Making a difference...together

The3RHierarchy

A learning resource for K-7 educator's about the 3R's and waste in the capital region.

Reduce. **Re**use. **Re**cycle.

Introduction

The Capital Regional District (CRD) has actively promoted waste reduction and recycling education to elementary students for more than a decade. The CRD's goal is to increase awareness, understanding and individual action related to the 3R's. To assist the CRD in meeting its goal, this educator's manual was developed. This resource is designed to assist educators with promoting 3R (Reduce, Reuse and Recycle) concepts and supporting continued 3R learning. All activities and information in the educator's manual are targeted to elementary students, from Kindergarten to Grade 7.

The objectives of this educator's manual are to:

- Provide 3R background information to enable educators to feel comfortable, in a relatively short period of time, that the information they provide to their students is local, relevant and accurate;
- Provide interactive and inclusive activities that encourage stimulating discussions through the application of higher-level thinking skills;
- Provide grade-specific activities (with worksheets) that are easily implemented and linked to the provincially prescribed Integrated Resource Packages (IRPs); and,
- Provide skills that enable students to make connections between their individual actions and related impacts while including practical information on actions they can take to reduce, reuse and recycle.

2014 Edition

For additional information please contact:

CRD Hotline
Phone: 250.360.3030 or 1.800.663.4425 ext. 3030
Email: hotline@crd.bc.ca
Website: **www.crd.bc.ca/teacher**

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Background - Our Garbage

Up until 1892 Victoria's garbage was disposed of in James Bay and east of the Empress Hotel.

From 1892 until 1955, garbage was loaded onto barges at the foot of Herald Street and dumped into the sea, about two miles out from the entrance to Victoria Harbour.

From 1955 until the early 1970's, most of the local garbage was sent to a number of dump sites along Millstream Road and the present Hartland landfill site. Burning was used to reduce the volume of the garbage.

Concern over health hazards associated with open dumps resulted in the CRD acquiring the Hartland site and assuming responsibility for solid waste disposal in the Region.

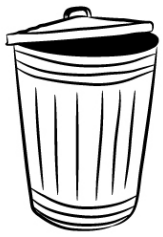
For more information or to book a school program and/or tour of Hartland landfill and recycling facility, please contact the CRD Hotline at 250.360.3030, 1.800.663.4425, hotline@crd.bc.ca, or visit www.crd.bc.ca/teacher

Before we had landfills and before we had dumps, even before we thought we had to manage garbage, garbage was produced. For most of the last two and a half million years, people left garbage where it fell. This worked well for hunter and gatherer societies because people would regularly leave their temporary shelter or campsite in search of food. During this phase of history, garbage was neither a problem nor an issue. People had moved away long before too much garbage had accumulated. Once plant and animal domestication became commonplace, and farmers and herders began to replace hunters and gatherers, garbage became an issue. The method of leaving garbage where it was produced began to cause problems as the garbage pile grew. Instead of the people moving, they began to move the garbage. Some garbage was simply thrown out of windows, into the streets. Free-roaming animals would eat the food scraps while human scavengers would move the rest of the garbage to vacant plots of land, take the valuables out and leave the rest.

Over the past 100 years, waste management has evolved into a highly scientific, well-managed process. The biggest change occurred during the 1960's when health, safety and environmental concerns surfaced. The way garbage was managed was greatly altered. Dumps were replaced by sanitary landfills*, managed by engineers and highly trained staff.

***Sanitary landfills refer to an engineered method of disposing of wastes on land by spreading it in layers, compacting it, and covering it, taking regard for environmental impact through leachate collection systems, ground water protection and gas control.**

Our garbage over the last century has changed and now includes many man-made materials and non-biodegradable items. Our society consumes an excessive amount of materials and convenience products, many with short shelf lives and long term impacts. A lot of these materials do not decompose, even when landfilled. Before landfills reach capacity, action needs to be taken. The great news is that the people of the CRD have been working hard to reduce garbage entering Hartland landfill for many years. Since 1989, approximately 40 per cent of the total waste has been diverted from Hartland landfill through recycling programs, composting and other 3R (Reduce, Reuse, Recycle) programs. Hartland landfill is the only disposal facility in the CRD for municipal solid waste. In order to continue to extend the life of this facility, 3R programs must flourish and succeed.



Overview

1973 CRD became responsible for solid waste management after the Province of British Columbia directed all regional districts to take control of solid waste disposal within their borders.

1975 CRD acquired ownership of Hartland landfill.

1982 The Province's Waste Management Act required all municipal and regional districts to adopt and implement solid waste management plans.

1985 CRD took over management and operation of Hartland landfill.

1990 First Waste Stream Composition Study conducted to understand what was being landfilled and by whom.

1992 Hartland Multi-Material Recycling facility opened.

Hartland Yard and Garden Waste facility opened (until 2006).

1994 Waste paint collection and exchange added to Hartland recycling.

1996 Hartland landfill Phase 1 was completed and closed.

Second Waste Stream Composition Study was conducted.

1997 Hartland landfill Phase 2 opened.

2001 Recycling facility was redesigned and an expanded facility opened at Hartland landfill.

Third Waste Stream Composition Study was conducted.

2002 Household batteries and mercury were added to the list of materials accepted at the Hartland recycling facility.

2003 Solvents, flammables and pesticides were added at Hartland recycling.

2004 Landfill gas utilization facility began.

Completed Phase 1 of the site rehabilitation plan by planting native trees and shrubs.

Fourth Waste Stream Composition Study conducted.

Household Hazardous Waste collection was added to Hartland recycling.

Purchased Killarney lake to add to site buffer.

2006 Large rigid plastics collection was added to Hartland recycling and a clean wood waste pilot collection was added to the Public Bin Area.

Bi-annual mobile Household Hazardous Waste collection events begin on Salt Spring Island, the Southern Gulf Islands and in Port Renfrew.

2007 Large rigid plastic goods and wood waste recycling pilots were converted to permanent diversion programs.

Electronic waste collection pilot program started at the Hartland recycling depot.

2008 Hartland landfill receives Trees for Tomorrow grant to plant thousands of native trees, seedlings and bushes on Phase 1.

Residents pledged to reduce their use of plastic bags.

2009 Waste Stream Compostition Study analysis begins.

Pilot programs for film plastics and mattresses start at Hartland recycling.

2010 Hartland Learning Centre installed by reusing and renovating a house.

Electronic waste collection expanded (telecommunications, audio/visual equipment), and fluorescent lamps and thermostats accepted.

Myrecyclopedia.ca is launched.

Pender Island woody debris, yard brush and invastive plant drop-off pilot event.

2011 Collection of bicycle tires and tubes begins at Hartland recycling facility.

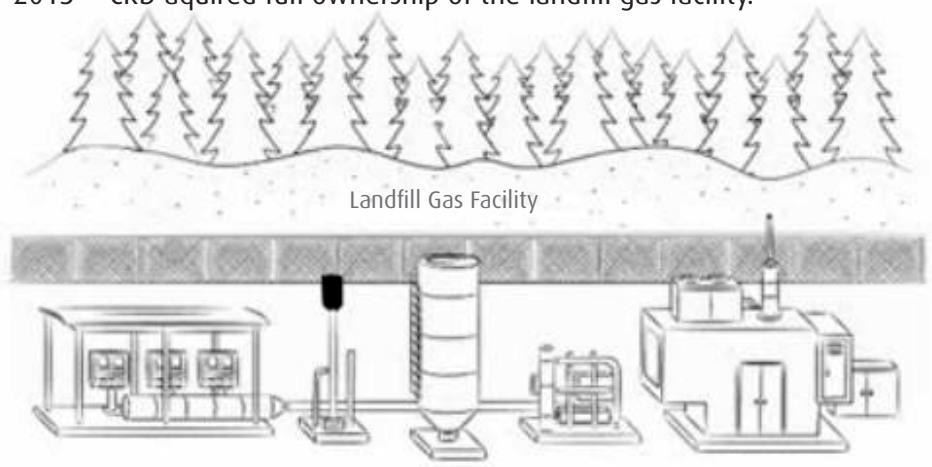
Hartland Learning Centre opens.

Hartland landfill Phase 2, Cell 1 is closed and a sedimentation pond installed.

2012 Outdoor power equipment, exercise equipment, power tools, light fixtures, video gaming equipment, musical instruments and medical devices were added at Hartland recycling facility.

Matresses, box springs, asphalt shingles and polycoated cartons collection and recycling became permanent programs at Hartland recycling facility.

2013 CRD aquired full ownership of the landfill gas facility.



Recognition and Awards

2005 Hartland receives the Silver Landfill Management Excellence Award from the Solid Waste Management Association of North America and awards for leadership and innovation in gas utilization and best practices for household hazardous waste collection.

2010 CRD received four awards for safety initiatives.

2011 Hartland recognized with the Leader in Sustainability, Top 100 Participants in Canada Award from Call2Recycle.

Plans and Diversion Goals

The CRD Solid Waste Management Plan is a legally binding document mandated by the Province of British Columbia. It must be approved by the Minister of Environment and outlines waste diversion goals.

1987 First Solid Waste Management Plan

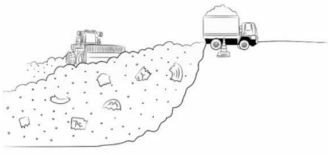
1989 First CRD Solid Waste Management Plan
(10% diversion goal by 1993)

1991 Solid Waste Management Plan Revision 1
(50% diversion goal by 1995)

1995 Solid Waste Management Plan Revision 2
(50% diversion goal by 2000)

2012 New Integrated Solid Waste and Resource Management Plan started (anticipated completion by 2015)

2013 CRD reaches 52% diversion.



Tipping Fee Increases

Tipping fees (for landfilling garbage) are charged per tonne.

1985	$8.50	1990	$22.00	2006	$85.00
1986	$10.00	1991	$55.00	2008	$90.00
1987	$11.00	1992	$70.00	2009	$95.00
1988	$12.00	1993	$75.00	2010	$100.00
1989	$16.00	2005	$82.00	2011	$107.00

Background - Banned Items

Landfill bans are put in place when recycling alternatives exist.

1991 Drywall

1993 Corrugated cardboard, white goods (e.g. refrigerators), tires and directories (e.g. telephone books)

1995 Scrap metals, asphalt paving, concrete, aggregate, clean soil and rubble

1998 Paper

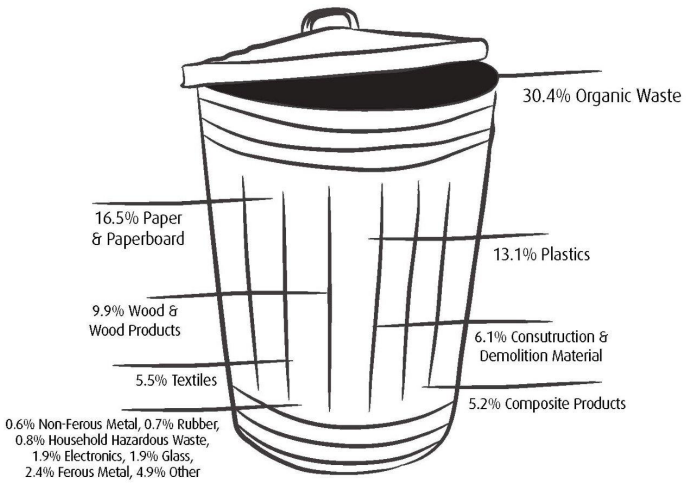
2006 Yard and garden waste

2011 Product Stewardship materials (refundable beverage containers, electronics, cell phones, batteries, paint, solvents, pesticides, gasoline, smoke and CO alarms, thermostats, and medication)

2014 Printed paper and plastic packaging (May 19, these became a Product Stewardship Program as required by the BC Provincial Government).

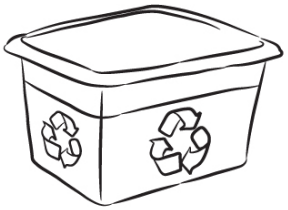
2015 Kitchen Scraps (fruit and vegetable scraps, food leftovers, meat, fish, bones, dairy products, grain products, baked goods, soiled paper food products, soiled paper towels and tissues, solidified fats and grease, baking ingredients, houseplant clippings, nuts, pits, seeds and shells)

Can you find what was put into the garbage but could have been recycled?



2009 Harltand Landfill Waste Composition Study

Background - Blue Box Recycling



1989 Blue Box recycling collection began in Oak Bay, Saanich, Victoria and Esquimalt and apartment recycling program began.

Glass bottles and jarws, tin and aluminum cans and newspaper are collected.

1990 Blue Box recycling collection began in the Saanich Peninsula, Western Communities, Sooke & Salt Spring Island.

1994 District of Oak Bay took over collection of recyclables in their municipality.

1995 Mixed paper (such as magazines, junk mail, cereal boxes and scrap paper) was added.

2000 Corrugated cardboard and rigid plastic containers (excluding styrofoam and lids) added.

Blue bags were distributed and almost complete region-wide service was reached.

2005 Pizza boxes and rigid plastic packaging (includes lids) added.

2006 Expanded the apartment recycling program and delivered an apartment tote bag and educational brochure to each multi-family unit in the region.

2011 The Province adds packaging and printed paper to the BC Recycling Regulation.

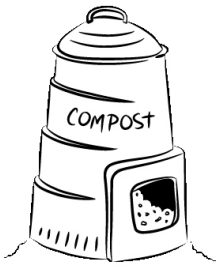
2012 Polycoat containers (soup and milk cartons, drinking boxes and gable top containers) added.

2014 Paper cups added to items accepted in the Blue Bag.

Glass collected separately from other containers.

Launch of Recycle CRD Smartphone app.

Background - Composting



1992 Beginning of subsidized backyard composter distribution.

Victoria Compost Education Centre opened.

1993 Second backyard composter distribution event.

Worm composter distribution event.

2005 Composting Bylaw was approved by the Ministry.

2006 Subsidized backyard composter distribution event.

Oak Bay kitchen scrap pilot program starts.

2007 View Royal kitchen scraps pilot program starts.

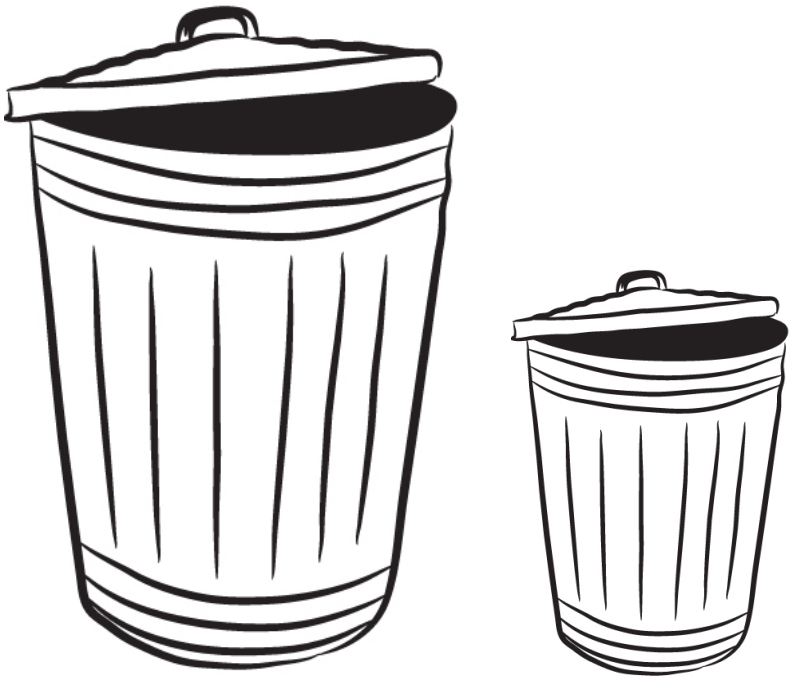
2012 CRD Board voted to implement the Regional Kitchen Scraps Strategy. The ban is scheduled for January 2015.

2013 Waste haulers who deliver kitchen scraps loads to CRD approved transfer stations and composting facilities receive a financial incentive (until 2013 & 2014).

2015 Starting January 1st, Kitchen Scraps are restricted from disposal as garbage at Hartland landfill.

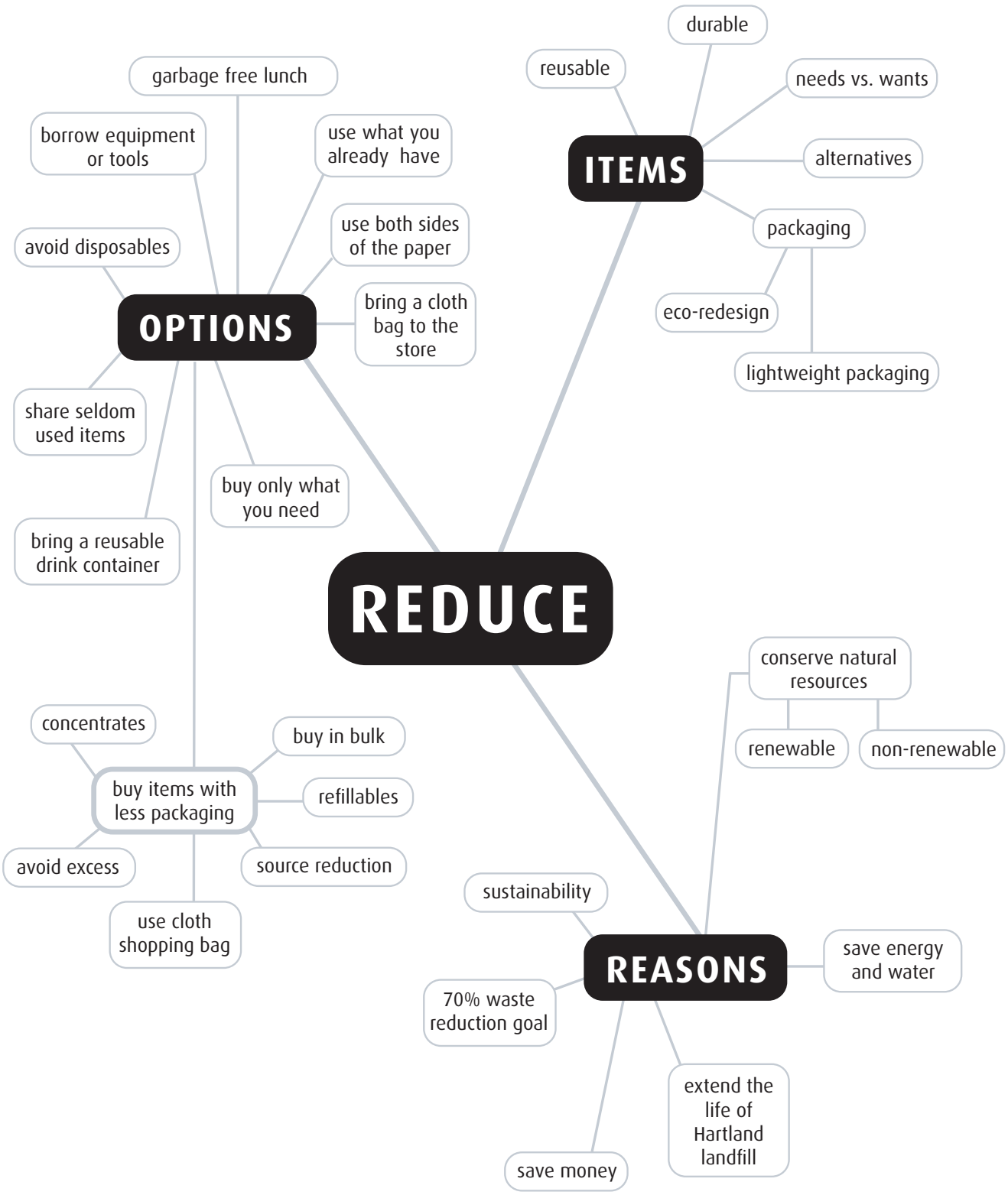
Making a difference...together

Reduce



Reduce. **Re**use. **Re**cycle.

Reduce Webbing



Reduce Activity

"There are two ways to get enough: one is to accumulate more, the other is to desire less." (C.K. Chesterton)

Source reduction or waste prevention is often used to refer to "reduce", the first and most important R of the 3R hierarchy. In simple terms, any of these concepts refer to not producing garbage in the first place. Reduce means cutting down on unnecessary or shortlived purchases or packaging. Source reduction is a term used in manufacturing and it often starts before any products are produced. It includes the elimination of packaging or reducing the weight, volume or toxicity of the packaging. If garbage is not produced, less resources are used, and less money is spent, to recycle or dispose of the waste.

Reduce can refer to:

- Avoiding or not purchasing a product at all;
- Reducing the amount of material used to accomplish a task; or,
- Using repairable, durable or refillable products that have a longer life span.

Examples include:

- Asking yourself, "Do I really need this?" when shopping.
- Using both sides of the paper when printing or photocopying, instead of just one side.
- Calculating the exact amount of paint you need to paint your room. If half a gallon of paint will do the job, buy half a gallon instead of a gallon.
- Using the library, or downloading ebooks, instead of buying new books.
- Using reusable drink container instead of buying numerous disposable ones.

Individual actions can make a tremendous difference when it comes to the amount of garbage produced in the capital region. By asking key questions at critical times, we can reduce the waste we make.

Key questions include:

1. Do I need this?
2. Is the item overpackaged?
3. Can it be purchased in bulk?
4. Is it reusable?
5. Can I purchase this item second hand?
6. Can I share it with someone?
7. Can I borrow it from someone?
8. Can I give it away to someone?
9. Can a similar item I own be repaired?
10. What will I do with it when it is no longer useful to me?
11. Is there another option made from renewable resources?

- discuss the different kinds of bags used for shopping
- discuss the various uses for each type of bag
- understand the impact reusing shopping bags can have on our household waste
- become aware of local recycling opportunities for plastic bags

IRP outcomes

It is expected that students will:

[SS] Describe and demonstrate responsible behaviour to local environments (K-3)

[PP] Relate consequences to actions and decisions (K-1)

[SC] Describe ways to rethink, refuse, reduce, reuse and recycle (K)

Did you know?

The CRD conducts Solid Waste Stream Composition Studies every five years.

Discover the estimated weight of plastic bags landfilled at Hartland:

https://www.crd.bc.ca/service/waste-recycling/solid-waste-management

Chris Jordan's interactive art *Running the Numbers II: Venus 2009* depicts plastic bags used around the world every ten seconds.

www.chrisjordan.com/gallery/rtn2/#venus

Bag It! (K-3)

Intro: Each week Canadians take home 55 million plastic bags. Reusing plastic bags or taking your own cloth bag on shopping trips will not only reduce the number of plastic bags you have in your house, but will also save resources. You may even save money. Some grocery stores will subtract a few cents off your total bill if you use your own shopping bag instead of taking your groceries home in plastic or paper bags.

Reusable shopping bags can carry environmental messages or they can be as individual as the artists that create them.

Materials:

- fabric paints
- cloth bags
  - have students bring their own bag or reuse old T-shirts and/or pillowcases. For examples, search "DYI T-shirt bag" online e.g. **http://en.paperblog.com/diy-t-shirt-bag-266376/**

Activity: Discuss all the possibilities for reusing a paper or plastic bag from the grocery store. How long do they usually last before they fall apart? What happens to them after they are reused a few times? What options exist for not using a plastic or paper bag (e.g. basket, cloth bag, backpack)?

Students will create and decorate their own shopping bag. They can use this bag when grocery shopping with their family. Students can think about appropriate pictures (e.g. food, earth, environmental logos) and/or create a slogan or environmental message.

Students can create their designs with fabric paints or markers. Start on one side of the bag. Ensure a piece of cardboard or some other strong, flat material is placed in the bag to prevent the paint from going through to the other side. Once dry, decorate the other side.

Conclusion/Discussion: How will this new bag help to create less waste? What are other ways for reusing the paper or plastic bags that you already have at home? E.g. use paper bags for empty toilet rolls and knit or crochet plastic grocery bags into a more durable bag.

Extension Activities: ■ Take the Plastic Bag Pledge at **www.crd.bc.ca/recycle**. ■ Participate in the Earth Day Groceries Project **www.earthdaybags.org**. ■ Take action and get involved in local Earth Day events. Visit the Earth Day Canada website at **www.earthday.ca**.

- discuss different kinds of packaging (paper, plastic, Styrofoam, etc.) and its various functions
- determine what 3R options are locally available for various packaging

All Wrapped Up! (2-3)

IRP outcomes

It is expected that students will:

[SS] Describe how technology affects individuals and schools as consumers (2)

[SS] Describe and demonstrate their responsibility to local and global environments (2-3)

[SS] Apply critical thinking skills- including predicting, imagining, comparing- to selected issues (3)

[SS] Select a solution to a problem (2)

[PP] Describe a problem-solving model (2-3)

[SC] Infer the probable outcome of a behaviour based on observations (2)

[SC] Measure objects (3)

[LA] Use speaking and listening to interact for the purpose of exchanging ideas making connections and completing tasks (2-3)

Intro: Of the 7,000 items in the grocery store, about 3,000 are wrapped in packaging that ends up in the garbage. Packaging makes up about twenty percent of our household waste. Not only is excessive packaging a problem for the landfill, it often affects the pocketbook. Individually wrapped portions of cheese and single serving juice containers are generally two to four times more expensive than the bulk options.

Materials:

- various packaging materials
- one product packaged three different ways

Activity: Bring in an assortment of clean, empty food packaging or other product packaging. Have students sort them in a variety of ways. Look at colour, texture, size, weight and durability.

Next, show the students the various types of packaging used for the same item. For example: cookies, drinks, sugar and popcorn can be packaged a variety of ways. Varieties include bulk, concentrate, box, glass, aluminum, tin, plastic and mixed materials. Ask the students which one they would buy? Why? Does the food need packaging? Why? How much packaging does it need? Do any of the examples demonstrate excessive packaging? Why do some companies package their item in more than one type of packaging or in packaging that is significantly bigger than the item it contains? Which type of packaging produces the most garbage? Which type of packaging minimizes waste? Which type of packaging enables consumers to reuse it? What is the price difference of the various types of packaging? Do you pay more for convenience? Why?

Conclusion/Discussion: So how do you know which one to buy? What do you need to think about before purchasing something at the store? Make a criteria list. For example: health, containment, safety, 3R hierarchy, amount of garbage produced and cost. Encourage the students to apply this criteria to products they consider purchasing on their next shopping trip.

Extension Activities: ■ Take a tour of a grocery store and compare items that are packaged in various ways. ■ Book a workshop and tour at Hartland landfill and/or download supplementary lessons at **www.crd.bc.ca/teacher.** ■ Determine what packaging can be recycled and where, visit **www.myrecyclopedia.ca** and **www.crd.bc.ca/recycle** or contact the CRD Hotline at 250.360.3030 or **hotline@crd.bc.ca**.

- develop an understanding of the waste reduction initiatives in place at your school
- consider additional reduce initiatives for your school

What's Happening Here? (2-3)

Intro: Understanding what currently takes place, either at school, at home or at work, is the first step to improving any waste reduction program. In addition, for any new initiatives to be successful, all potential program participants should be consulted. This feedback helps to identify any difficulties and it allows any possible solutions to be thought out prior to the full-scale implementation of any adopted initiatives.

Materials:

- copy of problem-solving model student worksheet (attached)

Activity: Ask the students what program, initiatives or activities are in place at your school to reduce garbage. How can your class do more to help? Seek the feedback from others and begin with a list of people that work in your school. Next, have the students choose a school person to interview. Partner the students. Each group will need to generate four interview questions. The questions must focus on finding out how garbage is reduced and what their opinions are on how garbage could be further reduced. Discuss what information they need to collect and decide if the questions they develop will get them the response they are looking for. Determine how they will record the information.

Conclusion/Discussion: After all interviews are complete, each group will share one idea from their interview with the class. Using a problem solving model, such as the one provided, chart the ideas. Look at the pros and cons of each idea to formulate the best possible solution based on the criteria.

Extension Activities: ■ Decide whether to implement the best possible solution or not. If so, determine how this solution will be implemented. ■ Coordinate a garbage-free lunch challenge for your school. For ideas see the educator resources at **www.crd.bc.ca/teacher.**

IRP outcomes

It is expected that students will:

[SS] Describe how technology affects individuals and schools as consumers (2)

[SS] Describe work done in the school (2)

[SC] Ask questions that foster investigations and explorations relevant to the content (3)

[SC] Infer probable outcome of an event or behaviour based on observation (2)

[SC] Measure objects and events (3)

[LA] Use speaking and listening to interact with others for the purposes of contributing to a class goal, sharing ideas and opinions, making connections, solving problems and completing tasks (2-3)

Did you know?

Kitchen Scraps were restricted from Hartland landfill January 01, 2015. *www.crd.bc.ca/organics*

What happens to the Kitchen Scraps at home and at school?

Interviewer Problem Solving Model

What is the problem? _____

What is already being done? _____

_____

_____

What are some possible solutions generated by interviews? List. As well, check the box that relates to each possible solution.

Possible solutions include:	**Is it:**		**Does it:**		**Will it reduce our garbage?**	
	safe	easy to do	cost money	save money	yes	no
1.						
2.						
3.						
4.						
5.						
6.						
7.						

