LEARNING WITH

RECYCLEBC™

A curriculum-based teacher resource on making a difference, together.

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TEACHER RESOURCES

Welcome to the Teacher Resource Guide for Recycle BC!

We are grateful to live, work, and be in relation with First Nation people from across many traditional and unceded territories, covering all regions of British Columbia. We are honoured to live on this land, and we value the opportunity to learn and share educational experiences on this traditional territory. We encourage you to look to Native-Land and learn more about the specific territory in which you are working and living, and to integrate this information into the work that you do in your own life and with your learners.

Introduction

This comprehensive guide is designed to equip elementary teachers in British Columbia with the necessary knowledge and tools to educate their students about the importance and process of recycling. In this guide, we will provide an overview of BC's residential packaging and paper recycling program, explore curriculum-connected activities, and offer valuable resources to support your classroom in understanding waste, diversion and recycling.

The Recycling Program

Our packaging and paper recycling program is championed by Recycle BC, a not-for-profit organization responsible for the collection and post-collection process throughout the province. Recycle BC operates as a full Extended Producer Responsibility (EPR) program, which means that producers are responsible for the financial and operational end-of-life management of the packaging and paper they supply to BC residents. This province-wide system ensures greater scale and efficiency in recycling efforts. Recycle BC ensures a consistent material list of packaging and paper products is collected from houses, apartment buildings, and depots, sorted and responsibly managed, and recycled. Through working collaboratively with various stakeholders, including local governments, First Nations, businesses, and residents, Recycle BC strives to achieve the common goal of an effective and efficient

provincial recycling program. More information on the recycling system can be found through Recycle BC's webpage, including video content and a list of recyclable materials.

Why Recycling Matters

Recycling is vital for achieving the United Nations Sustainable Development Goals and protecting our environment. Through recycling, we conserve natural resources, reduce energy consumption, and minimize greenhouse gas emissions. By participating in the recycling program, we can contribute to the circular economy, where materials are made into new products or packaging, promoting a sustainable future for generations to come.

How to Use This Resource

This customized guide provides valuable connections to the BC curriculum, aligning with subjects such as Art, Design, English Language Arts, Math, Science, Social Studies, and the core competencies. Additionally, it incorporates the First Peoples' Principles of Learning, fostering a holistic and inclusive educational experience.

Launching the Inquiry

We begin the exploration of recycling by asking a fundamental question: "What happens to my waste?" This inquiry-based approach encourages students to think critically and develop a deeper understanding of the recycling process.

Inquiry Projects and Lesson Plans

We have developed interactive activities and inquiry projects for students in different age groups: one for primary students (grades K-3) and intermediate students (grades 4-7).

The topics covered in the lessons include understanding personal values, learning about waste diversion, examining the environmental benefits of recycling, understanding the concept of a circular economy, sorting materials, addressing contamination, exploring the recycling process and its stages, identifying end markets for different materials, and discovering product examples made from recycled materials. The guide also emphasizes actions individuals can take to support a circular economy.

Activities are categorized by colour:

PRIMARY

INTERMEDIATE

Supporting Continued Learning

To encourage ongoing learning, comprehensive resources are included to provide a robust list of additional information including videos, websites and recommended books. Exploring these resources is encouraged to enhance your understanding of recycling in British Columbia and provide additional learning opportunities for your students.

Stay Informed

This guide for Recycle BC is a valuable tool to help you educate and inspire your students about recycling and waste management. By incorporating these activities into your classroom, you can empower the next generation to make informed decisions and actively participate in building a more sustainable future. This system is always evolving, to stay informed about this growing field in BC, visit Recycle BC's website or the Recycle BC app. For recycling inquiries that are not related to packaging or paper, please contact the Recycling Council of BC. For information about waste management and recycling in Indigenous communities in BC, connect with Recycle BC or visit the Indigenous Zero Waste Technical Advisory Group.

Want to know how Recycle BC is doing? Check out Recycle BC Annual reports.

Co-creators of this resource

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Core Competencies

Critical thinking

I can analyze evidence from different perspectives.

Personal awareness and responsibility

I can imagine and work toward change in myself and the world.

Social responsibility

I contribute to group activities that make my classroom, school, community, or natural world a better place. I can identify how my actions and the actions of others affect my community and the natural environment. I can take thoughtful action to influence positive, sustainable change.

First Peoples Principles of Learning

The principles applied in these activities are as follows:

- Learning ultimately supports the well-being of the self, the family, the community, the land, the spirits, and the ancestors.
- Learning is holistic, reflexive, reflective, experiential, and relational (focused on connectedness, on reciprocal relationships, and a sense of place).
- Learning involves recognizing the consequences of one's actions.
- Learning involves generational roles and responsibilities.
- Learning is embedded in memory, history, and story.
- Learning involves patience and time.

These principles represent an attempt to identify common elements in the varied teaching and learning approaches that prevail within particular First Nations societies. It must be recognized that they do not capture the full reality of the approach used in any single First Peoples' society. (From the First Nations Education Steering Committee).

Launching the inquiry

Introduction

Teachers and learners get a sense of both what they already know and what they are curious about. You will be entering into the conversation with curiosity and a place of wondering. This will create a baseline of learning on which to share and build knowledge.

The Activity

Show the image on the previous page of a pile of garbage and pose the following questions to the class. Record answers in one area and questions in another place in the classroom that they can be referred back to during this inquiry unit.

How much waste does each person in BC make each year? What happens to our waste? Where does it go? What do I wonder about waste? How do I feel when I see my natural environment being affected by garbage/waste?

In our world, we have a special word called "recycling." Recycling is when we take things that we no longer need and turn them into something new. It is an important process that helps us take care of our planet Earth. Introduce the concept of recycling: What is recycling and why is it important?

Protecting our environment

When we recycle, we can help protect our environment. Many things we use every day, like plastic packaging and paper, are made from materials that come from nature. By recycling, we can make sure these materials don't harm the environment. When we throw things away, they end up in a big place called a landfill, which is like a giant garbage pile. Over time, these piles can get really big and take up lots of space. Recycling helps to reduce the amount of waste that piles up in landfills.

Saving natural resources

Recycling is also important because it helps us save natural resources. Natural resources are things that we find in nature and use to make new things. For example, trees are a natural resource that gives us wood to make paper. If we recycle paper, we can save trees because we won't need to cut down as many. By recycling, we can reuse materials instead of using new ones. This saves energy and resources like water, oil, and trees.

Reducing pollution

Recycling also helps us reduce pollution. Pollution is when harmful things get into the air, water, or soil and make them dirty or dangerous. When we make things from raw materials, like digging up metals or drilling for oil, pollution can happen. But when we recycle, we use materials that have already been made, so we don't create as much pollution. For example, when we recycle aluminum cans, we save a lot of energy and reduce air pollution by not extracting new metal from the ground.

Examples and analogies

1. Imagine you have a big box of blocks. When you finish building something with those blocks, instead of throwing them away, you can take them apart and build something new with the same blocks. That's a bit like recycling!
2. Let's pretend we have a magic bag that can turn old crayons into new ones. Instead of throwing away crayons that are too small, we can use the magic bag to make new big crayons. Recycling is like using the magic bag to turn old things into new things!

Where do we Begin? A classroom waste audit

Introduction

To move in a direction, you not only need to know where you are going but also you need to know where you are starting from. A very powerful activity to do with your students is to perform an audit of your classroom waste so that you and your learners have a specific idea about where the gaps are that can be addressed to improve your waste diversion.

Materials

- One week worth of collected trash from your classroom – 7 bags – 1 for each student group
- A small tarp for each group of students
- Disposable gloves
- The video on how recycling works

The Activity

- Watch the video How Recycling Works as an introduction to this activity.
- Engage students in a discussion about waste management and its impact on the environment. Ask questions to elicit their prior knowledge and understanding of waste, recycling, and sustainability. Introduce the concept of a waste audit, explaining that it involves collecting and analyzing information about the types and quantities of waste generated.
- Divide the class into small groups (3-4 students per group). Give each group a bag of garbage, a tarp, and gloves. Have students sort the waste into 4 different categories: Recycling, reusable, compost, landfill.
- Instruct each group to dump their bag onto their tarp and sort it into the designated waste categories. Emphasize the importance of wearing gloves and handling waste carefully. Have students record the quantity and type of waste in each category. Circulate among the groups, providing guidance and answering questions. *Note – for students younger than grade 2, the teacher can handle and sort the waste while students sit and observe.
- Lead a discussion on the patterns, trends, and insights revealed by the audit. Prompt students to interpret and discuss their findings, such as which waste categories were most significant or areas where waste reduction efforts could be focused. Ask students to reflect on the importance of waste reduction and brainstorm ideas for minimizing waste in their daily lives.
- Brainstorm all of the ways to DIVERT waste: Reducing, reusing, repurposing, recycling, refusing, rethinking, repairing, composting - what else?

Extensions

- Use the information from the audit to teach a lesson on graphing for older students.
- Collaborate with the school's Green Team or Eco-Club to develop and implement waste reduction initiatives.
- Write persuasive essays or create posters advocating for waste reduction, recycling and environmental conservation.
- Conduct a follow-up waste audit after implementing waste reduction and recycling measures to assess the effectiveness of their efforts.

Glossary of Terms

Biodegradable: Items that can be broken down by nature into harmless substances over time.

Bin: A container where you put recyclable items, such as plastics and metal cans.

Collection Schedule: The specific days or times when recycling bins are picked up from homes or schools for processing.

Compost: The natural process of turning food scraps and organic waste into nutrient-rich soil to help plants grow.

Contamination: In the recycling industry, contamination refers to non-recyclable materials mixed with recyclable items, which can make recycling difficult or ineffective. This includes soiled containers (i.e. a yogurt container) that has not been properly rinsed or items that are not accepted for recycling.

