Eating Up Energy

Ecology

Goals: Students will compare and contrast amount of energy consumption and CO_2 emissions among different countries to understand global effects of emissions.

Objectives: Using a simulation, students will:

- Identify the amount of energy a country consumes.
- Calculate CO_2 releases based on energy consumption.
- Map the global impact of energy consumption and CO_2 emissions.

Materials (For a class of 30):

- 110 Hershey Miniature Candy bars or Starburst with wrappers.
- 10 rolls of tape
- 30 pairs of latex gloves
- 10 pair of scissors
- 10 small plastic bags (ziplock type)
- 1 set of Eating Up Energy-Country Information Cards (1 per group)
- 30 Eating Up Energy-Student Sheets
- 30 Eating Up Energy-Student Directions
- 10 Eating Up Energy-Air Space Area sheets
- 1 sheet of large butcher paper to create "World Air Space"
- 10 permanent markers

Time Requirement: Two, 45-60 minute periods

Standards Met: S1, S5, S6, S7, LA4, LA5, LA6, LA11, LA12 N3, A2, A4, C4, E1, E2, E3, E4, G1, G3, WH9

Procedure:

PREP

- Purchase candy (110 pieces that must have wrappers).
- Prepare a rectangular representation of the world's total air space. It should be large (approx. 85" x 110"). Students will place their completed countries (on an 8.5" x 11" piece of paper) on this space. You might want to divide it up into 8.5" x 11" sections to make it obvious where students should put their country. This will become the "World Air Space Area."
- Read through student directions and discussion questions.
- The following fictitious countries match the real country listed. **Do not give this information out to students;** they will have to determine which country is represented through discussion.

Unstattica = United States
Coolandria = Iceland
Ebaliza = Belize
Napinsany = Spain
Westmoasa = Western Samoa
Nichicia = China
Gamtulala= Guatemala
Yanikia = Kenya
Ziralia = Brazil
Infirdiddy = India

- Prepare Eating Up Energy-Country Information Cards. You may want to laminate them for re-use.
- Photocopy 10 Eating Up Energy-Air Space Area sheets. One for each country.
- Prepare Country Packs: three pairs of latex gloves, correct amount of candy, one baggie, Country Information Card, one Eating Up Energy-Air Space Area sheet, Eating Up Energy-Student Sheets for each student in the group, Eating Up Energy-Student Direction sheets for each student in the group, one pair of scissors, one permanent marker, and one roll of tape.

DAY ONE

- Students should work together with their pre-assigned country group from You're Invited! Ideally, they will sit at tables or can combine desks to create a larger surface area to use.
- Discuss with then that they will be investigating the global nature of emissions of their country.
- Brainstorm needs vs. wants and how they affect our daily lives.
- Hand out the appropriate country pack to each country.
- Ask students to wait until everyone is assigned to a country before they try to begin the activity.
- Review the Eating Up Energy-Student Directions together. Be sure students understand all directions prior to letting them begin the activity.
- Give students time to complete Part One on the Eating Up Energy-Student Sheet. This involves unwrapping candy, taping wrappers to the Air Space Area, placing candy in a plastic bag, and writing a list of benefits.
- When they are finished with Part One, review each country's Eating Up Energy-Air Space Area sheets. Ask students to keep a tally of how many wrappers are on each and write it in the table in Part Two of the student sheet.
- Discuss: What countries have extra air space? What countries have a full Air Space Area?
- Discuss the benefits each country listed. What is the difference between needs and wants? Did some countries have more wants than others? Were all countries needs met?
- Ask students to continue the activity following the directions on Part Two of the student sheet.
- Serve as the "Keeper of the Extra Air Space." Students must come to you FIRST to put their country's extra wrappers on another country's extra air space. Students will compete for the extra air space.
- Direct students to countries that have extra air space. If they have extra wrappers that do not fit anywhere, they should give them to you.
- After all groups have had a chance to put their extra wrappers on the World Air Space, ask each country to review their situation with the class. Where did they put their extras? Did their country absorb more wrappers?
- Review and discuss. Did countries with extra air space start to get any more benefits when all of their air space filled up with wrappers from other countries? Countries with extra air space at first are full now but without any extra benefits. Discuss this concept with students. Is that fair?

- Tally the total number of wrappers on each country's Eating Up Energy-Air Space Area sheets. Ask students to write the numbers into the table in Part Two on the Eating Up Energy-Student Sheet.
- Discuss the changes before and after air space sharing.
- Assign Day One homework.

Homework Day One:

- Ask students to try to figure out what the real name of their country is.