Looking at the information, what would be the best solution? _____

_____

Why? _____

_

What is the next best solution? _____

_____

- discuss different kinds of packaging and its various functions
- determine what 3R options are locally available for various packaging
- introduce the concepts of sustainability, stewardship and renewable versus non-renewable natural resources

More Wrapped Up! (4-7)

IRP outcomes

It is expected that students will:

[SS] Formulate strategies to address problems or issues (4)

[SS] Explain why sustainability is important (5)

[SS] Analyse the relationship between economic development of communities and their available resources (5)

[SS] Implement a plan of action to address community/national/ global problems (6)

[SS] Evaluate effects of technology on lifestyles and environments (6)

[SC] Analyse how BC's living and non-living resources are used and describe potential environmental impacts (5)

[SC] Determine how personal choices and actions have environmental consequences (4)

Intro: Of the 7,000 items in the grocery store, about 3,000 are wrapped in packaging that ends up in the garbage. Packaging makes up about twenty percent of our household waste. There's a growing realization that wasteful behaviours associated with throwaway packaging simply cannot go on (they are not sustainable). The resulting garbage fills our landfills, while the supply of some non-renewable natural resources is depleted. One strategy for reducing this burden is for manufacturers to show stewardship to take responsibility -- for the waste they create (see "Did you know?" box on next page).

Not only is excessive packaging a drain on natural resources and a problem for the landfill, it often affects our wallets. Individually wrapped portions of cheese and single serving juice containers are generally two to four times more expensive than bulk options.

Materials:

- various packaging materials (ask students to bring in packaging)
- a class set of department or grocery store flyers
- one product packaged three different ways

Activity:

1. At least one week prior to activity, ask students to bring in clean, empty packages. Store in the classroom. Include words such as "sustainability", "renewable resources" and "non-renewable resources" and "stewardship" on the week's spelling list (see 3R Terms)
2. Dump packaging on floor or table. Have individuals chose a package that interests them. Ask students, "Why do you think the manufacturer chose that particular package to contain that product?" (Reasons may include health, containment, safety, amount of garbage produced, cost, eye-catching design). Note reasons on blackboard. Ask, "What attracted you to that product?" Discuss the influence of marketing on why people chose different packages.

IRP outcomes cont.

[PP] Identify and apply the steps in the decision-making process (5)

[PP] Predict possible problems associated with particular situations or courses of action (6)

[PP] Practice responsible decision-making (7)

Did you know?

The Government of British Columbia amended the Recycling Regulation. Starting May 19, 2014, businesses that supply packaging and printed paper to BC residents are responsible for collecting and managing these materials so they can be recycled. This is called extended producer responsibility, or EPR.

Learn what can be recycled and what happens to it at:

www.multimaterialbc.ca

3. Ask, "Who has a package that could be recycled? Reused? Reduced?" Talk about what "reducing" means (not making garbage in the first place).
4. Have students brainstorm different types of packaging material (glass, paper, etc.), then place their packaging under the appropriate title. Discuss the purpose and advantages of different materials. Determine which packages are made from renewable and non-renewable natural resources.
5. Ask students to define "overpackaging". Break class into groups and hand out flyers from a grocery or department store. Have students find examples of overpackaged goods. Discuss what they have found and what alternatives may be available.
6. Show students the different types of packaging used for the same items. For example, cookies, drinks, sugar and popcorn can be packaged in a variety of ways (bulk, concentrate, box, glass, aluminum, etc.) Ask, "Which packaging makes the most sense for the environment? For saving money?"

Conclusion/Discussion: Discuss ways to make environmentally-wise purchasing decisions by asking questions such as:

- Do I need this product? Can I repair, rent or borrow what I need?
- Can I buy the product with no packaging at all? If it has to be packaged, which product comes with the least packaging or packaging that can be reused or recycled?
- Is the package or product made from non-renewable natural resources?
- Is the package recyclable in my community?
- Use Myrecyclopedia online to find convenient recycling facility locations and get the environmental story behind the items we use in our homes and businesses. The tool was developped for residents in the capital region. **www.myrecyclopedia.ca**

Ask students, "So how do you know which package to buy?" "What do you need to think about before purchasing something at the store?" Encourage students to apply this criteria to products they consider purchasing on their next shopping trip.

Extension Activity: ■ Take a tour of a grocery store and note items that are packaged in various ways. Also, note the price difference between the different packages. Discuss the reasons for what you find. Have students write a letter to a manufacturer explaining why they are concerned about a particular product's overpackaging, and suggesting alternatives. ■ Book a workshop and tour of Hartland landfill and recycling facility and/or download additional lessons at **www.crd.bc.ca/teacher.**

- discuss the impact advertising has on the needs and wants of individuals
- determine what 3R messages are the most effective to motivate students to practice the 3R's
- identify specific 3R actions that primary students can take to have an impact on their local environment and tell them why these actions make a difference

Advertise, Advertise, Advertise!!! (4-7)

IRP outcomes

It is expected that students will:

[SS] Gather a body of information from primary and secondary sources (4-7)

[SS] Create a presentation on a selected topic (4-7)

[SS] Analyse the significance of communications technologies in Canada (6)

[PP] Apply problem-solving models to a variety of situations (4)

[PP] Describe the influence of media and the community on their attitudes and values regarding healthy living (4)

[LA] Select and use strategies before writing and representing including identifying an audience (4-7)

Intro: Our society is often described as a consumer society. Many point to advertising as the single, most powerful force behind the continued growth of consumerism. It is estimated that the average child sees between 20,000 – 40,000 commercials every year. Children spend 60% more time watching television each year than they spend in school. Although advertising can strongly influence our purchasing decisions and blur the line between our needs and wants, it can also be used to convey powerful messages. Powerful messages that make us think about our actions, their impacts and the local environment.

Materials:

- samples of advertising (e.g. magazines, newspapers, posters)
- video camera, if desired

Activity: Have students look through magazines and newspapers to observe various advertisements. Bring in a number of posters with specific messages and have them observe this form of advertising as well. Discuss different forms of advertising. What messages do they get from the ads? What elements make a good advertisement? What catches your eye? List the ideas.

Divide the class into groups. Each group will be asked to promote, reinforce or educate younger students about the need to reduce, reuse, recycle and compost using an advertising format of their choice. Students must determine what format would best catch the attention of their audience while effectively relaying their message. Will the format they select be a skit, play, poster, video advertisement or model?

Conclusion/Discussion: Was it hard to come up with a message or slogan or logo? What steps did your group take to come up with an agreement on what that message or slogan or logo would be? What information did you consider to make your decision? As a group, brainstorm what other pieces of information could be used to make such a decision? Why is advertising so important to businesses? What impact does advertising have on you? Why?

IRP outcomes cont.

[LA] Write for a range of audiences that demonstrates connections to personal experiences, ideas, opinions (4-7)

[LA] Use writing and representing to express personal responses and relevant opinions about experiences and texts (4-7)

Extension Activities: After presenting your advertisement to your audience, evaluate its effectiveness. Interview the younger students and ask them if they liked your advertisement. Ask them what they liked and disliked about it and find out what information or messages they thought the advertisement was trying to convey. Were their answers surprising? How important is evaluation to advertising? What would you do differently next time?

Useful Links:

Waste and Recycling Advertising

- Encorp Return-It Program

  View sample marketing materials under "About Encorp" in their "Marketing Portfolio" **www.return-it.ca**

- Recyc-Quebec

  French samples available under "Gérer les matières résiduelles" and "Compagnes et outils de sensibilisation"
  www.recyc-quebec.gouv.qc.ca

  Videos (French and English) **http://onenprendsoin.ca/**

Local Waste and Recycling Information

- CRD Solid Waste Stream Composition Studies

  Identify what materials are disposed as garbage at Hartland landfill and recycling facility.
  www.crd.bc.ca/service/waste-recycling/solid-waste-management

- CRD Solid Waste Annual Reports

  Include information about CRD waste diversion programs and landfilled waste.
  www.crd.bc.ca/service/waste-recycling/solid-waste-management

- CRD Kitchen Scraps Diversion

  As of January 1, 2015 kitchen scraps are restricted from our garbage. Learn more about the Kitchen Scraps Strategy at
  www.crd.bc.ca/organics

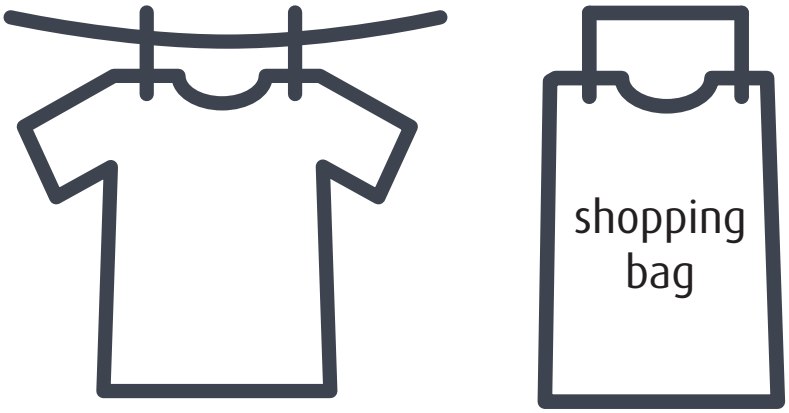
Action Projects

- Wavemakers

  Lists types of action projects, describes action types and tools to achieve them.
  http://wavemakers.cawst.org

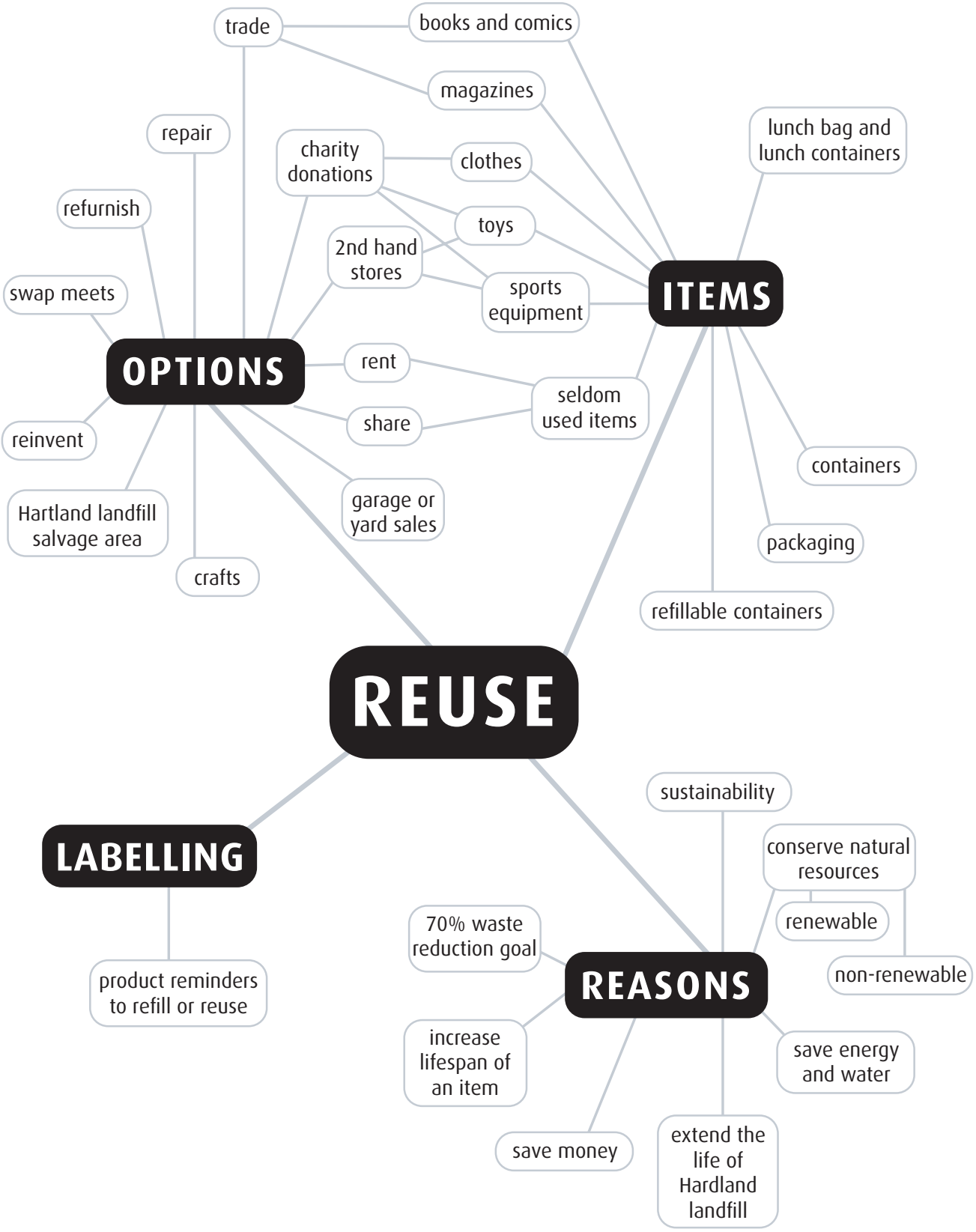
Making a difference...together

Reuse



Reduce. **Re**use. **Re**cycle.

Reuse Webbing



Reuse Activity

If every elementary student in the CRD took a single-serving drink container to school with their lunch, more than 24,000 beverage containers per day would need to be recycled. Consider using reusable drink containers to reduce the energy required for recycling.

Reuse involves reusing items over and over again, either in their original form or some modified version. Buying durable and reusable products means that there is less to throw away and less to replace.

Reusing is the second most important R of the 3R hierarchy and is preferable to recycling because the packaging or item can be used again without being reprocessed. By reusing, resources are conserved and energy is saved because fewer new products need to be manufactured.

Reuse can refer to:

- Donating old clothes and toys to a second hand store;
- Having a garage sale to sell your old clothes, toys or household items;
- Reusing containers for snacks, lunches or drinks;
- Finding new uses for old things;
- Sharing seldom used items, such as sports equipment and camping gear;
- Using durable items instead of disposables;
- Repairing and maintaining durable products; and,
- Returning refillable containers.

Examples include:

- Taking your own cloth bag on your next shopping trip.
- Using an old shoebox to store your crayons, felts or pens.
- Making gift wrap with a scarf, tea towel or fabric scrap.
- Making gift containers with baskets, plant pots, boxes, used paper bags or interesting bottles.
- Purchasing refillable pens and ink cartridges and refilling the pen or cartridge when empty.
- Exchanging books, magazines and comics with your friends.

- understand that the application of the first 2R's (Reduce and Reuse) can have benefits beyond waste reduction
- understand the phrase "someone else's trash is another's treasure"

Toys & Clothes for Sharing (K-5)

IRP outcomes

It is expected that students will:

[SS] Describe ways individuals contribute to a community (2)

[SS] Compare ways needs and wants are met in communities (3)

[SS] Explain why sustainability is important (5)

[PP] Relate the support services available in the school and community to personal needs (4)

[PP] Identify people and organizations that support children (K-1)

[PP] Identify thoughtful, caring behaviours (2-3)

[PP] Describe empathetic responses in a variety of situations (5)

[SC] Describe ways to rethink, refuse, reduce, reuse and recycle (K)

Intro: Many of us seem to wear 20 per cent of our clothes, 80 per cent of the time. The question arises, what do we really need? By taking a look around our house and in our closets, we may see that there are some things we could pass along to those who are less fortunate.

Materials:

- box for each participating classroom (reuse paper, computer or other boxes)
- a list of local charity facilities from www.myrecyclopedia.ca or the yellow pages phone book. Call first to see if they need the items you're considering collecting.
- primary level book: Franklin's Christmas Gift by Paulette Bourgeois (Canadian author, ISBN 1-55074-4666-6)

Activity: Have a class or school-wide event to collect donated toys or clothes for a local or overseas group or organization in need. Have a box in each class to encourage students to bring used or not needed toys or clothes for others. Toys will need to be clean and in working condition. There are a variety of local community charities in need of toys and clothes. Refer to CRD **myrecyclopedia.ca** or phone book for list of local charities. Call first to see if they need the items you're considering dropping off.

During the holiday season, primary students can discuss the spirit of giving to others after reading, **Franklin's Christmas Gift** by Paulette Bourgeois. In this story, Franklin has a hard time finding something at home that he can donate to the toy donation box at school.

Conclusion/Discussion: Discuss other options for dealing with items at home that you no longer need. What can you do? Brainstorm. For example: selling/buying at second hand/consignment stores or using free online services, asking friends if they need the item that you no longer need, trading your item for something you need that someone else has, or having a garage/yard sale. Debate the pros and cons of each option.

Extension Activities: ■ Have a school-wide yard sale or swap meet (possible spring or fall). Donate leftover items to charity, calling ahead to ensure that your items are needed.

IRP outcomes

[SS] Gather information from personal experiences and visual representations (K-1)

[SS] Describe their role and responsibilities as members of the classroom and school community (K-3)

[SS] Demonstrate and describe responsible behaviour in caring for local environment (K-3)

[SS] Describe how decisions are made in groups, the classroom and the school (2)

[SS] Present information using oral, written or visual representations (K-3)

[PP] Recognize when a problem exists

[PP] Relate consequences to actions and decisions (K-1)

[PP] Describe a problem-solving model (2-3)

[SC] Describe ways to rethink, refuse, reduce, reuse and recycle (K)

[SC] Communicate their observations, experiences and thinking in a variety of ways (1)

[SC] Infer the probable outcome of an event wor behaviour based on observations (2)

SC Measure objects and events (3)

MA Construct a pictograph using one-to-one correspondence (K-1)

MA Sort objects by one or more attributes and by using graphic organizers (2-3)

- discuss the different kinds of packaging in lunches and understand the difference between containers that are reusable and those that are garbage
- discuss why we reuse containers to reduce lunch waste
- discuss where lunchtime packaging ends up (back home to be used in recycling containers, in compost bin, in garbage can) and which types of packaging help the environment

Graph the Goods (K-3)

Intro: Packaging makes up twenty per cent of our household waste. Of the 7,000 items in the grocery store, about 3,000 are wrapped in packaging that ends up in the garbage. Individually wrapped portions of items like cheese or juice are convenient but they are generally two to four times more expensive than the bulk options and sometimes the packaging is not even recyclable.

Materials:

- chart paper
- student lunches
- copy of student worksheet

Activity: This activity will need to take place before lunchtime. Enlarge the chart outlined on the worksheet developed for this activity. Place it on a table or floor (horizontal surface). Have a few students get their lunches from their packs. Observe the different ways students bring their lunches to school. Next, look at the various types of packaging and containers used for the lunches. Discuss what happens to the packaging once they finish their lunch. Ask students to place their lunch on the large chart, in the appropriate category.

Ask the students to comment on where most of the lunchtime packaging will end up. Why do some people bring water bottles, juice boxes, plastic box containers, etc.? Brainstorm the advantages and disadvantages of each.

Conclusion/Discussion: Explain that there is a lot of garbage produced daily by each and every one of us. Let the students know that there are easy ways to avoid unnecessary packaging. What types of packaging (referring to lunch containers) can we use to decrease lunchtime garbage? How can we make our lunches produce no waste at all?

Extension Activities: ■ Take a field trip to Hartland landfill or to your local recycling depot. ■ Create a bulletin display to encourage all students in your school to pack garbage free lunches. ■ Discuss who in the community is responsible for collecting garbage and recyclables. Read **Garbage Collectors** by Paulette Bourgeois (Canadian author, ISBN 1-55074-040-7). ■ Download supplementary 3R lessons and activities at **www.crd.bc.ca/teacher.**

Reuse Activity

Many of us already bring garbage free lunches! This helps to reduce packaging waste that goes to the landfill. Let's see how our lunch packaging stacks up today!

Reusable

Recyclable

Compostable

Garbage

Most packaging was _____

The least amount of packaging was _____

- create a completely new item from discarded packaging or an item, material or container that is no longer needed
- develop an awareness of other ways to reuse regularly discarded items
- understand the positive impact reusing can have on our local environment

Reinvent It! (2-3)

IRP outcomes

It is expected that students will:

[SS] Demonstrate responsible behaviour in caring for their immediate environment (2-3)

[SS] Gather information from a variety of sources for presentation (2-3)

[SS] Apply critical thinking skills including predicting, imagining, and comparing to selected problems or issues (3)

[SC] Ask questions that foster investigations and explorations relevant to the content (3)

Intro: To breathe new life into discarded items by creating completely new uses for them is one way to reduce waste. It also enables creative expression and imagination. By extending the life of an item through reuse, waste is reduced, resources are saved, and the amount of pollution that would have been discharged by creating that item from scratch is eliminated.

Materials:

- variety of containers (at least one per student)

Activity: Students will be presented with a variety of reusable items. As inventors they are asked to choose one of the items and reinvent it into something useful again. Making it into a container has already been done, so imagination is required. Students can brainstorm possible ideas, discuss possibilities with friends and family, explore various resource materials in the library, and think about useful items already found around the house.

Students will need to create the item into something new and write a short paragraph explaining what it is and how it works. This could be presented in an advertising format.

Conclusion/Discussion: What are the benefits of recreating an item that was once no longer useful? Once you are finished with your newly created item, what will happen to it?

Extension Activities: A golf tee was made entirely out of biodegradable and organic material. This invention was important because millions of golf tees are used each year. Most golf tees are left on the golf course after a single use. The new tees shatter and biodegrade more quickly. Have the students come up with suggestions for other biodegradable inventions. Discuss what impact their invention would have on the environment.

Useful Links: Search the Pinterest website with the following words "reuse", "upcycle", "DIY" and "containers" for project ideas. **www.pinterest.com**

- understand the impact individual actions have on the local environment and on reducing and reusing waste
- recognize our society's wasteful tendencies and the steps that can be taken to reuse waste
- identify multiple uses for individual items

Wisdom From The Past (4-5)

IRP outcomes

It is expected that students will:

[SS] Describe Aboriginal people's relationship with the land and natural resources (4)

[SS] Describe technologies used by Aboriginal People in BC and Canada (4)

[SS] Apply critical thinking skills to selected problems and issues (4-5)

[SS] Explain why sustainability is important (5)

[SS] Analyse the environmental effects of settlement in early BC and Canada (5)

[SC] Determine how personal choices and actions have environmental consequences (4)

[SC] Analyse how the Aboriginal concept of interconnectedness of the environment is reflected in responsibility for and caretaking of resources (5)

Intro: British Columbia's indigenous people lived off the land and existed in harmony with their natural environment. In essence, they were environmental stewards. So much can be learned from their experiences, their routines and their lifestyles.

Materials:

- photocopy one set of activity cards
- 5-6 dictionaries

Activity: Students will be divided into groups of four. Each group of students will be asked to work on one activity card at a time, rotating stations during designated work time. As an alternative, the teacher could use the activity cards as a basis for group discussions.

Conclusion/Discussion: After completing the card activities, discuss the differences between the past and present:

- use and value of resources;
- basic needs and wants; and,
- balance of resource supply and demand.

Discuss other ways of life. What can we learn from the past? From other cultures?

Extension Activities: ■ Royal BC Museum's First Peoples Gallery: contact the Victoria Native Friendship Centre for an interpretive tour of the Gallery and the role of reuse and recycling. Discuss if a sustainable society is still possible today.

http://www.vnfc.ca/programs-services/culture-community-relations

■ Visit the **Hornby Recycles** website to see why they were awarded the 2001 Merit Award from the Recycling Council of BC.

http://www.hirra.ca/recycle/

Activity Card 1

The Haida people were hunters and gatherers. They ate salmon, halibut, cod, sea mammals, shellfish, seaweed, eulachon, wild animals and a variety of native plants. They made their baskets, blankets, mats, capes, clothes, hats and fishing tools out of twined material such as animal hair, feathers, bark from cedar and cherry trees, and stems of water reeds. Think about where we get our food, clothing and utensils from.

Why do you think the Haida people produced little waste?

Make a list of at least 5 reasons.

Activity Card 2

The Haida people used every part of a tree including the roots, inner bark, twigs and trunk. Trees were used to build houses, canoes, winter storage boxes and tool handles. Clothing, baskets, mats and rain hats were woven from spruce roots or the inner bark of cedar trees. Later, they added art to their functional tools with carvings and designs. They were able to meet most of their basic needs from the complete use of a natural resource, leaving very little waste.

Discuss how we use B.C.'s natural resources today.

Activity Card 3

The Haida people lived in harmony with the environment. There was an abundance of natural resources; however, they only took what they needed. Their needs were simple and included food, shelter, clothes, ceremonial attire and objects. While most of their time was taken up with meeting their basic needs, their limited free time was often spent creating art.

How are we different today?

ACTIVITY CARD 4

The definition of stewardship is the careful and responsible management of something entrusted in your care. For example, we must practice stewardship of our environment and natural resources for us today and for the future. Stewardship can mean planting a tree in your backyard for you to enjoy today and others to enjoy in the years to come. Stewardship can also involve a community project such as saving a large forest from logging and turning it into a provincial park.

Discuss this definition with your group. List two ways you personally have been, or could be, a steward in your home, school or community.

ACTIVITY CARD 5

Using a dictionary, find and record the definition of sustainability. Think of this word in terms of the environment. How did the Haida people maintain a sustainable society? How did society change after the European traders and settlers arrived? Provide four examples.

ACTIVITY CARD 6

With the ever-increasing population, mass production of man-made materials and strong desire for material possessions, do you think it is possible to have a sustainable society in the future? Decide yes or no. Give four reasons why you think this may or may not happen.

- identify opportunities to reduce garbage by making wise choices
- emphasize the hierarchy of 3R activities

Survive-R Game (4-7):
Mighty Matching Game

IRP outcomes

The students will be expected to:

[SS] Evaluate effects of technology on lifestyles and environments (6)

[PP] Demonstrate responsibility for their choices (4)

[PP] Identify and apply the steps in decision-making process (5)

[PP] Give examples of how people can achieve balance in their lives (5)

[PP] Identify factors that influence their attitudes regarding healthy living (5)

[PP] Predict possible problems associated with particular situations or courses of action (6)

[PP] Practice responsible decision-making (7)

[SC] Determine how personal choices and actions have environmental consequences (4)

Intro: This fun, fast-paced game encourages students to put the 3R hierarchy into action by determining what can be reduced, reused and recycled. The teacher is encouraged to imitate the style of the television show Survivor, if s/he feels comfortable. The Mighty Matching Game is more appropriate for intermediate classes, though it can be adapted for younger students.

Materials:

- two tables (or desks put together) each with the following items (noted here with their matches)

Less desirable choice	Environmentally friendly choice
paper lunch bag	reusable cloth or vinyl lunch bag or lunch kit
paper towel	cloth towel
paper napkin	cloth napkin
juice box	reusable container & frozen juice
plastic bag	reusable shopping bag
plastic fork	stainless steel fork
fruit cup, lid & cardboard	whole fruit (e.g. banana, apple)
plastic sandwich bag small yogurt container (single use/serving)	reusable containers
milk carton or bottled water (single serving)	large carton/jug and reusable bottle
polystyrene (the chemical name for styrofoam) bowl	thermos
polystyrene or paper cup	reusable mug
plastic foil wrapped granola bar	homemade
raisin boxes	bulk raisins in a reusable container
cookie wrapped in plastic on styrofoam tray	homemade baked good

Not Required, But Fun:

- safari style hat
- tiki torches (might fashion out of bamboo poles and bike flashers)
- Survivor poster

Tip: You may want to ask a parent or class coordinator to collect materials

Activity: Set up all activity props and (if keen) tiki torches and Survivor sign. Announce that the class will be involved in a game of wit, wisdom and agility that tests their ability to survive in the land of the 3R's. Have class sit down as if in an audience. Pull on safari hat (if keen) and announce:

"Greetings to you all, and welcome to this week's edition of the Survive "R" Game Show. Before me are the 30 lucky contestants who have been chosen from the thousands and thousands of eager applicants to join me on this beautiful island to outlast and outwit one another! Now many of you may be familiar with this show, but for those who are not, it works like this: Our contestants will be divided into two teams, or tribes, which will compete against one another in a challenge."

Divide class. (If desired, ask groups to name their tribe and write this on a team "flag" -- a coloured piece of paper).

Set up two tables with a variety of items: environmentally-friendly packaging/ containers vs. wasteful packaging/containers. Introduce activity: "Recycling is good. Recycling rather than throwing away the garbage saves precious natural resources, but the process still uses energy and water.

But there is an even better way. This challenge is all about REDUCING the amount of garbage we create by thinking about what kinds of containers and packaging we use in our every day lives. For example, I imagine you all brought a lunch today and that in those lunches, you had all sorts of packages and containers, like sandwich bags, juice boxes and plastic containers. Those kinds of things are all up here on the table. Some of those things can be used more than once, and others get thrown away after just one use."

Here's how the game works: The first student on each team comes up to their team's table and is asked to pick something to pack a sandwich in. The student should chose the object that s/he feels is the best choice for the environment. Think about things that are reusable, or use small amounts of packaging (that means less natural resources were used). Wait until asked to "reveal your choice" then show audience the object you chose. Your team will receive one eco-point for each correct choice. The first student then sits down and the next student comes up and selects something that meets the next criteria on the list (eg. bring juice to school, etc.)" Ask for one student from each team to go to the blackboard and record points for their team.

