



Title: Recycling Crayons

Grades: Pre K-K

Subjects: Science, Social Studies, Math

Time: Initial lesson 30 minutes with ongoing time to recycle and ship crayons

Objectives:

- Collect, record, and interpret data using a variety of graphic representations.
- Analyze collected data and draw logical conclusions.
- Explain the need to reduce the amount of trash they generate, and describe ways in which they can make changes in their actions to support waste reduction.

Standards:

Technology Standard 3: Understand the relationship among science, technology, society and the individual.

- Benchmark # 3: Know that man-made materials, products and systems can affect the environment adversely, yet there are things that can be done to circumvent this process (e.g., disposing of waste properly, reusing objects, recycling, reducing the amount of trash created, composting, shopping green, buying in bulk).

Mathematics Standard 2: Understand and apply basic and advanced properties of the concepts of numbers.

- Benchmark # 3: Understand symbolic, concrete, and pictorial representations of numbers.
- Benchmark # 4: Understand basic whole number relationships (e.g., 4 is less than ten).

Mathematics Standard 3: Uses basic and advanced procedures while performing the processes of computation.

- Benchmark # 2: Solve real world problems involving addition and subtraction of whole numbers.

Mathematics Standard 6: Understand and apply the basic and advanced concepts of statistics and data analysis.

- Benchmark # 1: Collect and represent information about objects or events in simple graphs (e.g., tally charts, picture graphs, bar graphs).

Language Arts Standard 8: Use listening and speaking strategies for different purposes.

- Benchmark # 1: Make contributions in class and group discussions.
- Benchmark # 2: Ask and respond to questions.
- Benchmark # 5: Use grade level appropriate vocabulary in speech (e.g., terms related to waste reduction and recycling).

Materials:

- Old crayons
- Containers to store recycled crayons
- Packing and shipping material
- Bar graph graphic organizer provided below
- Crayon tally table provided below

Overview: Students can become environmental stewards at an early age. Learning to recycle is a proactive way for young children to make a difference. One item that children can be involved in recycling is old unwanted crayons. They can recycle something that is their own and become more invested in the recycling effort.



In many homes, schools, and daycare centers broken crayons are thrown away. It is possible to recycle crayons. The old crayon bits are melted down and new crayons are made from the old, broken stubs. More than 120,000 pounds of crayons are manufactured each day in the US. Crayons are petroleum-based items that should not be tossed into landfills. Discarded crayons can be sent to a crayon recycling company so that they do not accumulate in landfills. It is estimated that more than 47,000 pounds of crayons have been diverted from landfills due to the recycling efforts of students, educators, and youth groups around the country.

Recycling crayons is simple and very young children can participate. You don't even have to peel the crayons. Leave the wrappers on the crayons because it makes sorting by color easier at the recycling center. Collect, pack and ship crayons as they are. All crayons are accepted but will be carefully sorted. Crayons that have been manufactured in foreign countries and may contain lead or plastics will be discarded.

Recyclers are asked to absorb the cost of shipping. However, finding ways to raise money for shipping costs is another opportunity for groups or classes to work together to solve problems. Students may wish to contribute loose change or write letters (with adult help for young children) asking for donations from local PTA/PTO or businesses. Grant money or funding to aid in recycling is often available at local county government agencies such as Solid Waste Management or Environmental Services Departments.

Recycled crayons can be shipped to:
Crayon Recycling Program LAF Lines Ltd.
721 Village Road
Pelican Lake, WI 54463 1-800-561-0922

If you live closer to Florida crayons may be shipped to:
Crayon Recycle Program
14180 SW 30th St. road
Ocala, FL 34481

Recommendations for shipping crayons to Crayon Recycling Program LAF Lines Ltd.

- Small packages of less than 5 pounds may cost less shipping via US Mail.
- A large box (under 70 pounds) is cheaper to ship than several small boxes.
- Use basic ground service and let them know that you are shipping to a business (lower rates).
UPS: 1-800-742-5877 or FedEx 1-800-463-3339
- Use sturdy boxes that closely fit the amount of the contents (as to avoid crushing or breakage of box).

Kid's Speak: Old broken crayons can be recycled. They are melted down and made into new crayons. Everyone, no matter how young, can help and make a difference in helping planet Earth.

Eco-fact: Rather than being recycled 60 tons of crayons made daily with petroleum based wax eventually end up in our landfills

Procedure:

Introduction:

- Discuss the meaning of recycling and why people should recycle.
- Discuss what objects and materials can be recycled. A list can be generated.
- Explain to students that old broken crayons can be recycled and sent to a special crayon recycling center. Tell students that the crayons are melted down and made into new crayons.
- Tell students that together our class is going to make a plan, set goals and recycle our old crayons.
- When the class goal has been met the crayons will be sent to the special recycling center.

Planning Activity:

- As a class with teacher guidance plan your crayon recycling program.
- Decide where the crayons will be collected and stored.
- Students can sort the crayons by colors. Each color can be stored in a separate container. Containers can be decorated and color coded in some way. Crayons can be stored in reused containers such as shoeboxes, jars, or coffee cans.
- Set a goal for the quantity of crayons they wish to recycle before sending crayons to recycling center. For example, students could recycle one pound of crayons for each student in the class. Students may wish to collect a particular number of crayons.
- Discuss how the class can raise money to pay for the shipment of crayons to the recycling center.

Create Class Bar Graph:

- After the first day of crayon collection (before the number becomes unmanageable) incorporate the recycled crayons into a Math graphing activity. Additionally, this activity will allow students to see the progress their efforts have yielded in a short period of time. First, sort crayons by colors if they are not already sorted. Students could each receive a pile of crayons to sort on recycled newspaper at their own desk or table. If they are unsure of color (peeled blue, black or purple can be hard to distinguish) they can test crayon on newspaper.
- Count as a class or individually and record number of each color crayon on the crayon tally table provided below.
- Together create a bar graph that shows the data collected and recorded on the table. Each bar can be colored with the color it is representing (red bar for red crayons). Children can take turns coloring in squares on classroom graph.
- Children will then each be given a limited number of crayons in assorted colors. Again students will sort their crayons by color.
- Distribute a prepared graphic organizer so that students can then create their own bar graph. A graph worksheet is provided in this lesson. Teacher can either write in colors and copy for class or direct students which colors to enter on their worksheet graph.
- Students will count the crayons of a particular color and then color the same number of spaces on their bar graph in that color. Students will continue this process until all colors have been counted and data has been added to bar graph.

After Recycling Project:

- Teacher will lead a class reflection discussion.
- Why did the class recycle crayons?
- How did the class help the environment?
- Did student like recycling the crayons? Why or why not?
- Should the class continue to recycle crayons?
- Should we change our plans or goals if we continue?
- How can we communicate to others in our school or community about our project and persuade them to join our efforts?

Adaptations:

- For shipping crayons do not need to be sorted by color and all can go into same container.
- Students can practice counting to see how many of each color was collected. Older children can graph the colors.

Extensions:

- Enlist other classes to join in crayon recycle program. Have a contest by class and maybe offer a prize such as a pizza party.



- See an award winning crayon recycling project on this GEF site. The kindergarten Daisy Troop #40926 began a Crayon Recycling Program at Laurel Plains Elementary School for National Green Week 2009. Check out their story.
- Contact local media to describe the crayon recycling project and the accomplishments of the class
- Start a penny collecting drive to raise funds for shipping crayons.