often can be separated into the original substances using one or more of the characteristic properties.
5-8	Physical Science	Properties And Changes Of Properties In Matter	Substances react chemically in characteristic ways with other substances to form new substances (compounds) with different characteristic properties. In chemical reactions, the total mass is conserved. Substances often are placed in categories or groups if they react in similar ways; metals is an example of such a group.
5-8	Physical Science	Transfer Of Energy	Energy is a property of many substances and is associated with heat, light, electricity, mechanical motion, sound, nuclei, and the nature of the chemical. Energy is transferred in many ways.
5-8	Physical Science	Transfer Of Energy	In most chemical and nuclear reactions, energy is transferred into or out of a system. Heat, light, mechanical motion, or electricity might all be involved in such transfers.
5-8	Science and Technology	Abilities In Technical Design	Communicate the process of technological design.
5-8	Science and Technology	Abilities In Technical Design	Design a solution or product.

5-8	Science and Technology	Abilities In Technical Design	Evaluate completed technological designs or products.
5-8	Science and Technology	Abilities In Technical Design	Identify appropriate problems for technological design.
5-8	Science and Technology	Abilities In Technical Design	Implement a proposed design.
5-8	Science and Technology	Understanding About Science And Technology	Many different people in different cultures have made and continue to make contributions to science and technology.
5-8	Science and Technology	Understanding About Science And Technology	Perfectly designed solutions do not exist. All technological solutions have tradeoffs, such as safety, cost, efficiency, and appearance.
5-8	Science and Technology	Understanding About Science And Technology	Technological designs have constraints.
5-8	Science and Technology	Understanding About Science And Technology	Technology solutions have intended benefits and unintended consequences.
5-8	Science as Inquiry	Abilities Necessary To Do Scientific Inquiry	Design and conduct a scientific investigation.
5-8	Science as Inquiry	Abilities Necessary To Do Scientific Inquiry	Develop descriptions, explanations, predictions, and models using evidence.
5-8	Science as Inquiry	Abilities Necessary To Do Scientific Inquiry	Recognize and analyze alternative explanations and predictions.
5-8	Science as Inquiry	Abilities Necessary To Do Scientific Inquiry	Think critically and logically to make the relationships between evidence and explanations.
5-8	Science as Inquiry	Abilities Necessary To Do Scientific Inquiry	Use appropriate tools and techniques to gather and analyze, and interpret data.
5-8	Science as Inquiry	Abilities Necessary To Do Scientific Inquiry	Use mathematics in all aspects of scientific inquiry.
5-8	Science as Inquiry	Understandings About Scientific Inquiry	Mathematics is important in all aspects of scientific inquiry.
5-8	Science in Personal and Social Perspectives	Natural Hazards	Human activities also can induce hazards through resource acquisition, urban growth, land-use decisions, and waste disposal. Such activities can accelerate many natural changes.

5-8	Science in Personal and Social Perspectives	Personal Health	Natural environments may contain substances (for example, radon and lead) that are harmful to human beings.
5-8	Science in Personal and Social Perspectives	Populations, Resources, And Environments	Causes of environmental degradation and resource depletion vary from region to region and from country to country.
5-8	Science in Personal and Social Perspectives	Risks And Benefits	Important personal and social decisions are made based on perceptions of benefits and risks.
5-8	Science in Personal and Social Perspectives	Risks And Benefits	Individuals can use a systematic approach to thinking critically about risks and benefits.
5-8	Science in Personal and Social Perspectives	Risks And Benefits	Risk analysis considers the type of hazard and estimates the number of people that might be exposed and the number likely to suffer consequences.
5-8	Science in Personal and Social Perspectives	Risks And Benefits	Science cannot answer all questions and technology cannot solve all human problems or meet all human needs.
5-8	Science in Personal and Social Perspectives	Risks And Benefits	Students should understand the risks associated with natural hazards (fires, floods, tornadoes, hurricanes, earthquakes, and volcanic eruptions), with chemical hazards (pollutants in air, water, soil, and food), with biological hazards (pollen, viruses, bacterial, and parasites), social hazards (occupational safety and transportation), and with personal hazards (smoking, dieting, and drinking).
5-8	Science in Personal and Social Perspectives	Science And Technology In Society	Science influences society through its knowledge and world view.
5-8	Science in Personal and Social Perspectives	Science And Technology In Society	Technology influences society through its products and processes.