Run relay by asking students to take turns coming to the front and choosing:

1. Something to bring your lunch to school in
   One point for selecting a reusable bag over a paper bag
2. Something to dry your hands with
   One point for selecting a cloth towel over a paper towel
3. A way of bringing juice to school
   One point for selecting a reusable container over a juice box, single-serve milk carton or bottled water
4. A way of bringing granola bars to school
   One point for selecting homemade granola bars over plastic foil wrapped granola bars
5. A way to buy raisins
   One point for selecting bulk raisins over individual raisin boxes
6. A cookie for recess
   One point for selecting a homemade cookie over cookies wrapped in plastic on styrofoam tray
7. A cup for a hot drink (tea, hot chocolate)
   One point for selecting a reusable mug over a polystyrene or paper cup
8. Something to put your sandwich in
   One point for selecting a reusable container over plastic wrap
9. A way of bringing crackers and cheese to class
   One point for selecting a reusable container over a zip lock bag
10. Something to bring fruit to school
    One point for selecting a whole fruit or a reusable container over a fruit cup, lid and cardboard packaging.
11. A bag to carry home your shopping in
    One point for selecting a reusable shopping bag over a plastic bag
12. Something to bring yogurt to school
    One point for selecting a reusable container over a small yogurt container
13. Something to wipe your face after lunch
    One point for selecting a cloth napkin over a paper napkin
14. A way of bringing noodles for lunch
    One point for choosing a thermos over a polystyrene container
15. Something to use to eat your noodles
    One point for choosing a stainless steel fork over a plastic fork

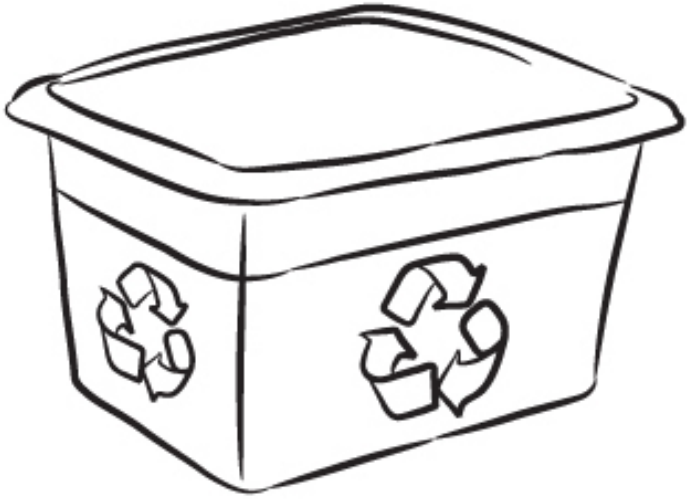
Conclusion/Discussion: Discuss how choices we make effect our homes, schools and earth (which can be viewed as an island on which we all need to survive.

Extension Activities: Have students design a sustainable island paradise where all the islanders' needs can be dealt with in environmentally-friendly ways.

Hold a garbage-free lunch challenge for your class or school. Download the resources at **www.crd.bc.ca/teacher**

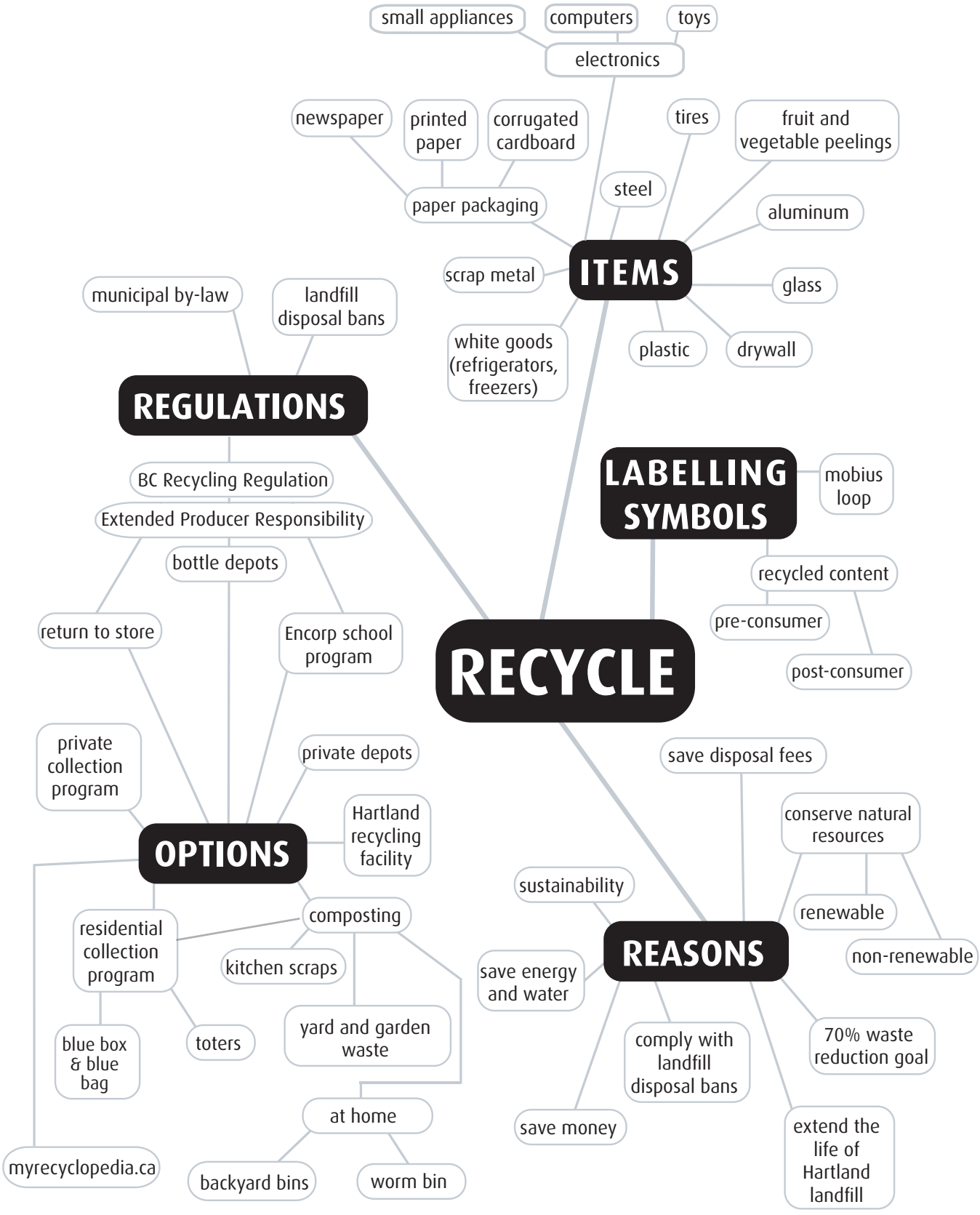
Making a difference...together

Recycle



Reduce. **Re**use. **Re**cycle.

Recycle Webbing



Recycle Background

All it takes is one coffee mug in a load of glass containers to cause the entire load of glass to be rejected for recycling. Contamination is a big problem for recyclers.

Recycling is a process where particular materials are collected, sorted and reprocessed into the same products or completely new ones. The process is only truly complete when the materials made with recycled content are purchased. These stages create a loop or closed system, and for that reason, the Mobius Loop was adopted as the international recycling symbol during the 1970's.

Recycling can refer to:

- Using curbside blue boxes and blue bags for recycling particular paper products, corrugated cardboard, containers and lids;
- Using school recycling programs for paper products and containers;
- Composting kitchen scraps at school and at home;
- Taking back items with Extended Producer Responsibility (EPR) programs to retailers and/or depots (e.g. beverage containers, electronics, paint, tires, batteries, used oil, thermostats); and,
- Purchasing products or packaging with recycled content.

Why Recycle?

- Meet regional waste reduction goal of 70%;
- Conserve renewable resources (trees) and non-renewable resources (petroleum & minerals);
- Reduce energy and water use by using recycled materials rather than virgin materials;
- Save landfill space (extend the life of the Hartland landfill);
- Save money on garbage collection costs; and,
- Comply with landfill disposal regulations (material bans).

Recycle is the third R of the 3R hierarchy and, by far, is the most visible and most commonly understood. In order to continue to reduce the amount of waste generated and being disposed of as garbage at Hartland landfill, recycling programs need to remain successful and people need to consider implementing more reduce and reuse activities. These two latter activities can have a significant impact on waste reduction.

A successful recycling program is when people:

- participate in their local recycling program;
- become familiar with what can be recycled in their curbside program and what else can be recycled through local recycling depots or private recyclers (visit **www.myrecyclopedia.ca**);
- properly prepare their materials for recycling; and,
- purchase products made from recycled materials.

In the first 10 years of the Blue Box recycling program, CRD residents recycled over 96,400 tonnes of newspapers, mixed paper, tin and glass. This is equivalent to 14,388 garbage trucks that did not have to go to the landfill!

How much was recycled last year? Find the answer in the Solid Waste Management Reports at *www.crd.bc.ca*

Did you know?

Composting can be considered a type of recycling.

In January 2015, the disposal of kitchen scraps as garbage at Hartland landfill was restricted.

The collection of residential garbage, yard and garden material and kitchen scraps is provided by municipalities and private collection companies.

For composting lessons and resources visit: *www.crd.bc.ca/teacher*

History of CRD's Blue Box Program

The Blue Box recycling program and apartment recycling program started in 1989. At the beginning, the weekly curbside recycling program accepted newspapers, glass and metal food and beverage containers. Then in 1995, mixed paper products were added to the list of acceptable materials.

In May 2000, the addition of corrugated cardboard and rigid plastic containers resulted in using Blue Bags for newspapers and mixed paper products and blue boxes for the container stream. Cardboard was bundled and placed beside the blue box.

By 2006, the apartment recycling program had expanded and an apartment tote was delivered to each multi-family unit in the region. Pizza boxes and rigid plastic packaging were added to the recycling program. In 2012, polycoat containers (soup and milk cartons and gable top containers) were accepted in the blue box and paper cups in the blue bag in 2014.

The Government of British Columbia amended the Recycling Regulation to require that, starting May 19, 2014, the businesses that supply packaging and printed paper to residents assume responsibility for managing these items after residents discard them. This is called extended producer responsibility, or EPR. Packaging and printed paper is only one of several materials for which the provincial government has implemented EPR regulations. To comply with new processing requirements for this material, residents began separating glass containers into a dedicated blue box or receptacle.

Now, more than 25 years later, we can recycle even more items at the curb and have technology like the recycleCRD App for residents with iPhones and smartphones to be reminded about their collection day, helping to keep the recyclables in the loop.

The Recycling Process

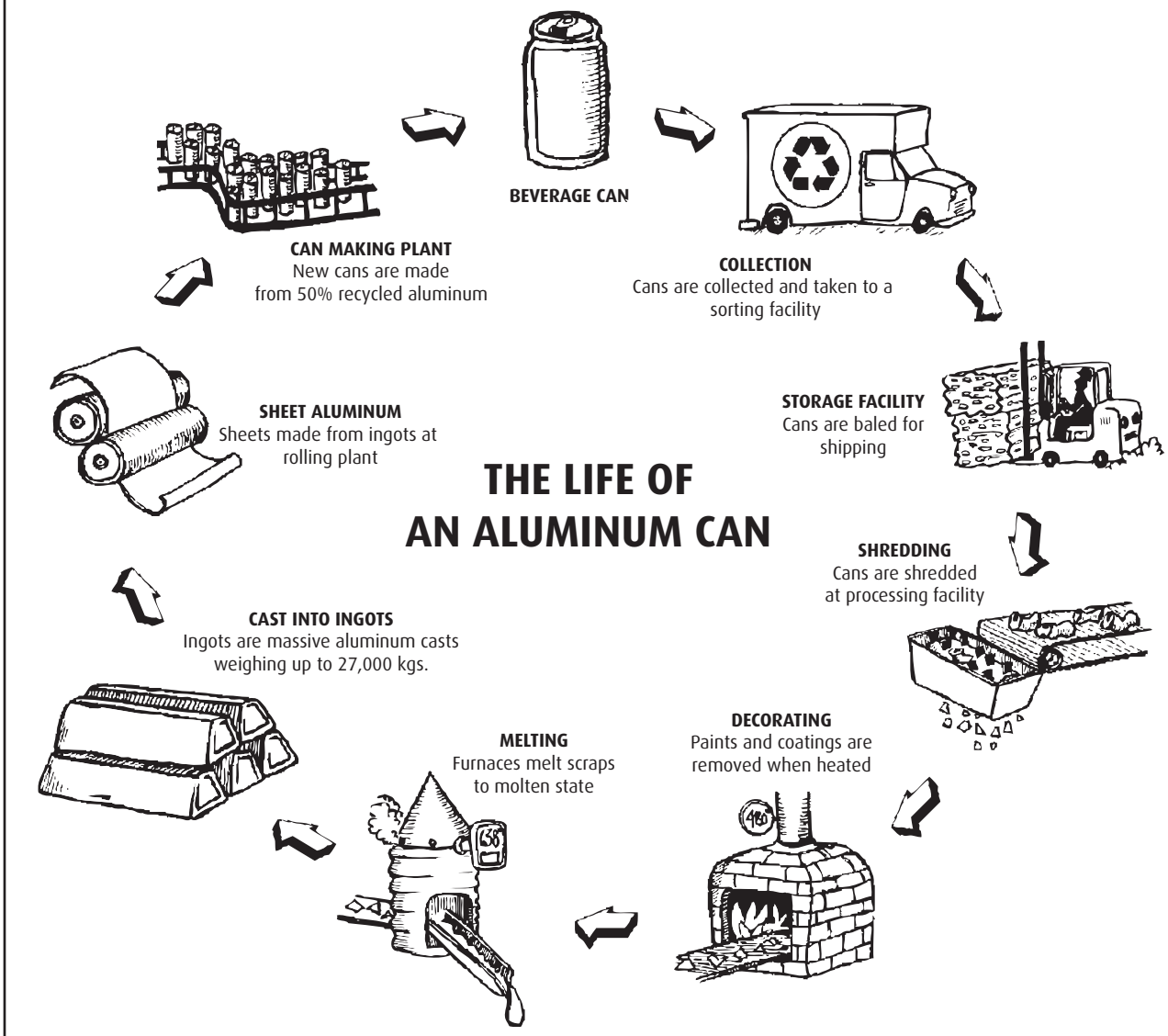
While there are many similarities between the recycling processes for various materials, the methods, the energy requirements and the end products vary from material to material.

Similarities

- All recyclables must be collected, sorted and all contaminants must be removed. Contaminants are any material other than what is being recycled. For newspaper, a contaminant could be plastic bags or cardboard boxes. For plastic containers, a contaminant could be glass. For compost, a contaminant could be plastic bags.
- There are various products into which each recyclable material can be remanufactured.

Each of the following pages have diagrams and links demonstrating the various steps involved in recycling aluminum cans, corrugated cardboard, newspaper, glass containers and plastic bottles.

Recycling Process



Did you know?

- It takes about 60 days for a pop can to be recycled, refilled and returned to the store.
- Recycling an aluminum can takes 95% less energy than making a new can from bauxite ore.
- A TV can run for three hours on the energy saved by recycling just one aluminum can.

*Printed with permission from the Greater Vancouver Regional District.

For current information about BC recycling programs, materials and end markets visit:

www.recyclinginbc.ca (Multi-Material BC residential recycling program)
www.rcbc.ca (Recycling Countil of British Columbia EPR programs)

Note: refundable beverage containers are banned from disposal as garbage at Hartland landfill.

Recycling Process

Did you Know?

- Corrugated cardboard is recycled into new cardboard boxes and boxboard for cereal boxes, cookie boxes and a variety of other boxes.

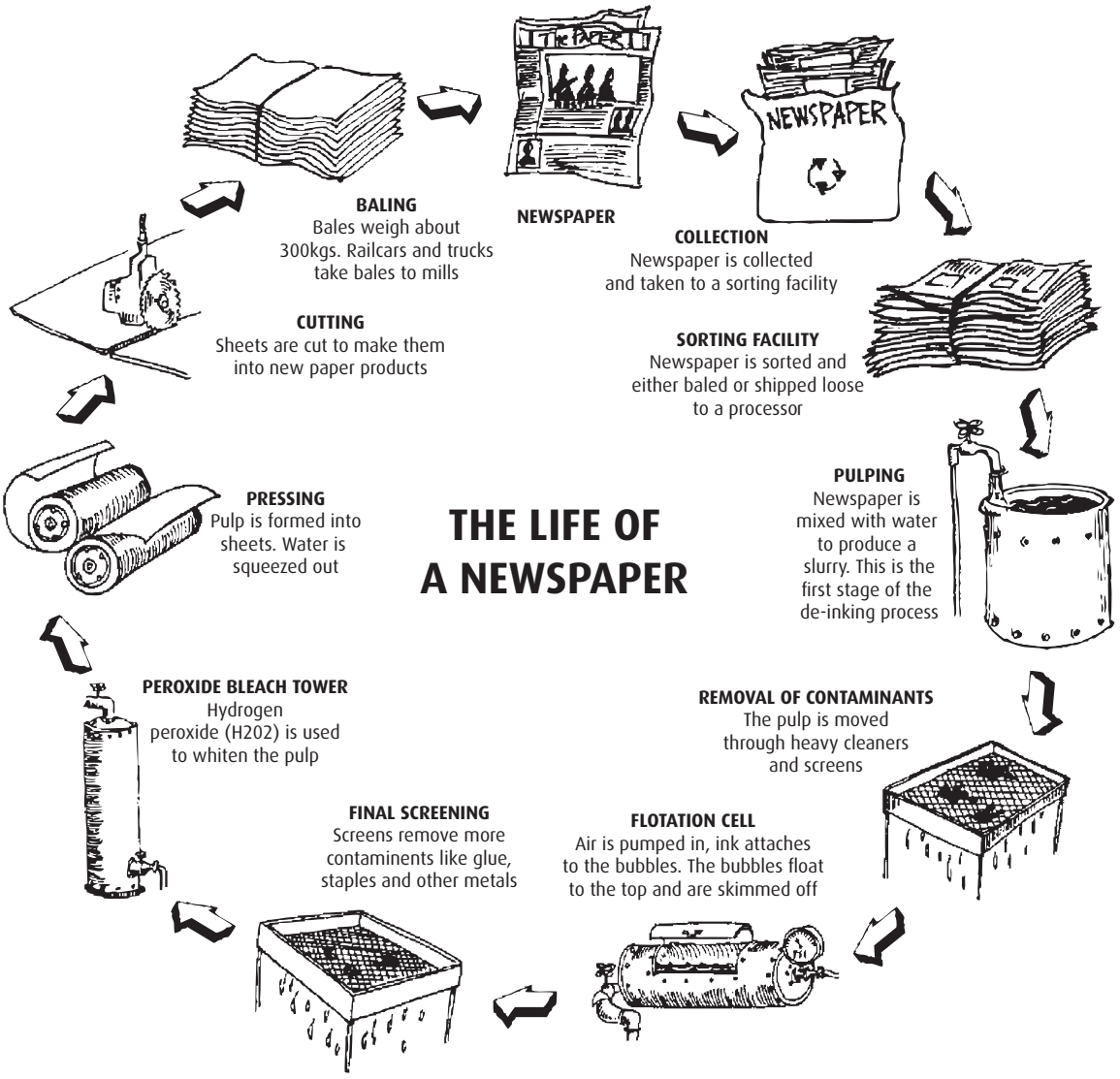
**Printed with permission from the Greater Vancouver Regional District.*

For current information about BC recycling programs, materials and end markets visit:

www.recyclinginbc.ca (Multi-Material BC residential recycling program)
www.rcbc.ca (Recycling Countil of British Columbia EPR programs)

Note: cardboard is banned from disposal as garbage at Hartland landfill.

Recycling Process



Did you Know?

- Until 150 years ago, paper was often made from cloth rags.
- Recycling paper uses 60 percent less energy than manufacturing paper from virgin timber.

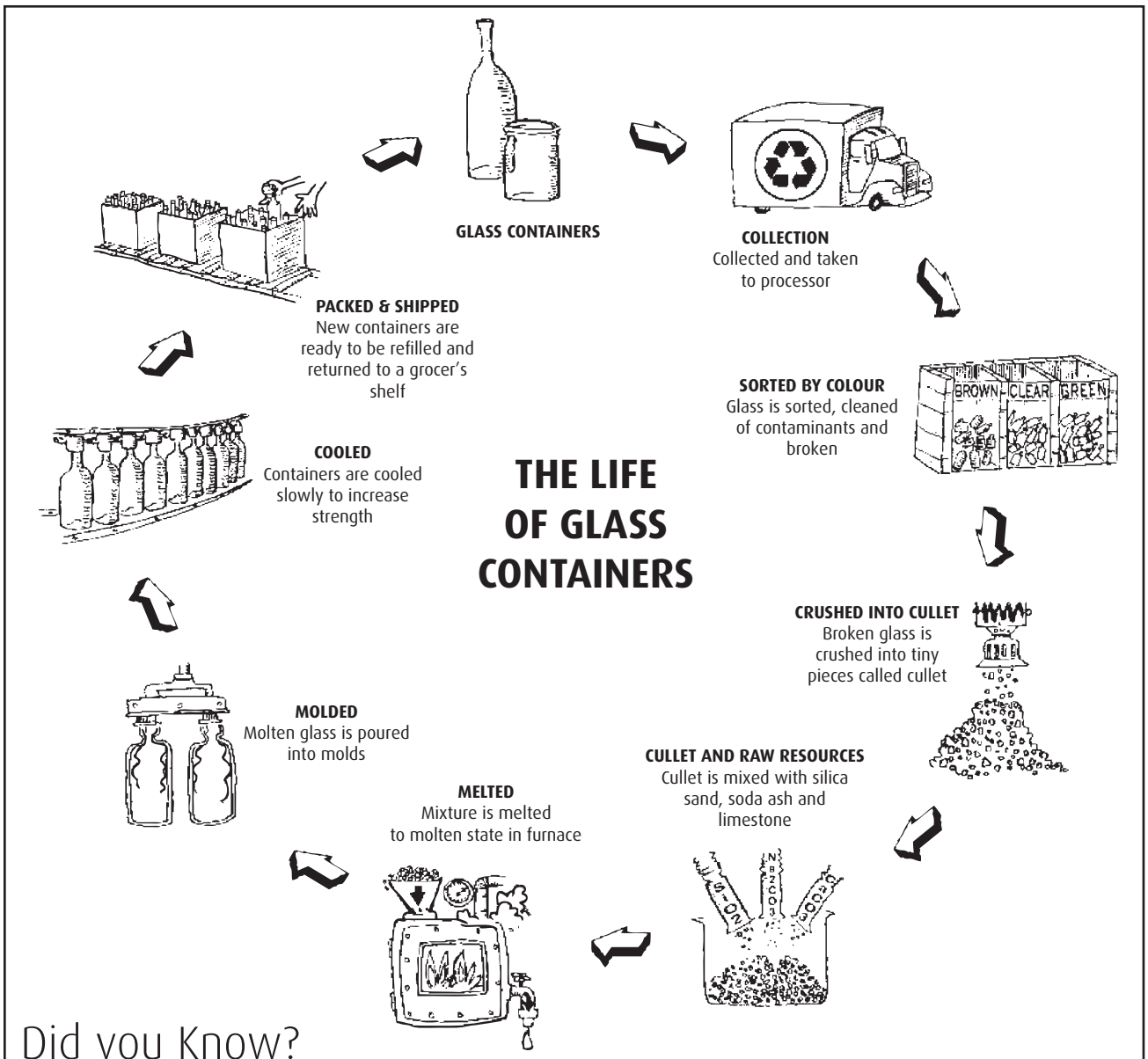
**Printed with permission from the Greater Vancouver Regional District.*

For current information about BC recycling programs, materials and end markets visit:

www.recyclinginbc.ca (Multi-Material BC residential recycling program)
www.rcbc.ca (Recycling Countil of British Columbia EPR programs)

Note: newspaper is banned from disposal as garbage at Hartland landfill.

Recycling Process



Did you Know?

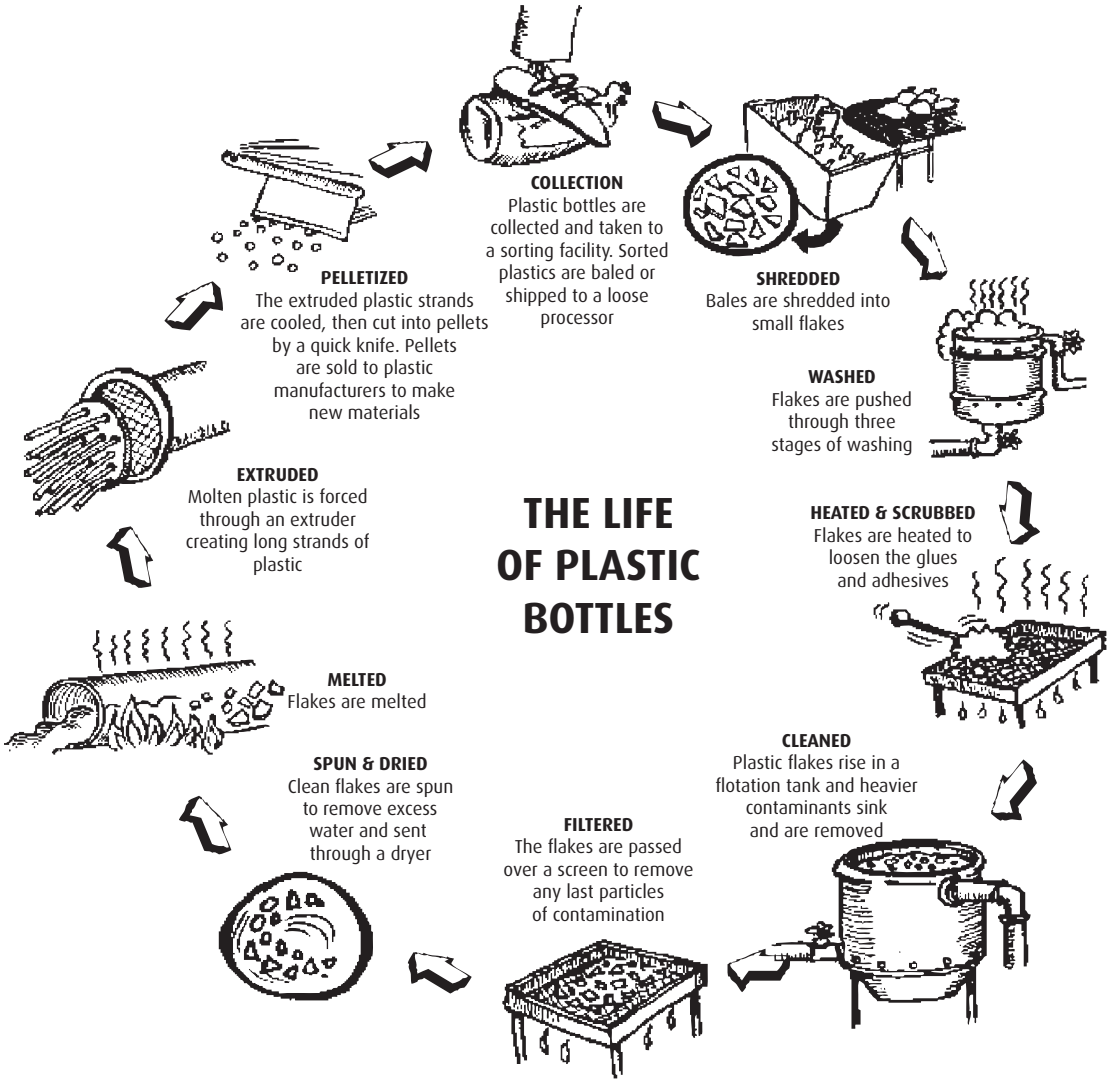
- Coloured glass is recycled into:
  - road aggregate
  - reflective material in paint
  - concrete products.
  - Clear glass is recycled into new glass bottles.
- Recycling one glass bottle saves enough energy to light a light bulb for four hours.

**Printed with permission from the Greater Vancouver Regional District.*

For current information about BC recycling programs, materials and end markets visit:
www.recyclinginbc.ca (Multi-Material BC residential recycling program)
www.rcbc.ca (Recycling Countil of British Columbia EPR programs)

Note: glass is banned from disposal as garbage at Hartland landfill.

Recycling Process



Did you Know?

- Plastic containers are recycled into everything from insulation to polar fleece, detergent bottles to office equipment and toys to drainage pipe.

*Printed with permission from the Greater Vancouver Regional District.

For current information about BC recycling programs, materials and end markets visit:

www.recyclinginbc.ca (Multi-Material BC residential recycling program)
www.rcbc.ca (Recycling Countil of British Columbia EPR programs)

Note: refundable beverage containers are banned from disposal as garbage at Hartland landfill.

- identify the Mobius symbol found on packaging
- develop a basic understanding of what the symbol means and where it can be found

Inspect Your Items (K-1)

IRP outcomes

It is expected that students will:

[SS] Gather information and draw simple interpretations from personal experiences, oral sources and visual representation (1)

[SS] Present information using oral or visual representations (K-1)

[SC] Describe ways to rethink, refuse, reduce, reuse and recycle (K)

[LA] Engage in discussions before writing and representing to generate ideas when responding to text and classroom experiences (K-1)

[LA] Use strategies when expressing and presenting ideas, information, and feelings including accessing prior knowledge, organizing thinking by following a simple framework, predicting some things the audience needs to know (K-1)

Intro: Environmental logos or environmental labeling can be very misleading, especially when it comes to environmental claims. It is important to have a basic understanding of which symbols to look for, what they mean and where they can expect to be found. The key is knowing what to look for.

Materials:

- copy of Mobius Loop symbol
- copy student worksheet page

Activity: Students will be presented with a Mobius Loop symbol. What does this symbol mean? Have you ever seen it? Where? Where would I look to find it? As detectives, instruct the students to go in search of this symbol to see if they can find it on anything? Have them search around the classroom and look. Ask students to return with items or have them leave them where they found them but ensure they remember where they saw the symbol. What did you find? What kind of material did you find it on? Using the worksheet provided, have students draw at least four items under the Mobius Loop symbol.

Conclusion/Discussion: Return to the discussion of what this symbol means. If students do not know, have them guess.

What's the difference?

