

Focus on Waste Reduction Activity | Grades 3-5

This month, the student focus will be on **waste reduction** and the importance of reducing waste in the hierarchy of Reduce-Reuse-Recycle. In addition to the lesson plan, students will be provided a waste reduction resource that they can put into action and track the effectiveness in their daily school activities.

Let's Reduce Our Disposable Utensil Habit!

One item that can always be found in a school trash bin is disposable utensils. Students that either bring or purchase lunch on-site regularly use these items. What is the environmental impact of using an item for just 15 minutes before disposing? During this month-long activity, students will learn to track and measure their utensil use, take actions to reduce the use of disposable utensils, and learn to quantify and measure the environmental benefits of changing their actions.

Overview

Over the course of one month, students will track the use of disposable utensils on campus. At the end of the month, they will be able to measure improvements in waste reduction and calculate the environmental benefits.

Objectives

1. Define "baseline".
2. Describe how and why determining a baseline is important when setting a goal or measuring improvements.
3. Use data provided to calculate percentage change in disposable utensil use.
4. Measure environmental benefits of reduced disposal and provide estimates of benefits over time and per student.
5. Have a positive attitude about waste reduction.



Learning Outcomes

Students will continue to have a positive attitude about waste reduction efforts. Younger students will practice methods for sorting and counting utensils, teachers may incorporate relevant skills such as estimation. Older students will learn and apply concepts such as determining a baseline, establishing percent increase and reduction, and using critical thinking skills to improve processes for collection, measurement and reporting.



DETAILS

Subject:

Math, Science and Environment/Conservation

Grade Levels:

3-5

Time Duration:

One month

Materials & Supplies:

- ✓ Bins/buckets for utensil collection & photo of set-up
- ✓ Reusable utensil sets for each student and teacher
(IMPORTANT: Teachers should distribute these on the Friday ending the first week and send home with parent informational handout)
- ✓ 3-5 teacher instructions and worksheets
- ✓ Foodware waste reduction PPT presentation
- ✓ Parent informational handout
- ✓ Thermometer poster for weekly progress tracking

Teacher Lesson Plan Guide | Grades 3-5

This week upper grade students will learn about determining a “baseline” and using a baseline in a real world situation to measure progress. Each day, during mealtime, students will be asked to place their disposed utensils into buckets. Younger students will monitor the buckets and count utensils at the end of the meal and at the end of the week. Make sure you find out how many utensils were disposed during the first week in order to complete the activities. Additionally, it’s important that students receive their reusable utensil kit on Friday of the first week so that they can begin using it the following Monday.

This lesson will provide information about utensil disposal and the importance of identifying a baseline to measure progress.

1. Go over the lesson PPT and watch the video with students. Walk them through the note sheet and provide additional information not presented in the materials.
2. Provide each student a reusable utensil kit and Parent Informational Handout.
3. Once younger students have completed the first week’s utensil count, complete the Baseline Worksheet in class.

- **What is a Baseline?:** General Baseline Definition: The “starting point.” A baseline is used to measure the impact of a change initiative.
- **Why establish a baseline?** It’s important to establish a baseline so that you know if the changes you are implementing are effective at reaching your goal. For the cutlery reduction program, our goal is to reduce the amount of disposable cutlery being used in order to improve our eco-footprint.
- **How can you measure the baseline utensil disposal at school?** Count or measure the number of utensils disposed over a specific period of time. You can also estimate the number by polling students, or you can ask the school for purchasing records. There are many ways to measure a baseline.
- **How will you measure reduction?** Compare future counts or measurements of disposed utensils against the baseline.

Baseline Data

The worksheets can be used in a variety of ways to demonstrate how math is used to measure impacts. You can choose to have students use a variety of methods to calculate changes and compare to more familiar ways to create a more sustainable future. This example takes a concept they have heard about but have no immediate impact on and demonstrates how an action they can control (using reusable cutlery) can also have a positive impact.

For instance, most students will have learned about the importance of gasoline conservation so you may ask: How many gallons of gas could be saved if 25% less utensils were thrown away during a school year?

