

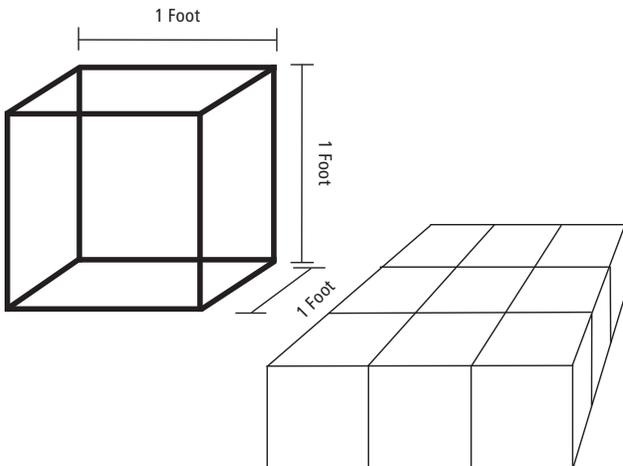


Name: _____

Date: _____

Instructions: Complete the information for your school. Use the same unit of measurement for all of your calculations of volume. In this case, use cubic yards.

Volume: Volume is the measurement of the amount of space occupied by a three-dimensional object. It is measured in cubic units or cubic capacity. A cubic foot is the volume in a box that is one foot long, one foot wide and one foot high. A cubic yard is the volume of a box that is one yard long, one yard wide and one yard high. One yard = three feet, so a cubic yard is three feet x three feet x three feet (one yard long, one yard wide and one yard high). Since one yard = three feet, you can fit nine cubic foot boxes on the bottom of a cubic yard box, as illustrated. Three of these would equal 27 cubic feet (one cubic yard), a common dumpster size.



GARBAGE

1. Determine the container size for your garbage.

Determine the size of the garbage container at your school. You may have to ask a janitor or the school office for this information.

Or, measure the container yourself. Measure the length, width and height of the container where garbage is collected in feet.

Calculate how many cubic yards it is by using this equation:

*[One cubic yard is equal to 27 cubic feet.]

Size of your garbage container:

_____ (cubic yards)

2. How full is the garbage container?

You may have to ask your janitor or the person who is in charge of collecting the garbage that goes into the container for this percentage.

Convert the percentage into a numeric value. (For example, 90 percent = .90)

Garbage container is _____ percent full.

Numeric value = _____ percentage divided by

100 = ._____

3. How many times per month is the garbage container emptied?

Garbage container is emptied / collected _____ times per week.

To calculate the number of times each month that the materials are collected, use this formula:

Times per week: _____ x 4.3*

= _____ times per month

*Note: For this calculation, we use 4.3 as an average number of weeks in any month in a year.

4. What are the monthly totals?

Calculate the school's monthly volume of garbage. To do this, multiply the size of the container (# 1) by the fullness of the container when it is collected (# 2). Then, multiply by the number of times per month (# 3) that your garbage is picked up.

The result will be the volume of garbage that is produced each month.

A - TOTAL VOLUME OF GARBAGE:

(# 1) _____ x (# 2) _____ x (# 3) _____ =

_____ Cubic yards per month

(Total volume of garbage each month)





RECYCLING

Calculate the volume of materials that are recycled at your school. Use the same calculations used above to calculate the volume of material that is recycled.

1. Determine the container size for your recycling.

Size of your recycling container: _____ (cubic yards)

2. How full is the recycling container?

Recycling container is _____ percent full.

Convert the percentage into a numeric value. (For example, 90 percent = .90)

Numeric value = _____ percentage divided by 100 = . _____

3. How many times per month is the recycling container emptied?

Recycling container is emptied / collected _____ times per week.

To calculate the number of times each month that the materials are collected, use this formula:

Times per week: _____ x 4.3* = _____ times per month

4. What are the monthly totals?

Calculate the school’s monthly volume of recycling. To do this, multiply the size of the container (# 1) by the fullness of the container when it is collected (# 2). Then, multiply by the number of times per month (# 3) that your recycling is picked up.

The result will be the volume of recycling that is produced each month.