This mobius loop means the product is recyclable where facilities exist. If a number appears in the centre, it corresponds to the type of plastic used to make the item.

This mobius loop indicates that the item was made from recycled material. A percentage in the symbol it indicates how much of the product was made from recycled content.

Extension Activities: ■ Make your own paper. Include the phrase "this is made from recycled paper". ■ Have the students look at home for empty containers or packaging that show the Mobius Loop symbol. Have the students bring them to class. Graph them.

Useful Links:

Recycling Council of British Columbia (RCBC)
Recycling Symbols Fact Sheet
http://www.rcbc.ca/files/u6/rg_100128_Mobius_Loop.pdf

Name: _____

Inspect the Items

Find and draw 4 items that have this symbol:

The Mobius Loop

- develop a basic understanding of the flow of recycling, from collection to processing and remanufacturing into new products
- identify what happens to plastics and tin cans when they are recycled

Big Books (K-3)

IRP outcomes

It is expected that students will:

[SS] Demonstrate and describe responsible behaviour at home and at school (K-3)

[SS] Gather information from personal experiences and visual representations (K-3)

[SS] Describe their responsibility to local and global environments (3)

[PP] Relate consequences to actions and decisions (K-1)

[SC] Describe ways to rethink, refuse, reduce, reuse and recycle (K)

[LA] View and demonstrate comprehension of visual texts (K-3)

[LA] Respond to selections they view by making text-self and text-world connections (K-3)

Intro: More and more people have made recycling a habit in their homes, schools and workplaces. We know that certain materials such as plastic jugs and tin cans go in the blue box or recycling container at home, but might not know what happens to those recyclables once they are collected.

Transforming recyclables such as old plastic jugs and tin cans into new products is a part of the recycling process we seldom learn about. Going behind the scenes helps us understand the importance of all the steps in the recycling process.

Materials:

- the big books "Milk Jugs" and "Tin Cans" (see Resource Section) **(printed with permission from the Greater Vancouver Regional District)** also available to display, download, and/or print at **www.crd.bc.ca/teacher**
- computer an projector (if displaying electronically)
- CRD's History of Garbage video **https://www.youtube.com/watch?v=lyGEXtg4flker**
- CRD's Garbage at Hartland Landfill video **https://www.youtube.com/watch?v=qbFbdSwqLts**

Activity: Enlarge the big books for reading to the class or reduce the pages to make individual books that student can read with their families. You may wish to have students colour the pages of the large or small books.

Read the stories to the students. Ask students what items they recycle at home and at school. Why do you recycle? How else could you reduce garbage? What would happen if everyone just threw stuff in the garbage rather than recycling? Watch the CRD's "History of Garbage" and "Garbage at Hartland landfill" videos.

Conclusion/Discussion: Discuss the 3R hierarchy. What does reducing, reusing and recycling mean? What do they look like? How can we reduce, reuse and recycle at school? At home?

Extension Activities: See the Resource section for more lesson plans, student activities and teacher resources.

- understand what is required to properly prepare recyclables for collection
- understand the importance of properly preparing recyclables for collection

Make It Fit! (2-3)

Intro: Properly preparing all recyclables for collection helps to ensure a successful recycling program. By flattening milk jugs, other plastic containers and boxes, more recyclables can fit in each recycling truck. Each recycling truck in Victoria stops at about 460 houses per day. The more materials each truck can hold, the more efficient and effective the recycling program becomes.

Materials:

- rubber gloves
- empty polycoat containers (milk carton, soup or juice boxes)
- 1 litre ice-cream container

Activity: Divide the students into small working groups. Each group is given the challenge of seeing how many polycoat containers they can fit into a 1 litre ice-cream container. Using rubber gloves (possibly done outside to avoid a mess), have the students take the polycoat containers from the recycling containers and begin the challenge. Once finished, students can weigh the containers to determine mass.

Conclusion/Discussion: What strategies did your group use to make the polycoat containers smaller and to make room for more boxes? For example, remove all contents, unfold sides then flatten the box. What other containers do the students have at home? List. Can any of them be flattened? Which ones? For a complete list of materials accepted for recycling in the CRD's Blue Box program, refer to the CRD's website: **www.crd.bc.ca/recycling**. Remember the 3R's. Could any of these items be reduced (avoided) or reused before being recycled?

Extension Activities: ■ Tour a recycling depot. ■ Create a poster to remind others how to prepare various items for recycling. If your school is not participating in the Encorp School Recycling Program*, register on-line at: **www.encorp.ca/youth** or call 1.800.330.9767.

***Encorp Pacific is a non-profit organization that manages B.C.'s non-alcoholic beverage container recovery system. In 2000, Encorp operated a pilot program in the Burnaby School District and determined that an average elementary school can raise approximately $50- $100 per month by collecting refundable beverage containers. This program is now extended to all schools in British Columbia. The program is free of charge to schools and schools will receive full deposits on all collected containers.**

IRP outcomes

It is expected that students will:

[SC] Infer the probable outcome of an event or behaviour based on observation (2)

[SC] Ask questions that foster investigations and explorations relevant to the content (3)

[SC] Measure objects and events (3)

[MA] Recognize that the size and shape of an object does not necessarily determine its mass (2-3)

Did you know?

Recycling makes a measurable difference.

Since the beginning of the CRD Blue Box program, residents have recycled more than 200,000 tonnes of material.

- Introduce awareness of the many opportunities to reduce, reuse and recycle garbage in the CRD
- make local garbage and recycling information "real" for students and their families

Garbage Habits at Home (2-7)

Intro: Every year, in the Capital Regional District, about 140,000 tonnes of garbage is sent to the Hartland Landfill. Every person, every household, every business, every school, every construction and demolition project adds to that garbage every day. As individuals, we can reduce the amount of garbage by practicing the 3R's and taking advantage of the waste diversion programs available in the captial region.

Materials:

- copies of the Student Survey "Garbage Habits at Home" for distribution to the class (copy double-sided)

Activity: In small groups or as a class discuss, "What I know now about garbage and recycling" and "What I want to know about garbage and recycling". Talk about the need to reduce garbage in the Capital Regional District. Have students share the ways they presently reduce garbage at home and at school. Give each student a survey and discuss. Emphasize the importance of completing the survey at home and returning it to school.

After all surveys are complete, ask the students to create bar graphs or calculate percentages to demonstrate the ways in which members of the class recycle at home, the number of families recycling different materials, the number of families who compost, and so on. Discuss each question, drawing on students' answers and ideas about what they do now or could do in the future to reduce garbage.

Have students compute the amount of garbage they are personally responsible for making in one year with this simple exercise (taken from the book **Trash Attack).**

- In one week, my family threw out _____ cans or bags of garbage.
- There are_____ people in my home
- My share of this garbage is the number of cans or bags divided by the number of people in my home. That means I make about _____ cans or bags of garbage each week.
- There are 52 weeks in a year. If I multiply 52 by the number of cans or bags of garbage I make each week it equals _____. That's how much garbage I make in one year.

IRP outcomes

It is expected that students will:

[SS] Evaluate effects of technology on lifestyles and environments (6)

[SS] Describe their responsibility to the local environment (2-3)

[SS] Formulate strategies to address problems or issues (3-4)

[SS] Apply critical thinking skills (3-7)

[PP] Explain how various factors influence personal and group goal achievement (4)

[PP] Practice responsible decision-making (7)

[PP] Describe the influence of family and peers on their attitudes and values (2-3)

[SC] Determine how personal choices and actions have environmental consequences (4)

[MA] Demonstrate an understanding of division and multiplication (4-7)

Conclusion/Discussion: Discuss, "How might your family treat garbage differently if you had to pile it up in your front yard? Why do you think some families recycle more than other families? What could you do to encourage your family to reduce, reuse or recycle more?

Extension Activities: ■ Challenge students to think of easy ways to measure garbage at home. Ideas for tracking different kinds of garbage in different ways include: weighing food waste, measuring the height of a stack of newspapers, counting cans etc.

Have students measure what is produced at home (you might assign specific materials for tracking, eg. cans, newspapers, mixed paper, plastic, glass, kitchen scraps and yard waste). Students present the results on a chart with a pictograph to show findings. Discuss, "What made up the most of your garbage? What made up the least? Try to explain why you have more of one item and less of another. Why do some families create different garbage than other families? How can some of these garbage items be reduced?"

Parent's note

This survey is part of our classroom's commitment to learn more about how we can reduce garbage and make recycling information "real" for your child. We'll discuss the classroom data as a whole (no individual results) so that children gain insight into what everyone does to reduce garbage.

Did you know?

Recycling makes a measurable difference.

Since the beginning of the CRD Blue Box program, residents have recycled more than 200,000 tonnes of material.

For more information, visit:
www.crd.bc.ca/recycle

Garbage Habits at Home

Student Survey

Check all the boxes that apply to your family's garbage habits. Don't worry if, in some questions, none of the answers apply to you. Just leave that question blank and go on to the next.

Garbage

1. In the last week my family threw out _____ cans or bags of garbage.

Recycling

2. Where I live:

_____ We recycle in our own blue box and blue recycling bag
_____ We recycle in big recycling totes or bins
_____ We take some or all of our recyclables to a recycling depot
_____ We return recyclable beverage containers for a refund
_____ Other (explain)_____

3. These are all the things we recycle at home:

_____ Newspapers
_____ Magazines, writing paper, envelopes, (even with windows), junk mail and other papers
_____ Cardboard and paperboard boxes (like cereal or shoe boxes)
_____ Glass bottles and jars
_____ Plastic milk jugs
_____ Polycoat containers (like soup boxes and cartons of juice)
_____ Pizza boxes
_____ Rigid plastic containers (like shampoo bottles, cleaning products and yogurt containers)
_____ Metal cans
_____ Clean aluminum plates and foil
_____ Other items such as_____

4. As far as composting goes in my home, we have

_____ A curbside kitchen scraps tote
_____ A backyard compost bin
_____ A worm compost bin
_____ A backyard digester bin

5. We compost the following items:

_____ Orange peels and apple cores
_____ Coffee grounds and tea bags
_____ Washed eggshells
_____ Grass clippings
_____ Dead flowers
_____ Other (explain)_____

Yard and Garden Trimmings

6. When we mow the lawn or clean up the garden we:

_____ Leave the grass clippings on the lawn
_____ Put grass and garden trimmings in our backyard compost bin
_____ Take grass and garden trimmings to a drop-off facility

Household Hazardous Waste

7. We take the following items to an approved recycling or disposal depot:

_____ Paint, paint thinners and solvents
_____ Pesticides
_____ Motor oil and oil filters
_____ Batteries (household and lead-acid)
_____ Automotive fluids
_____ Cleaners
_____ Swimming pool and spa/hot tub chemicals
_____ Empty propane tanks
_____ Thermostats and smoke detectors
_____ Cell phones
_____ Compact fluorescent lightbulbs (CFLs)
_____ Unused or expired medicine

Rethinking

8. When I pack my lunch I use:

_____ A reusable lunch bag
_____ A thermos or reusable bottle for my drink
_____ Reusable containers to hold my food
_____ Other (explain)_____

9. Before I buy something, I ask myself:

_____ Do I really need this or can I use something I already have?
_____ Can I buy it with less packaging?
_____ Can it be used again and again?
_____ Can someone else use it when I'm finished with it?
_____ Can it be recycled after I'm finished with it?
_____ Other (explain)_____

10. I encourage other people in my home to reduce, reuse and recycle:

_____ All the time
_____ Sometimes

11. Here are three things I will do to reduce garbage in my house:

1. _____
2. _____
3. _____

Did you know?

Household hazardous waste (HHW) is any waste from your home that you consider to be dangerous or of which you are unsure.

It includes any leftover household product that is marked flammable,

corrosive, explosive or poison.

For more information, visit:
www.crd.bc.ca/hhw

- identify the different packaging materials and their specific uses
- understand the recycling process for a variety of packaging materials
- reinforce the 3R hierarchy using concrete examples

IRP outcomes

It is expected that students will:

[SS] Gather information from a variety of sources (4-5)

[SS] Explain why sustainability is important (5)

[PP] Apply problem-solving models to a variety of situations (4)

[PP] Identify and apply the steps in decision-making processes (5)

[SC] Determine how personal choices and actions have environmental consequences (4)

[LA] Write clear, focused personal writing for a range of purposes and audiences that demonstrates connections to personal experiences, ideas and opinions (4-5)

[LA] Create meaningful visual representations that communicate personal response, information, and ideas relevant to the topic (4-5)

Closed Loop Recycling (4-5)

Intro: Packaging is as varied as the product it contains. Packaging is the material used to market, transport, contain, protect, or convey information about a product or commodity. Packaging can be made from a wide range of materials such as glass, metal, paper, plastic or wood, in various combinations and in a wide range of forms. Closed loop recycling refers to the process of recycling a product and then purchasing a similar product made with recycled materials and continuing the cycle. When recycled content products or packaging are continually purchased, a market for the materials collected in the blue box and blue bag recycling programs is established. Each purchase has a positive impact. Recycling is not simply the process of putting the materials in the blue box every two weeks, it also includes the purchase of products or packaging made with recycled materials.

Materials:

- tag paper (cut into approx. 4 cm x 6 cm pieces)
- fine tip black pens
- colouring felts or pencil crayons

Activity: Begin with a discussion on the various types of packaging available, the advantages and disadvantages of each type and the different uses for packaging. Ask partnered students to select one type of packaging (glass,mixed materials, plastic, natural, paper, aluminum, tin, other metals) that they will research. Have the students research whether the material is recyclable in the curbside program or through another program in the region:

- **recyclinginbc.ca** Multi-Material BC residential program
- **www.crd.bc.ca/recycling** CRD Blue Box collection
- **www.myrecyclopedia.ca** CRD Recycling Directory

The fact sheets at the start of the Recycle chapter may also be useful.

Did you know?

May 19, 2014, Multi-Material BC (MMBC), became responsible for residential recycling programs in many areas across BC. The CRD continues to provide collection services to capital regional residents now financed by industry through MMBC.

Did you know?

The Capital Regional District offers 3R field trips and school programs for Grades K-12.

Register your class for an interactive workshop and/or tour of the Hartland landfill and recycling facility.

www.crd.bc.ca/teacher

With the information they discover, students will create a promotional card to inform the general public of a specific type of packaging and how that particular material is recycled.

The promotional card should be double-sided with the front including an eye-catching title indicating the type of packaging material featured with a slogan, phrase or illustration. The other side should illustratively depict the recycling process, identify the stages and include any relevant facts.

Students can find more packaging information on these websites:

- **www.rcbc.ca/resources/faqs**
  Recycling Council of BC
- **www.recycle-steel.org**
  Steel Recycling Institute
- **www.glassworks.org/kidsnet/kto5/default.html**
  Glass Works includes information on how glass is recycled, what glass is made of and some interesting glass facts.
- **www.gpi.org**
  Glass Packaging Institute
- **www.corrugated.org**
  Corrugated Packaging Council
- **www.plastics.ca**
  Canadian Plastics Industry Association
- **www.handsonplastics.com**
  American Plastics Council

Conclusion/Discussion: Discuss what the students discovered about the recycling process. What did they find most surprising? List benefits of recycling. Discuss the facilities, transportation, people power and equipment required for recycling. Compare the requirements for recycling to that of reducing and reusing.

Extension: ■ Discuss the closed loop concept. What is the last step in the recycling process (buying products with recycled content)? What impact does leaving out the last step have on the entire recycling process? Give examples of products that you've purchased when you've "closed the loop". ■ Register for a 3R field trip or school program. Build on students' learning and inspire their environmental inquiries and motivation to take action to reduce waste by discovering what is in our garbage and how it is managed at Hartland landfill and recycling facility. **www.crd.bc.ca/teacher**

- develop an understanding of the recycling process, from collection and processing of recyclables to remanufacturing and purchase of new items made with recycled content
- identify the recycling processes for aluminum cans, corrugated cardboard, newspaper, glass containers and plastic bottles
- understand the importance of closing the loop of recycling by purchasing items made with recycled materials

Life of a Recyclable (4-7)

IRP outcomes

It is expected that students will:

[PP] Apply problem-solving models to a variety of situations (4)

[SS] Apply critical thinking skills to selected problems (4-7)

[SS] Explain why sustainability is important (5)

[SC] Determine how personal choices and actions have environmental consequences (4)

[LA] Read fluently and demonstrate comprehension of grade-appropriate information texts (4-7)

Intro: What happens to recyclables once they are collected through our blue box or other recycling programs? Most of us have seen the chasing arrows symbol that represents recycling. These arrows represent recycling's three steps:

1. collecting recyclable materials
2. processing those materials into new products, and
3. buying those new products

That second step, processing materials such as old newspapers and tin cans into new products, is a part of the recycling process we seldom learn about. Going behind the scenes helps us understand the importance of all the steps in the recycling process.

Materials:

- Life of recyclable sheets (provided in following pages) cut into cards, laminate if desired
- Reference sheets at begining of Recycling Chapter for correct order

Activity: Review any confusing terms contained in cards. (refer to List of Terms below). Divide the class into five groups and give each group a set of cards. Ask them to read the cards and put them in the correct order. Suggest they organize the cards in a circle to mirror the fact that the recycling process is circular, that old materials are becoming new items. When groups are finished, hand out reference sheets showing correct order. Ask each group to present their findings.

Conclusion/Discussion: ■ Have students brainstorm what items can be made from the recyclables. (Information can be found at bottom of reference sheets under "Did you know?" or at **www.recyclinginbc.ca** Talk about what students use or own that may have recycled content.

■ Discuss the importance of buying items made with recycled content so that recycling programs remain strong (if no one buys items with recycled content then manufacturers stop using the recycled materials and recycling programs cannot sell the materials they collect).

Discuss why reducing and reusing is preferable to recycling (recycling does use energy and resources and can cause waste while reducing and reusing do not).

Extension Activities: Have students research how juice boxes are recycled. Challenge students to create a new product or use for one of the recyclable materials. Have students identify items they presently throw in the garbage (for example, plastic wrap or straws) and design a recycling process for those items.

List of Terms

Sorting • separating items according to their class, kind, or size.

Baling • packaging like items together into larger bundles to prepare them for transport.

Shredding • breaking down material into smaller parts.

Decoating • removing the outer finish of an item using heat.

Cast • shaping an item by pouring liquid metal into a mold, for example.

Ingot • a mass of metal, such as a bar or block, that is cast in a standard shape for convenient storage or shipment.

Pulping • mixing shredded paper and hot water together to create a base for new paper production.

Screening • sifting or filtering out material into finer particles to remove impurities or unsuitable materials.

Peroxide • a powerful bleaching agent.

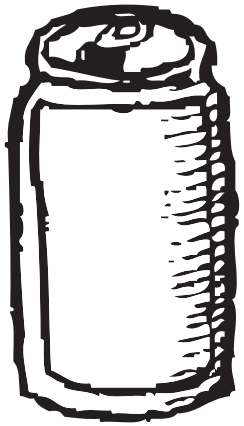
Contaminants • foreign or unwelcome materials which can hinder the recycling process.

Cullett • scraps of broken or waste glass.

Pelletized • cut or formed into smaller particles or pellets.

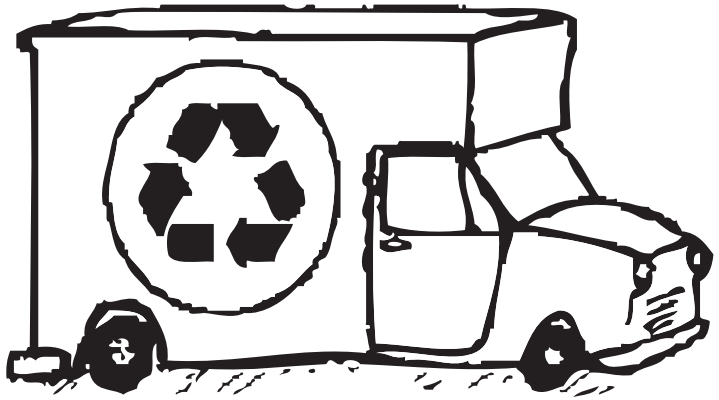
Extruded • forced through smaller spaces creating longer, more manageable strands of material.

The Life of an Aluminum Can



Beverage Can

Collection

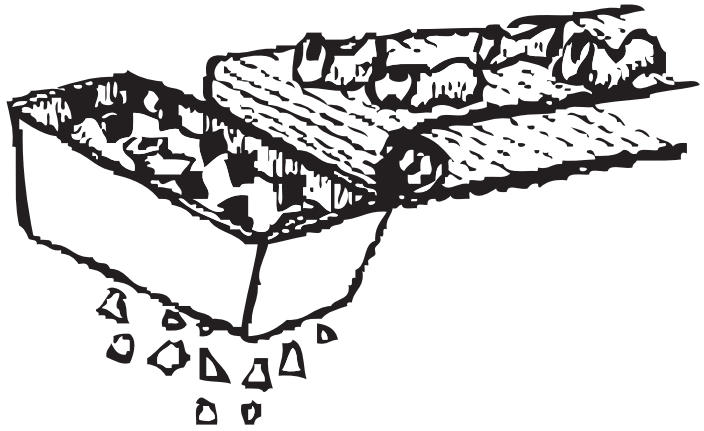


Cans are collected and taken to a sorting facility.

Sorting Facility

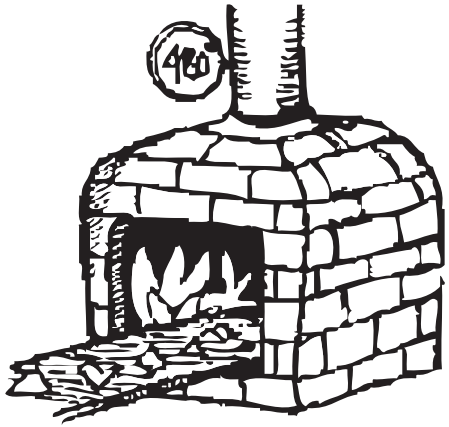
Cans are baled for shipping.

Shredding



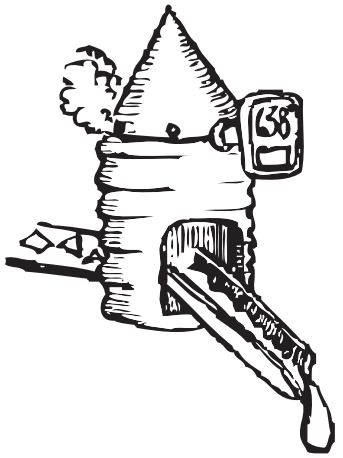
Cans are shredded at processing facility.

Decoating



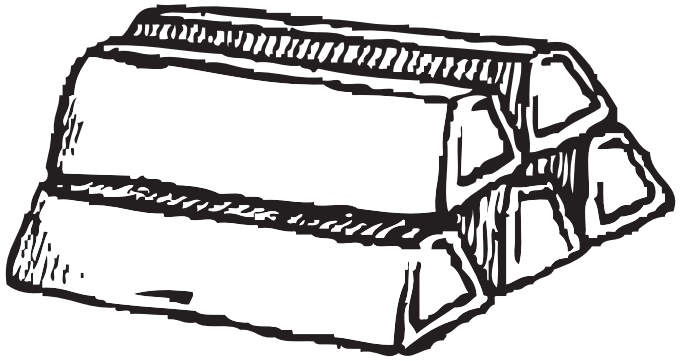
Paints and coatings are removed when heated.

Melting



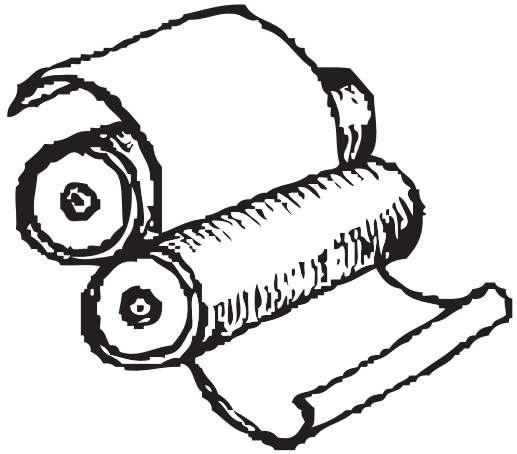
Furnaces melt scraps to molten state.

Cast into Ingots



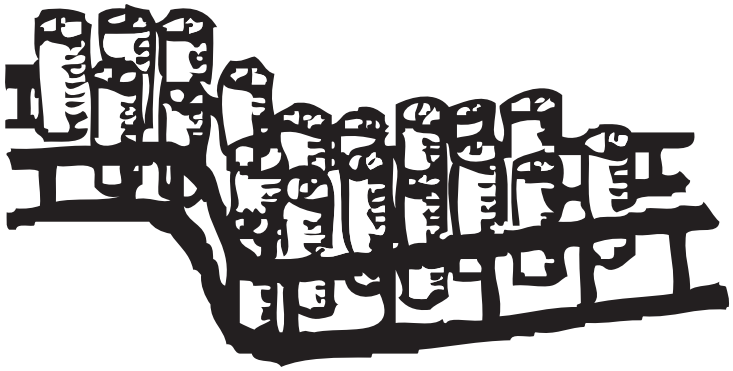
Ingots are massive aluminum casts weighing up to 27,000 kgs.

Sheet Aluminum



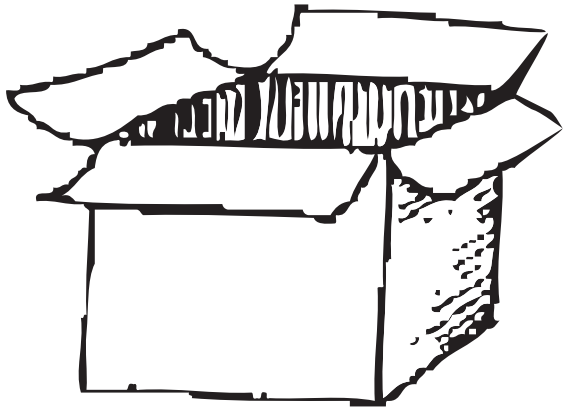
Sheets made from ingots at rolling plant.

Can Making Plant



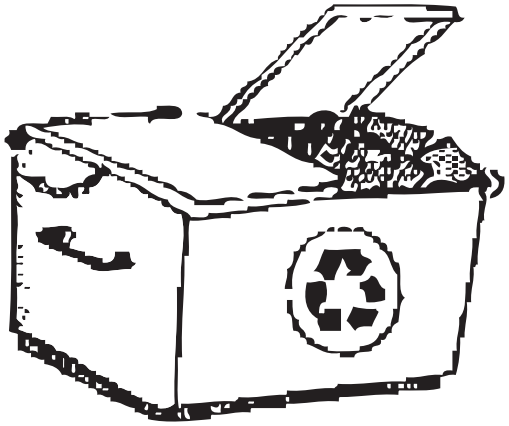
New cans are made from 50% recycled aluminum.

The Life of a Cardboard Box



Cardboard Box

Collection

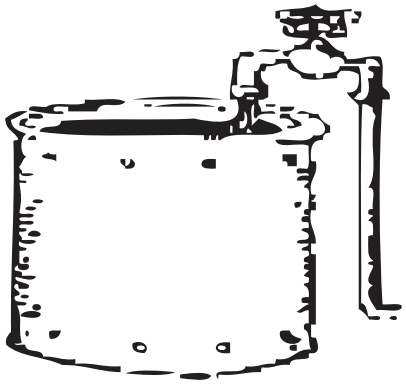


Cardboard is taken to a sorting facility.

Sorting and Baling

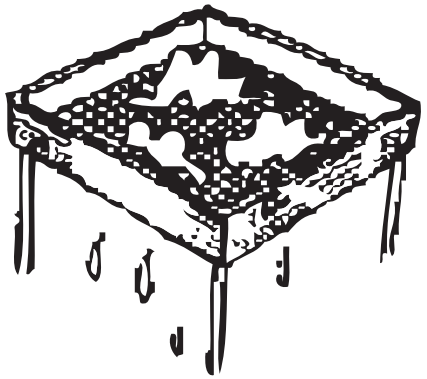
Cardboard is separated from other paper products and baled.

Hydro Pulping



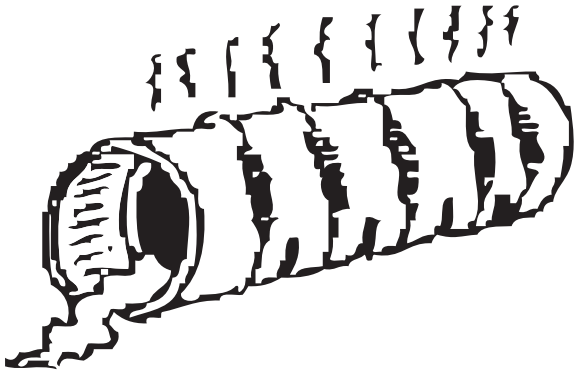
Cardboard is mixed with water and pulped until the right consistency is achieved.

Cleaning



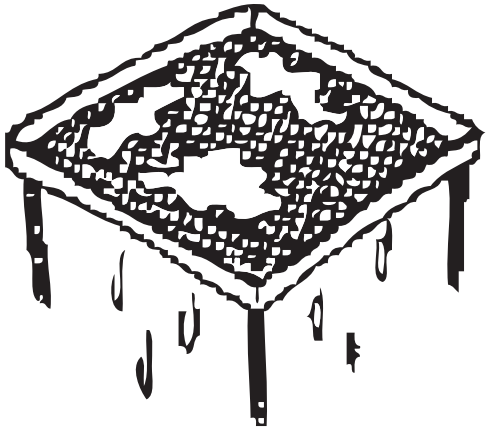
Contaminants such as plastic, string, metal fasteners and dirt are removed in a coarse cleaning process.

