

DEQ in the Classroom: Doing the "Three R" Wrap



IDAHO
DEPARTMENT OF
ENVIRONMENTAL
QUALITY

1410 North Hilton
Boise, ID 83706
208/373-0502

www.deq.idaho.gov

Grade Level:

4 – 7

Time Required:

30 minutes (+/- depending on discussion)

Objective:

Students learn about excess packaging and how that creates waste. They discover ways to reduce waste in the first place, reuse waste materials, and recycle what is left.

Meets State Standards:

Grade 4: 4.M.2.1.1, 4.S.1.3.2, 4.H.1.1.10

Grade 5: 5.M.2.1.1, 5.SS.3.1.2, 5.H.1.1.8

Grade 6: 6.M.2.1.1, 6.H.1.1.10, 6-9.GWH.2.5.6, 6-9.GWH.2.5.5

Grade 7: 7.M.2.1.1, 7.LA.6.2.1, 6-9.GWH.2.5.6, 6-9.GWH.2.5.5

Focus:

Pollution prevention/solid waste. Reduce, reuse, recycle.

Materials:

- 2 identical (or very similar) sets of 4 small gifts to wrap (e.g., 2 decks of cards, 2 knick-knacks, 2 small toys, 2 articles of clothing). Have at least two gifts (e.g., the two toys; one for each group) be something with excess packaging.
- 4 gift boxes for one set of the gifts with appropriate amount of tissue or other padding (e.g. old newspaper) to keep gifts from sliding around. Have boxes be a little bit big for the gifts (but not so big as to raise suspicion). You will pre-package one set of gifts in gift boxes, along with the padding (e.g., put one deck of cards in a box, one knick-knack in a box, etc.). The other set of gifts will not have gift boxes.
- 10 sheets (or more) of newspaper advertising inserts (5 per group). (Regular newspaper works fine too, but gets hands dirty). Be sure both groups have the exact same amount (size and number) of sheets. Be sure the pieces of paper are large enough to wrap the boxes. Calculate the area of paper each group has (presenter do ahead of time just so you know and can compare).
- 2 rolls (or more) of clear tape
- 2 pairs (or more) of scissors
- 8 bows (4 per group)
- 2 rulers or yard sticks (or more)
- Gift tags made from old cards (optional)

Background:

According to the U.S. EPA, an average of 4.5 pounds of solid waste (trash) is produced per person per day in the United States. There are many things individuals (even children) can do to reduce this: not create waste in the first place (eliminate), reduce the amount of waste created, reuse products, and recycle those products that can't be reused. The process of efficiently using resources to not create waste in the first place is called "pollution prevention," or "P2." P2 can not only help the environment, but also save money as businesses and individuals buy fewer resources and have less waste to dispose of. Once waste is generated, individuals and businesses are encouraged to reuse and recycle instead of sending waste to a landfill.

Vocabulary:

Eliminate(ing)	To take out. In this context, refers to not creating or using something in the first place (e.g., not using wrapping paper at all).
Landfill	An area of land in which wastes are placed for permanent disposal.
Pollution Prevention (P2)	Practices that reduce or eliminate the creation of pollutants or waste through increased efficiency in the use of resources. P2 goes beyond recycling and reusing and involves using resources efficiently to not create waste in the first place.
Recycle(ing)	Transforming waste materials into useable resources (e.g., sending used wrapping paper to the recycler).
Reduce(ing)	Using less so that less waste or pollution is generated (e.g., packaging a gift to use as little wrapping paper as possible).
Reuse(ing)	Using something again to avoid generating the waste that is created by throwing something away and replacing it with something new (e.g., using gift bags over and over).
Waste	Any material (solid, liquid, or contained gas) that is discarded, recycled, reused, or considered inherently waste-like. (Trash)

Procedure:

Ahead of time: Pre-package one set of gifts in the gift boxes (that is, put one deck of cards, one toy, one knick-knack, and one article of clothing each in its own box). Use tissue (or whatever) for padding as needed to keep gifts from moving around and/or breaking. Don't tape shut; students can take the gifts out if they want. Leave the other set of gifts in their original packaging (if any), but don't place in boxes.

Step 1. Tell the students it is someone's birthday (be specific: "Tomorrow is my son's birthday") and that you need their help in wrapping his gifts. Ask if they will help.