DAY TWO

- Ask students to get into their groups again.
- Review homework assignment. What are the real countries they represented yesterday?
- Hand out the Eating Up Energy-Student Data Chart.
- Using the information on the Eating Up Energy-Teacher Data Chart and on each Eating Up Energy-Country Information Card, guide students in filling out the following columns: Population, Square Area, Persons/km^2, Energy Consumption 2005, CO_2 Emissions 2005.
- Give students the data for Energy Consumption 1995. Discuss possible reasons why there may or may not be differences for each country with the 2005 data.
- Give students data for CO_2 Emissions for 1995. Discuss differences with 1995 data.
- Explain to students that they will need to find the percent change in Energy Consumption and CO_2 Emissions for their country.
- Review the formula and procedure for finding percent change. The formula is written on the student sheet.
- Ask students to complete this calculation individually following the directions on the student sheet.
- Review answers with the class when everyone has completed the calculations. What might be possible reasons why some countries have higher or lower percent change?
- Ask students to follow the student sheet and calculate the per capita of energy consumption and emissions for their country.
- When the activity is complete, review each group's experience. What did they find the most and least difficult? What similarities do they think exist between the activity and the real world?

Assessment:

- Completed activity
- Completed Eating Up Energy-Student Sheet

Eating Up Energy – Teacher Answer Key

Country Name: *(found on country card)*

Population: *(found on country card)* people

Land Area: *(found on country card)* km^2

Energy Consumption: *(found on country card)* quadrillion Btu's

CO_2 Emissions: *(found on country card)* million metric tons

PART ONE

Remember: Each wrapper represents CO_2 emissions. Each piece of candy represents a benefit the people of your country receive.

Complete the following:

1. How many pieces of candy did your country receive? _____
   These are your benefits.

2. Brainstorm a list of benefits in correlation to the number of pieces of candy your country received. List them in the table below. **Begin with Basic Needs and, if you have enough to cover basic needs, list Wants.**

Benefit Table

Benefits **Basic Needs**	Benefits **Wants**
Food *Water* *Shelter* *Air/Oxygen* *Clothing*	*CD player* *TV* *DVD player* *Cell phone* *iPod*
TOTAL:	TOTAL:

3. How many wrappers were you able to fit on your country's Air Space Area? *(Will vary for each country)*

4. How many total wrappers are on the World Air Space Area? *110*

PART TWO

Complete the following:

1. How many extra wrappers did you have? *(Will vary for each country)*

2. List the countries where you were able to tape your extra wrappers.

This will vary depending on the type of candy wrapper you use, but might include:
Gamtulala
Coolandria
Ebaliza

3. What are some reasons why these countries have extra Air Space?

Answers will vary, but might include:
Some countries have less energy consumption so they have less CO_2 output. Other countries have fewer people with large land area so they have more space to put their lower CO_2 emissions.

4. Complete the table below after hearing summaries from all of the countries.

Country	# Benefits	# Wrappers before sharing Air Space	# Wrappers after sharing Air Space
Unstattica	*20*	*This will vary depending on the type of candy wrapper you use.*	*This will vary depending on the type of candy wrapper you use.*
Nichichia	*18*		
Infirdiddy	*16*		
Napinsany	*14*		
Ziralia	*12*		
Gamtulala	*10*		
Yanikia	*8*		
Coolandria	*6*		
Ebaliza	*4*		
Westmoasa	*2*		

5. What happened to the countries whose extra air space was taken up by countries with extra wrappers? Did their benefits increase, decrease or stay the same?

   The countries that had to take extra wrappers did not get more benefits, and now those countries have to deal with the impacts of other people's emissions.

   CO_2 emissions do not necessarily stay in one place. They stay in the atmosphere for 100 years and move all over the planet. Countries that do not have high CO_2 emissions are still impacted by everyone else's emissions. It is a global issue.

6. How do your country's extra wrappers affect the world as a whole?

   My country's extra wrappers have impacts across the world. People in my country get all the benefits, but people in other countries experience the effects of global climate change caused, in part, by my emissions.

DAY 2

You will find out the real name of your country on Day 2 of this activity.

1. What is the name of the real country your group represented?

USE THE DATA CHART TO MAKE THE FOLLOWING CALCULATIONS:

2. Calculate percent change in Energy Consumption from 1995-2005 for your country. Use the formula below and show all work.