Disperger



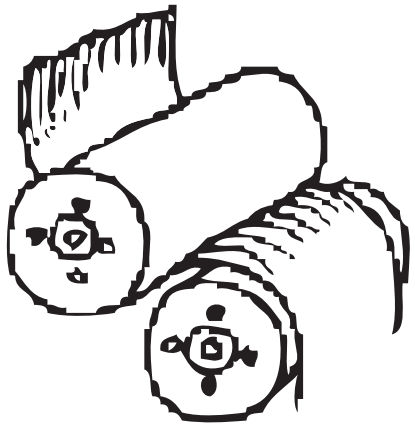
Pulp runs through insulated pipes that melt any wax or adhesives.

Cleaning and Screening



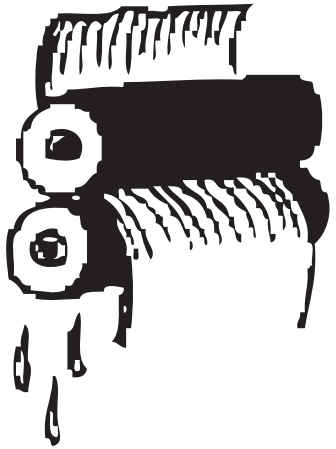
Pulp runs through the final cleaning process.

Rolling



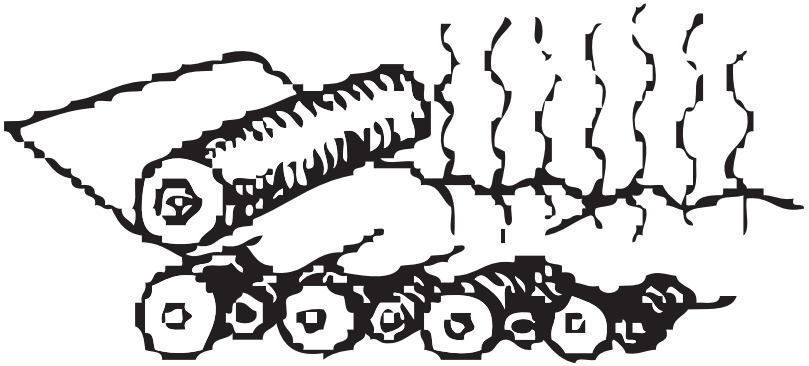
Pulp is pressed through formers to make sheets.

Pressing



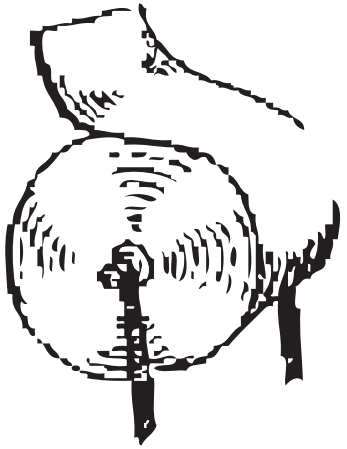
Water is squeezed from the sheets.

Drying



Sheets are passed over a series of hot rollers.

Final Rolling



Paper is wound on a reel and sized for shipment.

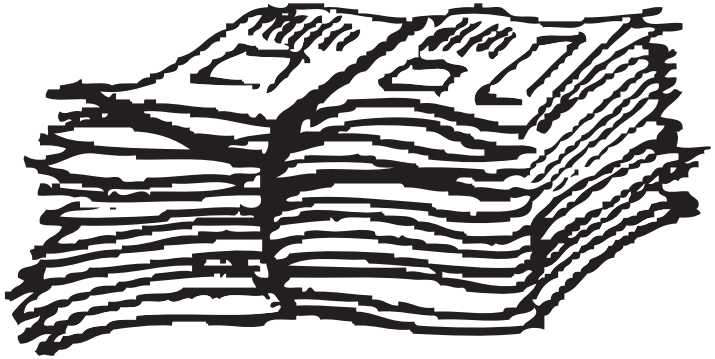
The Life of Newspaper

Newspaper

Collection

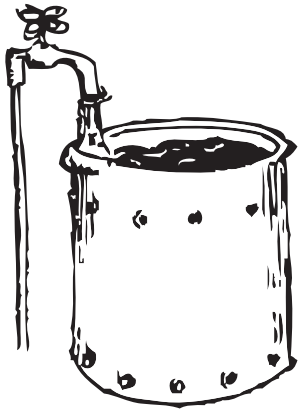
Newspaper is collected and taken to a sorting facility.

Sorting Facility



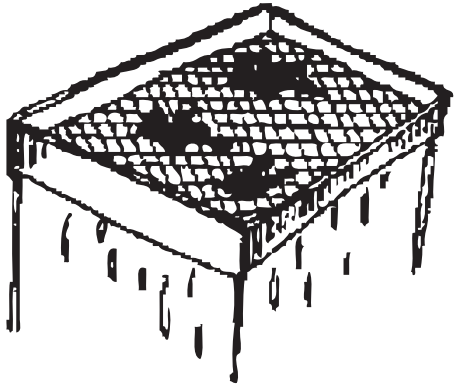
Newspaper is sorted and either baled or shipped loose to a processor.

Pulping



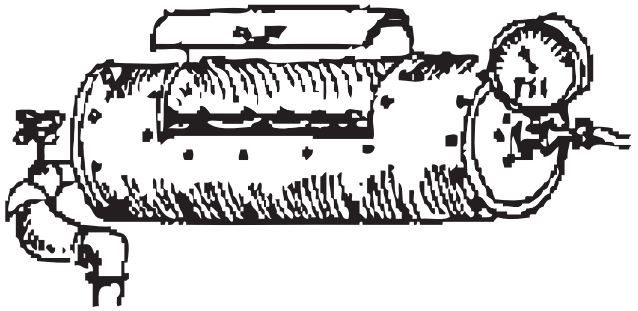
Newspaper is mixed with water to produce a slurry. This is the first stage of the de-inking process.

Removal of Contaminants



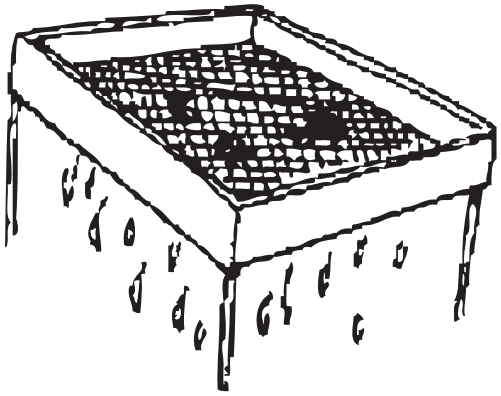
The pulp is moved through heavy cleaners and screens.

Flotation Cell



Air is pumped in, ink attaches to the bubbles. The bubbles float to the top and are skimmed off.

Final Screening

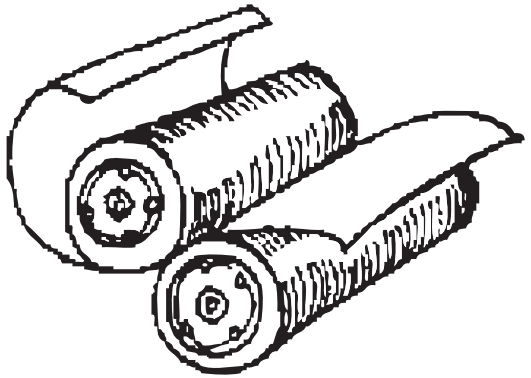


Screens remove more contaminants like glue, staples, and other metals.

Peroxide Bleach Tower

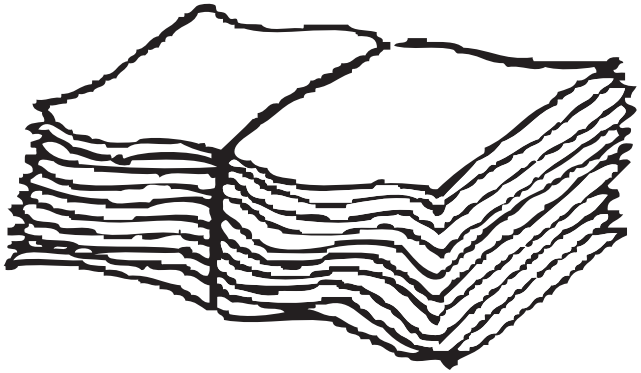
Hydrogen peroxide (H_2O_2) is used to whiten the pulp.

Pressing



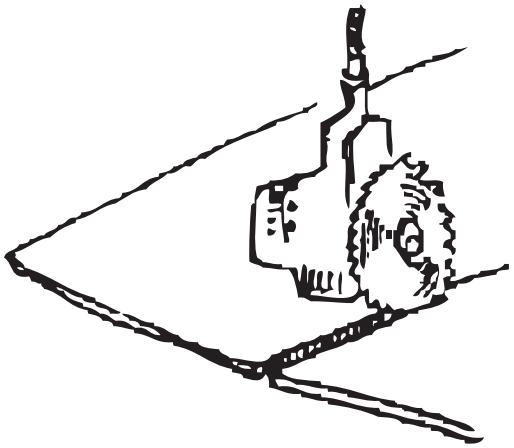
Pulp is formed into sheets.
Water is squeezed out.

Baling



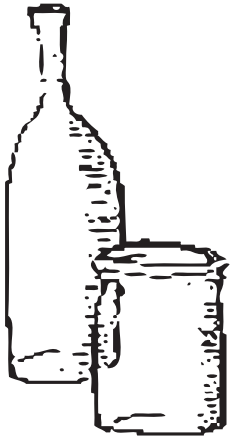
Bales weigh about 300 kgs. Railcars and trucks take bales to mills.

Cutting



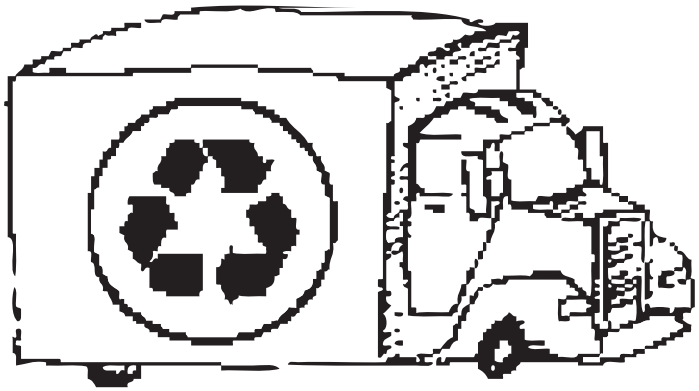
Sheets are cut to make them into new paper products.

The Life of Glass Containers



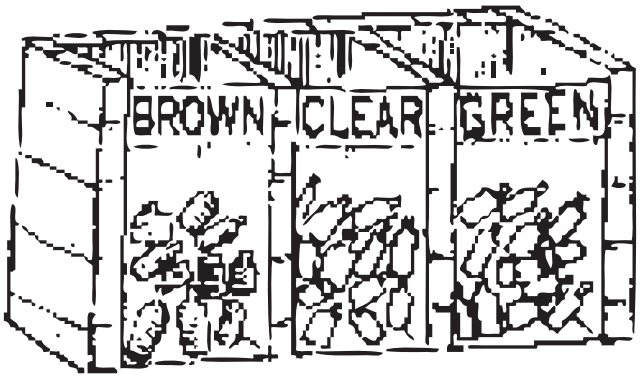
Glass Containers

Collection



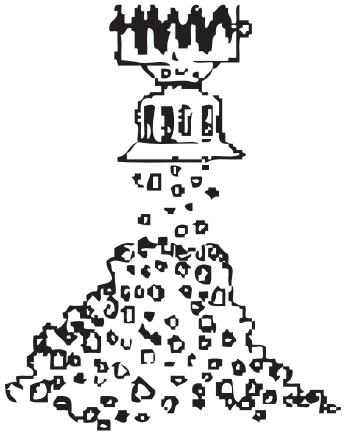
Collected and taken to processor.

Sorted by Colour



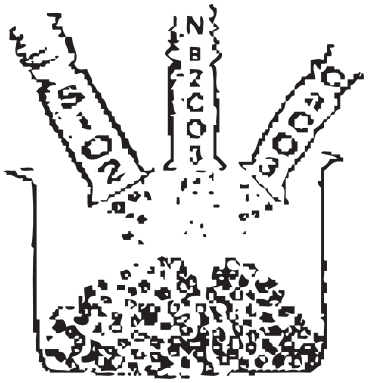
Glass is sorted, cleaned of contaminants and broken.

Crushed into Cullet



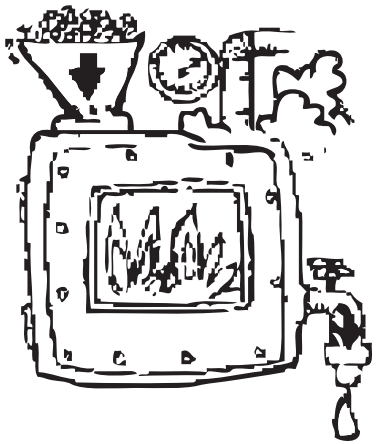
Broken glass is crushed into tiny pieces called cullet.

Cullet and Raw Resources



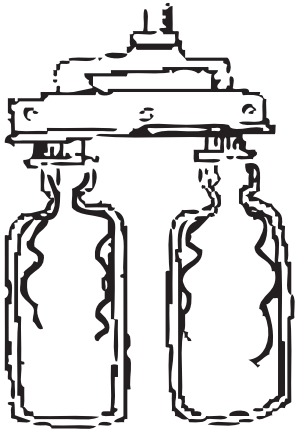
Cullet is mixed with silica, sand, soda ash and limestone.

Melted



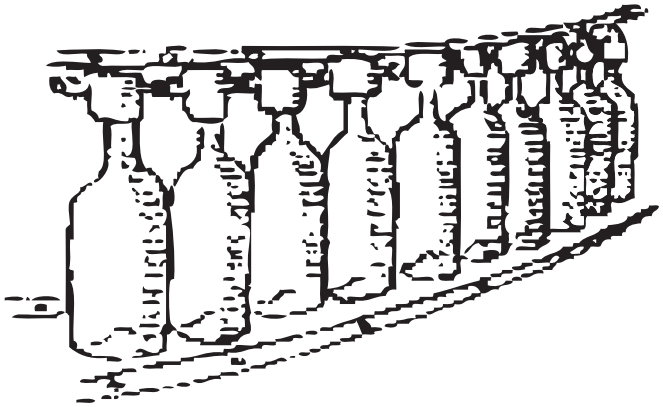
Mixture is melted to molten state in furnace.

Molded



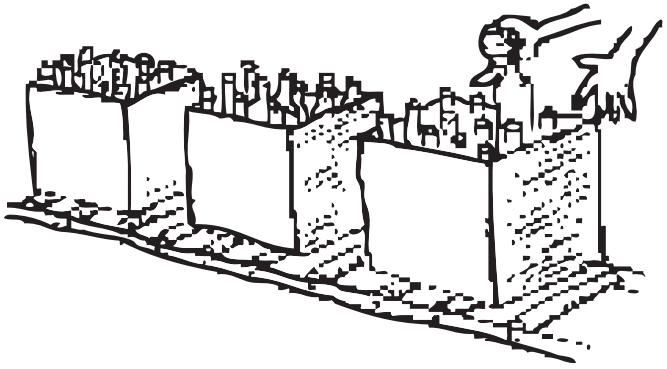
Molten glass is poured into molds.

Cooled



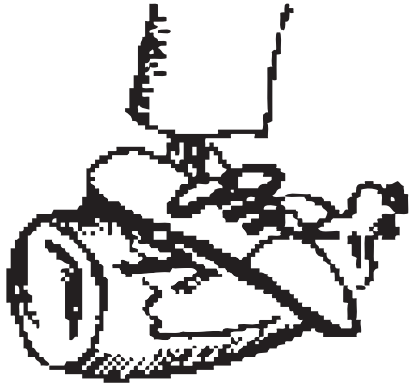
Containers are cooled slowly to increase strength.

Packed and Shipped



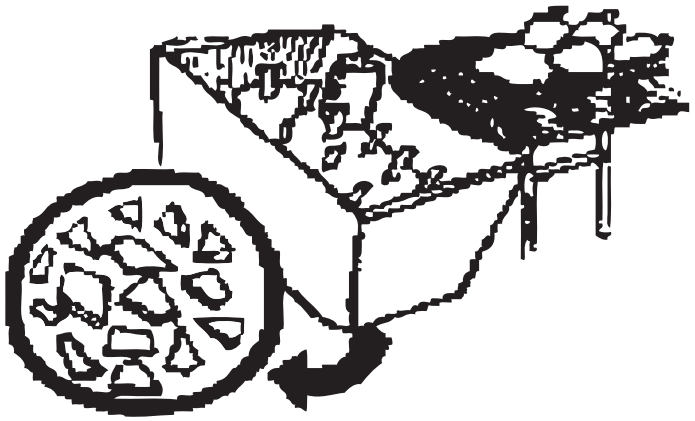
New containers are ready to be refilled and returned to grocer's shelf.

The Life of Plastic Bottles



Plastic bottles are collected and taken to a sorting facility. Sorted plastics are baled or shipped loose to a processor.

Shredded

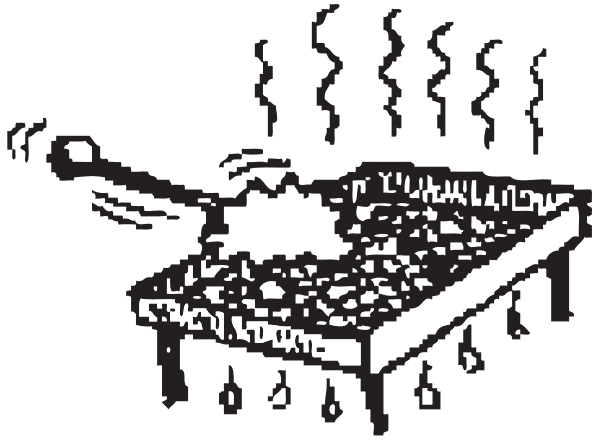


Bales are shredded into small flakes.

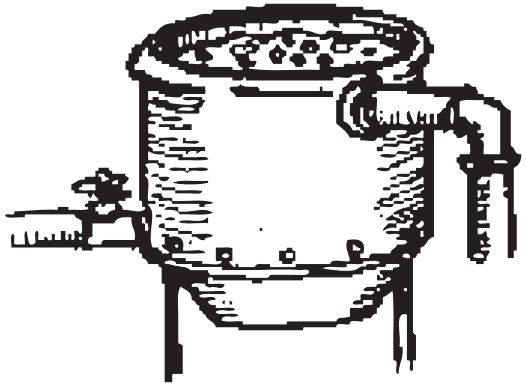
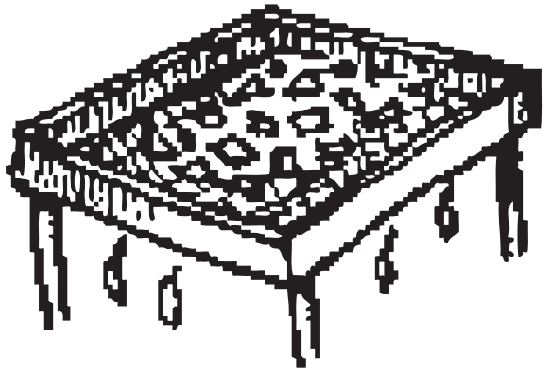
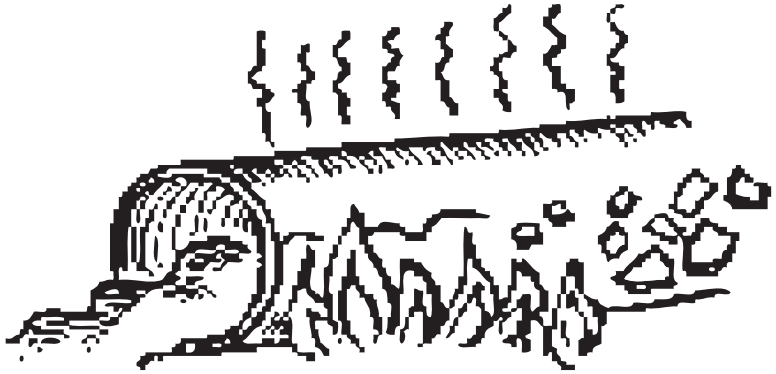
Washed

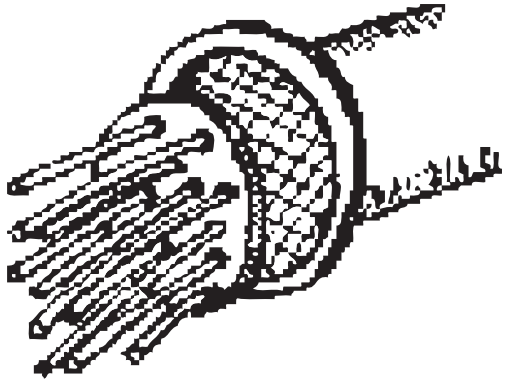
Flakes are pushed through three stages of washing.

Heated and Scrubbed



Flakes are heated to loosen the glues and adhesives.

Cleaned	Filtered
 Plastic flakes rise (density) and heavier contaminants sink and are removed.	 The flakes are passed over a screen to remove any last particles of contamination.
Spun and Dried	**Melted**
 Clean flakes are spun to remove excess water and sent through a dryer.	 Flakes are melted.

Extruded	Pelletized
	
Molten plastic is forced through an extruder creating long strands of plastic.	The extruded plastic strands are cooled, then cut into pellets by a quick knife. Pellets are sold to plastic manufacturers.

- review what can and cannot be recycled in the CRD Blue Box program

Survive-R Game Show (K-4):
Recycling Relay

IRP outcomes

It is expected that students will:

[SS] Describe and demonstrate responsible behaviour to local environments (K-3)

[PP] Relate consequences to actions and decisions (K-1)

[PP] Relate the support services available in the school and community to personal needs (2-3)

[PP] Apply problem-solving models to a variety of situations (4)

[PP] Identify and apply the steps in decision-making process (5)

[PP] Predict possible problems associated with particular situations or courses of action (6)

[PP] Practice responsible decision-making (7)

[SC] Describe ways to rethink, refuse, reduce, reuse and recycle (K)

Intro: This fun, fast-paced game encourages students to put the 3R hierarchy into action by determining what can be reduced, reused and recycled. The teacher is encouraged to imitate the style of the television show Survivor, if s/he feels comfortable. The Recycling Relay is more appropriate for primary students, but it can be made more difficult for older students. Please check out The Mighty Matching Game. It is for intermediate classes, though it can be adapted for younger students. (see Reuse Section).

Materials:

- significant room for running a relay
- 3 markers, such as traffic cones

3 each of:

- blue box (or cardboard box labelled "blue box")
- blue box (or carboard box) labelled "glass"
- blue recycling bag (or bag labelled "blue bag")
- box labelled "Depot" (for non blue box or blue bag recyclables)
- 3 garbage bags, each with the following materials (list indicates into which containers the students during the relay should sort the materials):

Into Blue Box:

- milk or milk subsitute container (plastic and/or carton)
- plastic shampoo bottle
- soup can or carton
- rigid plastic packaging
- foil plates
- flat aluminum foil
- lids

Into Blue Box labelled glass:

- glass bottles and jars

Into Blue Bag:

- paper bag (lunch bag)
- newspaper
- magazine
- white paper
- envelope (windows are ok)
- empty toilet roll
- empty tissue box (no plastic)
- boxboard (like cereal or shoe box)

Beside the Blue Box:

- cardboard
- pizza box

IRP outcomes cont.

[SC] Determine how personal choices and actions have environmental consequences (4)

[LA] Use strategies when interacting with others, including accessing prior knowledge, making and sharing connections, asking questions for clarification and understanding, taking turns as speaker and listener (K-4)

Into box labelled "Depot":

- juice box and/or can
- large plastic juice bottle (e.g. cranberry juice, V8)
- plastic bags and overwrap
- plastic foam packaging (e.g. meat tray, egg carton)

Tips: You may want to ask a parent or class coordinator to collect all items and confirm current recycling options:

www.recyclinginbc.ca	BC residential recycling program
www.rcbc.ca	Other EPR programs in BC
www.myrecyclopedia.ca	Recycling directory (capital region)

Not Required, But Fun:

- safari style hat
- tiki torches (might fashion out of bamboo poles and bike flashers)
- Survivor poster
- sheets of coloured paper for team flags

Activity: Set up all activity groups and (if keen) tiki torches and Survivor sign. Announce that the class will be involved in a game of wit, wisdom and agility that tests their ability to survive in the land of the 3R's. Have class sit down as if in audience. Pull on safari hat (if keen) and announce:

"Greetings to you all, and welcome to this week's edition of the Survive "R" Game Show. Before me are the 30 lucky contestants who have been chosen from the thousands and thousands of eager applicants to join me on this beautiful island to outlast and outwit one another!

Now many of you may be familiar with this show, but for those who are not, it works like this: Our contestants will be divided into three teams, or tribes, which will compete against one another in a challenge." Divide class. (If desired, ask groups to name their tribe and write this on a team "flag" -- a coloured piece of paper).

Recycling Relay (K-4)

Set up three markers on floor and direct the three teams to sit on the floor behind their designated markers. At the far end of room, set up three sets of the following containers: a box labelled "blue box", a box labelled "glass", a blue bag, a box labelled "depot". Mid-way between the teams and containers, place a green garbage bag full of the required materials.

"This challenge is all about recycling. Each team has a bag filled with all sorts of objects, most of which can be recycled. The goal is for your team to correctly sort as much recyclable material from the garbage into the containers at the far end of the classroom in a four-minute time period." Review the containers and what goes into them (see Recycling Schedule included in manual if there is any confusion) Teams receive one Eco-point for every item correctly sorted.

Call on one student to show how the relay works. The first person in the line runs to the garbage, picks out one object, runs to the recycling containers at the far end of the class and decides where to place it. That person then runs to the back of the line, and the next person goes. Run relay, review results and award points.

Conclusion/Discussion: Discuss what can be recycled in the CRD blue box program.

Extension Activities: ■ Repeat the activity and introduce new items and discuss the 3R options for these items in your community. For recycling information, visit **www.myrecyclopedia.ca**

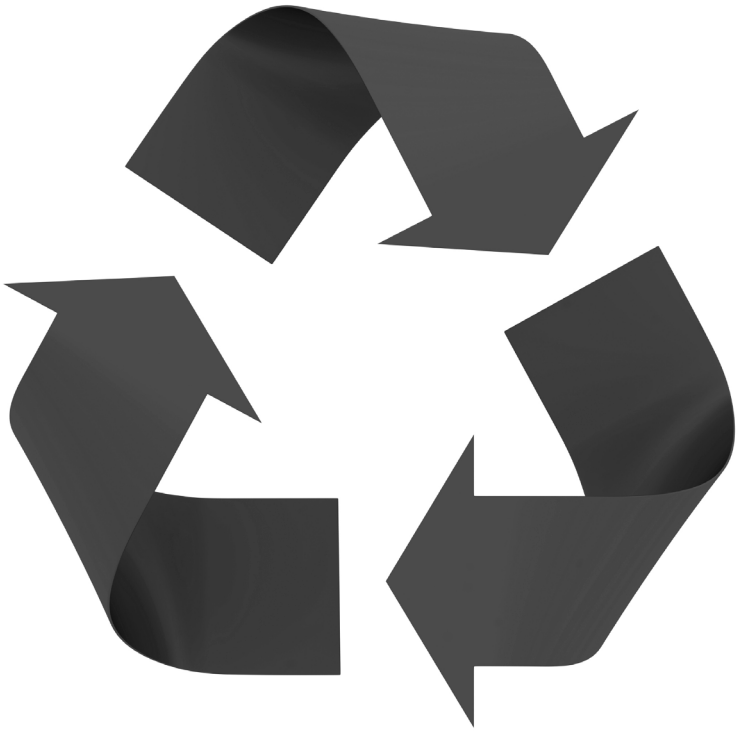
e.*g. Into box labelled "Not Recyclable":*

- *foil wrapping paper*
- *plastic foil wrappers (some granola bars and chip bags)*

■ Book a 3R field trip or school program. Build on students' learning and inspire their environmental inquiries and motivation to take action to reduce waste by discovering what is in our garbage and how it is managed at Hartland landfill and recycling facility. Register online **www.crd.bc.ca/teacher** or by calling the CRD Hotline at 250.360.3030

Making a difference...together

Curriculum Grid



Reduce. **Re**use. **Re**cycle.