Eco-friendly: Something that is not harmful to the environment and helps conserve natural resources.

Environmental Footprint: The impact we have on the environment based on our daily actions and choices.

Greenhouse Gas: Gases that trap heat in the Earth's atmosphere, contributing to global warming. Recycling helps reduce greenhouse gas emissions.

Hazardous Waste: Materials that can be harmful to people, facilities or the environment if not handled properly.

Landfill: A place where trash and waste are buried in the ground. Recycling helps reduce the amount of waste that goes to landfills.

Recycle: The process of collecting and processing materials like paper, plastic, metal and glass into raw materials to make new products instead of throwing them away.

Recycled Content: The material that comes from recycled items used to make new products.

Reduce: To use fewer resources or create less waste by being mindful of how we consume and use products.

Reuse: To use an item or container again for the same purpose or a different one instead of throwing it away.

Single-Use Plastics: Items like plastic straws, disposable cutlery, and plastic bags meant to be used once. Recycling reduces the negative impact of single-use plastics on the environment.

Sorting: The act of separating different types of recyclable materials from the rest of the waste, or separating recycling into the different recycling categories.

Sustainability: Using resources in a way that meets the needs of today's generation without harming the ability of future generations to meet their needs.

Upcycling: Turning old or discarded items into something new and useful instead of throwing them away.

Waste: Items or materials that are no longer needed and are thrown away but can often be recycled.

Renewable Resources: Natural resources, like solar energy and wind power, that can be replenished and will never run out.

APPLIED DESIGN, SKILLS, AND TECHNOLOGY

CURRICULUM CONNECTIONS

K

Identify and demonstrate the use of simple tools and materials for repurposing items (e.g., scissors, glue, markers).

1

Explore and create simple repurposed items using basic tools and materials.

2

Design and create repurposed items using a variety of materials and tools.

3

Plan, design, and construct repurposed items, considering the function and materials needed.

4

Apply design thinking to repurpose everyday items, considering aesthetics and functionality.

5

Collaborate and communicate ideas for repurposing items, using sketches, diagrams, or prototypes.

6

Analyze and evaluate the design process for repurposing items, considering constraints and criteria.

7

Apply design principles and skills to repurpose items, incorporating creativity and innovation.

Reuse vs. Recycle: working with paper in two ways

Introduction

Reusing and recycling are important – and different! Students will understand the theory and practice of reusing and recycling and their importance in conserving resources through making recycled paper as well as repurposing their paper to create a lantern, supporting the exploration of design skills.

Materials

- Scrap paper
- Water
- Blender or food processor
- Screen or fine mesh
- Sponge
- Rolling pin or wooden dowel
- Wax paper or parchment paper
- Scissors
- Ruler
- Glue
- Decorative materials
- LED tea light or LED candle

The Activity

Begin the lesson by explaining that reusing involves finding new purposes for materials, while recycling involves turning materials into new products. Discuss the goals of each and their similarities and differences. Connect both concepts to the importance of conserving resources and reducing waste. The more we recycle and reuse, the less we need to produce and waste, which is better for the environment.

DID YOU KNOW?

Over 2 million households throughout the province are served by Recycle BC.

Making Recycled Paper

This activity is not unlike the process used (on a much larger scale!) by paper recycling facilities. For a visual of this, watch NFB's 4-minute video that shows how we recycle paper. Each student will then:

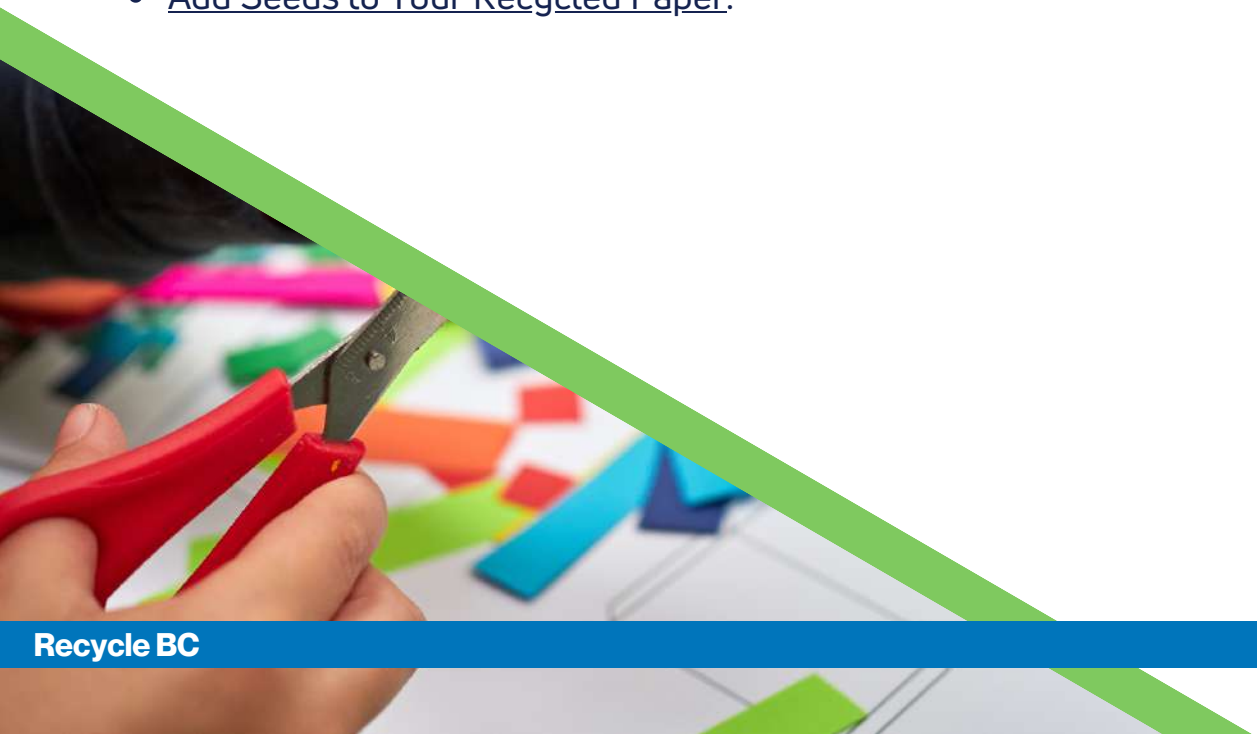
- Tear the scrap paper into small pieces and soak them in water for a few minutes to soften. Encourage them to choose light colours so that the result can be used to write on.
- Place the soaked paper into the blender or food processor, add water, and blend until it becomes a pulp.
- Pour the pulp onto the screen or fine mesh, spreading it evenly to form a thin layer.
- Use a rolling pin or wooden dowel to press out excess water from the pulp.
- Let the paper pulp dry for a day or two. Once dry, carefully remove the paper from the screen or mesh.
- Use markers, colored pencils, or other decorative materials to personalize their recycled paper and write a note to a friend in the class, ensuring every student makes and receives a recycled note.

Designing a Paper Lantern

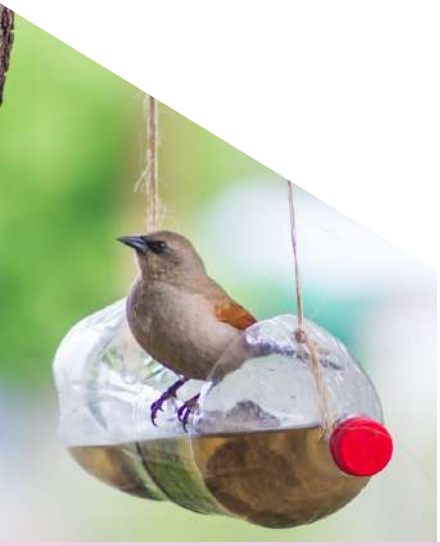
- Use the recycled paper they received as a note to create a lantern, focusing on the concept of reusing.
- Provide each student with a sheet of their recycled paper, scissors, a ruler, glue, and decorative materials.
- Demonstrate how to fold the paper in half lengthwise and make vertical cuts along the folded edge, leaving a few centimeters uncut at the top. Follow the video on how to make a paper lantern.
- Open the paper and overlap the cut edges, gluing them together to form a cylindrical shape.
- Help students decorate their lanterns using markers, colored pencils, or other materials.
- Gather the students together and have them share their recycled paper and lantern creations with the class.
- Ask the students to reflect on the processes of recycling and reusing.
- Emphasize the importance of conserving resources by reusing and recycling materials in their daily lives.

Extensions

- Write a short paragraph or create a drawing explaining the difference between reusing and recycling, and why it is important to practice both.
- Encourage students to explore other ways they can reuse and recycle paper at home or in their communities and have them share their ideas in the next class.
- Add Seeds to Your Recycled Paper.



Repurposing: getting creative with our waste



Introduction

Can we give our waste new life? Elementary-aged students tend to be very creative at re-purposing items. This activity will encourage creative rethinking about how to utilize resources we already have by reconsidering their uses. Check out examples of designers that have included repurposed items in their work with Design Bloom.

Materials

- Scissors
- Glue
- Tape
- Decorative materials
- Any repurpose-able "waste"
- Empty bottles, jugs, jars, and toilet paper rolls
- Cardboard boxes or containers
- Old magazines or other scrap paper

The Activity

By repurposing everyday items, we can reduce waste and help protect our environment. Explore creative ideas for repurposing these everyday items by considering familiar patterns in the shapes of common recycling and waste materials. Binoculars have the same tube-like shape as paper towel rolls and pencil cups look a lot like cans!