Step 2. Divide the class into two groups. Each will get four gifts to wrap. Situate the groups so that they cannot see or hear each other (as best you can). (This is so Group 1 (the "box" group) doesn't notice that the other group doesn't have boxes.) If there are two adults, have one adult work with each group.

Step 3. Group 1. Provide them with the four gifts in boxes and four bows. Explain that you had time to put the gifts in boxes, but ran out of time for wrapping. Tell them it's OK if they want to see the gifts (open the boxes). Give them their "wrapping paper" (newspaper ads), tape, and scissors and ask them to wrap. If they question the newspaper ads instead of actual wrapping paper, just tell them you didn't have any "real" wrapping paper (leave it vague).

Step 4. Group 2. Provide them with four gifts (no boxes) and four bows. Give them their “wrapping paper” (newspaper ads), tape, and scissors and ask them to wrap. If they question the newspaper ads instead of actual wrapping paper, just tell them you didn’t have any “real” wrapping paper (leave it vague).

Step 5. Provide 10 – 15 minutes for wrapping (or until groups are done). Optional: As each group is done, ask it to measure the paper left over and record the size of the paper and the number of sheets left over. Have them calculate the area of paper (may need assistance).

Step 6. When they are done, have the class come back together, but sit in their groups with their gifts.

Step 7. Have each group show off its wrapping job, then discuss how much paper it had left. *If the groups measured and calculated the area of paper (see Step 5), use this as the basis for the discussion. If not, just count the number of pages left and visually compare between groups.*

Step 8. Segue into *Questions for Discussion* (below).

Questions for Discussion

1. Which group used more paper? Why?

Group 1 (box group) should have used more paper, but be prepared for things to not go as planned (e.g., the box group could have not used the boxes so used less paper [good for them!] or the no box group could have done a sloppy job and used more paper). Tell the students how much paper each started with. If grade-level appropriate, have them calculate how much paper they used. (optional)

2. How could the group that used more have used less?

Write “Eliminate” and “Reduce” on the board. Discuss ways to change the process (eliminate or reduce waste). Bring in discussion of excess packaging (boxes and “padding”). Boxes, padding, etc. are excess (waste), and also caused us to use more wrapping paper, resulting in more excess (waste).

Is there additional excess packaging on the gifts themselves? Could that go away? What other ways could the “process” change to use less material? *Don’t use wrapping paper at all – decorate box (if one is used). Use scraps of cloth for wrapping instead of paper (also an example of reuse) or use gift bags (can also be reused) – especially for unusually shaped gifts that take a lot of paper. Use things other than bows to decorate the top of the box – a small portion of the gift perhaps (e.g., for a baby gift put a rattle on top) or don’t put anything at all on top.*

3. Once you’ve reduced all you can, are there things that can be reused?

YES! *Write “Reuse” on the board. The paper we are using today is reused, regular wrapping paper can be reused, reuse boxes (when necessary in the first place), reuse gift bags, reuse bows, use old hair ribbons, etc. instead of disposable bows (reuse from hair and can reuse for gifts many times), reuse cards (cut pictures out for gift tags) (show examples [optional]). Instead of tissue as a padding in boxes, reuse items such as plastic bags, used paper (newspaper, shredded paper, old homework, etc.), or foam peanuts that came in other gifts.*

4. Once things have been reused so much they can’t be used any more, what can we do with them?

Recycle! *Write “Recycle” on the board. While many children are familiar with the term, “recycle,” you may need to explain exactly what recycling is (making something new out of something old – e.g., melting glass to make new bottles). Point out that while many things can be recycled, not everything can. The newspaper ads we’re using today can (and will) be recycled. Cardboard boxes used when wrapping gifts can also be recycled. However, if we tear too much tape off of the role and can’t use it, the tape can’t be recycled so must be thrown away.*