IRP	Learning Outcomes It is expected that students will:	Grade	Activity
Social Studies	Demonstrate and describe responsible behaviour in caring for local and global environment	K-1	• Bag it! • Big Books • Reinvent it! • Survive-R Game • Graph the Goods
	Describe their role and responsibilities as members of the classroom, school community, local and global environment	K-3	• Graph the Goods • Big Books • Garbage Habits at Home • All Wrapped Up
	Describe how technology affects individuals and schools as consumers	2	• All Wrapped Up • What's Happening Here?
	Apply critical thinking skills- including predicting, imagining, comparing- to selected problems and issues.	3	• All Wrapped Up • Wisdom From the Past • Garbage Habits at Home • Life of a Recyclable
	Select a solution to a problem	2	• All Wrapped Up
	Describe work done in the school	2	• What's Happening Here?
	Formulate strategies to address problems or issues	4	• More Wrapped Up! • Garbage Habits at Home
	Explain why sustainability is important	5	• More Wrapped Up! • Wisdom From the Past • Closed Loop Recycling • Life of a Recyclable • Toys and Clothes for Sharing
	Analyse the relationship between economic development of communities and their available resources	5	• More Wrapped Up!
	Implement a plan of action to address community/ national/global problems	6	• More Wrapped Up!
	Evaluate effects of technology on lifestyles and environments	6	• More Wrapped Up! • Garbage Habits at Home • Survive-R Game • Graph the Goods

Curriculum Grid

IRP	Learning Outcomes It is expected that students will:		Activity
Social Studies	Create a presentation on a selected topic	4-7	• Advertise, Advertise, Advertise
	Gather a body of information from a variety of sources, including personal experiences, visual representation and primary and secondary issues	4-7	• Advertise, Advertise, Advertise • Reinvent it • Closed Loop Recycling
	Analyse the significance of communications technologies in Canada	6	• Advertise, Advertise, Advertise
	Describe ways individuals contribute to a community	2	• Toys and Clothes for Sharing
	Compare ways needs and wants are met in communities	3	• Toys and Clothes for Sharing
	Describe how decisions are made in groups, the classroom and the school	2	• Graph the Goods
	Describe ways to rethink, refuse, reduce, reuse and recycle	K	• Toys and Clothes for Sharing
	Communicate their observations, experiences, and thinking in a variety of ways	1	• Graph the Goods
	Infer the probable outcome of an event or behaviour based on observations	2	• Graph the Goods
	Ask questions that foster investigations and explorations relevant to the content	3	• Reinvent it!
	Describe Aboriginal people's relationship with the land and natural resources	4	• Wisdom From the Past
	Describe technologies used by Aboriginal People in BC and Canada	4	• Wisdom From the Past
	Analyse the environmental effects of settlement in early BC and Canada	5	• Wisdom From the Past
	Determine how personal choices and actions have environmental consequences	4	• Wisdom From the Past • Survive-R Game

Curriculcum Grid

IRP	Learning Outcomes It is expected that students will:		Activity
Social Studies	Relate consequences to actions and decisions	K-1	• Big Books
	Gather information and draw simple interpretations from personal experiences, oral sources and visual representation	K-3	• Inspect Your items • Big Books
	Present information using oral or visual representations	K-1	• Inspect Your items • Big Books • Graph the Goods
Personal Planning	Relate consequences to actions and decisions	K-1	• Bag it! • Graph the Goods • Survive-R Game
	Describe a problem-solving method	2-3	• All Wrapped Up • Graph the Goods • Survive-R Game • Closed Loop Recycling
	Identify and apply the steps in the decision-making process	5	• More Wrapped Up! • Survive-R Game
	Predict possible problems associated with particular situations or courses of action	6	• More Wrapped Up! • Survive-R Game
	Practice responsible decision making	7	• More Wrapped Up! • Survive-R Game • Garbage Habits at Home
	Apply problem-solving models to a variety of situations	4	• Advertise, Advertise, Advertise • Closed Loop Recycling • Survive-R Game • Life of a Recyclable
	Describe factors that influence their attitudes and values regarding healthy living, including media and the community, family and peers	4	• Advertise, Advertise, Advertise • Garbage Habits at Home • Survive-R Game
	Relate the support services available in the school and community to personal needs	4	• Toys and Clothes for Sharing
	Identify people and organizations that support children	K-1	• Toys and Clothes for Sharing

IRP	Learning Outcomes It is expected that students will:		Activity
Personal Planning	Identify thoughtful, caring behaviours	2-3	• Toys and Clothes for Sharing
	Describe empathetic responses in a variety of situations	5	• Toys and Clothes for Sharing
	Recognize when a problem exists		• Graph the Goods
	Demonstrate responsibility for their choices	4	• Survive-R Game
	Give examples of how people can achieve balance in their lives	5	• Survive-R Game
	Explain how various factors influence personal and group goal achievement	4	• Garbage Habits at Home
Science	Describe ways to rethink, refuse, reduce and recycle	K	• Graph the Goods • Big Books • Bag it! • Inspect Your Items • Survive-R Game
	Infer the probable outcome of an event or behaviour based on observations	2	• All Wrapped up • What's Happening Here?
	Ask questions that foster investigations and explorations relevant to the content	3	• What's Happening Here? • Make it Fit
	Measure objects and events	3	• Graph the Goods • Reinvent it! • Make it Fit! • All Wrapped Up
	Analyse how BC's living and non-living resources are used and describe potential environmental impacts	5	• More Wrapped Up!
	Determine how personal choices and actions have environmental consequences	4	• More Wrapped Up! • Garbage Habits at Home • Closed Loop Recycling • Life of a Recyclable • Survive-R Game
	Analyse how the Aboriginal concept of interconnectedness of the environment is reflected in responsibility for and caretaking of resources	5	• Wisdom From the Past

Curriculcum Grid

IRP	Learning Outcomes It is expected that students will:		Activity
Math	Infer the probable outcome of an event or behaviour based on observation	2	• Make it Fit!
	Construct a pictograph using one-to-one correspondence	K-1	• Graph the Goods
	Sort objects by one or more attributes and by using graphic organizers	2-3	• Graph the Goods
	Recognize that the size and shape of an object does not necessarily determine its mass	2-3	• Make it Fit!
	Demonstrate an understanding of division and multiplication	4-7	• Garbage Habits at Home
Language Arts	Use speaking and listening to interact for the purpose of exchanging ideas, making connections and completing tasks		• All Wrapped Up
	Use speaking and listening to interact with others for the purposes of contributing to a class goal, sharing ideas and opinions, making connections, solving problems and completing tasks	2-3	• What's Happening Here?
	Select and use strategies before writing and representing including identifying an audience	4-7	• Advertise, Advertise, Advertise
	Write for a range of audiences that demonstrates connections to personal experiences, ideas, opinions	4-7	• Advertise, Advertise, Advertise
	Use writing and respresenting to express personal responses and relevant opinions about experiences and texts	4-7	• Advertise, Advertise Advertise
	Engage in discussions before writing and representing to generate ideas when responding to text and classroom experiences	K-1	• Inspect Your items
	Use strategies when experessing and presenting ideas, information, and feelings including accessing prior knowledge, organizing thinking by following a simple framework, predicting some things the audience needs to know	K-1	• Inspect Your items

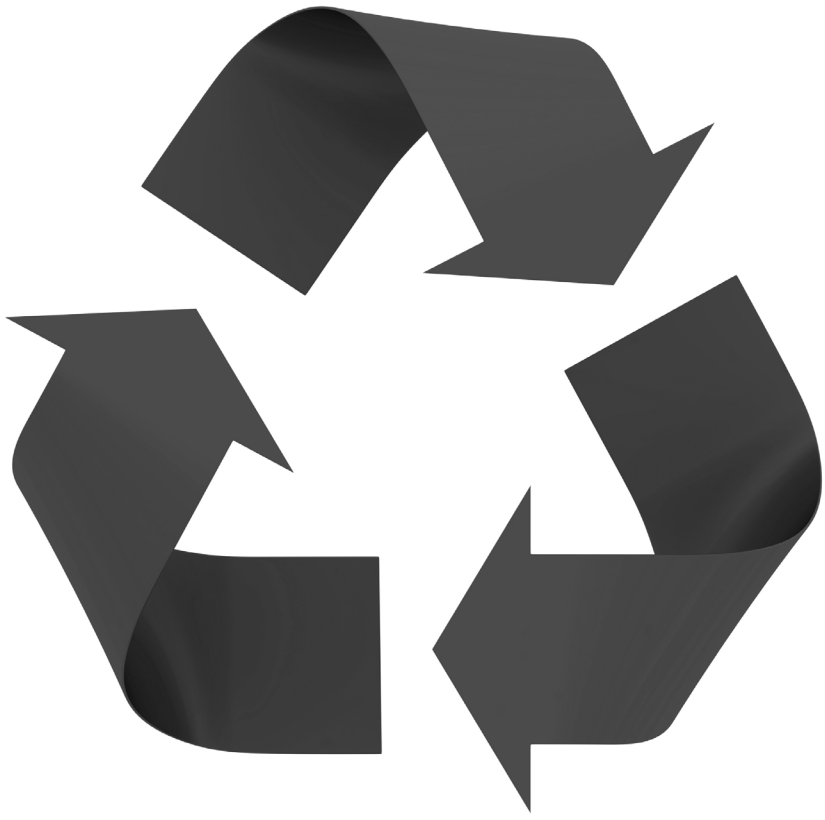
Curriculum Grid

Language Arts

View and demonstrate comprehension of visual texts	K-3	• Big Books
Respond to selections they view by making text-self and text-world connections	K-3	• Big Books
Read fluently and demonstrate comprehension of grade-appropriate information texts	4-7	• Life of a Recyclable
Use strategies when interacting with others, including accessing prior knowledge, making and sharing connections, asking questions for clarification and understanding, taking turns as speaker and listener	K-4	• Survive-R Game

Making a difference...together

Resources



Reduce. **Re**use. **Re**cycle.

Hartland Learning Centre
The LITTLE HOUSE on the LANDFILL

3R School Outreach Program

The Capital Regional District, through its 3R School Outreach Program, is pleased to offer free of charge, Grades K-12 interactive workshops and interpretive tours that support BC Ministry of Education learning outcomes for social studies, personal planning, language arts, science and math. Actively promoting waste reduction and recycling education to students and educators for more than a decade, this program is one of many initiatives in place to reduce the amount of waste generated and disposed of in the Capital Region. To book a workshop or tour, please contact:

CRD Hotline: 250.360.3030 | www.crd.bc.ca/teacher | education@crd.bc.ca

The Capital Regional District's 3R School Outreach program motivates and challenges students and teachers to explore new attitudes and habits that generate less waste and reduce, reuse and recycle more! Let's work together to make a positive impact on today's youth - and the environment.

CRD PROGRAMS

- Closing the Loop
- 3R's Unwrapped
- Lighten Your Footprint
- Digging Deeper
- Hartland Landfill & Recycling Tours
- Recycling Re-Energized

3R School Outreach Programs

CLOSING THE LOOP
Students, Grades K-3 • 30-45 min.
Have you ever wondered what happens to all the bottles, cans and newspapers that you recycle? This workshop teaches primary grade students about the benefits and processes of recycling and what they can do to make a difference. Students begin to develop an understanding of their role in their community and world. The presentation features an overview, storytelling, recycling games and songs, and a 3R colouring poster to encourage discussion.

3R'S UNWRAPPED
Students, Grades 4-5 • 1 hour
Want to get real? This hands-on workshop is designed to educate students about the financial and environmental impacts of product packaging. Based on a real life scenario using a customized grocery store flyer, students work in small groups to develop a list of items that fit within an available budget and use the least amount of packaging. Kids are challenged to think creatively, problem solve by applying prior knowledge and prioritize choices through the application of the 3R concept. Students report their findings back to the group. Shopping will never be the same for these students - or their families.

LIGHTEN YOUR FOOTPRINT
Students, Grades 6-12 • 1 hour
Do you need it or just want it? In this interactive workshop, students calculate their ecological footprint, analyze their lifestyles and identify what motivates their purchasing behaviours in an effort to explore opportunities (and new habits) to reduce their impact on the environment.

DIGGING DEEPER
Students, Grades 5-11 • 1 hour
Looking for the deeper meaning or the bigger picture? Join us at the new learning centre at Hartland landfill for an amazing opportunity to link Earth Science to society, the environment and resource management. In this interactive experiential workshop, students will be encouraged to dig deeper and get to the core of the matter. Using everyday items, sample rocks and minerals, students work individually and cooperatively to identify, characterize and locate the renewable and non-renewable resources in the objects we throw away. Discover our garbage has a history and the role we play in the protection and remediation of the environment during and after resource extraction.

HARTLAND LANDFILL & RECYCLING TOURS
Students, Grades K-12 • 1-1.5 hours
Where does all your garbage go? Discover how your garbage and recycling are safely and responsibly managed in the Capital Region. Find out how practising the 3Rs is part of being an environmental citizen and saves precious landfill space. Tour content varies depending on the grade. Schools are responsible for transportation to and from the site.

Tours can be added to any workshop or school program, upon request.

RECYCLING RE-ENERGIZED
Pro-D Workshop, Educators K-7 • 3 hour, 1/2 day workshop
Want to develop environmental citizens of tomorrow? Developed with K-7 teachers, this new, highly interactive, professional development workshop gives educators more tools for teaching the 3R hierarchy - Reduce, Reuse, Recycle - in the classroom, making them meaningful to students' lives. Each workshop includes three or more classroom activities, buddy and homework activities, factoids and hot tips. Participants receive a 3R educator manual which links activities to specific grades and IRPs, as well as to informative Websites and local programs.

REGISTER NOW!
Please book your workshop and/or tour by calling the CRD Hotline at 1.800.663.4425 or online at: www.crd.bc.ca/teacher

3R Icebreaker

A person who leaves grass clippings on the lawn.	A person who composts kitchen scraps.	A person who has a lunch bag that they use again and again.
A person who buys milk in recyclable containers.	A person who picks up litter.	A person who gives away old clothes to be reused.
A person who bikes or walks to work or school.	A person who uses both sides of paper.	A person who returns pop containers for money.
A person who buys groceries in the bulk section.	A person who carries a reusable water bottle.	A person who has a blue box and bag.

Find someone who meets the criteria and have them sign their name in the box. You should have 12 different names.

3R Terms

The 3R's Defined

Reduce means to not produce garbage in the first place.

Reuse involves reusing items over and over again, either in their original form or some modified version.

Recycle. Recycling is a process where particular materials are collected, sorted and reprocessed into the same products or completely new products.

Why the 3R Hierarchy?

The first and most important R of the 3R Hierarchy is **reduce**. If garbage is not produced in the first place, less resources are used and less money is spent to recycle or dispose of waste.

Reuse is the second most important R. It is preferable to recycling because the item can be used again without being reprocessed, thus conserving resources and saving energy because fewer new products need to be manufactured.

Recycle is the third R and by far, the most visible and most commonly understood. In order to continue to reduce the amount of waste entering our landfill, recycling programs need to remain successful.

Renewable Versus Non-Renewable Resources

Renewable resources are natural resources that, with proper management, can be replenished. For example, trees can be logged and replanted.

Non-renewable resources cannot be replenished or formed at any significant rate on a human time scale. For example, the use of oil, gas or minerals leads to the depletion of the earth's reserves.

Sustainability

Sustainability means meeting the needs of the present generation without compromising the ability of future generations to meet their needs.

Environmental Stewardship

Broadly defined, **environmental stewardship** means caring for the land and its living and non-living communities for now and for future generations.

Product Stewardship

Product stewardship is an environmental management strategy that means whoever designs, produces, sells or uses a product takes responsibility for minimizing the product's environmental impact throughout all stages of the products' life cycle.

Extended Producer Responsibility (EPR)

In 2011, the Government of British Columbia amended the Recycling Regulation to require that, starting May 19, 2014, the businesses that supply packaging and printed paper to residents assume responsibility for managing these items after residents discard them. This is called extended producer responsibility, or EPR, and the provincial government has been introducing EPR regulations for various types of materials for the past 20 years.

History of EPR:
recyclinginbc.ca/recycling-resources/#why-recycle

Factoids

Here are some fascinating factoids to share with your students.

- How many of you have a compost bin in your backyard? (Ask for show of hands). If your family puts all appropriate fruit and vegetable peelings and garden clippings in the bin, you can stop between 200 and 300 kilograms of waste from going in the garbage each year. That's like recycling the weight of your mom, dad, you and maybe a brother or sister.

- Check out composting! The Victoria Education Centre welcomes families and school groups to their compost demonstration garden. You'll learn about how to compost fruit and vegetable peelings and garden clippings to reduce garbage and send important nutrients back to the soil. Call 386-WORM

- In 500 BC, this city developed the first municipal waste regulation - that means rules that had to be followed to get rid of garbage. The city's regulation required that garbage be disposed of at least one mile from the city walls? Was this city:
  a) Memphis
  b) Athens, or **Answer is (b) Athens.**
  c) Jerusalem

- Plastic was developed in the 1860's as a substitute for what material? (Pause for guesses) The answer is ivory. Its creation reduced the slaughter of thousands of African elephants for their tusks that were used to make piano keys and billiard balls.

- It takes about twenty-five PET (#1plastic) soft drink containers to make a fleece pullover.
- In the first 10 years of the CRD's blue box recycling program, residents recycled over 96,400 tonnes of newspapers, mixed paper, tin and glass. That's the equivalent of 14,388 garbage trucks that did not go to the landfill.
- Up until 1892, Victoria's garbage was disposed of in James Bay and east of th Empress Hotel. From 1892-1955, garbage was loaded onto barges at the foot of Herald Street and dumped into the sea, about two miles out from the entrance to Victoria Harbour.
- From 1955 until the early 1970s most of Victoria's garbage was sent to dump sites along Millstream Road and the present Hartland landfill site. When people get concerned about health hazards associated with open dumps, the CRD took over the Hartland site and took responsibility for solid waste disposal in the region.
- By using paper with recycled content to print newspapers, we reduce the number of trees that have to be cut down to make paper. For every tonne of recycled newspaper that is used, we save about 17 mature trees.
- Cardboard boxes can be recycled into new cardboard boxes eight times or more. After that the fibres become very short and can no longer be used to make new boxes.
- Since 1989, approximately 40% of the total waste generated in the Capital Regional District has been diverted away from Hartland landfill and into recycling programs, composting and other 3R programs. That means that for every two garbage bags that were thrown away in 1989, now there is just over one bag.
- When pop can manufacturers use recycled aluminum to make a new aluminum can, rather than bauxite ore from the earth, they use 95% less energy. In fact, the energy saved by recycling just one aluminum can will run a TV for three hours.
- Most kinds of junk mail and paper products are acceptable in your blue recycling bag. That includes Post-it notes, envelopes with windows, stapled paper and most types of wrapping paper (except foil).

CRD Waste Stream Composition Study

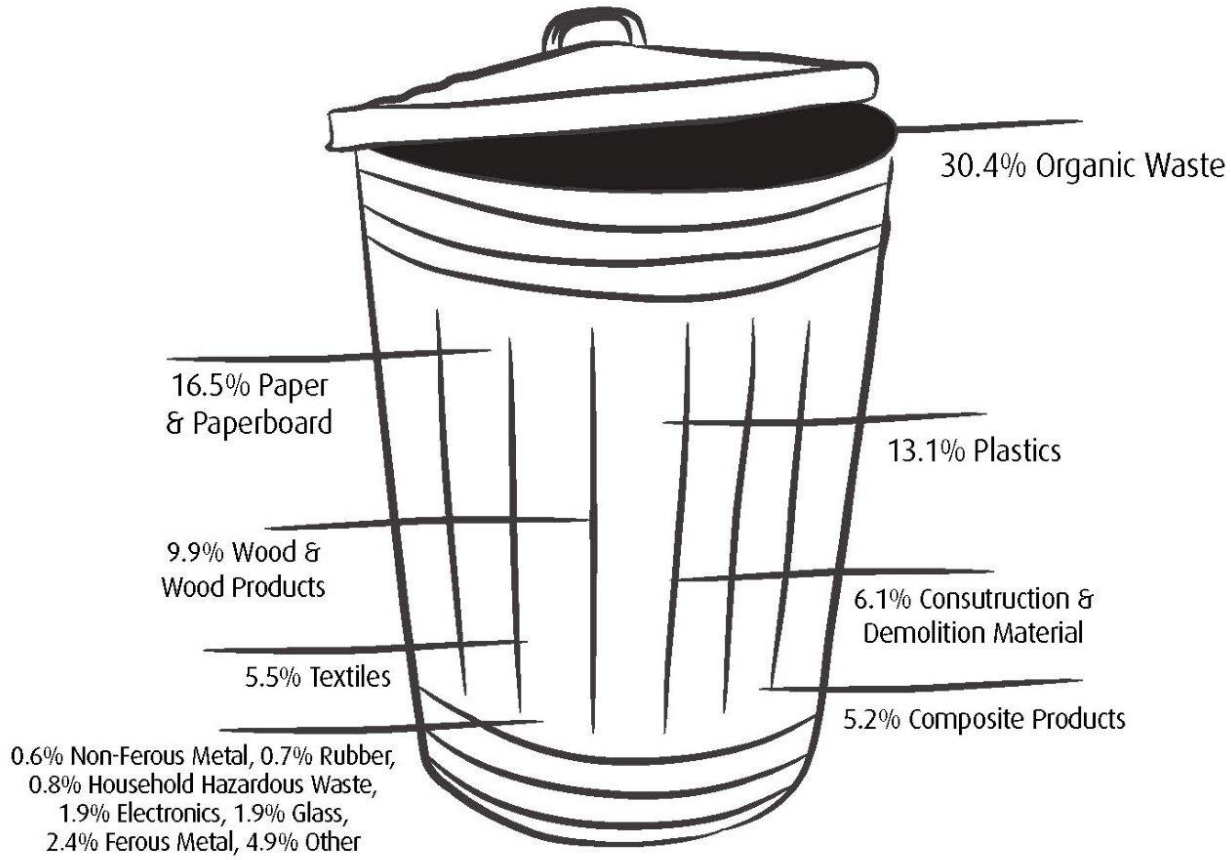
- Do you know which material makes up the greatest percentage of all garbage disposed of at Hartland landfill and recycling facility?

Organic waste

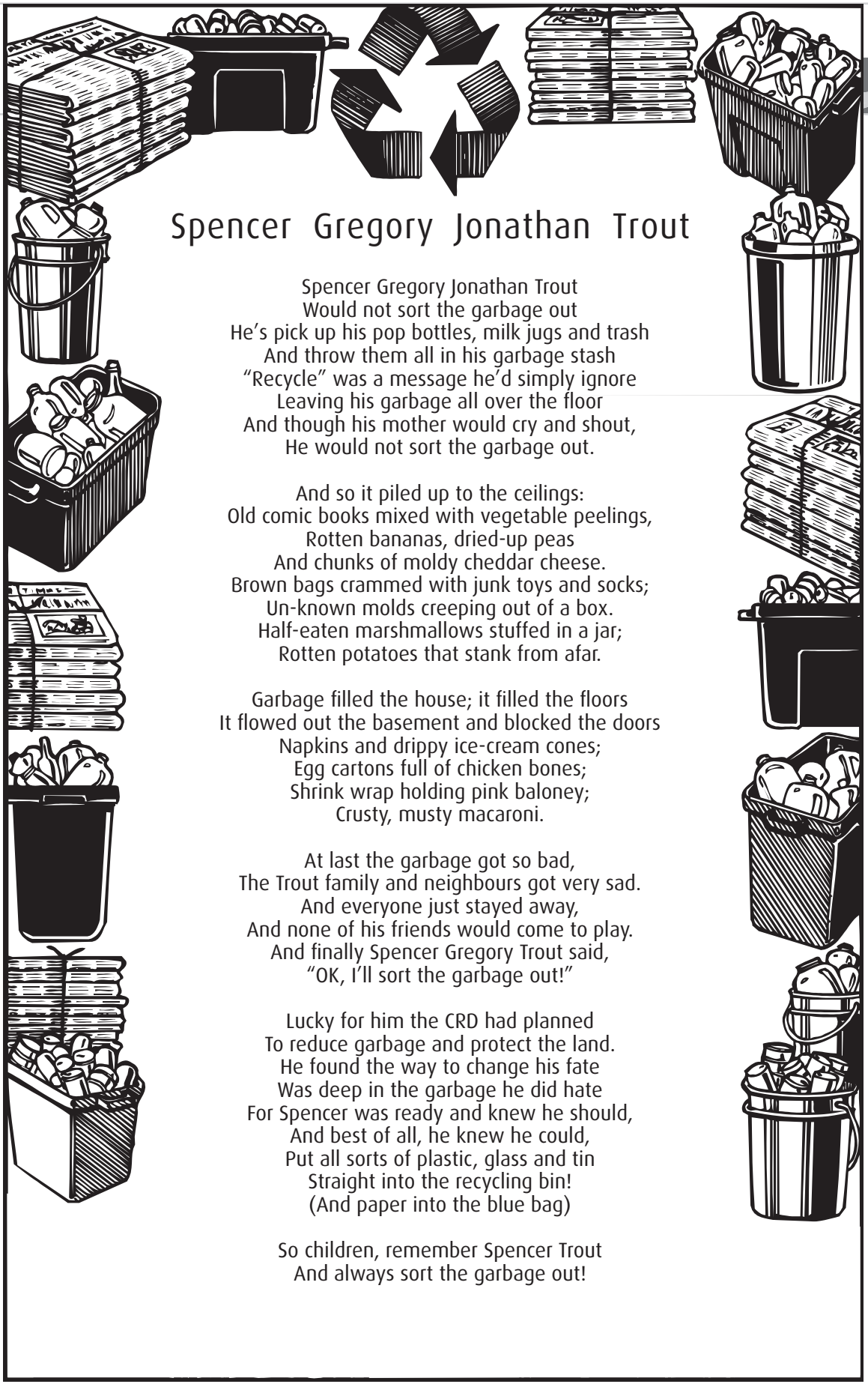
The 2009-2010 Waste Stream Analysis showed that of all the waste disposed of as garbage at Hartland landfill and recycling facility, 30% was organic waste.

In January 2015, kitchen scraps were restricted from disposal as garbage at Hartland. Learn more about the CRD's Kitchen Scraps Strategy at **www.crd.bc.ca/organics**

2009-2010 Final Results



https://www.crd.bc.ca/service/waste-recycling/solid-waste-management/reports-publications



Spencer Gregory Jonathan Trout

Spencer Gregory Jonathan Trout
Would not sort the garbage out
He's pick up his pop bottles, milk jugs and trash
And throw them all in his garbage stash
"Recycle" was a message he'd simply ignore
Leaving his garbage all over the floor
And though his mother would cry and shout,
He would not sort the garbage out.

And so it piled up to the ceilings:
Old comic books mixed with vegetable peelings,
Rotten bananas, dried-up peas
And chunks of moldy cheddar cheese.
Brown bags crammed with junk toys and socks;
Un-known molds creeping out of a box.
Half-eaten marshmallows stuffed in a jar;
Rotten potatoes that stank from afar.

Garbage filled the house; it filled the floors
It flowed out the basement and blocked the doors
Napkins and drippy ice-cream cones;
Egg cartons full of chicken bones;
Shrink wrap holding pink baloney;
Crusty, musty macaroni.

At last the garbage got so bad,
The Trout family and neighbours got very sad.
And everyone just stayed away,
And none of his friends would come to play.
And finally Spencer Gregory Trout said,
"OK, I'll sort the garbage out!"

Lucky for him the CRD had planned
To reduce garbage and protect the land.
He found the way to change his fate
Was deep in the garbage he did hate
For Spencer was ready and knew he should,
And best of all, he knew he could,
Put all sorts of plastic, glass and tin
Straight into the recycling bin!
(And paper into the blue bag)

So children, remember Spencer Trout
And always sort the garbage out!

Accepted Items and Sorting

CRD Blue Bag Accepted

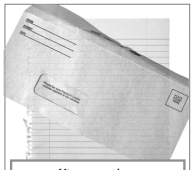
☑ **Clean printed paper items** (examples)

newspapers

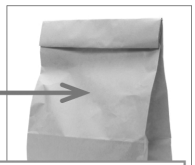

magazines/flyers

☑ **Clean mixed paper products** (examples)

cereal/detergent boxes


office products

☑ **Shred personal documents**


Place in a paper bag or cereal box inside CRD blue bag

Remember

- Include clean paper products only
- Place materials loosely in your CRD blue bag
- Shred papers containing personal information
- Place shredded or torn paper in a paper bag, cereal box or other non-corrugated paper box inside your CRD blue bag

**Paper is banned from the garbage*

Glass Accepted

☑ **Clean glass packaging** (examples)


Place in a separate collection container

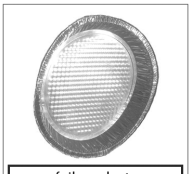
Remember

- Clean glass packaging should be placed in a separate collection container adjacent to your blue box.
- An appropriate separate container may be a second blue box or another rigid container similar in size to a blue box.

CRD Blue Box Accepted

☑ **Clean metal food containers** (examples)


aluminum/tin cans


foil products

☑ **Clean rigid plastic material** (examples)


detergent containers


yogurt/margarine tubs


packaging


shampoo/soap bottles


plastic milk jugs


plastic lids

☑ **Polycoated containers** (examples)

milk/soup/juice boxes


paper cups

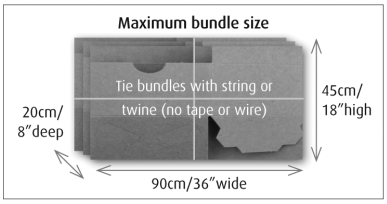
Remember

- Materials must be clean, rinsed and flattened
- Polycoated items include cartons, gable tops and Tetra-Pak® containers (drink, juice, soup, milk and milk substitutes)
- No sorting required
- Take lids off containers
- Flatten metal and plastic containers if possible
- Maximum container size: 10 litres

REDUCE—REUSE—RECYCLE
www.crd.bc.ca/recycle

Cardboard Accepted

☑ **Clean corrugated cardboard**



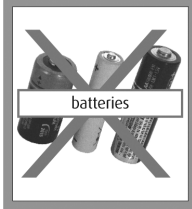
Remember

- Flatten and bundle pizza boxes and cardboard
- Include clean items only (no food residue)
- Tie bundles w/ string or twine (no tape or wire)
- Maximum bundle size: 90 cm x 45 cm x 20 cm (36"x18"x 8")

**Cardboard is banned from the garbage*

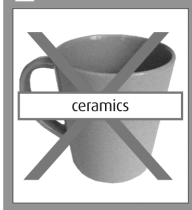
☒ Not Accepted

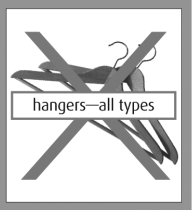
☒ **NO household hazardous waste, motor oil or antifreeze containers**


batteries


toxic cleaning products

☒ **NO household items**


ceramics


hangers—all types

☒ **NO Styrofoam or plastic bags**


Styrofoam containers


plastic bags

Visit myrecyclopedia.ca or call the CRD Hotline at 250.360.3030 for info on how to recycle items **not accepted** in the curbside program.