Suggestions for Projects

- Build planters: cut off the top of a box, make some holes in the bottom for drainage, fill it with soil, and plant a small flower or herb.
- Make a bird feeder: cut a hole in the side of a container, add birdseed, and hang it outside. Watch as birds visit your DIY feeder!
- Create a pencil holder: clean a container, decorate it with paint or stickers, and use it to organize your pencils and pens.
- Make a homemade snow globe: fill a container with water, add glitter and a small toy, and secure the lid tightly. Shake it gently to create a snowy scene.
- Build a mini town: decorate and stack several boxes and containers to create houses, stores, and buildings. Use your imagination and create a whole town!
- Make paper beads: cut long triangles from colorful magazine pages, roll them tightly, and glue the end to create beads. Thread them on a string to make unique jewelry. See how through a Beginner Guide to Making Paper Beads.
- Create collages: cut out pictures or words from magazines or newspapers and glue them onto a piece of paper to make an artwork.
- Make binoculars: decorate two tubes, tape them together, and use them to explore your surroundings.

Extensions

Have a classroom 'invention convention' where students display their creations, and invite them to share other ways that their families repurpose items at home.

Waste-Free Holidays: wrapping gifts in cloth - Furoshiki style

Introduction

Students will understand the concept of waste produced during the holidays and demonstrate their knowledge of how to reduce this impact by wrapping gifts using Furoshiki style cloth.

Materials

- Various-sized pieces of cloth (preferably square-shaped). Large cloth napkins from the thrift store, or colourful tablecloths and sheets cut into 12 x 12 squares work best
- Gift items (small toys, books, or other classroom supplies), or classroom objects simply used for practice
- String or ribbon

The Activity

Ask students about their favorite holidays and traditions associated with gift-giving. Discuss with the students the concept of waste and its impact on the environment. Explain that waste increases by more than 25% during holidays due to packaging and wrapping materials. Introduce the concept of waste-free living, where individuals reduce waste by adopting eco-friendly practices. Write down some key points discussed during the conversation. Highlight the fact that most packaging and wrapping used around the holidays can also be recycled.

Check out some good ideas for discussion through Recycle BC's "How you can reduce waste over the holidays" resource as well as the Recycling Council of BC's Holiday Guide. Share how to recycle holiday packaging and wrapping if students do receive it through Recycle BC's Holiday Recycling Guide.

Cloth Furoshiki Wrapping

- Before the class, become comfortable with the technique by watching a video demonstration of Furoshiki wrapping, making use of additional images and explanation if necessary.
- Explain this technique is a traditional Japanese wrapping style called "Furoshiki" using cloth instead of disposable wrapping paper.
- Show different examples of Furoshiki and explain that it can be done using any square-shaped cloth.
- Provide each student with a piece of cloth and a small gift item.
- Demonstrate the step-by-step process.
- Allow students to practice wrapping their gifts using the cloth provided. Assist and guide them as needed.
- Encourage creativity by suggesting different ways to fold and tie the cloth to create unique wrapping designs.
- Once the gifts/objects are wrapped, help students tie the cloth securely using string or ribbon.

Reflection

- Gather the students and have them share their wrapped gifts. Ask them to describe their Furoshiki wrapping and any creative techniques they used.
- Facilitate a discussion on the advantages or disadvantages of using Furoshiki style over traditional wrapping paper.
- Discuss other waste reduction strategies for the holidays, such as using recyclable materials or making homemade gifts.
- Ask students to brainstorm other ways they can incorporate waste-reduction practices during the holiday season.
- Encourage students to share what they have learned with their families and friends. Remind students to reuse their Furoshiki cloth for future gift-wrapping occasions.

JUST FOR LAUGHS

Why are recycle bins so optimistic?
Because they're full of cans instead of can-nots!

Extensions

- Organize a waste-free holiday gift exchange among students, where they can make their gifts and use cloth Furoshiki to wrap their gifts.
- Invite a local artist or a parent volunteer to conduct a Furoshiki wrapping workshop, demonstrating advanced folding techniques.
- Research and discuss other cultures' eco-friendly gift-wrapping practices, such as the Bojagi wrapping style in Korea.

DIY Recycle Depot: design your recycling station

Introduction

Recycling is easier and more successful if it is supported with user-friendly systems. This activity invites students to bring the message home by designing a recycling centre. They work collaboratively on design and create visual designs, plan the station's location, choose appropriate containers, and design/create labels.

Materials

- Visual aids (recycling symbols and words)
- Craft supplies (colored paper, glue, scissors, markers)
- Poster board or large paper for each group
- Magazines or newspapers for collage activity

The Activity

Begin by reviewing recycling and its benefits. Facilitate a discussion on having a recycling station at home. Ask students to share whether, and how, their families are currently recycling. Which materials? How do they sort it? Where do they take it? Do they have curbside pickup? What do they need to take to the depot?

FUN FACT

99% of households in BC have access to a recycling service, and 98% of the plastic Recycle BC collects stays in the province for processing.

Brainstorm and Build

- Show various recycling bins and systems.
- Emphasize the importance of organization for family participation.
- Have students work in groups to share materials and ideas.
- Provide magazines or newspapers, instructing them to find recyclable item pictures.
- Students should create a visual of their recycling station design.
- In their design, plan where the station will go in their home, what containers they'll use (bins, boxes, bags), and design labels for each item to take home.
- Each group presents their recycling station designs.
- Classmates ask questions and offer positive feedback.
- Discuss common elements among designs: container types, labels, and station placement.
- Highlight how these elements make recycling easy and accessible.
- Encourage students to talk with their families about creating a recycling station at home. Note: access Recycle BC accepted materials list and bin sorting signage.

Art

CURRICULUM CONNECTIONS

K

Explore various art materials and techniques to create visual artworks, and use basic art materials to express ideas and feelings.

1

Create crafts using a variety of materials to express ideas and feelings. Explore visual arts and music, creativity, and expression.

2

Explore the use of basic art elements and principles to create visual effects and convey messages.

3

Experiment with different materials and tools to create different effects. Continue exploration of visual arts and music concepts.

4

Explore different ways to communicate ideas visually and effectively through design. Continue exploration of visual arts and music concepts.

5

Combine different materials, techniques, and art elements to create mixed media artworks.

6

Use digital tools and technologies to create digital artworks, such as posters or illustrations.

7

Create sculptures using a variety of materials, including recycled materials, to express ideas and concepts.

Consider Lunches: reducing and recycling packaging waste

Introduction

Students will learn about the importance of reducing and recycling packaging waste in lunches, and explore waste-free lunch ideas while making a delicious snack together.

Materials

- 1 cup quick oats
- 1/2 cup nut butter (peanut, almond, etc)
- 1/3 cup honey or maple syrup
- 1/4 cup mini chocolate chips or dried fruits
- 1/4 cup flaxseed or chia seeds
- Optional goodies for flavour (cranberries, rice krispies, other nuts)
- Bowls, measuring cups, and spoons

The Activity

Begin by asking the students if they have ever thought about how to best reduce and recycle packaging generated from packed lunches. Discuss the concept of packaging waste and its environmental impact. This could even be an opportunity to look into lunch kits and discuss where the waste from student lunches goes.

Discuss the reasons why reducing and recycling packaging waste is important, such as reducing the use of single-use plastic and packaging, properly recycling packaging and single-use items that are in their lunches (some items, like flexible plastics, may be accepted for recycling at the depot even though they aren't accepted in the school recycling bins), and conserving resources used to produce, transport, and dispose of packaging. Share that actions such as reducing waste also helps protect wildlife and ecosystems from the negative effects of litter and pollution.

Have a look at the materials list for Recycle BC to familiarize yourself with what can be recycled and where: Recycle BC Material List.

Engage the students in discussion on ways they can reduce and recycle lunch packaging waste

Present a list of waste-free lunch ideas. Some examples include:

- Use reusable lunch containers instead of disposable bags and wrappers.
- Pack fresh fruits and vegetables in reusable snack bags or containers.
- Make homemade snacks instead of buying pre-packaged ones.
- Include leftovers from dinner as part of the lunch.
- Encourage students to share their own waste-free lunch ideas and experiences.

Make the balls!

Send the recipe home with students and encourage them to make them and pack them in their lunches. Before proceeding with the recipe, ensure that students do not have any food allergies or dietary restrictions. Adjust the recipe and ingredients accordingly if needed – no nut 'nut butters' are now widely available if your school is a 'no nut zone', and seed butters such as tahini also work very well.

- In a mixing bowl, combine all the ingredients.
- Stir until well mixed and the mixture holds together.
- Form small balls (about 1 inch in diameter) with your hands.
- Place the energy balls on a tray or plate and refrigerate for at least 1 hour to firm up.
- Pack the energy balls in a reusable container for a waste-free lunch.

Did you know that the average person in BC produces around 450kg of waste? The provincial target for each person is 320 kg. Diverting our waste by recycling more will help us meet this target (source).

Extensions

- Ask students to research and create posters or infographics highlighting the impact of packaging waste and promoting waste-free lunch ideas.
- Organize a waste-free lunch challenge where students bring waste-free lunches for a certain period and share their experiences.

Let's Make Music: creating instruments from recycling and composing

Introduction

Over three sessions, students will explore the relationship between sound and materials by creating musical instruments from recycling. They will also have a chance to collaborate with peers to create a simple musical composition using the instruments.

Materials

- Various recyclable materials and other reusable waste (cardboard, plastic bottles, tin cans, rubber bands, etc.)
- Arts and crafts supplies (glue, tape, scissors, markers, paint, etc.)
- Optional: basic musical instruments for comparison and inspiration.

The Activity

Session 1

Begin with a discussion about reusing and recycling and their importance for the environment.

Introduce the concept of sound and musical instruments, discussing how different materials can produce different sounds. Show examples of basic musical instruments made from reused materials. Allow students to choose materials and design their own simple musical instruments. Provide arts and crafts supplies for decorating and assembling instruments.

Session 2

Ask students to gather in a circle with their completed instruments. Lead a discussion on how different materials and shapes can affect the sound produced. Encourage students to experiment with their instruments, making different sounds and observing the results. Guide students in exploring basic musical concepts such as pitch, volume, and rhythm using their instruments.

