

Name: _____

DO THE MATH & MAKE A DIFFERENCE!

It's useful to have an idea of how many milk and juice cartons (i.e. drink boxes) your school generates.

It will allow you to estimate the environmental impact that your recycling program has in order to inspire participation and educate students. All you'll need to start is to know the total number of enrolled students who eat lunch at school and whether or not your school offers a milk program. Our formulas take attendance into account, so don't worry about that. Just follow the calculations below.

Use your math skills to estimate how many cartons your school could be recycling and how much waste your recycling program could prevent from going in landfills.

(Formulas provided by Carton Council of Canada.)



PART 1: POTENTIAL IMPACT INDICATOR

1. HOW MANY CARTONS ARE GENERATED AT YOUR SCHOOL?

a. Identify the total number of enrolled students who eat lunch at school: _____

Does your school offer a milk program?

If yes:

b. _____ x 0.409 (avg. number of milk cartons consumed per student per day) = _____
of enrolled students who eat lunch at school Expected daily milk carton usage

If no:

The expected daily milk carton usage will be 0

c. _____ x 0.168 (avg. number of juice cartons consumed per student per day) = _____
of enrolled students who eat lunch at school Expected daily juice carton usage

d. _____ + _____ = _____
Daily milk carton usage Daily juice carton usage Expected daily carton usage

2. HOW MANY CARTONS DOES YOUR RECYCLING PROGRAM DIVERT FROM LANDFILL?

a. Multiply your expected daily carton usage (item “d” from page 1) by 180 school days for your expected annual carton usage: _____

b. _____ x 0.01015 kg/unit = _____
Expected annual carton usage Expected weight of recycled cartons per year
diverted from landfill (kg)

c. _____ ÷ 238 (avg. number of 250 ml cartons that fit in a 240 L cart) = _____
Expected annual carton usage Expected number of 240 L blue
bin carts filled with cartons diverted
from landfill per year

3. CALCULATE THE OTHER ENVIRONMENTAL BENEFITS OF RECYCLING CARTONS.

3.1 PAPER SAVED ANNUALLY

_____ x 1.8 (avg. number of sheets of paper per 250 ml carton) = _____
Annual carton usage Sheets of paper saved by
carton recycling annually

3.2 TREES SAVED ANNUALLY

_____ x 0.000058 (avg. number of trees used per sheet) = _____
Sheets of paper saved annually Trees saved annually



3.3 WATER SAVED ANNUALLY

_____ x 0.131 (litres of water saved per sheet recycled) = _____
Sheets of paper saved annually Litres of water saved annually

3.4 ENERGY SAVED ANNUALLY

_____ x 0.02 (kWh saved per sheet of paper recycled) = _____
Sheets of paper saved annually Kilowatt-hours (kWh) of energy saved*
*2,000 kWh can power about 20 flat-screen TVs for one year!

3.5 CO₂ EMISSIONS AVOIDED

_____ x 0.00000360 (CO₂ emissions avoided per sheet of paper recycled) = _____
Sheets of paper saved annually Metric tonnes of CO₂ (mT CO₂) avoided*
* 1 mT CO₂ emissions saved equates to keeping
about three vehicles off the road for one month!

PART 2: COMMUNICATE YOUR FINDINGS

1. As a class, find out how many students attend your school. Write the answer here: _____

2. Using the calculations above, write your answers here:

- Our school's estimated daily carton usage: _____
- Weight of estimated waste diverted per year: _____
- Number of 240 L recycling carts filled with cartons diverted from landfill per year: _____
- Sheets of paper saved each year: _____
- Trees saved each year: _____
- Litres of water saved each year: _____
- Kilowatt-hours (kWh) of energy saved each year: _____
- Metric tonnes of CO₂ not going into the atmosphere each year: _____



Now that you have the facts, work in small groups to create an in-school public service announcement (PSA) to let school administrators, other students, and parents know why it is important to recycle cartons (along with all other recyclable materials) that are generated at school and at home.

Here are some ideas to help you get organized:

Our main message	
Opening sentence	
Fact #1	
Fact #2	
Fact # 3	
Suggestions for how to improve our school's recycling program	
Concluding sentence	

When you're done, record or perform your PSA for the class or even for the entire school. Show everyone how carton recycling can help our environment!