Making a difference...together

What happens to residential recycling? **http://recyclinginbc.ca/program/happens-recycling/**

Books

Albert, Toni. “Heard the Willow Weep”.
ISBN 1929432011

Bourgeois, Paulette. “Garbage Collectors (In My Neighborhood)”.
ISBN 1550748262

Bourgeois, Paulette. “Franklin’s Christmas Gift”.
ISBN 15507446666

Chapman, Gilian and Pam Robson. “Art from Packaging: With Projects Using Cardboard, Plastic, Foil, and Tape”.
ISBN 0817245502

Chapman, Gilian and Pam Robson. “Art from Paper: With Projects Using Waste Paper and Printed Materials”.
ISBN 0750247835

Gibbons, Gail. “Recycle: A Handbook for Kids”.
ISBN 0316309435

Harlow, Rosie. “Garbage and Recycling: Environmental Facts and Experiments”.
ISBN 075345503X

Kalman, Bobbie D. “Reducing, Reusing, Recycling”.
ISBN 0865054568

Klein, Bill. “A Kids Guide to Finding Good Stuff”.
ISBN 0943173965

Leedy, Loreen. “The Great Trash Bash”.
ISBN 0823416348

Maass, Robert. “Garbage”.
ISBN 0805059512

Madden, Don. “The Wartville Wizard”.
ISBN 0689716672

Morgan, Sally. “Waste Disposal (Earth Watch)”.
ISBN 0749662166

Paulson, Rachael Peterpaul. “Sir Johnny’s Recycling Adventure”.
ISBN 0964229625

Pfiffner, George.
“Earth-Friendly Holidays: How to Make Fabulous Gifts and Decorations from Reusable Objects”.
ISBN 0471120057

Robinson, Fay. “Recycle That!”.
ISBN 0516460331

Schwartz, Linda. “Likeable Recyclables: Creative Ideas for Reusing Bags, Boxes, Cans, and Cartons”.
ISBN 0881602108

Showers, Paul. “Where Does the Garbage Go?”.
ISBN 0064451143

Skidmore, Steve. “What a Load of Trash! Rescue Your Household Waste.”
ISBN 1878841394

Snodgrass, Mary Ellen. “Earth-Friendly Toys: How to Make Fabulous Toys and Games from Reusable Objects”.
ISBN 0471008222

Stwertka, Eve and Albert. “Cleaning Up: How Trash Becomes Treasure”.
ISBN 0671694677

Wilcox, Charlotte. “Trash!”
ISBN 087614511X

3R Lesson Plans, Student Activities and Teacher Resources

These listings are intended as an information service only and are not an endorsement of any corporation or service group.

- **www.crd.bc.ca/teacher**
  CRD has field trips, workshops, learning resources and educator workshops about waste, water, watersheds, parks and more.
- **www.ecolearninghive.org**
  Online directory for educators in the capital region. Lists of local field trip or classroom visits, educational programs, events and environental education organizations.
- **www.seedsfoundation.ca**
  Society, Environment and Energy Development Studies Foundation (SEEDS) provides K-12 programs, resources & challenges, including:

  www.greenschools.ca
  Supports Canadian students' environmental projects and activities at school, at home and in their community.

  seedsconnections.org
  Environmental and multicultural leadership program that engages high schools students in learning about diversity. Downloadable resources for K-12
- **www.wastefreelunches.com**
  Downloadable resources to start a "waste free lunch program" in your school. Includes letters to parents, announcements, tips & activities.
- **www.greenteacher.com**
  Green Teacher is a quarterly magazine for educators. Site includes articles on environmental education, lesson plan activities, resource listings and reviews.
- **eepsa.org**
  The Environmental Educators Provincial Specialist Association offers an extensive listing of local presentations, organizations and a listing of on-line activities for students.
- **www.metrovancouver.org/region/teachers/Pages/default.aspx**
  Metro Vancouver provides a number of curriculum resources on solid waste and other issues.
- **www.ecovoyageurs.com**
  Ecovoyageurs offer three different teachers guides, complete with lesson plans, in downloadable formats.
- **www.pitch-in.ca**
  Pitch-In Canada provides a 3R activity complete with questions for discussion. Also includes ideas for community action projects.

- **ontarioecoschools.org**
  Read about Ontario's ecoschool program. Download lesson plans for K-12, support materials and more.
- **www.rco.on.ca/Resources/Educators-and-Students/**
  The Recycling Council of Ontario lists recycling activities and resources for students and teachers.
- **www.astc.org/exhibitions/rotten/activity.htm**
  The Association of Science-Technology Centers Incorporated (ASTC) offers an extensive listing of 3R lesson plans.
- **www.epa.gov/recyclecity**
  The United States Environmental Protection Agency (EPA) developed the "Recycling City" website which includes games, activities, facts and other 3R information targeted to children.
- **http://yourkingcounty.gov/solidwaste/education/documents/Programs_for_educators.pdf**
  King County Solid Waste division provides K-12 lesson plans, assistance & programs.
- **http://teacher.scholastic.com/lessonrepro/lessonplans/earthday/index.htm**
  Scholastic lists ideas for Earth Day, written in lesson plan format.
- **eric.ed.gov**
  Ask ERIC (Educational Resources Information Center) is a U.S. based, federally funded nation-wide searchable database of lesson plans for K-12 educators. Teachers can search by topic for relevant activities and fact sheets.
- **www.harmonyfdn.ca**
  The Harmony Foundation provides a training resource for teachers.
- **www.recycleguys.org**
  The North Carolina Division of Pollution Prevention and Environmental Assistance hosts the site that contains a listing of links for teachers including student activities, lesson plans and resources.
- **www.eelink.net/classroomresources-directories.html**
  The North American Association for Environmental Education (NAAEE) outlines a listing of website links specific to classroom resources.
- **www.newdream.org/about/campaigns.php**
  Center for a New American Dream is a non-profit organization dedicated to helping Americans change the way they consume to improve quality of life, protect the environment and promote social justice. Includes a series of articles, fact sheets and links related to consumerism and advertising, and its affect on children.

3R Ideas to Reduce Waste

- **www.earthdaybags.org**
  The Earth Day Groceries Project is a nonprofit organization that identifies a number of Earth Day classroom activity ideas.
- **www.rco.on.ca**
  - **www.rco.on.ca/educators_students**
    The Recycling Council of Ontario lists links to actions students and teachers can take to reduce waste.
  - **www.rco.on.ca/residents**
    The Recycling Council of Ontario provides a series of tip sheets on what individuals can do, at the household level, to practice the 3R's.
- **www.grrn.org**
  The GrassRoots Recycling Network provides tools and tips to achieve zero waste. A series of links for students and teachers is included.
- **www.nrdc.org/recycling/default.asp**
  The Natural Resources Defense Council provides a background on recycling as well as a list of reasons why recycling is important.
- **ontarioecoschools.org**
  Ontario's ecoschool program provides downloadable lesson plans including waste minimization & energy conservation units.
- **www.metrovancouver.org/region/teachers/Pages/default.aspx**
  Metro Vancouver provides a number curriculum resources on solid waste and other issues.

Recycling Directories and Associations

- **www.myrecyclopedia.ca**
  A CRD tool for residents of the capital region. More than just a list of recyclable items and recycling depots, it's a 3R encyclopedia.
- **www.recyclinginbc.ca**
  Multi-Material BC (MMBC), responsible for residential printed paper and packaging programs in many areas across BC.
- **www.rcbc.ca**
  Recycling Council of British Columbia (RCBC)
- **www.recycle-steel.org**
  Steel Recycling Institute
- **www.gpi.org**
  Glass Packaging Institute
- **www.corrugated.org**
  Corrugated Packaging Alliance
- **www.plastics.ca**
  Canadian Plastics Industry Association

Making a difference...together

Capital Regional District
Parks & Environmental Services
625 Fisgard Street, PO Box 1000
Victoria, BC V8W 2S6

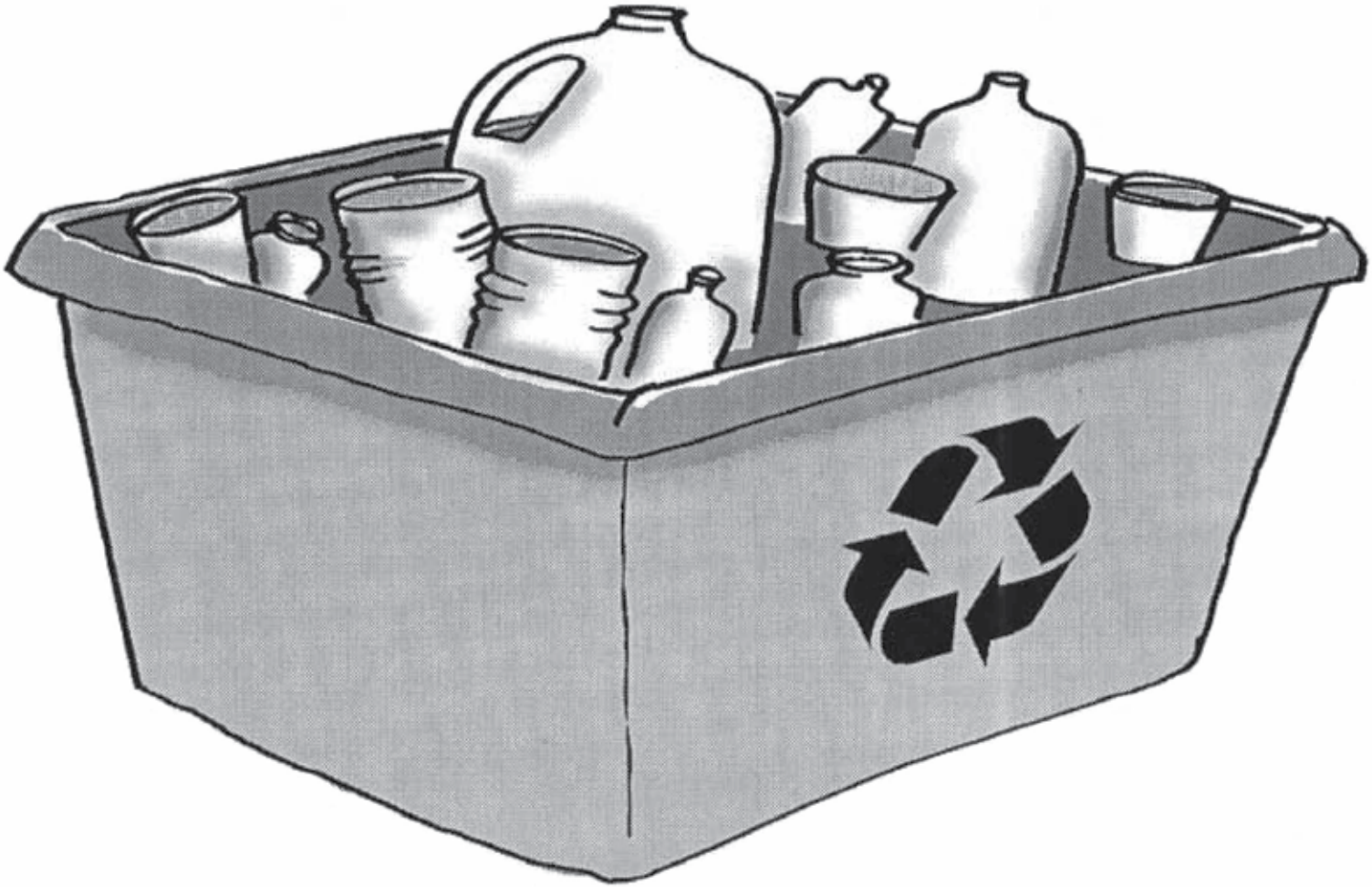
For additional information call the CRD 3R Program Coordinator250.360.3133
or education@crd.bc.ca

Visit the CRD website at **www.crd.bc.ca/teacher**

MILK JUGS

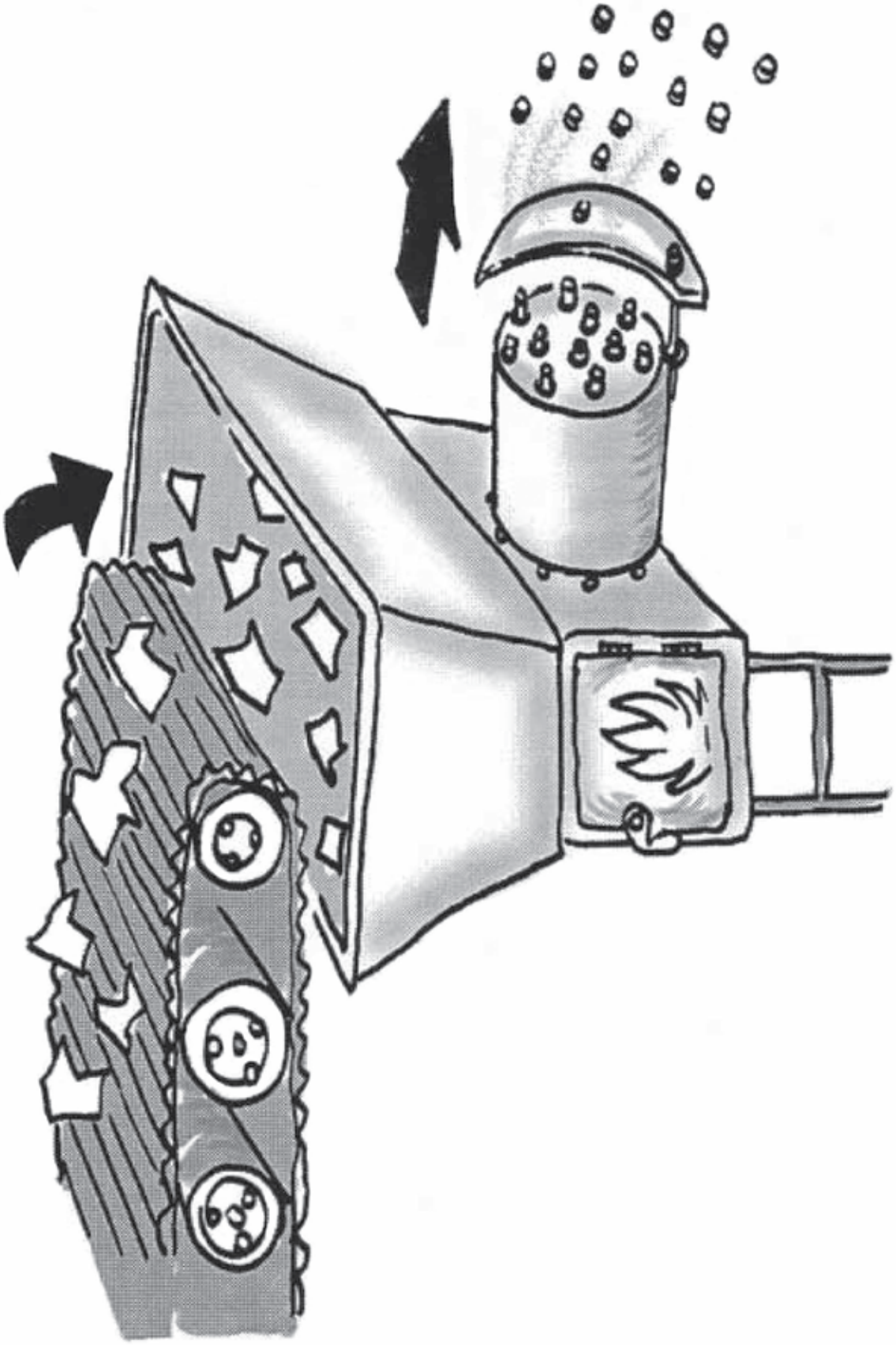
Read to the Rhyme, “The House That Jack Built”

This is the blue box,
That was made from the jug,
That was full of the milk,
That Jack drank.

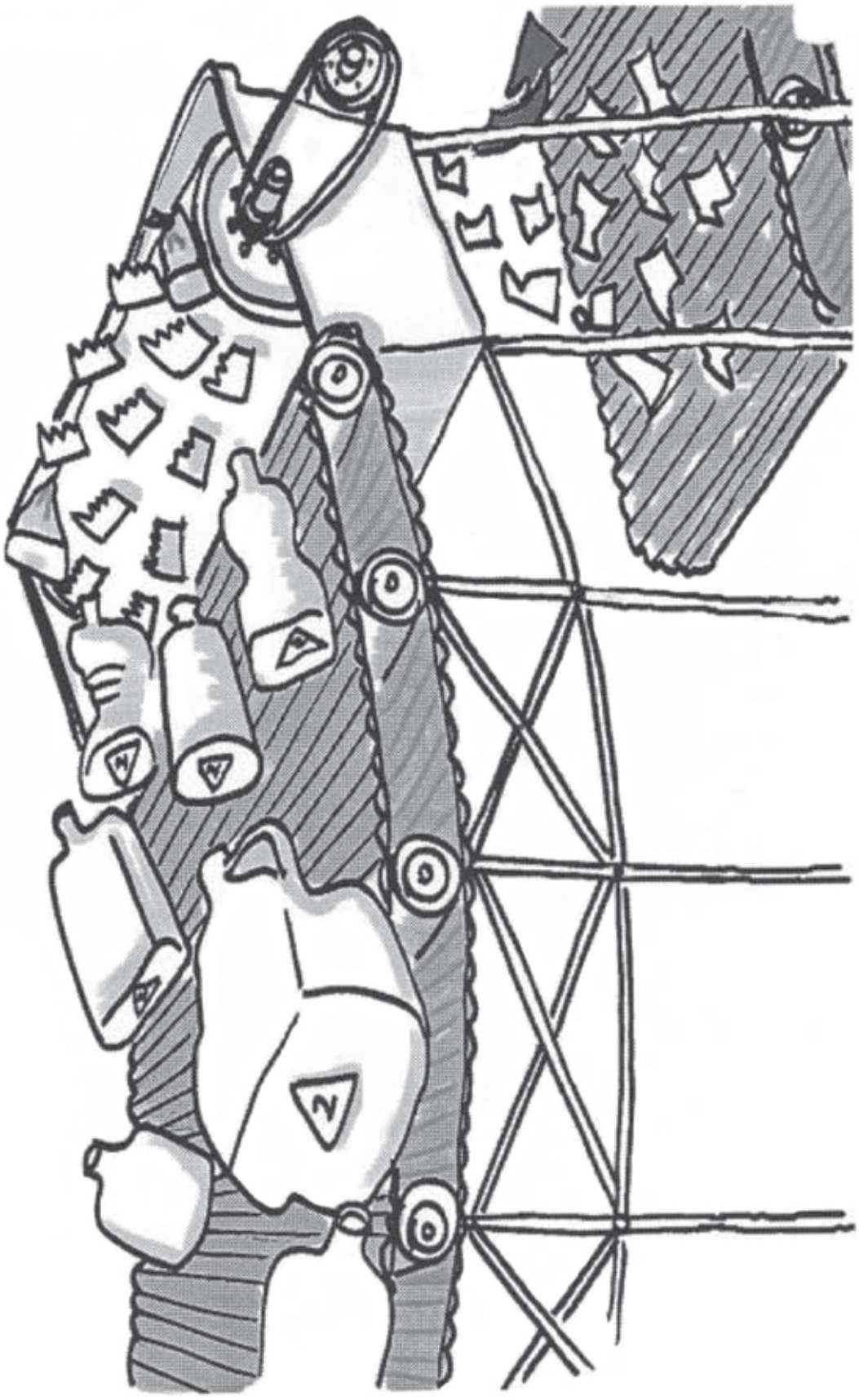


These are the pellets,
That formed the blue box,
That was made from the jug,
That was full of the milk,
That Jack drank.

These are the flakes,
That were melted into pellets,
That formed the blue box,
That was made from the jug,
That was full of the milk,
That Jack drank.



This is the plastic,
That was cut into flakes,
That were melted into pellets,
That formed the blue box,
That was made from the jug,
That was full of the milk,
That Jack drank.



This is the machine,
That washed the plastic,
That was cut into flakes,
That were melted into pellets,
That formed the blue box,
That was made from the jug,
That was full of the milk,
That Jack drank.

SOAP

This is the worker,
Who loaded the machine,
That washed the plastic,
That was cut into flakes,
That were melted into pellets,
That formed the blue box,
That was made from the jug,
That was full of the milk,
That Jack drank.

This is the numbered plastic,
That was sorted by the worker,
Who loaded the machine,
That washed the plastic,
That was cut into flakes,
That were melted into pellets,
That formed the blue box,
That was made from the jug,
That was full of the milk,
That Jack drank.

4
4
7
5
2
1
5
2
5

MILK JUGS

Teacher's Guide

About this big book...

"Milk Jugs" is written to the rhyme called "The House that Jack Built."

This big book was developed by the GVRD
Story author: Dee Galasso, grade 1 teacher
Images: John Crossen
Teachers' guide: Marnie Olson
Editor: Mary Trainer
Teachers' guide design: Laura Galloway
Contributors: Penny Ford (grade 1 teacher), Pamela Nel, Jane Keresztes, Bruce Ford, and the Education Advisory Committee of the GVRD.

For more information

Contact the CRD Hotline at 250.360.3030 or hotline@crd.bc.ca

How to use this big book...

- copy it as often as you wish.
- copy it on two sides to make a book.
- shrink the size to make little books for every student to take home for additional reading practice with their family.
- have students work in groups with the different stages of recycling from the book.
- have students colour the drawings.
- laminate the one-sided version (coloured or uncoloured) for students to use in groups or as an activity to arrange the stages of recycling in order.
- copy segments of the book to use illustrations for other recycling activities in your classroom.
- make a school display of the story along with related student work.

Background

There are seven types of plastic. Each is a different type of resin with a different chemical make-up. The codes surrounded by "chasing arrows," on the bottom of plastic products, distinguishes each type of plastic. Code 1 is polyethylene and code 2 is high-density polyethylene. Codes 1 and 2 have the best markets for recycling. They are valuable because of their available quantity, quality, colour, and relative ease of processing. They also have favourable strength and flexibility characteristics.

Each municipality determines which plastics to collect, based on market demand. Check with your municipality to find out what is, and what isn't, collected, and why.

Recycling programs at schools are different from home. Schools are part of a sector called "Institutional, Commercial and Industrial." These facilities arrange collection through private companies. It can be confusing to see a recycling system that is different from what works at home. Consider exploring the differences and the reasons with the students.

Looking for a Web site on plastics?

The Canadian Plastics Industry Association has a site with information, a teacher resource area, and activities for students. You connect with these at www. plastics.ca.

Have you got questions?

Contact the CRD Hotline at:
250.360.3030 or hotline@crd.bc.ca

Craft Idea

Milk jug piggy bank

Papier maché a milk jug that has four egg carton sections glued on one side for legs and a slit on the opposite side for money.

Decorate, by using leftover paint.

Did you know?

The CRD offers a recycling presentation called "Closing the Loop". This presentation describes what happens to all the bottles, cans, newspapers and cardboard when the recycling truck picks up blue box materials.

Using a variety of recyclable material samples at their various stages of processing, students will learn how the materials are recycled, the benefits recycling has for the environment and how we can all help in the effort. The presentation lasts approximately 45 to 60 minutes and is enjoyed by students in all grades.

Other concepts to explore

- What items do you recycle at home, school, and outside? List three.
- Why recycle? Why reduce? Why reuse?
- What would happen if you did not recycle anything and threw everything into the garbage? What if everyone in your school did that? In your community?
- Where does garbage go? What does that look like?
- Even when we recycle everything we can, we still have garbage. Why?
- What other ways are there to avoid garbage?

Activity

Before and After

A new life for used plastic jugs

Plastic is made from crude oil, a non-renewable resource. Students see that recycling plastic saves resources.

Background

Plastic food containers are always made from new plastic to prevent harmful contact to food. Any recycled plastic container may become a completely different kind of container or another item. Refer to the fact sheet called, "Plastics," for the background information on the life cycle of a plastic bottle.

What you do

1. Read the big book to the class.
2. Lead the class in developing a "life cycle" style diagram to show what happens to plastic jugs that are recycled.
3. Have students help you label the stages of the loop, using the information from the story.
4. As a class, draw a diagram to show where a plastic jug goes when it is not recycled.
5. Compare the diagrams.

Questions to discuss

- If plastic jugs are not alive, how can they have a new "life?"
- Why don't milk jugs get recycled into new milk jugs? **Hint: Consider the problems with food and the containers.**

For more facts about plastics, visit: www.gvrd.bc.ca/services/garbage/rechome/pdf/plastics.pdf (123kb)

Activity

Transformers

Waste that is recycled into something new

What you need

Items on the left are recycled into items on the right.

assorted papers - egg carton
empty aluminum can - new aluminum can
apple core - compost
plastic P.E.T. container - polar fleece
(P.E.T. - 2 litre pop bottle)
used compact disc case - hard plastic "in" tray or other office accessory
plastic milk jug - plastic shopping bag
plastic milk jug - shampoo bottle
plastic milk jug - plastic strapping
add some of your own!

What you do

1. Choose an item from the container.
2. Match it up with another item from the container, by considering the following questions:
   - What is it made from?
   - Which other items in the container are made from similar materials?
   - Can it be recycled or was it made from recycled materials?

Questions to discuss

- What were the easiest things to match? Why?
- What did you find surprising?
- Why isn't everything recycled?
- What's great about recycling? What's not so great?
- If you had the chance to invent something new, what would it be and what would you recycle to make it?

Teacher tip

Give the students a hint, or ask them for some ideas on matching things. For example, by matching the thins you know first, you may be able to make a better guess from the items that are left.

Activity

Sorting it out

Grouping plastics with the same number code

What you need

- Variety of clean plastic containers
- Rice, sand, beans or pebbles

Preparation

Have students bring in a selection of plastic containers from home, washed and dried. Fill each group's milk jug with rice or other material to provide weight for spinning.

What you do

1. Arrange containers on the floor or a table.
2. Form groups of seven.
3. Have each group sit in a circle and assign each student a number around the circle from one to seven.
4. Place the milk jug in the centre of the group.
5. Begin by spinning the milk jug. When it stops, the person that it is point to must go and find a plastic container with their number on it and bring it to the circle.
6. Once there are several examples of each number in the circle, have students group examples of each number together.
7. Step back outside the circle area. Have students describe their observations.

What do the numbers mean?

For a description of each type of plastic according to their number stamped on the bottom, visit the web at: www.plastics.ca/epic

Questions to discuss

- What's the same about the plastics in each grouping or pile?
- Why are there numbers on the bottom of plastic items?
- Why are the numbers different?
- How are plastics different? What makes them different?
- Describe the containers you were collecting. How are they similar?
- Why is it important to sort the plastic containers?

Variations

- **Try sorting** without looking at the code number.
- **Create a bar graph** to report on the number of items students find in each of the seven groups of plastics.
- **Set up a recycling plastic relay race.** Every team has a collection of plastic items. The first member of each team selects an item, identifies the number from the bottom and runs to the correct recycle box, from a selection of preset recycle boxes, labeled 1-7, respectively. When the first person returns to their team, they tap the next team member and the race continues until each person completes a turn.
- **Gather magazines**. Have students cut out images of products made from plastic. Using the list called, "What are plastics recycled into?," from the fact sheet called "just the facts," have students match plastics that are recycled into new plastic products. Display results.

Teacher tip

You may wish to copy and laminate the seven plastic codes as signs for students to see where each type of plastic is being collected during the game.