Divide the class into smaller groups, ensuring a mix of different instruments in each group. Explain that each group will create a short musical composition using their instruments. Guide students in brainstorming ideas for their compositions and assigning roles (e.g., rhythm, melody, accompaniment). Allow time for each group to practice and refine their composition.

Session 3

Bring the class back together and give each group the opportunity to perform their composition. Lead a discussion about the experience, asking students what they learned, what challenges they faced, and how they overcame them.

Extensions

- Invite students to disassemble their instruments following the activity and return the elements to the recycling bin.
- Invite local musicians or music teachers to provide additional guidance and inspiration.
- Record the students' compositions and create a digital or physical portfolio.

Three-Dimensional Mural: create a recyclable mural together

Introduction

In this activity, the class will create a collaborative art mural for hanging on the classroom wall using recyclable materials, and explore the process of mixing colours to paint their artwork.

Materials

- Various recyclable materials
- Giant piece of cardboard
- Glue/tape
- Tempera paint, multicolours
- Paint brushes
- Jars from recycling to use for mixing
- Mixing sticks
- Clear packing tape for mounting to the wall
- Aprons or old clothes for students to wear

The Activity

Briefly discuss recycling and its importance for the environment. Explain that students will be creating a collaborative art piece using recyclable materials. Lay out the cardboard and recyclable materials and demonstrate how to use glue and tape to attach materials to the giant cardboard piece. Allow students to work individually or in pairs to attach the materials to the cardboard, creating a three-dimensional mural.

DID YOU KNOW?

Foam packaging can be recycled when you're done with it! Recycle BC acceptes foam packaging for recycling at over 200 depots around BC.

Set up glass jars, bowls, mixing sticks, and tempera paint on the tables. Explain the concept of mixing colours and how it creates new shades. Colour Theory for Kids has some great tips on how to present this to children. Let students mix their own colours and paint their additions to the mural. Encourage experimentation and creativity. Once the large piece is painted and dried, it can be hung on the wall of the classroom.

Reflection and Discussion

Gather students together to discuss their artwork and the process of creating it. Ask questions such as:

- What did you enjoy most about creating this artwork?
- How did you feel while mixing colours and painting?
- What challenges did you face during the process?
- For ongoing interaction, leave a bin of recycling and tape or glue on a table adjacent to the piece and encourage students to continue to add to it.

Recycle BC has compiled a few simple craft ideas for you to try. We challenge you to encourage students to make sure that the items are still recyclable even after the art piece! Quick, Easy Crafts for Kids Using Your Recycling.

Turning Milk into Plastic: making our own “plastic” jewelry

Introduction

By the end of this lesson, students will understand the process of making casein plastic from milk and vinegar and will explore the concepts of chemical reactions. They will get to create an art piece such as a sculpture, buttons, beads or an ornament with plastic that they make themselves.

Materials

- 1 cup milk
- 4 tsp white vinegar
- Measuring cup + spoons
- Thermos (optional)
- Mug or heat-resistant cup
- Paper towels
- Stovetop oven and pan or microwave and safe container
- Optional: cookie cutters, food colouring, markers

The Activity

Begin the lesson by asking students if they understand that most plastic is made of petroleum by-products. References to carbon and climate can fit here, with a discussion about how reducing plastic use, recycling materials into new things, and finding alternatives to plastic packaging can help us to reduce our impact on the environment. Talk about how they will be making their own plastic out of milk. Share some interesting historical information about how milk was used to make plastic in the past. An infographic about the history of plastic can be found below, casein plastic being the first version.

Casein plastic, also called milk plastic, is a material made from milk protein that can be used as a substitute for regular plastic for some items and uses. It breaks down naturally over time, unlike regular plastic which stays in the environment for a very long time. However, because it breaks down naturally, it can't be recycled, or made into new products or packaging.
It is not as strong or water-resistant as regular plastic, so it does not work well for all uses. More research would be needed to find out if and how casein plastic would be able to meet our current needs.

Making the "plastic"

Watch a video of the process to prepare for the activity.

- Heat 1 cup of milk in a pan on the stovetop or in a microwaveable container in the microwave until the milk is steaming. It should be about the same temperature as for making hot cocoa.
- If not using it immediately, transfer the hot milk to a thermos to keep it warm.
- Add 4 teaspoons of white vinegar to a mug or heat-resistant cup.
- Pour the hot milk into the mug with vinegar and observe the formation of white clumps (curds).
- Discuss with students why they think the milk forms curds when mixed with vinegar and what they think the curds are made of.
- Mix the milk and vinegar slowly with a spoon for a few seconds and observe any changes.
- Stack four layers of paper towels on a safe, hard surface.

Written and designed by Elena Bilheimer.

BEFORE PLASTIC

Berries and some other fruits were put in compostable paper containers and were mostly available seasonally rather than put in plastic clam shells or frozen in plastic bags.

Cosmetics used to come in glass containers and were often capped with corks, while cleaning supplies were usually in powder form and sold in cardboard boxes. Lipstick and mascara would come in metal tins, while makeup brushes were made of wood and animal hair.

Cookies, crackers, and dry goods were often sold in bulk and dispensed in paper bags or tins. Later, snack foods came in bags made of paper sealed with wax inside larger paper boxes.

Milk and other beverages used to come in glass containers that would get washed and reused by the store. Reusable glass milk bottles are still available in some stores for a deposit, meaning that the price is higher initially but the deposit is refunded when the bottles are returned to the store.

While it can seen almost impossible to imagine how meat was packaged and sold before plastic, selections were picked out at the butcher's counter and wrapped in paper. Cheese was also wrapped in either paper or cloth.

Adapted from the Northcoast Environmental Center.

- Place the curds on top of the paper towel stack.
- Fold the edges of the paper towel stack over the curds and press down to absorb excess liquid.
- Knead all the curds together into a ball of dough, which is the casein plastic.
- Create shapes (jewelry, ornaments, etc.) right away while it is still malleable, and allow to dry on paper towels for 48 hours. Add colour with food colouring.
- Emphasize that this plastic is compostable after it is finished being used.

Discussion and Reflection

Engage students in a discussion about what happened during the activity, emphasizing the chemical reaction that occurred between the milk and vinegar. Explain that plastics are made of molecules called polymers, which are chains of repeating units called monomers. Discuss how casein plastic is formed by the casein molecules unfolding and reorganizing into a long chain when heated with an acid-like vinegar. Allow students to share their observations and ask questions about the process. Discuss the various ways casein plastic can be shaped and decorated. Ask whether this type of plastic can be used for everything if it composts over time. Why/why not? What do we still need more durable plastic for? Making sure to recycle the plastic that we use is an important step in reducing our waste and ensuring that resources used to make things like packaging are used again and again.

Extension

- Research other types of bioplastics and their applications, comparing them to casein plastic.
- Explore the environmental implications of using casein plastic and discuss its advantages and disadvantages.
- Research ways that petroleum-based packaging is being recycled to recover the chemicals to be used more than once.
- Review which materials can be recycled by looking at What Can I Recycle? from Recycle BC.

Language Arts

CURRICULUM CONNECTIONS

K	Short sentences, simple descriptions, and basic stories.
1	Introducing descriptive language. Encouraging imaginative storytelling. Understanding simple prompts and basic texts.
2	Expanded sentences, short stories, and letters. Enhancing descriptive language. Stimulating creativity in storytelling. Understanding prompts and short texts.
3	Developing paragraphs, short stories, and letters. Using vivid imagery and descriptive language. Fostering creativity in storytelling.
4	Crafting paragraphs, essays, dialogues, and short stories. Refining descriptive language and imagery. Exploring creativity in storytelling.

LANGUAGE ARTS

5

Composing essays, stories, and persuasive pieces. Using descriptive language effectively. Developing persuasive essays and letters.

6

Strengthening persuasive essays and letters. Advancing creativity in storytelling. Understanding prompts and informational texts.

7

Advancing creativity in storytelling. Understanding prompts and informational texts. Reflecting on environmental issues and proposing solutions.

Primary Writing Prompts

Use these writing prompts for students to reflect on their relationship to their environment as they explore their waste diversion journey:

- Draw a picture of your favorite animal in its natural habitat. Then, write a sentence or two about why it's important to protect its home.
- Write a short story about a friendly talking tree that gives advice on how to take care of the environment. What tips would the tree give?
- Draw a picture of a recycling bin and write the names of three items that can be recycled. Explain why it's important to recycle these items instead of throwing them away.
- Imagine you are a superhero who can use magic to make litter disappear. Draw a picture of yourself as a superhero and write a sentence about how you would use your powers to keep the environment clean.
- Write a sentence about something you can do every day to help the environment. It could be as simple as turning off the lights when you leave a room, using a reusable water bottle, or recycling your packaging.
- Describe the recycling process. How does an item go from your home to be made into a new package or product?
- Write a sentence about the types of waste you make at home. Think about different kinds (garbage, recycling and organics) and what you can do with each.
- Draw a picture of a tree and write a sentence about why trees are important for the environment. Think about what we use trees for.

- Write a sentence about your favorite outdoor activity and why it makes you happy. Think about how being outside and enjoying nature can make you feel good. Does this make you want to protect it?
- Draw a picture of a smiling Earth and write a sentence about why it's important to take care of our planet. Think about how we can all work together to keep the Earth clean and healthy.
- Imagine you are a detective looking for clues about whether or not people are recycling in your neighbourhood. Write a sentence about one clue you would look for and why it's important to have everyone recycle their packaging and paper.
- Draw a picture of yourself picking up garbage or recycling and write a sentence about why it's important to put garbage and recycling in the right bin instead of leaving it on the ground. Think about how litter can harm animals and the environment.