B - TOTAL VOLUME OF RECYCLING:

$$(\#1) \text{ _____ } \times (\#2) \text{ _____ } \times (\#3) \text{ _____ } = \text{ _____ } \text{ Cubic yards per month}$$

(Total volume of recycling each month)

RATE OF RECYCLING

Now we can calculate the rate of recycling for the school.

The rate of recycling is a percentage calculated by taking the total quantity of recycling collected (answer B above) as a percentage of all the garbage waste (Answer A plus Answer B) collected in a specific period of time (in this case, one month). Remember total waste includes garbage that is discarded and recycling.

Record your recycling rate for today’s date.

How’s your rate?

How can you improve the rate of recycling in your school?

What about at home? Try making the same calculations at home and see if you can increase your rate of recycling over time.

A few more calculations...

Encourage recycling or start a schoolwide campaign to get people to recycle more and track your data. At the end of each month, gather new data and graph the data to see if there is a change in the quantity of material recycled.



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Today's Date: _____

Name of school or location for calculations: _____

	Month 1	Month 2	Month 3	Month 4
Dates:				
Total volume of garbage per month				
Total volume of recycling per month				
Recycling rate	percent	percent	percent	percent

Take it to extremes!

Based on this breakdown of garbage, calculate how many cubic yards of each category your school throws away.

Paper and paperboard	
Food scraps	
Yard trimmings	
Plastics	
Metals	
Rubber, leather and textiles	
Wood	
Glass	
Other	

What's In Our Garbage?



- Paper and paperboard - 28.2%
- Food scraps - 14.1%
- Yard trimmings - 13.7%
- Plastics - 12.3%
- Metals - 8.6%
- Rubber, leather and textiles - 8.3%
- Wood - 6.5%
- Glass - 4.8%
- Other - 3.5%

Recycling 1 ton of paper saves an average of 7,000 gallons (26,498 l) of water, 3.3 cubic yards (2.5 cubic meters) of landfill space, 3 barrels of oil (1 barrel equals 42 gallons), 17 trees and 4,000 kilowatt-hours of electricity (enough energy to power the average home for 6 months).

Source: *Gale Book of Averages*, p. 428.

Source: www.epa.gov/wastes/nonhaz/municipal/pubs/msw2009-fs.pdf





Recycle Your Paper!

Using the numbers above, calculate how much water, landfill space, oil, trees and electricity your school could save by just recycling paper.

Now imagine how much water could be saved by recycling the other items in the garbage!

Can I get a visual, please?

What does one cubic yard of trash actually look like?



PHOTO CREDIT: © iStockphoto—Thinkstock Photos

One cubic yard = four 55-gallon drums (approximately)



PHOTO CREDIT: © iStockphoto—Thinkstock Photos

One cubic yard = eleven 20-gallon cans (approximately)

Following are metric conversions:

Cubic feet (ft.³) = 0.03 cubic meters (m³)

Cubic yards (yd.³) = 0.76 cubic meters (m³)



