



ISRI Recycling Collection 6-8

Designed in partnership with The Institute of Scrap Recycling Industries (ISRI), students explore the benefits and challenges of sustainable recycling through a variety of activities ranging from physics and chemistry to engineering and human impacts, while becoming informed citizens and careful consumers.

Featured Champions of Recycling

Crawford Carpenter - THE NEWARK GROUP

Tracy Blaszak - Compliance Director, Synergy Recycling, Atlanta Georgia

Mike Biddle - MBA Polymers

Dr. Stephen Jeffery - Wistron Green Tech Texas

Silvana Jones - SA Recycling

- **Activity 1: From A(Away) to Z(Zero):** Make Estimations and develop action plans.
- **Activity 2: Back through Time:** Compare physical properties and trace the history of a drop of oil.
- **Activity 3: Can It:** Explore steps involved in making a can.
- **Activity 4: CSI:** Investigate the importance of recycling and testify at a public hearing.
- **Activity 5: Mapping Scrap:** Investigate how paper is recycled and how your community can contribute.
- **Activity 6: Mix It Up, Sort It Out:** Compare properties of plastics and how they are sorted.
- **Activity 7: Smash Science:** Investigate how metals and alloys are sorted and recycled.
- **Activity 8: What's Inside:** Consider ways to reuse and recycle
- **Activity 9: You Have the Power:** Collect data and make Fermi-like estimations.

Cross-Curricular Connections

Reading & Writing for Technical Subjects:

LST.1: Read and comprehend science and technical texts independently and proficiently and write effectively for a variety of discipline-specific tasks, purposes, and audiences

LST.2: Extract and construct meaning from science and technical texts using a variety of comprehension skills

LST.2.2: Determine the central ideas or conclusions of a text; provide an accurate, objective summary of the text.

LST.2.3: Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

LST.3.1: Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to texts and topics.

LST.4.1: Translate quantitative or technical information expressed in words in a text into visual form (e.g., a table or chart) and translate information expressed visually or mathematically (e.g., in an equation) into words.

LST.4.3: Compare and contrast information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.

LST.7.1: Conduct short research assignments and tasks to answer a question (including a self generated question), or test a hypothesis, drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.

Math: Number Sense, Computation, Data Analysis and Statistics, Fermi questions

Social Studies: *World in Spatial Terms, Environment and Society*

Art: Poster Making, "Trash" art,

Grades 6-8 Science Content & Engineering Standards

- 7.PS.2** Describe the properties of solids, liquids, and gases. Develop models that predict and describe changes in particle motion, density, temperature, and state of a pure substance when thermal energy is added or removed. (Activities 2,5,6,7,8)
- 7.ESS.6** Research common synthetic materials (i.e. plastics, composites, polyester, and alloys) to gain an understanding that synthetic materials do come from natural resources and have an impact on society. (Activities 1,4,5,6,9)
- 7.ESS.7** Describe the positive and negative environmental impacts of obtaining and utilizing various renewable and nonrenewable energy resources in Indiana. Determine which energy resources are the most beneficial and efficient. (Activities 2,5,6)
- 8.PS.5** Investigate the property of density and provide evidence that properties, such as density, do not change for a pure substance. (Activity 7)
- 8.ESS.3** Research how human consumption of finite natural resources (i.e. coal, oil, natural gas, and clean water) and human activities have had an impact on the environment (i.e. causes of air, water, soil, light, and noise pollution). (Activities 2,3,4)
- 6-8.NC.1** Collaboratively design, develop, publish, and present products (e.g., videos, podcasts, websites) using technology resources that demonstrate and communicate curriculum concepts. (Activities 3,4,5,9)
- 6-8.NC.2** Exhibit dispositions necessary for collaboration: providing useful feedback, integrating feedback, understanding and accepting multiple perspectives, socialization. (Activities 3,4,5,8,9)
- 6-8.IC.3** Evaluate the accuracy, relevance, appropriateness, comprehensiveness, and biases that occur in electronic information sources.(Activity 8)
- 6-8.E.1** Identify the criteria and constraints of a design to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.(Activity 8)
- 6-8.E.2** Evaluate competing design solutions using a systematic process to identify how well they meet the criteria and constraints of the problem. (Activities 3,8)