Intermediate Writing Prompts

Use these writing prompts for students to reflect on their relationship to their environment as they explore their waste diversion journey:

- Imagine you are a superhero with the power to protect the environment. What would your superhero name be, and how would you use your powers to reduce waste?
- Write a story about a magical tree that can grow anything you wish. How would you use this tree to help the environment?
- Draw a picture of your favorite outdoor activity. Then, write a short paragraph about how you can enjoy that activity while being mindful of the environment.
- Imagine you are a detective investigating a case of excessive waste in your school. Write a short mystery story about how you would solve the case and help reduce waste and increase recycling.
- Create a poster that encourages people to recycle. Include colorful pictures and catchy phrases to inspire others to recycle more.
- Write a letter about your local park or playground, suggesting ways to make it more eco-friendly. Explain why these changes would help the environment and make the park a better place for everyone.
- If you had a magic wand that could transform waste into something useful, what would you create? Write a description of your magical creation and how it would benefit the environment.

- Write a story about the recycling process as you understand it. Why is recycling important?
- Pretend you are an inventor who wants to create the ultimate recycling machine. Describe what your machine would look like, how it would work, and how it could make a difference in the world.
- Write a poem about the beauty of nature and why it's important to take care of it. Use descriptive words and vivid imagery to bring your poem to life.
- Create a comic strip that shows a superhero team working together to sort their home recycling. Include speech bubbles and captions to tell the story of how they sort waste to contribute to a circular economy.
- Write a persuasive essay explaining why it's important for everyone to reduce, reuse, and recycle. Include facts, examples, and personal experiences to support your argument.
- Imagine you are a reporter interviewing an animal that is affected by pollution. Write a dialogue between you and the animal, where you ask questions about how pollution has impacted its life and what humans can do to help.
- Write a letter from 2050 imagining that it is a zero-waste time. Describe what it is like and everything we did to get there.

Do I have to clean my recycling containers?

If you do your best to rinse out your recycling containers, even if they aren't perfect, Recycle BC will take them, and they won't go to the landfill.

Recommended Primary Books

"The Adventures of a Plastic Bottle: A Story About Recycling" by Alison Inches
Told from the point of view of a free-spirited plastic bottle, kids can share in the daily experiences and inner thoughts of the bottle through his personal journal.

"Recycle Every Day" by Nancy Elizabeth Wallace
Minna, a creative bunny, wants to win the Community Recycling Calendar Contest. She knows a lot about recycling but just can't come up with the perfect idea for her poster. Minna's family helps her find inspiration as they share their own recycling efforts.

"Michael Recycle" by Ellie Bethel
Michael Recycle tells the adventures of a young superhero whose power allows him to teach people about recycling.

"Gabby and Grandma Go Green" by Monica Wellington
From sewing their own cloth bags and buying vegetables at the Farmers' Market to recycling their bottles, these two know how to have a good time while doing good things for the earth.

"One Plastic Bag: Isatou Ceesay and the Recycling Women of the Gambia" by Miranda Paul
Discover the inspiring true story of Isatou Ceesay, an African woman who started a recycling movement to combat the pollution caused by plastic bags in her community.

"The Great Trash Bash" by Loreen Leedy
Beaston's Mayor Hippo calls a town meeting when he realizes that there is too much trash, and the animals work together to clean up the mess and change habits to prevent future problems.

"Recycle!: A Handbook for Kids" by Gail Gibbons
Where does all the garbage go after we throw it out? And how can it be used again? This lively and informative book explains the process of recycling from start to finish. Recycle! focuses on five different types of rubbish: paper, glass, aluminium cans, plastic and polystyrene.

"The Greening Book: Being a Friend to Planet Earth" by Ellen Sabin *The Greening Book inspires children to appreciate the earths gifts, learn about its needs, and discover their power to protect and care for our Planet.*

"Why Should I Recycle?" by Jen Green
A great book to explain to children in simple terms and concepts why recycling is so important and what they can do every day to help protect Planet Earth!

"The Earth Book" by Todd Parr
Todd Parr explores the important, timely subject of environmental protection and conservation in this eco-friendly picture book.

"I Can Save the Earth!: One Little Monster Learns to Reduce, Reuse, and Recycle" by Alison Inches
Little Green Books will educate children on what they can do to be more eco-friendly.

Recommended Intermediate Books

"Trash Talk: Moving Toward a Zero-Waste World" by Michelle Mulder
Our landfills are overflowing, but with some creative thinking, stuff we once threw away can become a collection of valuable resources just waiting to be harvested.

"Garbage and Recycling: Environmental Facts and Experiments" by Rosie Harlow and Sally Morgan
Explaining the difference between biodegradable and non-biodegradable garbage, the authors show how glass, metal, and wool can be easily recycled.

"Plastic, Ahoy!: Investigating the Great Pacific Garbage Patch" by Patricia Newman
A team of researchers went on a scientific expedition to learn about the Great Pacific Garbage Patch, where millions of pieces of plastic have collected. The plastic has drifted there from rivers, beaches, and ocean traffic all over the world. Most of it has broken down into tiny pieces the size of confetti.

"Project Recycling and Rubbish" by Sally Morgan
This book is packed with scientific facts, experiments, and activities linked to garbage and recycling, and making our environment a cleaner, safer place.

"Our Earth: How Kids Are Saving the Planet" by Janet Wilson
A windmill built from bicycle parts, a bridge made for a monkey, and a touch of magic... Young people are doing amazing things for the future of our planet.

"Recycle This Book: 100 Top Children's Book Authors Tell You How to Go Green" edited by Dan Gutman
Over 100 essays of informative and inspiring words to kids of all ages to understand what's happening to the environment, and to take action in saving our world.

"Save the Earth: An Eco-Friendly Handbook for Kids" by Betty Miles
Discusses the ecological problems of land, air, and water pollution in the world today. Includes projects that illustrate these problems and possible solutions to them.

"The Green Book: The Everyday Guide to Saving the Planet One Simple Step at a Time" by Elizabeth Rogers and Thomas M. Kostigen
Famous celebrities tell you how they make a difference to the environment.

"The Pickle Patch Bathtub" by Frances Kennedy
This warm, true story illustrates the value of a dollar and what can be accomplished by working together toward a goal.

Eco-Writers: taking care of our Earth

Introduction

This activity aims to introduce young students in grades K-3 to the concept of recycling and encourage them to reflect on taking care of our earth through simple writing and drawing exercises.

Materials

- Large sheets of paper
- Crayons or coloured pencils
- Markers
- Pencils or thick markers for writing

The Activity

Start by gathering the students in a circle and engaging them in a discussion about taking care of the earth. Ask questions like:

- Why is it important to keep our earth clean?
- What can we do to help the earth?
- How can we take care of nature?
- What about waste? Where can we put it, so we are not harming the earth?

Have each student share one idea about how they can take care of the Earth. Write down their responses on a large sheet of paper, creating a brainstorming chart that everyone can see. Encourage creativity and reinforce that every small action counts.

Provide each student with a large sheet of paper and ask them to draw a picture related to one of the ideas discussed during the brainstorming session. Once they finish drawing, help them write a short sentence or a few words that describe their picture. For younger students, you can write the sentence for them if needed.
Give students an opportunity to share their drawings and sentences with the class. Ask each student to briefly explain their artwork and what it represents. Encourage positive feedback and reinforce the importance of everyone's efforts in taking care of the Earth.

Wrap-up Discussion

- What did you learn about taking care of the Earth today?
- How can we help the Earth every day?
- What are some simple ways we can recycle at home or at school?

Scavenger Hunt: the recycling process

Introduction

This activity will familiarize students with the recycling process and what happens to different items at the end of their lifecycle in British Columbia. It will also enhance research and presentation skills.

Materials

- Printed cards with different items to recycle (see next page, prepared in advance)
- Bowl or hat to hold the cards
- Internet access for research

Newspapers	Crinkly wrappers and bags
Magazines	Plastic protective packaging
Office paper	Plastic overwrap
Envelopes	Paper packaging
Flyers	Expanded polystyrene foam
Paper bags	Paper cups (lined)
Shredded paper	Foam meat trays
Cardboard	Foam takeout containers
Glass bottles and jars	Foam cups and plates
Plastic bottles and jugs	Cartons (non-lined)
Aluminum pie plate	Plastic plant pots
Metal cans	Plastic clamshell containers
Foil and aluminum trays	Plastic bakery trays
Empty aerosol cans	Plastic cutlery
Plastic grocery bags	Catalogs
Bread bags	Soup cartons
Stand-up zipper-lock pouches	Construction paper

The Activity

- Begin the lesson by discussing the importance of recycling and its impact on the environment.
- Explain that students will be participating in an online 'scavenger hunt' activity to learn about the recycling process for different items.
- Place the cards into a bowl or hat and have each student randomly choose one.
- Invite students to research the Recycle BC website to gather information about their assigned item. Encourage students to explore beyond the website if necessary to gather more information. Have them take notes on the item's origin (i.e., which natural resources are used in the making of this?) and where it goes at the end of its lifecycle.
- Have students organize their research notes and create a presentation that starts with the phrase: "Hi, my name is [the item] and I come from [origin of material]. When people are finished with me, this is where I go [what happens to item at end of use]." For example, "Hi. My name is Paper. I originally come from trees. When people are finished using me, I hope that I get recycled and turned into a new paper product."
- Students can then get up to present and introduce themselves as the item to the class.
- After each presentation, open the floor for questions from the other students to encourage engagement and discussion.
- Ask students to reflect on what they have learned about the recycling process through this activity.

Extension

- Students can create posters or infographics about the recycling process for different items and display them around the school.
- Encourage students to develop an action plan for promoting recycling in their school or community.
- For additional teaching support, check out Recycle BC's information on the recycling process.