TIN CANS

Sing to the tune of "Dem Bones"

The rinsed cans go into the
blue box

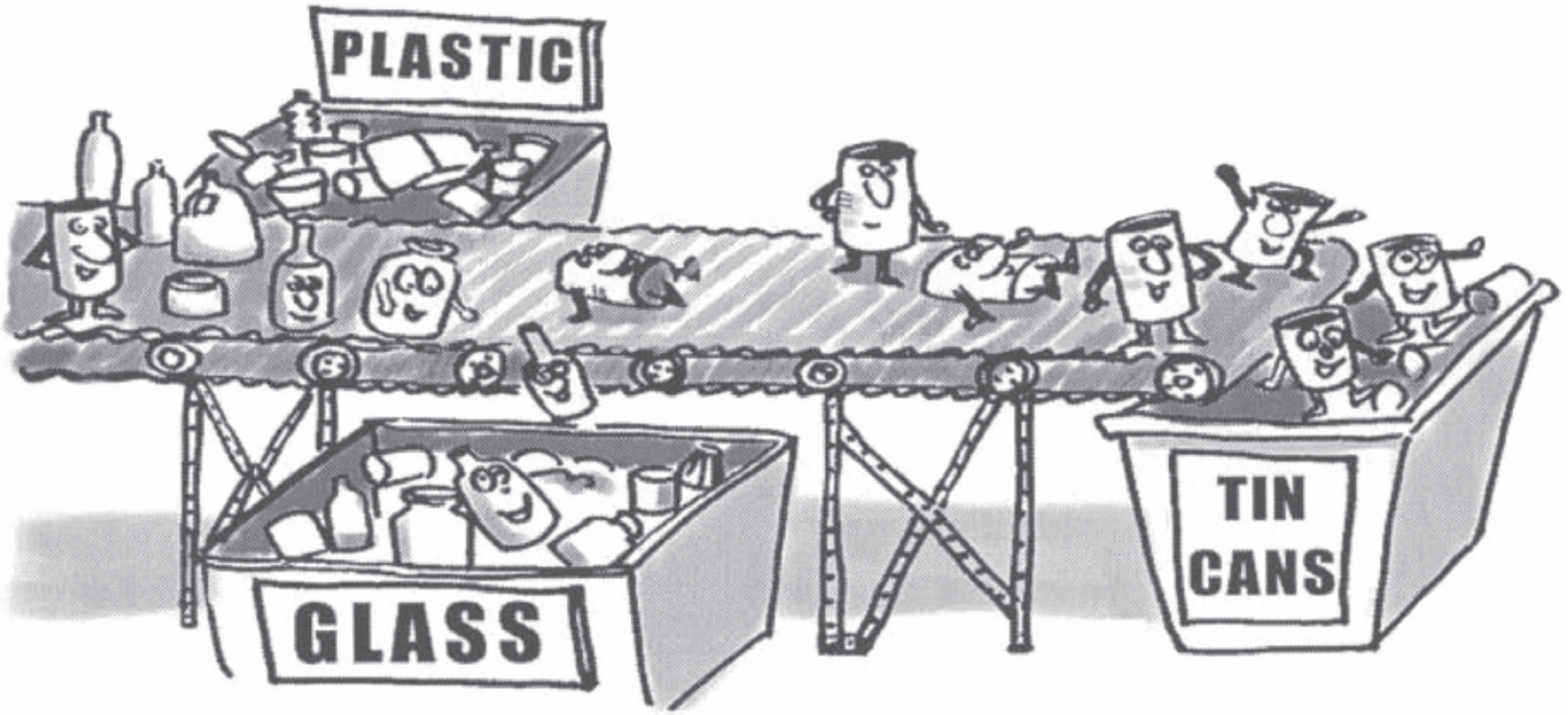
The blue box is carried out for
pick-up
then the cans are taken by the
recycling truck


newspaper
cans
glass
plastic

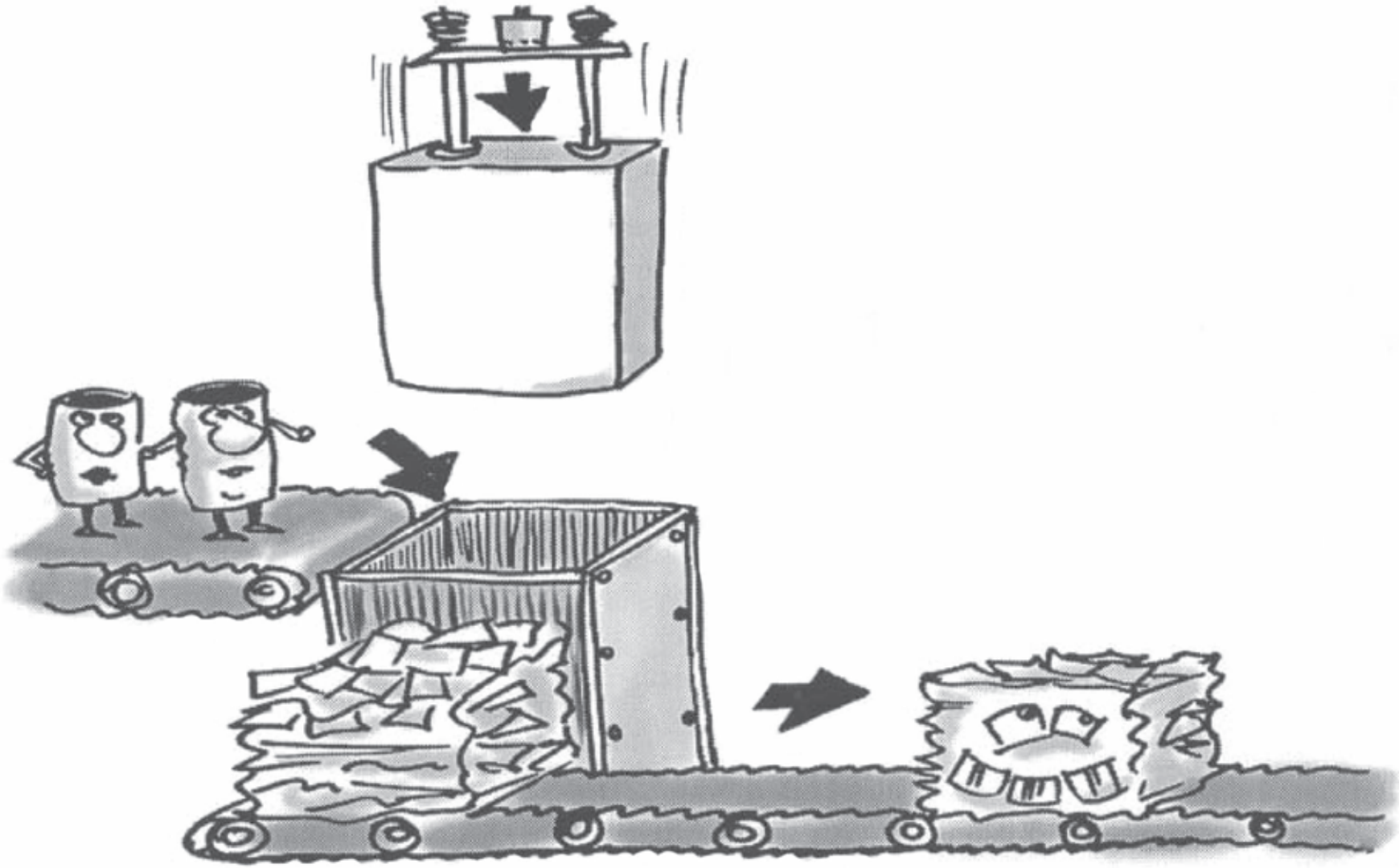
The big truck takes them for
recycling

and that's the way it all works!

The tin cans get
sorted

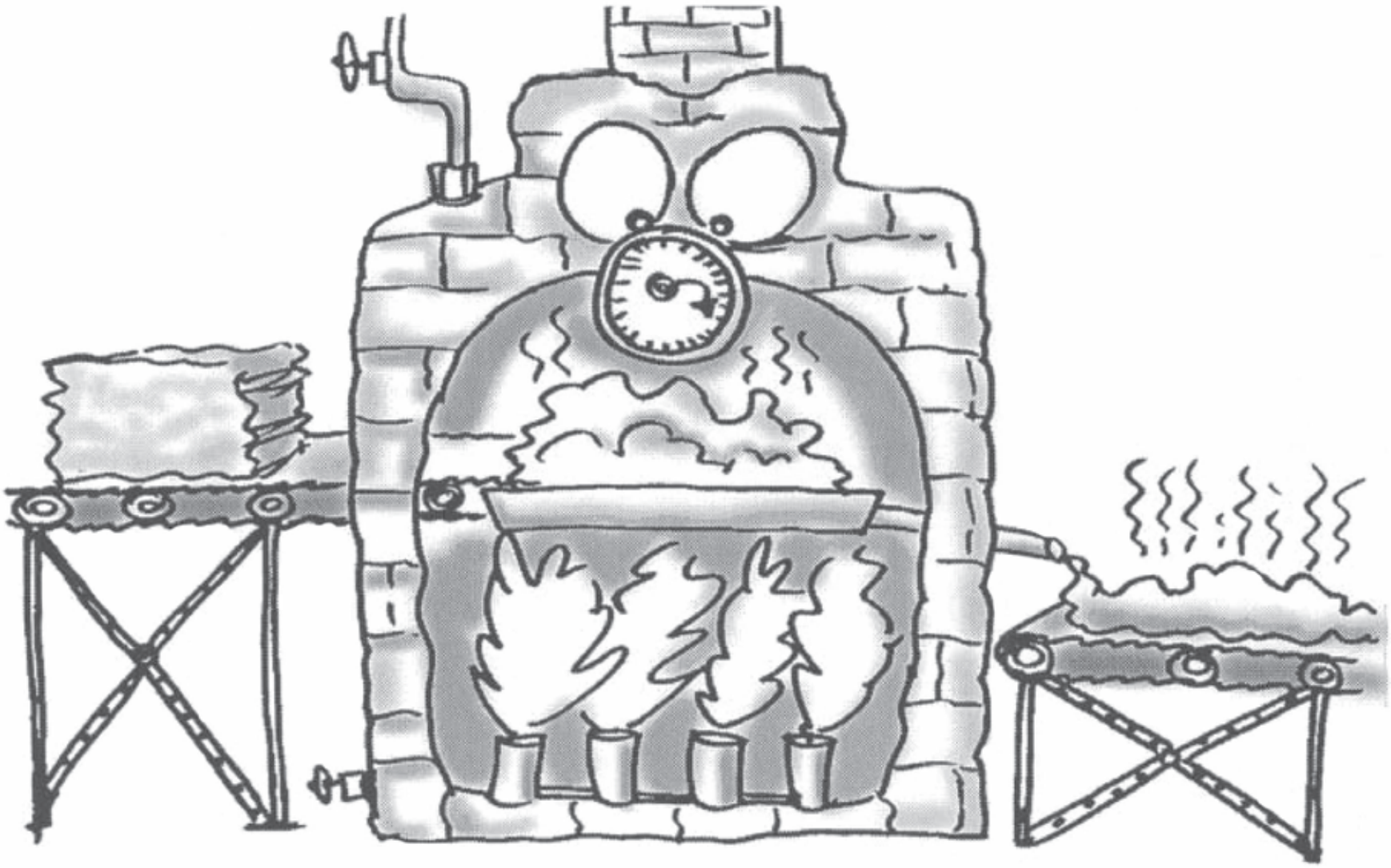

PLASTIC
GLASS
TIN
CANS

The sorted cans get
crushed

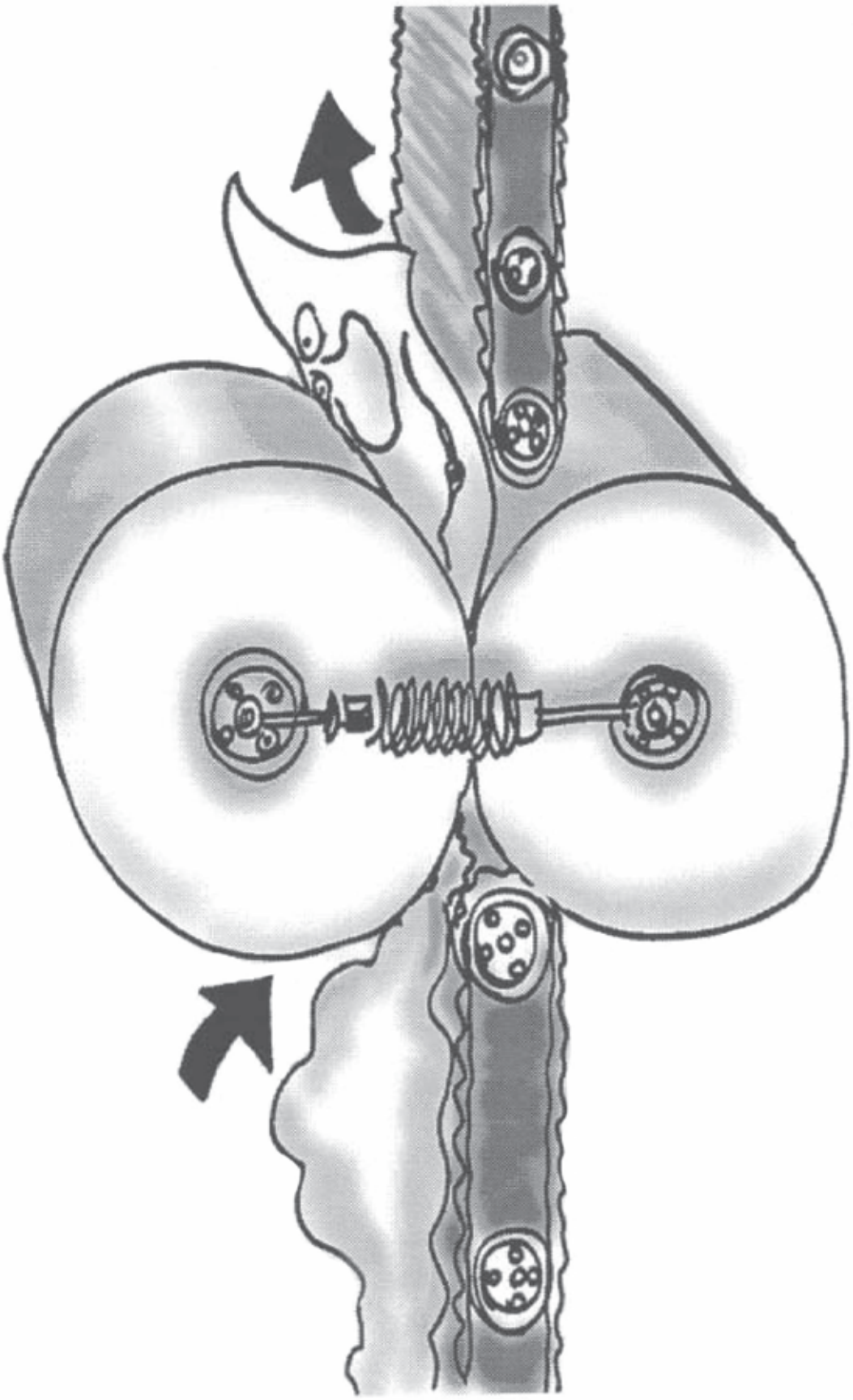


The crushed cans get
melted

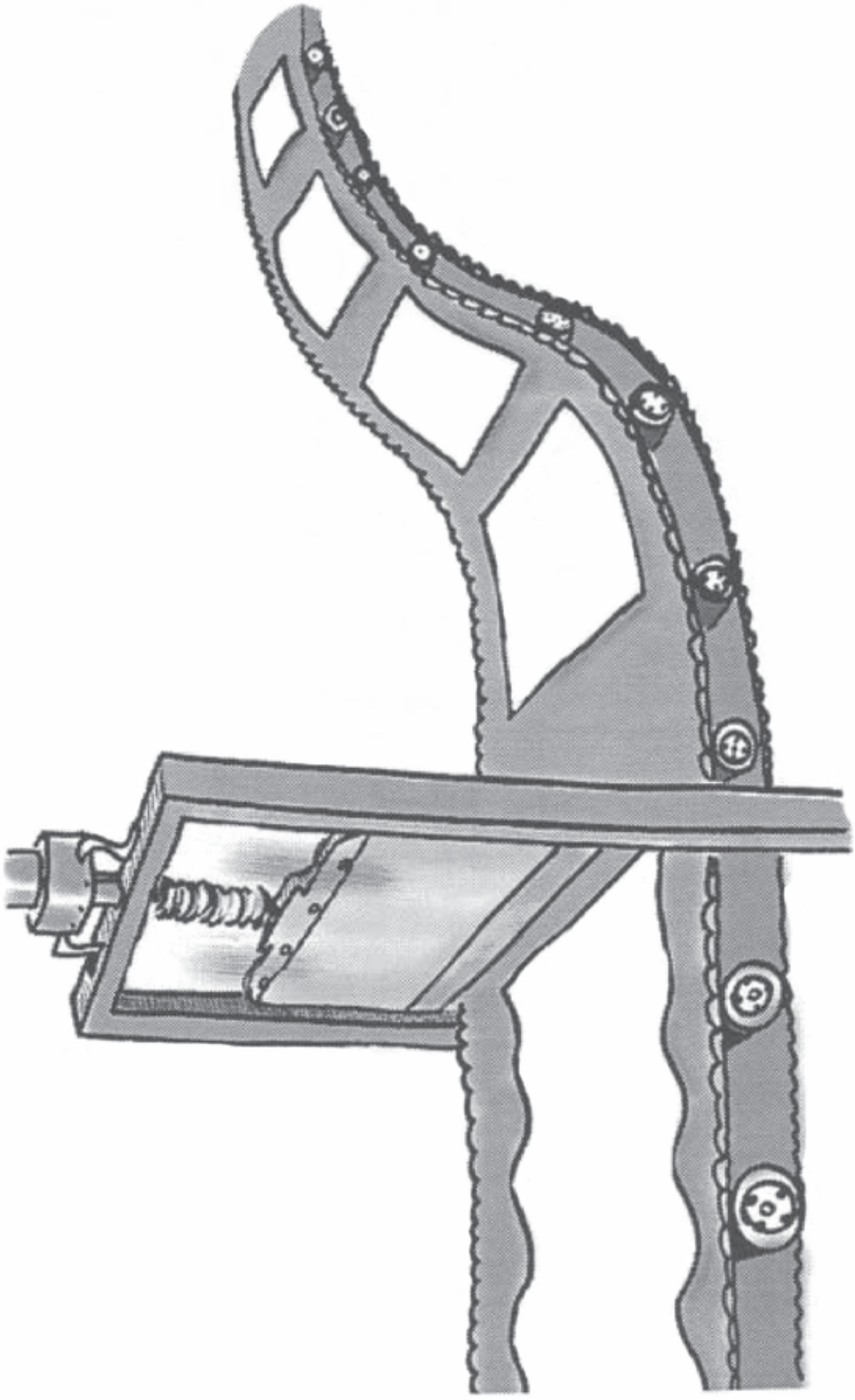
and that's the way it all works!



The melted cans get
flattened

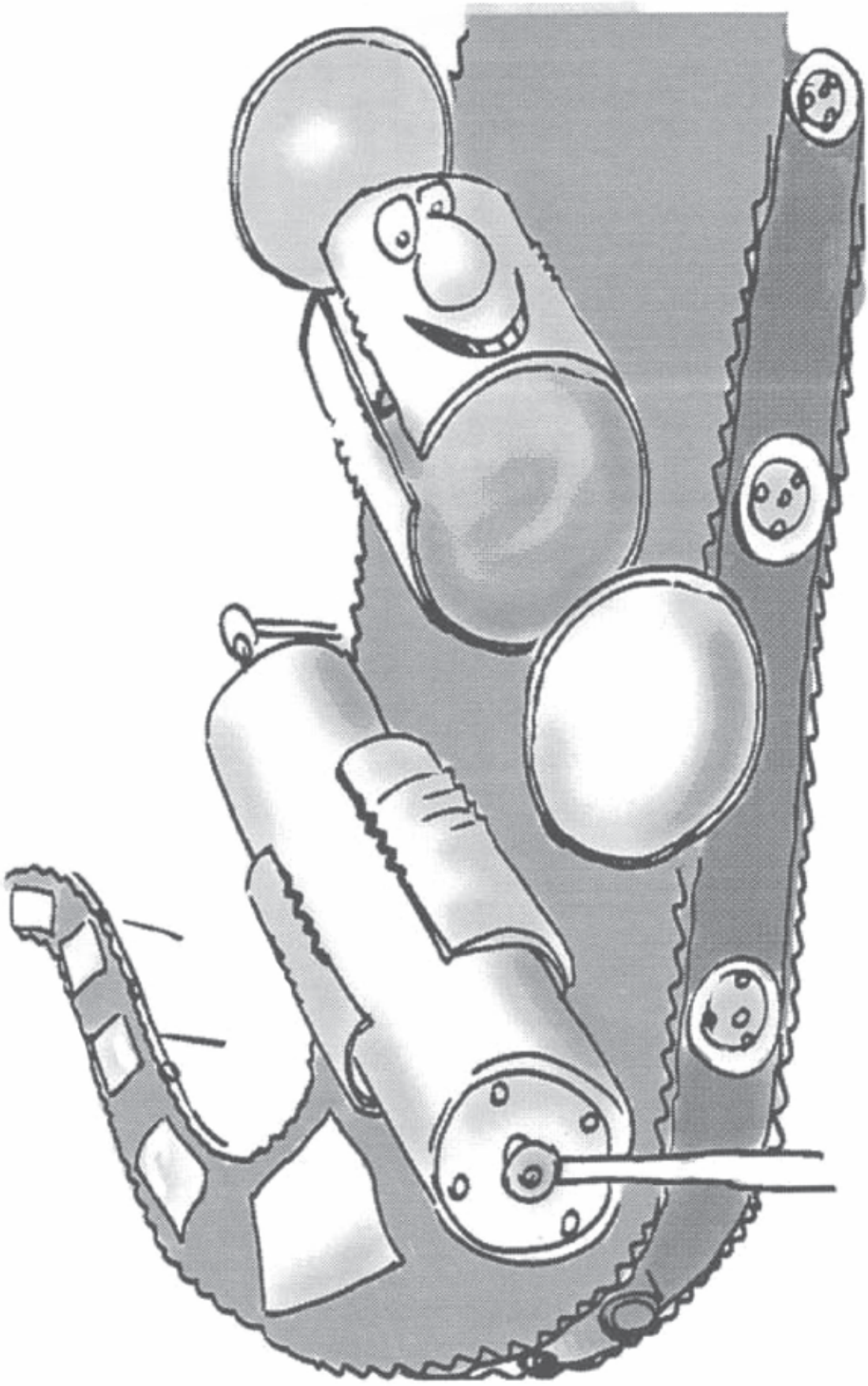


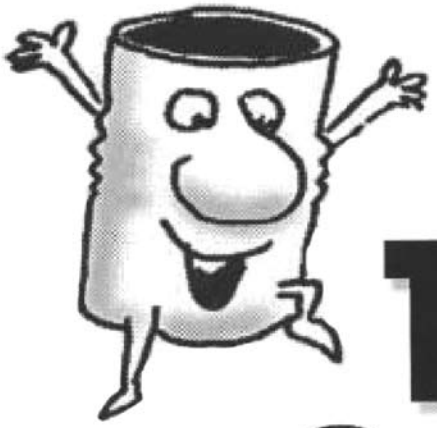
The flattened cans get
cut



The cut cans are shaped into
new cans

and that's the way it all works!





TIN CANS

Teacher's Guide

About this big book...

"Tin Cans" is written to the tune called "Dem Bones."

This big book was developed by the GVRD
Story author: Dee Galasso, grade 1 teacher
Images: John Crossen
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For more information

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- copy it as often as you wish.
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- shrink the size to make little books for every student to take home for additional reading practice with their families.
- have students work in groups with the different stages of recycling from the book.
- have students colour the drawings.
- laminate the one-sided version (coloured or uncoloured) for students to use in groups or as an activity to arrange the stages of recycling in order.
- copy segments of the book to use illustrations for other recycling activities in your classroom.

Background

Tin Cans
The familiar "tin" can has been part of our society for more than a century. Steel is used to make cans for packaging food in durable, tamper-resistant, shelf-stable containers.

Steel is produced from concentrated pellets of iron ore, which are converted to molten iron in a blast furnace. In the second refining operation, called the "basic oxygen" steel making furnace, carbon is removed from the molten iron to make steel. It is at this stage that at least 30 per cent scrap is fed into the mix to make new steel. A portion of this scrap is from steel cans collected from curbside and resource recovery systems.

Recycling steel saves energy and natural resources. In a year, the steel industry saves the equivalent energy to power about 18 million households for a year. Recycling one metric ton of steel saves 1,200 Kg of iron ore, 600 Kg of coal and 55 Kg of limestone.

Aluminum Cans
Aluminum is one of the most recyclable materials available. It can be recycled without decreasing its quality or losing its strength. Recycling turns a can into a can - a complete closed loop process. Aluminum cans are used mainly for beverage containers. There are also markets for recycled aluminum in automobiles and construction materials.

Have you got questions?

Contact the CRD Hotline at:
250.360.3030 or hotline@crd.bc.ca

Did you know?

- It takes 60 days for an empty pop can to be recycled, refilled and brought back to the store to be sold again!
- Recycling one can saves enough energy to operate a television for 3 hours.

Looking for Web Information?

The Aluminum Association:
www.aluminum.org

Recycling Council of British Columbia:
www.rcbc.bc.ca

Ministry of Water Land Air Protection Product Stewardship:
www.gov.bc.ca/epd/epdpa/ips/index

Can Manufacturers Institute:
www.cancentral.com

California Integrated Waste Management:
www.ciwmb.ca.gov/Schools/Curriculum

Other concepts to explore

- How do we recycle cans?
- While the process is similar for both tin and aluminum, collection is quite different. How is collection different? Why is it different?
- What happens to aluminum cans that are placed in the municipal recycling collection along with tin cans?
- Should I take the labels off tin cans before recycling? If I don't take the labels off, will the cans be recycled? Why?
- Who benefits from everything that goes into municipal recycling?
- Why do some people choose not to return their cans even though they paid a deposit when they purchased them?
- Who collects the deposit? How is it used?
- Why are aluminum cans so "valuable"?
- Why don't we recycle more?
- What should I do with an empty can when only a garbage collection container is available?

Activity

Junk Band Drum

A new life for empty coffee cans

What you need

Empty coffee can
Old bicycle inner tube
Carpet nails or string

What you do

1. Remove the ends of a coffee can.
2. Stretch round pieces of the tube over the can.
3. Attach pieces of the tube with carpet nails, or lace ends together with string.

What you talk about

- What do we usually do with cans?
- How do we recycle them?
- Is it best to remove the labels or leave them on? Why?
- What happens if the labels are left on?
- Why are pull-tabs difficult to recycle when they've been removed from aluminum cans?

Variations

- **Make a coffee can shaker.** Fill a coffee can with either pasta, rice, beads, buttons, bells or other material. Use the plastic lid that comes with the can to keep the material inside, or cover the end with cloth that is taped around the sides. Try making additional shakers by using a different material for each.
- **Make a bell.** Remove one end. Pierce a small hole in the centre of the other end. Place a string through the hole and suspend an object inside the can. Knot the string to hold the rattle inside the can and make another knot at the opening of the can on the outside. Dangle and push or tap to ring the bell. Collect a group of bells to make a chime. Hang in the path of breezes.

Game

Kick the Can

Old-fashioned fun for all ages

What you need

Tin or aluminum can
Chalk
Small paved space, with lots of room to run

What you do

1. Decide on the boundaries for the hiding area. They shouldn't have any roads going through them.
2. Make a dot with chalk. Stand on the dot. Take two giant steps out. Draw a circle around the dot at this distance.
3. Place the can on the dot.
4. Choose one person to be "IT" and someone else as the "KICKER."
5. IT stands beside the can. The players stand on the rim of the circle. IT yells, "Go." The kicker runs into the circle and kicks the can as far as possible out of the circle.
6. IT chases the can while everyone else tries to hide. As soon as IT replaces the can on the dot, IT yells, "FREEZE."
1. IT calls out the names of all the players visible. These "captured" players sit inside the circle. IT searches for the missing players and tries to tag them. If a player can run past IT and kick the can, all the players are free to run and hide again!

Did you know?

Children in almost every country play a version of Kick the Can

- In Australia, children sometimes call it Kick the Block or Kick the Boot.
- German kids call it Stabchenversteck when they play using two sticks, or Ballversteck when they use a ball.
- Italian children call it Barattolo.
- Children in France play it with a ball and call it La Bôite.

Ask an adult if they played the game and what they called it.

What you talk about

- What happens to cans around the world?
- What is recycled in other countries?
- How are recycling programs different in other countries? Other places in Canada?
- What is the connection between recycling and the amount of waste in different places?
- Why do you think recycling programs are different?

Source: Opie, I. & P. 1984. Children's Games in Street and Playground, Oxford University Press.
Source: McKay, S. and MacLeod, D., 1994. Kick the Can Games Book, (Toronto), Somerville House Publishing.

Role Play

A can, can

Exploring cause and effect of recycling

What you do

1. Read the following scenario to the class:
A family buys two cans of food from the supermarket, eats the food, and then throws the cans away. The family goes back to the supermarket for another two cans of food, but the supermarket has run out, so the supermarket calls the factory to tell them to make two more. The factory uses two sheets of steel to make the cans. The family buys the cans, eats the food, and throws the cans away.

1. Continue reading the scenario:
The factory runs out of steel, and so must call the mine; the mine takes some ore to make the steel for the factory - for the store - for the family - for the garbage. Finally, the mine closes down due to a shortage of ore.

1. Act out your version.

What you talk about

- How many cans are thrown away each time?
- What will the mine workers do?
- What will the factory do?
- What will the supermarket do?
- What will the family do?
- How could this story be changed?

Reuse	Return	Recycle
Reuse aluminum pie plates at home for baking and cooking. Steel cans, aluminum pie plates and foil can be reused as storage, reheating, serving trays or for camping tools. Aluminum foil can be wiped clean and used again. Both steel cans and aluminum products can become a craft material	Shoppers pay a deposit on all aluminum beverage containers in British Columbia. Return cans for a refund (when the can is not crushed or ripped). Your local Return-It Centre, Liquor Distribution Branch, bottle depot, Changes Recycling Centre or retailer will accept your returns.	Leave pull-tabs on aluminum cans for recycling. Rinse steel cans before being placed in the collection system. Check with your municipality for guidelines on removing labels.

Did you know?

- Recycled steel is a necessary part of the process of making new steel. All new steel contains a minimum of 25 per cent recycled steel.
- About 630 steel cans are recycled every second!
- For every can that is recycled, a new one can be made. That saves space in the landfill and natural resources. Each recycled can also saves 37 litres of water needed for mining raw materials.
- About half the content of a beverage can is recycled aluminum.

Can aerosol cans be recycled?

The steel aerosol can must be empty for recycling, and it should be emptied through normal use as instructed on the can. Manufacturers measure the product and propellant so that both are exhausted at the same time.