



THE PANTHER PRIDE

Middle School Edition

The Task

Celebrate Earth Day on April 22!

A great way to be kind to our earth is through the use of **renewable energy**. This is energy produced from **sources** that do not deplete or can be **naturally** replenished within a human's life time. The most common examples include wind, solar, geothermal, biomass, and hydropower.

Solar energy refers to capturing the **energy** from the Sun and then converting it into electricity. The form of energy that comes from the sun is solar **radiation**.

Solar ovens use solar energy—light and heat **emitted** from the sun—to cook food.



YOUR CHALLENGE:
Create your own solar oven.

Pizza Box Solar Oven

Follow these instructions to make your own solar oven using a pizza box. Plus, it's an excuse to order pizza :)



Materials:

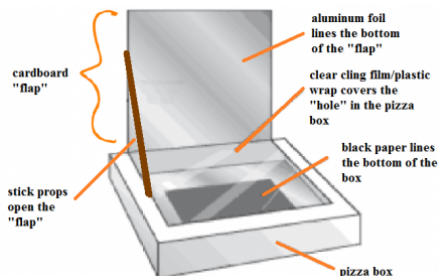
- ▶ pizza box - the larger, the better
- ▶ scissors, box cutter or utility knife
- ▶ aluminum foil
- ▶ black construction paper
- ▶ tape (black electrical or masking)
- ▶ non-toxic, white school glue
- ▶ plastic wrap
- ▶ ruler
- ▶ pencil (or pen)

My friend asked me to help him round up his 37 sheep. I said "40!"



Instructions:

1. On the top of the pizza box's lid, **draw** a square that measures one inch inward from each edge.
2. Carefully **cut** along each side of the square you just drew, **except** for the side that runs along the hinge of the box.
3. Cut all the way through the cardboard on those three sides. Then **fold** the flap back slightly along the attached side.
4. Line the inside of the cardboard flap with aluminum **foil**.
5. **Fold** the edges of the foil over the flap to help hold the foil in place.
6. **Glue** the foil onto the flap. Keep the foil as smooth as possible.
7. Cover the opening made by the flap in the lid of the pizza box with a layer of **plastic wrap**. Attach the plastic wrap to the opening's edges using tape or glue. Make sure there are no holes in the plastic wrap and that all of its edges are completely attached to the lid.
8. Line the **inside** of the box with aluminum **foil** so that when you shut the box the entire interior is coated with foil. Glue the foil in place.




9. Glue or tape a sheet of **black paper** to the bottom of the box, centred there. This will act as your solar oven's **heat sink**.
10. Lastly, use the ruler or your pencil to keep the pizza box's lid up, at about a **90-degree angle**. Leave the oven outside on a hot day.



Test It Out

Now, give your solar oven a spin.

Grab a thermometer and record the starting temperature = 



Place something in the oven to heat up. **S'mores work perfectly!** Close the lid and start cooking. **Record** the temperature change in the table below. Record any observations of your food while it is cooking.

Time	Temp	Observations	Time	Temp	Observations
1 min.			6 min.		
2 min.			7 min.		
3 min.			8 min.		
4 min.			9 min.		
5 min.			10 min.		

Conclusion & Next Steps

What would you do differently next time?

- ➔ What could you do to make this solar oven more **efficient**?
- ➔ Would you use different **materials**? Which ones?
- ➔ How could you add **insulation** to your oven?
- ➔ What materials act as insulation?
- ➔ Think about the **angle** of the cover/reflector.
- ➔ What happens if you change the angle?
- ➔ Could you use just a simple cardboard **box**? Shoebox?

Pros & Cons

Is solar energy all it's cracked up to be?

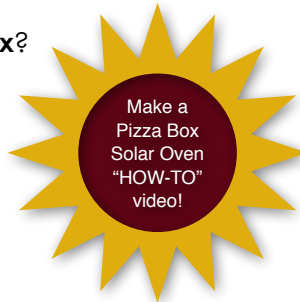
- ▶ What are the **advantages** of capturing energy from the sun?
- ▶ What are the **disadvantages** of solar energy?