Mathematics

CURRICULUM CONNECTIONS

K	Sort and classify objects based on attributes. Compare and organize data using simple graphs (e.g., pictographs).
1	Organize and represent data using simple graphs and charts (e.g., bar graphs). Interpret and draw conclusions from data presented in graphs.
2	Represent and interpret data using graphs and charts. Compare data sets and draw conclusions based on the information presented.
3	Collect, organize, and interpret data. Create different types of graphs and analyze data to draw conclusion.
4-7	Collect, organize, and interpret data. Create different types of graphs and analyze data to draw conclusions.

Sorting: exploring recycling and reducing

Introduction

Basic sorting skills will be applied while students learn about recycling, different types of recyclable materials, and ways to reduce waste in order to protect the environment.

Materials

- Visual aids (see next page)
- Recyclable items for:
  - home: paper, containers (metal, plastic, cartons), and glass (in some communities).
  - depot only: flexible plastics and foam packaging - and glass if not accepted in separate bins from home.
- Brown paper bags labeled "Paper," "Glass," "Containers" , “Flexible Plastics", “Foam Packaging”.

The Activity

Brainstorm items for discussion: examples include newspaper, detergent jug, yogurt container, aluminum pie plate, sunscreen container, soup carton, cardboard box, scrap paper, plastic plant pot, plastic grocery bag, stand-up zipper-lock granola bag, granola bar wrapper, bubble wrap, foam meat tray, foam protective packaging.

- Introduce the topic of waste and recycling. Explain that waste is the things we throw away, and recycling is a way to give new life to some of the items we would usually throw away.
- Discuss where garbage goes after it is thrown away, mentioning garbage cans, dumpsters, garbage trucks, and landfills. Show pictures of these items to reinforce understanding.
- Introduce the concept of recycling and its benefits, such as saving landfill space and preserving natural resources.
- Engage the students by asking questions such as: What is garbage? Where do we put garbage? What happens to the garbage truck when it's full? (It goes to a landfill.) Why is recycling important? (To save landfill space and preserve natural resources.) Can you think of examples of items that can be recycled? Prompt students to think about paper, containers (metal, plastic and cartons), glass, flexible plastics, and foam packaging.
- Focus on one type of recyclable material category at a time.
- Show examples of each material and discuss what items can be recycled within each category (reference material list for item examples).
- Invite students to choose an item from your selection and sort it into the correct bag. This can be done in pairs, or as a recycle relay game if the students are more mature.

Extension

- Share examples of everyday items and discuss ways to reduce waste related to each item.
- Introduce the idea of using reusable dishes instead of disposable ones and explain how it reduces waste.
- Encourage students to donate unused items instead of throwing them away.

Tracking Our Recycling Efforts: practice using charts

Introduction

Students get to understand the importance of recycling, learn about the different types of recyclable materials, and track their recycling efforts by creating a graph that illustrates their impact on reducing waste.

Materials

- School recycling bins (full of recycling)
- Space and receptacles for sorting into multiple categories: paper, plastic, glass, contaminated, other, and metal
- Recycling log sheet (see following page)

Name:

Paper	Plastic	Glass	Contaminated	Other	Metal

The Activity

Introduce students to the concept of recycling and its environmental benefits. Ask students what they know about recycling and why it is essential for the environment. Discuss the importance of proper sorting and how it affects the recycling process. Review this information from Recycle BC on preventing recycling contamination.

Just for Laughs

I used to work in a recycling plant, crushing cans. – But I had to quit, it was soda pressing (so depressing)

- Conduct a hands-on activity where students work in groups to sort recyclable items into appropriate bins/categories: paper, plastic, glass, contaminated, other, and metal.
- Provide each student with a recycling log sheet to record the types and amounts of recyclable materials in the bins at the school. Note – schools vary in their sorting and recycling systems and may not align with how students sort at home – refer to custodial staff and administration to understand the processes at your school.
- Teach students how to graph and interpret their recycling data.
- Explain different types of graphs (bar graphs, pie charts) and their purposes. Simple resources for this can be found here: Teaching data and graphing
- Guide students in creating a graph that visually represents their recycling investigation.
- Allow students to present their graphs to the class and discuss their findings.

Extension

- Have students create an awareness campaign for other classes about the importance of recycling properly.
- Encourage students to create posters or pamphlets about recycling and its benefits, which can be displayed around the school.
- Additional information to be used for graphing can be found in Recycle BC's Annual Reports.

Science

CURRICULUM CONNECTIONS

K	Develop an awareness of the need to protect the environment.
1	Daily actions and their impact on the environment.
2	Consider the environmental implications of their actions.
3	Identify the properties of materials and how they can be sorted based on their special properties.
4	Explore waste reduction and recycling and the impact on the environment. Examine the properties of materials that make them suitable for recycling.

5

Investigate the properties of materials and their role in the recycling process. Understand the importance of properly separating recyclables for effective recycling

6

Apply concepts of waste reduction and recycling to address environmental issues. Analyze how properties of materials are used to sort recyclables efficiently.

7

Investigate environmental conservation strategies, including waste reduction and recycling. Examine the properties of materials used in recycling processes.

Superheroes: using superpowers to promote conservation

Introduction

Students will use their imagination and creativity to think of how a superhero's powers can be used to address the problem of waste and environmental impact, and then come up with practical actions they can take as a class or school.

Materials

- "Apply a super power" worksheet (see following page)
- Chart paper or whiteboard
- Markers
- Images or descriptions of different superheros (optional)

Apply a SUPER Power

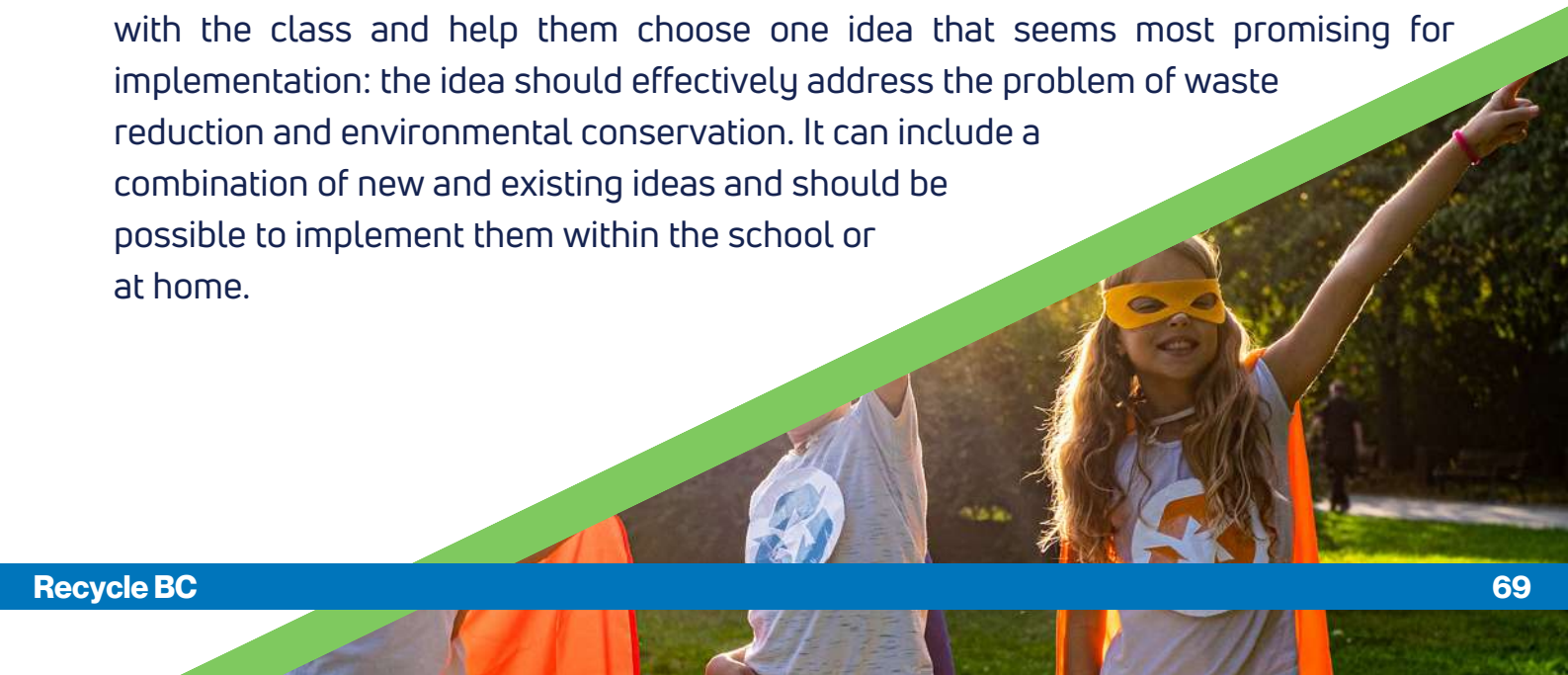
Name of superhero:			
Problem:			
Superhero's special powers	**What coud the superhero do?**	**What could we do?**	**Promising ideas**

The Activity

Begin the lesson by asking students who their favorite superheroes are. Write down a few of their answers on the board. Explain that today's activity will involve using superheroes' special powers to help address a real-world problem related to environmental conservation. Present the problem to the students: "We want to find ways to promote reduce, reuse, and recycle practices in our school and at home to help protect the environment. How can garbage negatively affect the environment? How can we use superheroes' powers to come up with creative and effective solutions?"

Select one superhero (e.g., Superman) and discuss their special powers or abilities with the class. Brainstorm ideas on how that superhero's powers could be used for environmental conservation, like using super strength to crush and recycle waste or using super speed to clean up litter quickly. Write down the suggested ideas on chart paper or the whiteboard. Ask students to think about how these superhero ideas could be turned into something that can be done in their school or at home to promote reducing, reusing, and recycling. Record their ideas on the chart paper or the board.

