Lesson Plan

Chasing Arrows: Exploring the Resource Cycle

GRADE LEVEL:

1st -2nd grade with text difficulty modification for new readers

Upper Elementary-6th Grade

SUBJECT AREA:

Science, Social Studies

NC ESSENTIAL STANDARDS MET BY ACTIVITY:

Grade Standards	Science Standards	Social Studies
1st Grade	1.L.2	1.G.2, 1.E.1
2nd Grade	2.P.2.	2.G.2, 2.E.1 2.C&G.1
3rd grade	3.P.2	3.3.1, 3.C&G.2
4th Grade	4.L.1	4.E.1
5th Grade		5.C&G.2
6th Grade	6.E.2	6.E.1

DURATION:

One 50-minute period

CLASS SIZE:

This activity will work for up to 30 students or more if additional dice are added to each station

SKILLS:

Organizing information, Analyzing, Interpreting

Vocabulary

Landfill, Material Recovery Facility, Recycle, Manufacture, Consumer, Natural Resources, Renewable Resources

SUMMARY

Students will assume the role of a recyclable item and travel through the waste cycle. They will use large dice to visit stops on the waste cycle, finding out what happens when people choose to recycle "them" or throw recyclables in the garbage.

Materials

- 7 4x4x4 Boxes, or dice, labeled with grade appropriate waste cycle cards
- 7 waste cycle station labels
- 7 small soccer cones with a slit cut in the top for inserting the station labels, or card stands
- 7 small containers with lids
- 7 colors of pony beads, enough for each student to have at least three beads of each color
- Pipe cleaners for each student
- Whistle or bell to indicate start and stop time

Modifications for 1st grade:

- The cube text can be simplified to adapt to younger reading levels
- Make labels detachable by taping the box up with clear packing tape, or tape one set onto the cube and using clear packing tape for a different set of labels
- Velcro with laminated labels could also be used to make the activity easy to switch for different grades

Modifications for Upper elementary and middle school grades:

- Natural Resources can be added to the game, as an 8th station
- Re-processor can be added as a 9th station to represent additional steps that are often present in the recycling process

Set up:

- Create seven stations representing different parts of the waste cycle, spread out so that students have room to move freely, on the floor or elevated surface
- Place the station labels in the cones or on the card holders
- Place one container of beads at each station and the corresponding cube or dice with the information that matches each station

Background

- Define the words “waste”, i.e. things we do not need or want anymore, broken things, etc. and “recycling”, i.e. making new things out of old things, reforming used items, etc. as a class and write on the board
- Discuss items that students can recycle in their home or school recycling bins, and what they might be able to recycle outside of that bin, such as plastic bags, batteries, electronics, etc.
- For Upper Elementary and 6th: find commonalities of recyclables versus waste, i.e. mostly packaging, paper, plastic, metal, and glass, things you use once other ideas
- Ask students: What happens to a recyclable or a waste item once they are finished consuming that item?

Activity:

1. Tell students that they are going to become a recyclable item of their choice and move through the resource cycle, and that they will create a bracelet, or "waste-let" to keep track of their movements.
2. Give each student a pipe cleaner and ask them to fold the end to prevent beads from falling off
3. Explain that students will roll the dice at each station and depending on what they land on, they will go the next station where the dice tells them to go
4. Instruct students to get a bead from the box at each station they visit and place it on their pipe cleaner each time they visit a new station
5. If students get sent by the dice back to the same station, they must obtain a new bead even if they're at the same station each time
6. If the dice lands on roll again, students must go to the back of the line at that station
7. Ask students to walk between stations, because they will get excited
8. Randomly and evenly distribute students to their first station in a line at each station and not to start until you blow the whistle or ring the bell, and that the activity is over when you ring the bell
9. Allow students to move through the stations independently for 10 minutes or until they seem to have figured the game out
10. Students will sometimes get trapped at the "landfill" station, so the instructor may need to "release" them from the landfill if there is a pile up, such as pretending a bird came and picked the recyclables out of the landfill or a strong wind blew them over to the recycling center

Post-Activity Discussion:

- Ask students to volunteer to share their journey as a recyclable
- Can things every really get out of the landfill? Discuss why not.
- Draw or write the stations on the board and show the consumer to consumer versus consumer to landfill
- Ask students to evaluate the benefits of recycling our recyclables versus having them go to the landfill (saving natural resources, helping the economy, having fewer landfills)
- Who's responsibility is it to put waste in the right place? What is the best thing to do with our waste?
- How can we find out what is recyclable and what is not?
- Have students tie off the end of the "waste" let or put it on and tie the ends together and let them take it home

Post-Activity Assessment:

- Ask students to draw and label the resource cycle
- Research which natural resources are used to make the different recyclable items discussed