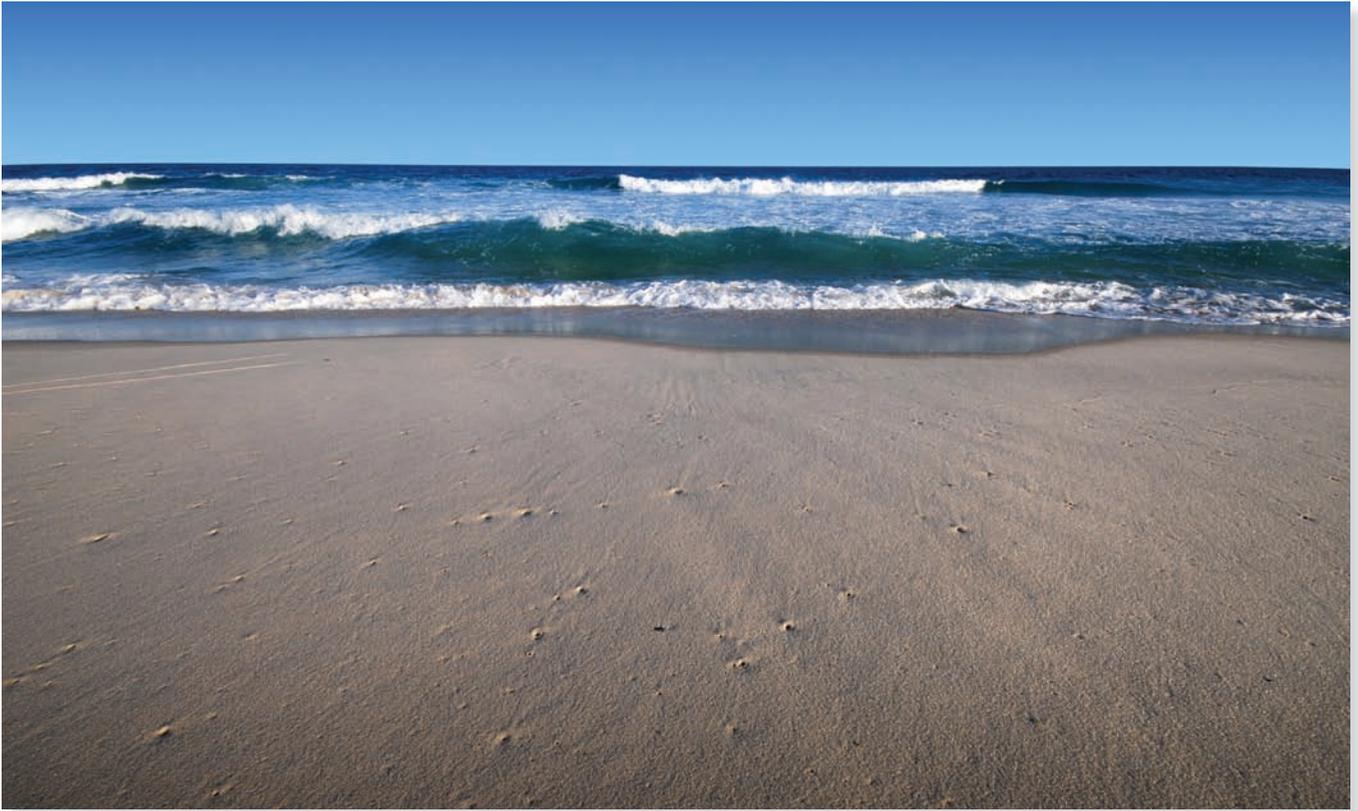


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Name: _____

Ad chosen: _____

U.S. Forest Service

Woodsy Owl

Context: Woodsy Owl was introduced by the U.S. Forest Service in 1971 to tackle the increasing problem of litter. He played the main character in many TV commercials and carried the slogan "Give a hoot— Don't pollute!" Today, Woodsy Owl has been transformed with a new look and a new slogan to be more applicable to today's efforts to protect the environment. His new slogan is "Lend a hand, care for the land."

www.fs.usda.gov

Keep America Beautiful

Iron Eyes Cody, the "Crying Indian"

Context: On Earth Day in 1971, Keep America Beautiful released a public service announcement featuring Iron Eyes Cody, the "Crying Indian," with the slogan "People start pollution. People can stop it." This was one of the most successful anti-litter campaigns of all time.

www.kab.org

Texas Department of Transportation

Don't Mess With Texas

Context: Launched in 1985, Don't Mess with Texas has been one of the most successful and high-impact anti-litter campaigns designed to combat trash tossing. Since 2001, roadside litter has decreased by about a third.

www.dontmesswithtexas.org

U.S. Government

Conservation during World War II

Context: During World War II, there was a shortage of resources and food supplies needed to support the war. A massive educational ad campaign was launched by the U.S. government to ask households to collect fat from cooking and recycle materials that were in short supply.

Stop Trashing California

California Anti-litter Campaign

Context: In 2002, to lend more credibility to its Stop Trashing California campaign, Keep California Beautiful featured pro skateboarder Tony Hawk surrounded by garbage with an anti-littering message.

www.keepcabeautiful.org

Questions:

1. What is the purpose of the advertisement?

2. Who is the target audience? Why?

3. Is it visually appealing? Why or why not?

4. Does it engage the targeted audience? How?

5. Does the advertisement seem credible? Why or why not?

6. Does the ad make you want to take action? Why or why not?