Organize students into small groups and assign each group a different superhero. Provide each group with the "Use a Superhero's Powers" worksheet. Instruct the groups to use the superhero's powers listed in the worksheet and apply them creatively to address the waste reduction and environmental conservation problem at the school. Invite each group to share their most promising ideas with the class. Have a class discussion to analyze and refine the ideas presented. Review the ideas with the class and help them choose one idea that seems most promising for implementation: the idea should effectively address the problem of waste reduction and environmental conservation. It can include a combination of new and existing ideas and should be possible to implement them within the school or at home.



Material Properties: sort it out!

Introduction

Some materials must be sorted and dropped off at the depot, others can be recycled at home. For a reminder of what goes where be sure to follow Recycle BC's materials list, and brush up on what happens to recycling once it's collected from homes. How do these materials get further sorted into individual categories after they are collected from homes or depots so that they can be processed into new materials? This activity will help students understand that materials have different properties that support this process. Some sorting is done manually (by people watching and hand sorting on a conveyor belt), and some mechanically, by machines.

Students will learn about properties of materials and how some recyclers use these properties to group recyclables. They will perform a hands-on activity to separate materials based on their special properties.

Materials

- Plastic container and scissors
- Worksheet (see following page)
- 1 latex balloon
- 1 square of aluminum foil (5 x 5 cm)
- 1 square of paper towel (5 x 5 cm)
- 5 metal paper clips (~ 3 cm)
- 1 piece of window screening (20 x 30 cm)
- Rectangular cake pan (about 32 x 23 x 5 cm)
- Magnet
- Water

What did you observe?

OBJECT	Attracted to magnets	Attracted to balloon	Floated on the water	Did not float

The Activity

Have the students prepare the materials:

- Instruct the students to cut the plastic container into five pieces and cut or tear the aluminum foil and the paper towel into 5 pieces each. Have them roll each piece of paper towel into a ball between your thumb and index finger.
- Have the students place the pieces of plastic, aluminum foil, paper towel, and the paper clips together in a pile on the window screening.
- Instruct the students to move the magnet through the pile and put any objects picked up by the magnet aside in a pile. Record the objects picked up in the "What Did You Observe?" section.
- Have the students inflate the balloon, rub it on their hair, and then hold it close to the pile to see what happens to the objects. Put everything that is attracted to the balloon in a second pile. Record these items in the "What Did You Observe?" section.

Fill the cake pan with water and have the students dip the screen with the remaining objects into the water. Pick off any floating materials and put them in a third pile. Record these items in the "What Did You Observe?" section. Finally, instruct the students to lift the screen and put the remaining objects in a fourth pile. Record these items in the "What Did You Observe?" section. Gather the students and discuss their observations. Ask questions like: which materials were attracted to the magnet? Why do you think that happened? What happened when the balloon was brought close to the materials? Why do you think some materials were attracted to the balloon? Why do you think some materials floated on the water while others did not?

Summarize the key points about properties of materials and how some recyclers use these properties to sort recyclables. Encourage students to think about ways they can reuse or recycle materials in their daily lives.

Extension

Provide students with a mix of materials (e.g., pennies, pencil shavings, rubber bands, marbles) and challenge them to come up with their own methods to separate them based on their properties.

Paper or Plastic?

Introduction

Students will learn about the importance of reducing and recycling packaging waste in lunches, and explore waste-free lunch ideas while making a delicious snack together.

Materials

- Samples of each: paper and plastic bags, a reusable bag, and a t-shirt bag
- Chart paper or whiteboard
- Markers
- Old t-shirts (one for each student)
- Scissors

The Activity

Begin by engaging the students with a scenario: "Imagine you are at the grocery store, and you want to buy a pineapple because they're delicious. As you wait in line to pay, the clerk asks, 'Paper or plastic?' What would you choose and why?" Discuss their initial thoughts on paper and plastic bags, prompting them to consider the environmental impact of each option.

Talk about paper bags

- Show an image of a paper bag and discuss how they are made from trees, which are essential for the environment. People cut down the trees, grind them up, and make paper from the pulp. We don't want to cut down too many trees, though, because trees help the environment. They make oxygen that we need to breathe. They provide a place for animals to live. We can plant new trees to replace the ones we cut down, but we still should save as many trees as we can.
- The paper bag might be made of recycled paper. That's a paper that has been used more than once. That means that we didn't have to cut down more trees to make it. Recycling paper still requires energy, though. Paper is also quite heavy, which means that moving it around on trucks takes a lot of energy too.
- Brush up on information about paper recycling do's and don'ts in BC.

Talk about plastic bags

- Show an image of a plastic bag and explain that plastic is not part of nature and doesn't break down easily, causing environmental problems.
- Plastic is not made from living things like paper is. Plastic is made by people - it never existed before people created it.
- The trouble with plastic is that it doesn't fit into any ecosystem. Nothing can eat it, so when it goes in the trash it never really goes away. Plastics last for hundreds or even thousands of years.
- Discuss the impact of plastic pollution on the ocean and wildlife.
- Plastic CAN be recycled at depots or London Drugs stores - Recycle BC Information for Flexible Plactics Plastics Recycling

Introduce the idea of bringing a reusable bag

- Emphasize the importance of using a bag multiple times to reduce environmental impact.
- Have students share what their families practice regarding reusable bags.
- Invite students to make a 'No Sew' bag from an old t-shirt following instructions in the following video DIY | NO Sew T-Shirt Bag (SO Easy!!)

Social Studies

CURRICULUM CONNECTIONS

K	Identify and describe ways in which people's actions affect the environment.
1	Recognize and respect similarities and differences among people.
2	Explain how the local environment influences where and how people live.
3	Analyze how natural events and human activities shape the local environment.
4	Explain how the environment supports the basic needs of a community.

5

Explain how the movement of people, goods, and ideas affects societies.

6

Describe economic factors that influence decision-making. Assess the role of human and natural resources in the production of goods and services.

7

Analyze how natural events and human activities influence the land and its diverse regions. Evaluate the impact of resource and land use on the environment.

Caring for our Neighborhood: a community cleanup

Introduction

Share with students the importance of keeping their neighbourhood clean and encourage them to take action by participating in a cleanup activity. Students will also learn about the different types of litter, recycling, and reusing items to promote environmental consciousness. It will take 2-3 class sessions, with additional time for the community cleanup.

Materials

- Videos to inspire: Canada's Roadside Superhero, and Eleven-year-old Inspires Kids Worldwide
- A tally sheet made by the class based on types of waste
- Gloves (for each student)
- Grabbers/tongs (for each student or group)
- Garbage and recycling bags
- Reusable containers (for collecting reusable items)
- Poster board and markers (for creating recycling posters)

The Activity

Have a look at suggested videos for inspiration. Discuss what they like about their surrounding community and how they feel when they see garbage on the ground. What do they want their spaces to look and feel like? Talk about the importance of keeping the neighbourhood clean and how litter can negatively impact the environment and wildlife.

- Identify a suitable area within the school grounds or nearby community spaces for the cleanup – have students map out in advance where they will be going.
- Ask them to share their thoughts on the types of litter they have seen in their community and where they have observed it.
- Discuss safety measures such as wearing gloves, using grabbers/tongs, and identifying unsafe items like broken glass and needles.
- Divide the students into small groups and provide each group with gloves, grabbers/tongs, garbage bags, and recycling bags.
- Conduct the cleanup activity in the designated area (school grounds or nearby community spaces).
- Instruct students to collect litter and separate it into garbage and recyclable items.
- Use the tally sheet to keep track of the different types of litter collected by each group.
- After the cleanup, gather and discuss the total amount of litter collected and the impact of their efforts on the neighborhood. Have students divert waste appropriately through recycling and composting where possible. How much of the waste can be used again by recycling into new materials?

Extensions

- Review the collected items and find ways to make use of the reusable items. Encourage creativity in repurposing materials or creating art projects.
- Organize a community clean-up event on Earth Day. Collaborate with local authorities and community members to maximize the impact and raise awareness about the importance of keeping the neighbourhood clean.

Interviewing Family Members

Introduction

Parents and grandparents may have had different experiences from your students with reducing, reusing, and recycling. A lot of things can change over the span of just a generation or two! Recycling systems and technology have many advances to better manage and recycle packaging and paper.