5. *Recap and ask students to look at their supplies and identify where their items fit in these categories. Have students hold up examples from each category as you ask and have them explain why. **What could have not been used in the first place (reduce)? What had been used before and is being reused now? What could you reuse from your supplies (reuse in the future)? What can be recycled? What is left for the garbage?***
6. **Now that we know that we can reduce, reuse, and recycle, why do we want to? That is, why do we care and why is this important?** 1. Conserve natural resources – using less (and reusing/recycling) means we don't need to use as many natural resources in the first place (don't have to cut down as many trees, drill as much oil, etc.). 2. Less waste to go to landfills; these fill up and then we need new ones – takes more land and costs more money. 3. Saves money – spend less money buying supplies (e.g., wrapping paper), less money to pay to dispose (some cities charge homeowners by the amount of garbage they have picked up), costs towns and cities less to manage/build new landfills, etc. When businesses do this and it saves them money, it can help their products cost less, which saves us (consumers) money. 4. Generally good for the environment – less chance of chemicals getting into the air, water, etc. if we have less garbage and fewer things need to be manufactured (e.g., less wrapping paper needs to be made), so reduce the impacts from the manufacturing of those products.
7. **Eliminate, reduce, reuse, and recycle don't just apply to wrapping gifts; they apply to everything!** (e.g., reduce trash, air pollution, water use, etc.) **How can these ideas apply to...Getting Ready for School?** Brushing teeth (turn off water, recycle box from toothpaste, buy toothpaste with no box), eating breakfast (don't make/take more than you need, save leftovers, compost, make juice from concentrate in a reusable container, eat cereal from just a bag (no box), taking your lunch (use a lunch box instead of a lunch bag that gets thrown away, use containers for sandwiches instead of bags), getting to school (ride bike, walk, take bus, carpool instead of ride in own car). **Going Shopping?** Getting there (ride bike, walk, take bus, carpool instead of ride in own car), purchasing (buy with less packaging, don't put things in bags that don't need them, reuse grocery bags, buy recycled, buy things that can be recycled, buy things you can reuse). **Doing Homework?** Use recycled paper, use both sides of paper, use scratch paper for drafts, only print from the computer what you are turning in.

Assessment/Follow-Up Suggestions:

Before the Activity:

- Discuss recycling. If your school has a recycling program, visit its recycling bins or get a bin for your class. Identify the recycling symbol and discuss what it means. Discuss what recycling is and how it works. Discuss purchasing recycled products and how to tell if they are recycled.

After the Activity:

- Complete “Questions for Discussion,” above.
- Complete “DEQ Kids: Let's Talk Trash: What to do With the Garbage in Your Home.” Available for download at http://www.deq.idaho.gov/waste/educ_tools.cfm, Student Resources, or from your DEQ regional office. (DEQ regional office employees – get from your office's publications coordinator; state office employees, get from Leslie Nelson, x0383.)
- Buy inexpensive tote bags and have students decorate them to give to Mom or Dad for use as reusable grocery bags, or buy reusable lunch bags and have them decorate for themselves. These can be found at craft shops or online at sites such as <http://www.orientaltrading.com>. (DEQ does not endorse Oriental Trading Company or any other vendor. This Web site is given as an example only.)

- Have your students make art projects from reused materials. Many ideas are available on the Web from sites such as <http://www.kinderart.com/recycle>. (DEQ does not endorse KinderArt or any other vendor. This Web site is given for as an example only.)
- Bring in old Christmas or birthday cards and have students use them to create new gift tags.
- Take a field trip to a recycling center or visit your school's recycling area (if there is one).
- Take a field trip to a store to look at packaging or have students each bring in an item their family recently purchased. What items have excess packaging? What are made from recycled products? What can be recycled? Discuss beforehand how you can tell.

Additional Resources:

DEQ Kids: Let's Talk Trash: What to do With the Garbage in Your Home (DEQ activity booklet)
http://www.deq.idaho.gov/waste/educ_tools.cfm, Student Resources

EPA Environmental Kids Club: Garbage and Recycling (U.S. EPA Web site)
<http://www.epa.gov/kids/garbage.htm>

Pollution Prevention (DEQ Web site)
http://www.deq.idaho.gov/multimedia_assistance/p2/overview.cfm

Recycling in Idaho (DEQ Web site)
<http://www.deq.idaho.gov/waste/recycling/recycling.cfm>

Waste Management Educational Tools (DEQ Web site)
http://www.deq.idaho.gov/waste/educ_tools.cfm

Waste Management and Remediation: Programs and Issues (DEQ Web site)
http://www.deq.idaho.gov/waste/prog_issues.cfm