HINT: Use the estimate of 30 lbs disposed each year ($\text{lbs utensils disposed in a school year} \times 25\% / 3$)

Solution 1:

$30 \text{ lbs.} \times 25\% \text{ reduction} = 7.5$
 $7.5 \text{ lbs reduced} \div 3 \text{ lbs per gal}$
 $\text{saved} = 2.5 \text{ gallons}$

Solution 2:

$30 \text{ lbs} \div 4 = 7.5$
 $7.5 \text{ lbs reduced} \div 3 \text{ lbs per gal}$
 $\text{saved} = 2.5 \text{ gallons}$

Solution 3:

$30 \text{ lbs} \times 1/4 = 7.5$
 $7.5 \text{ lbs reduced} \times 1/3 \text{ lbs per gal}$
 $\text{saved} = 2.5 \text{ gallons}$

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Measuring Our Baseline | Week 1

Name: _____

Grades 3-5 Activity 1

What is a baseline?

Why should we determine the baseline of our schools' utensil disposal?

What is one way you can determine the baseline for utensils disposed at your school?

How will you measure the reduction in the number of utensils disposed at your school?

How can you estimate the number of disposable utensils you throw away in a week? In a month?

What are some of the environmental benefits of not using disposable utensils?



YOUTH FOR ENVIRONMENTAL SUSTAINABILITY



Calculate Impacts of Disposable Utensils – Baseline Data Grades 3-5 Activity 2

Name: _____

Use the following conversions to estimate the environmental impact of disposable utensils at your school: **75 utensils = 1 pound (lb.)**



**1 pound of utensils
NOT disposed**

*Saves the amount of energy used in
a home in one day*



**3 pounds of utensils
NOT disposed**

*Saves enough oil to make one
gallon of gasoline*



**10 pounds of utensils
NOT disposed**

*Saves enough gasoline to
drive a car 65 miles*

	Show Your Work
1. How many utensils did your school dispose during Week 1?	
2. How many lbs. of utensils did your school dispose during Week 1? <i>HINT: (total # of utensils / 75)</i>	
3. How many lbs. of utensils does your school dispose in a school year? <i>HINT: (use an estimate of 36 school weeks in a school year)</i>	
4. In how many homes could energy use be avoided if 50% of the utensils were reduced from disposal during a school year? <i>HINT: (lbs utensils disposed in a school year x 50%)</i>	
5. How many gallons of gas could be saved if 25% of the utensils were reduced from disposal during a school year? <i>HINT: (lbs utensils disposed in a school year x 25% / 3)</i>	



Measuring Our Progress | Week 2-4 Name: _____

Grades 3-5 Activity 3

Each week you will receive a count of the total number of utensils disposed during the previous week. The goal is to see a reduction in the number of utensils thrown away. Track the progress using the worksheet.

Calculate Change | To calculate the percentage of change, use the following formulas:



Formula: Calculate # Change

Baseline # (week 1)

- New # (week 2, 3, or 4)

= Difference

(If positive number,
the waste has been reduced.)



Example

100 (baseline)

- 50 (week 2 disposal)

= 50 less utensils disposed

(50 utensils reduced during week 2)



Formula: Calculate % Change

of utensils reduced

÷ baseline

x 100

= % of change



	# of utensils disposed	Calculate # Change	Does this change represent an increase or decrease in disposal	What can you and your fellow students do to improve the results for the next week?
Week 2				
Week 3				
Week 4				



YOUTH FOR ENVIRONMENTAL SUSTAINABILITY



Share the Environmental Impacts of Waste Reduction Grades 3-5 Activity 4

Name: _____

Now that your school has completed the challenge, it's time to figure out how the environment benefited from these efforts. Use the following conversions to estimate the positive environmental benefits of reducing utensil disposal at your school: **75 utensils = 1 pound (lb.)**



**1 pound of utensils
NOT disposed**

*Saves the amount of energy used in
a home in one day*



**3 pounds of utensils
NOT disposed**

*Saves enough oil to make one
gallon of gasoline*



**10 pounds of utensils
NOT disposed**

*Saves enough gasoline to
drive a car 65 miles*

	Show Your Work
1. What was the estimated number of utensils saved from disposal over weeks 2-4?	
2. On average, how many lbs. of utensils did your school reduce each week?	
3. Estimate how many lbs. of utensils would be reduced from disposal over 36 weeks in a school year.	
4. How many gallons of gas were saved by your schools' efforts?	
5. Calculate another environmental benefit using the conversion data provided. Show your work and explain the importance.	