Global Connection

Solar Cooking Around the World

Watch [National Geographic's Solar Cooking Video](#) on YouTube.

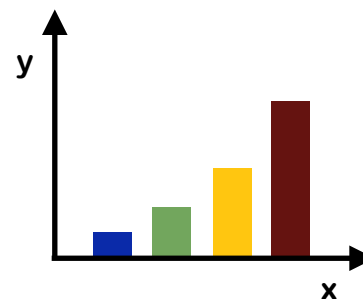
1. Why is solar cooking important to **developing countries**?
2. What is the **goal** of the group [Solar Cookers International](#)?
3. What health **problems** have been linked to cooking indoors?
4. How much does the solar oven **cost**?
5. When using a solar oven, what is the light energy **transformed** into?
6. **Besides** cooking what can the solar ovens be used for?
7. How **hot** does the water need to be heated to be **safe** to drink?



Bar Graph

Create a visual representation of your data.

After having created the table for your solar oven, create a **bar graph** that indicates the temperature (y axis) in relation to time (x axis). Don't forget that the corner of the graph should be zero and that the degrees indicated on the y axis should increase by the same quantity. Finally, make sure that you have a **title** for each axis along with another title for the whole graph.



VARIATION: IF YOU'VE DECIDED NOT TO DO THE SOLAR OVEN CHALLENGE, GRAPH THE AMOUNT OF SLEEP YOU ARE GETTING EACH NIGHT.



Saint-Laurent, un fleuve à protéger

Cette grande étendue d'eau, c'est le fleuve Saint-Laurent, un des plus grands fleuves au monde. 80% de la population du Québec vit le long de ses rives et près de la moitié d'entre nous y puisons notre eau potable. C'est donc dire, qu'il est essentiel. De gros efforts sont déployés pour réduire la pollution de ce majestueux cours d'eau, mais il reste encore énormément à faire.

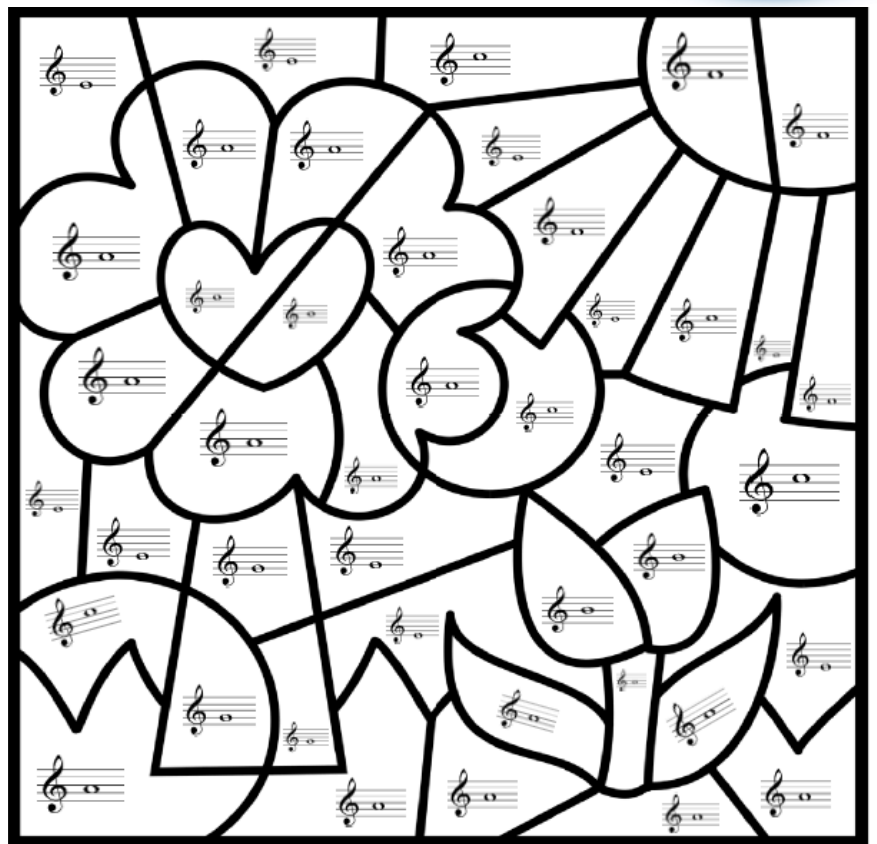


Le savais-tu ? Notre fleuve est très jeune. Il s'est formé au retrait des glaces lors de la dernière glaciation, il y a environ 12 000 ans.

