

ISRI & JASON Learning

The Future Starts Now

*Working Together to Educate Youth about
the Science of Recycling*



About the Initiative

Putting our plan into action

Through this partnership, the message of recycling, as well as the important role of the scrap recycling industry in the environment and economy, has reached students across the United States.

The Beginning of a Partnership

In 2013, ISRI launched a campaign focused on youth education of recycling and the scrap industry in partnership with JASON Learning – a joint effort of National Geographic and Sea Research Foundation.

Curriculum

The campaign is comprised of a comprehensive K-12 STEM-based recycling curriculum.

Video & Poster Contest

Annual video and poster contest through which students explore recycling-related themes and inspire youth to make a change in their community, integrating STEM education with art and video.

Community Outreach

A Community Outreach Kit for ISRI members to promote the recycling initiative to various community stakeholders.

*The Voice
of the
Recycling
Industry™*

Recycling Education Curriculum

- Developed in three groupings: K-4, 5-8, 9-12
- Activities focused on paper, ferrous and nonferrous metals, electronics, tires, plastics, glass, and textiles.
- Scrap Maps highlight how everyday items become something new.
- Champions of Recycling showcase careers in the industry.

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Bag It!

The average American uses more than 300 plastic bags every year. This activity challenges students to monitor their plastic bag usage, and explore where plastic bags come from and the energy it takes to make them. Finally, students create their own messaging to encourage their communities to re-use and recycle plastic bags in an environmentally friendly way.

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GRADES K-4

PREPARE:

Time Required: 2 class periods (90 minutes) without extensions

* Students will need one week to collect data from home.

- Gather materials (see activity pages).
- Using your newsletter or electronic communications, ask parents to help students keep track of the number of plastic bags used over the course of the week.
- Generate a map of your community. For simple maps, you can go directly to [google maps](#) or [yahoo maps](#) and type in your city or town. By zooming in or out, you can obtain desired level of detail and print (Alt + PrtScr will print an image of the window you have open). You can also obtain maps at the town hall, library, or AAA.
- Collect a variety of HDPE plastic bags from local stores kids will recognize.
- Optional: For the extension activity, collect crochet hooks

MOTIVATE:

- Show students a pile of plastic bags from local grocers and big box stores. Ask them where they come from and if they know how many they use in a week.
- Ask students to work with their parents to create a log of the plastic bags that their family receives in a week and identify places where bags can be left for recycling.
- Ask students if they know where plastic comes from. Discuss the following to the level appropriate for your students: what fossil fuels are; how they form; and idea of limited natural resources. You might also discuss how plastic can be broken back down into carbon molecules and made into new products. See Web Links and Resources list for further reading and background.
- Have students think about how plastic bags might be harmful to the environment (discussions can include: harm to animals and the environment related to littering, and/or marine debris; issues related to landfills; how long it takes for plastics to break down; how plastic bags should never be burned because they release poisonous chemicals into the environment; and how it requires a lot of resources and energy to make plastic bags).

TEACH:

- Conduct activity with students. Students should record their family's plastic bag usage every day for a week. At the end of each day, or at the end of the week, have students help complete the class data sheet. You might project this



Back Through Time

Today's fossil fuels and most plastic products were made by ancient sunlight. In this activity students explore the properties of oil and its history.

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GRADES 5-8

PREPARE:

Time Required: 2 class periods (90 minutes) without extensions

- Gather materials (see activity pages).
- Divide students into groups of 3-4.
- Make copies of the student data sheet.
- Make copies of the Venn diagram.
- Confirm students will have access to computers and internet.

MOTIVATE:

- Show students several Google images of the earth in the Paleozoic Era. As a group, make a list of what they think the earth would have been like during that time (warm seas, active volcanoes, no birds, reptiles and mammals that we are familiar with today).
- Explain that the oceans were full of life including tiny organisms like the bacteria and algae we know today. These organisms could use the energy of the sun and make food for themselves. Marine organisms that use the sun to make their own food are called Phytoplankton. What other organisms can you think of that use the sun to make food? (plants) What is the name for the process? (photosynthesis)
- Article: [Illuminating Photosynthesis](#) may be used to provide further background or review for students.
- Explain that some of the food was in the form of carbohydrates. Can you name some carbohydrates? (cookies, pasta, bread)
- As these organisms died they took their trapped carbon with them to the bottom of the ocean and after millions of years, this material became fossil fuels like oil.

TEACH:

- Introduce the activity by explaining that each group of students will be recording observations as they place drops of water and oil on a piece of wax paper.
- Pass out the data collection table and Venn diagram to each student.
- Conduct activity with students, helping as needed.
- After students compare and contrast water and oil, Explain that the ancient plankton used some of the energy for

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“The ISRI (Institute of Scrap Recycling Industries) curricula provides a wealth of excitement, fun, and insight, while bringing community and global awareness to the practicality and necessity of recycling. The lessons have strong messages and have longstanding impacts that last beyond their introduction in the classroom. Teachers and students alike are richer for engaging and challenging themselves to collaboratively work together and help improve our world for future generations.”

- Karen Jacobs, Science Coordinator, Aleif, TX



Since 2013

- Approximately 4,000 teachers trained across the U.S.
- Nearly half a million students represented through teacher training and conference/event outreach.
- Highlights from 2018-19: Featured sessions at the following workshops: Stoughton, WI (10/4/2018); Caldwell Schools, ID (11/15-11/16/2018); Milwaukee Public Schools, WI (11/16/2018); Graham Local Schools (3/8/2019); JASON National Conference – Houston (3/28/2019).



Video & Poster Contest

- Annual video and poster contest through which students explore recycling-related themes and inspire youth to make a change in their community, integrating STEM education with art and video.
- Each year, this contest features a different theme related to the recycling industry.

2020 Theme

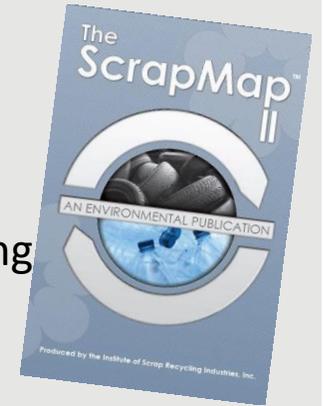
Recycling: Then, Now, & Into the Future

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Community Outreach

- Available for ISRI members to use to promote the recycling initiative to various community stakeholders.
- The kit includes a backgrounder of the initiative, sample letters to teachers and school board members inviting their participation in the curriculum, invitation letters to the media, and other resources.



Household Plastic Can Be Recycled Over and Over Again in Manufacturing

Since 1950, the global production rate of plastic has grown steadily, and all signs point to continued growth. Because of this, there is a need to ensure that plastics are recycled when they reach the end of their useful lives so that we can protect our natural resources. While we are all familiar with the recycling of food, beverage, and other common plastic household containers, plastic recycling goes far beyond that. Engineered and industrial plastics are found in all types of products, from cars to refrigerators, and these plastics are being recycled every day as well.

New!

Scrap Titans

- Scrap Titans is an educational board game meant to introduce the basic economics behind scrap recycling.
- Players each start at the corner of an underserved region and contract with neighboring communities to recycle scrap.
- Recycled scrap is then sold on the open market, priced according to supply and demand.
- Players purchase machines to process incoming scrap.
- Digital edition launching this November!



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Questions?