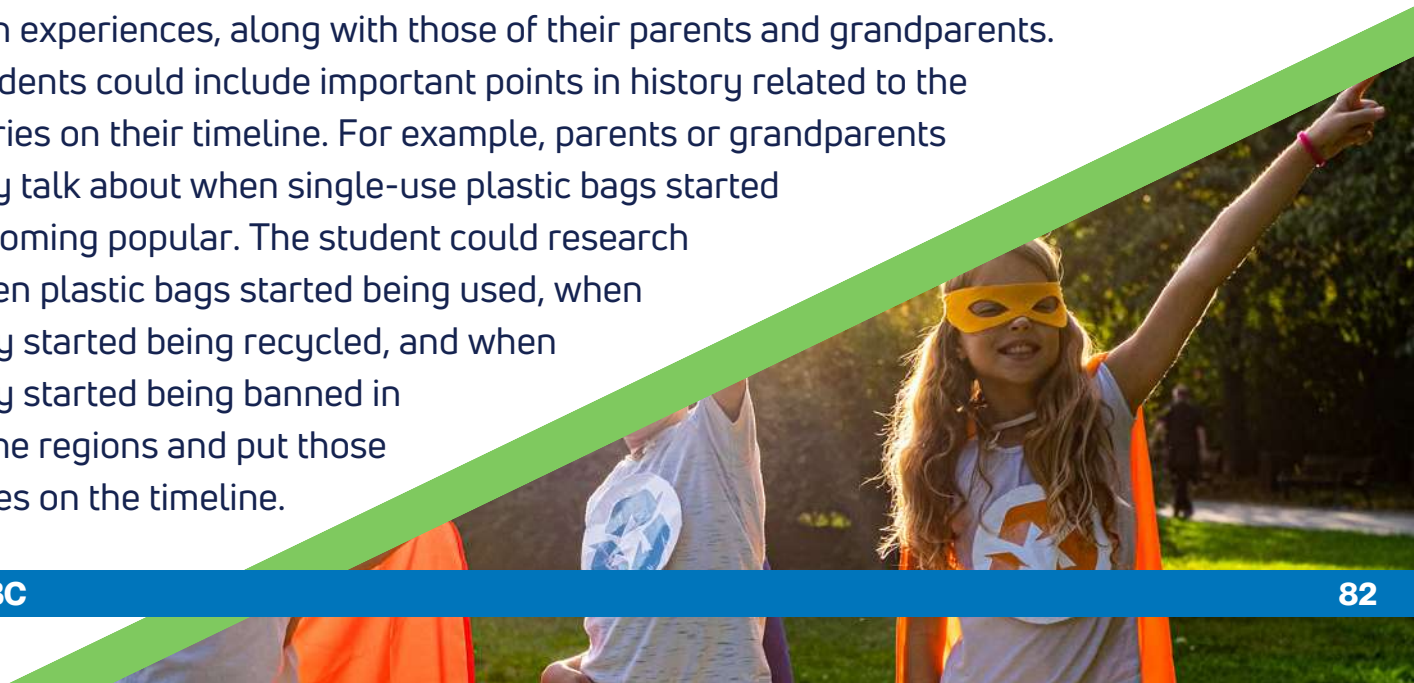
The Activity

Have the students interview people about how they handled waste when they were younger. Ask questions like:

- Were they taught about reducing, reusing, and recycling when they were younger?
- Was waste the same when they were younger?
- If they recycle, why do they do it? Where did they learn to recycle? If they don't, why not?
- Have they seen people reduce, reuse, and recycle more, or less over the course of their lifetime? Why?
- Do they know how to repair furniture, electronics, clothing, or anything else around the house? If so, how did they learn how to do this? Why do they do it – for fun, to save money, because they care about the environment, or for some other reason?
- Are they familiar with the BC's residential packaging and paper recycling program? Are they familiar with Extended Producer Responsibility as a policy approach to managing recycling, where the businesses are responsible for the end-of-life management of the packaging they supply? Watch and learn about Extended Producer Responsibility: What is EPR?
- For older students, incorporate a technology component and have them put a video or other type of presentation together with information they gathered from their interviews.

Extension

Take this project a step further and have students put together a timeline of their own experiences, along with those of their parents and grandparents. Students could include important points in history related to the stories on their timeline. For example, parents or grandparents may talk about when single-use plastic bags started becoming popular. The student could research when plastic bags started being used, when they started being recycled, and when they started being banned in some regions and put those dates on the timeline.



From Landfills to Minimal Waste: exploring waste management past, present, and future

Introduction

It is important to consider our waste and how it has been managed over time so that we can understand how we might possibly move toward minimal waste in the future. By the end of this lesson, students will be able to: understand the concept of landfills and their impact on the environment, explore the history of landfills and middens in British Columbia, and discuss the concept of minimal waste and its potential for the future. They will recognize the importance of reducing, reusing, and recycling waste in their daily lives.

Materials

- Whiteboard or chart paper
- Markers
- Visual aids (pictures or diagrams of landfills, middens, recycling facilities, etc. – see following page)
- Index cards or small pieces of paper
- Arts and crafts materials (optional)

The Activity

Present this core question: How has solid waste management changed over time? People have always created waste that needs to be reused, recycled, composted or disposed of as they meet their basic needs. How did people in our region manage their solid waste 500 years ago? 100 years ago? How are we managing our solid waste today? How do you think we will manage waste 100 years from now?

Begin the lesson by asking students if they know what happens to their garbage after they throw it away. Discuss the concept of landfills and explain that landfills are designated areas where waste is buried in the ground. Write the word "Landfills" on the board and create a mind map together, noting students' prior knowledge about landfills. Show visual aids or pictures of landfills from different time periods. Explain that landfills have been used for hundreds of years, but they were different in the past. Discuss "middens" and explain that they were the early form of landfills used by Indigenous communities in British Columbia. Encourage students to ask questions and share their thoughts about landfills.

Case Study: Middens in British Columbia

Middens, also known as refuse heaps or garbage dumps, are archaeological sites that provide valuable insights into the material culture and lifestyles of past human societies. These accumulations of discarded waste and debris offer a window into the daily activities, consumption patterns, and environmental interactions of ancient communities. Middens contain a diverse range of materials, including food remains such as bones, shells, and plant remains, indicating the types of animals and plants utilized for sustenance. Additionally, artifacts like pottery shards, stone tools, broken implements, and discarded household items are often discovered within middens, shedding light on the technology, craftsmanship, and domestic activities of the people who inhabited the area. Organic remains, such as wood fragments, textiles, and leather, may also be preserved, providing further evidence of the materials utilized in various aspects of everyday life. Overall, middens serve as tangible archives, offering archaeologists a wealth of information about ancient societies and their material heritage. Ask students to research and discuss the question together. Afterward, have each group share their findings with the class

Current landfills

Discuss what has changed about our waste since the time of middens and why we require new technology to deal with our waste. What is the difference between what we throw away now and what they were throwing away hundreds of years ago? Show the following two humourous videos from Comox Strathcona Waste Management to understand how contemporary landfills work:

- Welcome to the Landfill
- Welcome to the Landfill Part II

The Future of waste management

Introduce the concept of zero waste and explain that it means reducing the amount of waste sent to landfills as much as possible. Discuss the importance of recycling, composting, and reducing waste in our daily lives. Show visual aids or pictures representing zero waste initiatives and technologies. Ask students to brainstorm ideas on how they can contribute to a zero-waste future.

Reflection

Have students reflect on what they have learned throughout the lesson. Encourage students to make a commitment to one thing they can do to reduce waste in their daily lives. Emphasize the significance of each individual's role in creating a sustainable future.

Extensions

- Have students create models of landfills, past, present and future.
- Create a graphic illustration of what solid waste management might look like in the future. What might a zero-waste future look like?

Circular Economy: lifecycle mapping an everyday product

Introduction

Much of our current economy is linear - designed to extract raw materials from nature, process them into usable goods and then discard them into a landfill. This linear system is wasteful and results in negative environmental impact, which is not currently accounted for in any of our economic measurement tools. The alternative to the linear economy is the circular economy, which is all about redesigning the way we produce goods and services so that they meet our needs in more sustainable and regenerative ways.

The goal of this activity is to develop the ability to think about the full life of things that we use in our daily lives and to start thinking about redesigning systems. Everyday objects are surprising in how complex they are.

Materials

- Everyday objects such as denim jeans, cups (paper, plastic, ceramic), pen, cell phone
- Pens and markers to write with
- Large scrap paper to draw on
- A video explaining Circular Economy

The Activity

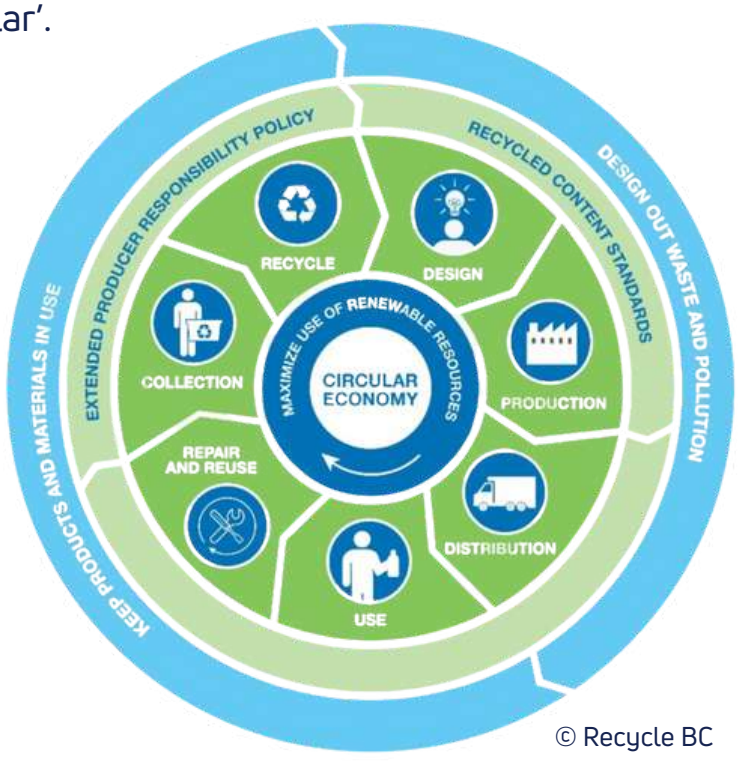
View the Circular Economy video together with the class.

- Choose an everyday object that is available in the room.
- Divide the class into groups of 3-5 students, providing each group with a large piece of paper, writing utensils, and an example of the everyday object that has been chosen by the class.
- Invite each group to document the entire life cycle of the product from start to finish. Some will draw pictures; others will make lists. Have them start their 'life cycle map' with a list of materials used to create the item and find out how they are extracted and processed. Use the internet to research this or make some good guesses. What happens to this item at the end of its life? If the item gets recycled, what is the end product that is created and what is it used for?
- Be sure students include all stages: materials extraction, manufacturing, packaging and transportation, usage, and end of life.
- When the groups complete their maps (in whatever format they have chosen) invite each group to share what was discovered about the product's life cycle. Discuss which end of life option is the best and why – it may be more complicated than everyone expects!
- Have the class brainstorm how this product (or something that meets the same need) might become more 'circular'.

Questions for reflection

What are all the ways a product can impact the planet?

What different perspectives should we consider when we create products?



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