ONIVA!

Regarde cette video. Répondez ensuite aux questions suivantes.

1. Mae doit garder Gerald pour la durée de l'épisode. Qui est Gerald?
 - a) le lapin à sa soeur
 - b) son fils
 - c) son nouveau co-animateur
 - d) a plante à Oli
2. Combien d'énergie pouvons-nous sauver en recyclant une seule bouteille de plastique?
3. Comment se nomme les sept enfants Fillon?
4. **VRAI OU FAUX?** La chlorophylle est une cellule que l'on trouve chez les animaux.
5. **TOP CHRONO!** Identifiez les arbres associés aux feuilles ci-dessous.



6. Où se trouve l'un des centres de recyclage les plus avancés? (INDICE: La collaboratrice Victoria est là!)

Color the image according to the key provided by the treble pitch notes then draw the notes on the treble staff below.

E = blue	A = green
F = yellow	B = purple
G = brown	C = red





First Nations of Canada and Mother Earth

Country: Canada
Founded: July 1, 1867
Population: 37.9 million
Capital City: Ottawa
Languages: English, French, and 70 Indigenous languages



The indigenous peoples of Canada see themselves as caretakers of Earth. Earth is viewed as the mother which nurtures and grants all its creatures life. She gives the materials for building homes, sustaining and feeding our families, and is the foundation of all that we see before us today. A core belief of First Nations Canadians is that it is the duty of all people to care for their mother: Planet Earth.

The Art Connection

50th Anniversary of Earth Day

Design a poster explaining what Earth Day means to you. Go outdoors and draw what you see.



Create an image from your imagination. Perhaps remember a special event from a past spring and put it on paper. Better still! Use all

three – **observation, imagination and memory.** See what you come up with!

Use any type of paper. Colour with coloured pencils, crayons or markers.

Take a picture and post it to **Teams!**



Create a Recycled Clay Bowl

Materials:

- egg carton
- hot water
- salt
- glue



Instructions:

1. Tear egg carton into tiny pieces. Then put them in the bowl.
2. Cover with hot water and soak for several hours (at least 7).
3. Using your hands, crush it. It should look like oatmeal when you are done.
4. If it seems too dry, add more hot water. If it is too wet, squeeze some water out of it.
5. Add 2 teaspoons of salt and mix.
6. Add 3 tablespoons of glue and mix.
7. Make your clay bowl, plate, or whatever you want.

Earth Day Math Puzzles

By figuring out the value of the images, try to find the value of the unknown.

$$\begin{aligned} \text{Earth} + \text{Earth} + \text{Earth} &= 30 \\ \text{Earth} + \text{Spoon} + \text{Spoon} &= 20 \\ \text{Spoon} + \text{Tree} + \text{Tree} &= 9 \\ \text{Spoon} \times \text{Earth} - \text{Tree} &= ? \end{aligned}$$

For some competition, time all the members in your household to see who is the quickest.

Monday	A train leaves the station at 5:48 and takes 82 minutes to reach its destination. What time will it be when it arrives?
Tuesday	Use 9 straight line segments . How can you make 4 triangles and 2 squares?
Wednesday	Measure the perimeter of 2 different-sized windows in your house. Find the difference in the perimeter.
Thursday	Write down the numbers you see on 2 license plates . Create 4 math problems with these numbers. Solve them. Ask a family member to solve them.
Friday	Play integer multiplication war . Using a deck of cards, split the deck equally between each player. Red cards are negative and black cards are positive. Each player flips over 2 cards and multiplies them together. The player with greatest value wins that round. (Hint...Same signs = positive...Opposite signs = negative)