Percent Change Formula:

(2005 data – 1995 data) ÷ 1995 data x 100 = percent change

For example, (300-200) ÷ 200 x 100 = 50 % change

1995 Energy Consumption: *(see teacher data chart)*

2005 Energy Consumption: *(see teacher data chart)*

Calculate Percent change: *(see teacher data chart)*

Percent Change in Energy Consumption: *(see teacher data chart)*

3. Calculate percent change in CO_2 Emissions from 1995-2004 for your country. Use the same formula.

1995 CO_2 Emissions: *(see teacher data chart)*

2004 CO_2 Emissions: *(see teacher data chart)*

Calculate Percent change: *(see teacher data chart)*

Percent change in CO_2 Emissions: *(see teacher data chart)*

4. Calculate the Emissions Per Capita for your country.
   Formula: X = 2004 Emissions / 2007 Population

   (see teacher data chart)

   Emissions Per Capita: _____*(see teacher data chart)*_____

BE SURE TO WRITE ALL ANSWERS IN THE CORRECT COLUMNS IN THE DATA SHEET.

5. Write a few reasons why you think there were changes in both Emissions and Energy Consumption. What might have been happening in your country to account for the changes?

   Emissions may increase or decrease. Reasons for increased emissions may be from more industrialization and energy use, more deforestation. Reasons for decreased emissions could be changed agricultural practices, planting trees, or that the industrial economy has gone bad. On the other hand, as countries move to more service-oriented economies, their emissions per unit of gross domestic product go down.

   (NOTE: The figures for CO_2 emissions in this exercise are industrial sources only. There are also figures available that include total emissions from land use changes, but these are compiled from different sources, and with different accounting methods. The U.S. actually has FEWER emissions overall if land use changes are included, as crops and forests absorb more CO_2 than they emit. On the other hand, a country like Brazil has much higher emissions if land use changes are taken into account, because of Amazonian deforestation.)

6. Why do some developing countries have very high emissions?

   Developing countries may have low emissions per person, but very high emissions overall if their populations are large. It demonstrates that population is a large driver of overall energy use and emissions.

   Another reason may be that developing countries use fewer advanced technologies, and rely mainly on coal for power, which has higher emissions.

   Developing countries may also have inefficient industries and transportation that have high emissions per unit of energy created.

7. Write a few reasons why some industrialized countries have very low emissions. What are the potential positive and negative consequences of having low emissions in an industrialized country?

   The primary driver is the use of nuclear power. Nuclear energy emits no CO_2 as power is generated. Nuclear energy releases no carbon dioxide. However, there is the problem of radioactive waste, which must be safely stored for thousands of years. On the other hand, it would take 30 metric tons of nuclear fuel to power a 1,000 megawatt power plant for one year compared to 2.6 million metric tons of coal, which turns into over 2 million metric tons of gases and over 500,000 tons of solid waste products. If a country were to rely more heavily on nuclear power, it would have lower emissions of carbon dioxide and other air pollutants (which cause acid rain, smog, and mercury pollution), but more radioactive waste.

   Renewable energy is a much smaller driver. It amounts to 6% of power in the U.S. Some countries have abundant renewable power, like Iceland, which is able to rely upon geothermal energy for most of its power. If a country were to rely more heavily on renewable sources of power it would also have lower emissions. However, renewable energy is more expensive, and is intermittent (i.e., it's hard to generate solar power at night, or wind power on calm days).

8. Assuming that the world emits carbon dioxide at 2004 levels, how will global emissions change in 2050? Do you think that emissions will remain at 2004 levels in the year 2050? Why or why not?

   Population is generally increasing, so multiplying CO_2 emissions by population should result in higher emissions. This demonstrates that population is a large driver in CO_2 emissions, even if the amount of energy consumed per person varies from country to country. Countries with large and/or fast growing populations are likely to be major contributors in the future.

   On the other hand, by the year 2050, the world may have developed new technologies that eliminate carbon dioxide emissions, meaning that emissions could be lower. This could include advanced coal power plants that capture the CO_2 and sequester it underground; more reliable and efficient renewable energy; hydrogen; perhaps nuclear fusion. After all, the equivalent of an iPod 25 years ago was a Walkman connected to a supercomputer. Therefore, with technology, it is possible that 2050 levels, though higher, might remain at or even below 2000 levels.

   *(NOTE: Even if technology improves vastly, the existing CO_2 in the atmosphere will remain for approximately 100 years, meaning that we would not likely **see** a decline for decades.)*

Eating Up Energy-
Country Information Cards

UNSTATTICA Population (2007) = 301,139,947 Land Area= 9,161,923 km² 33 people per km² Energy Consumption (2005) in quads= 100.1 CO_2 Emissions (2004) in million metric tons= 5,889 20 Candy pieces Number **1** in Energy consumption *(out of 214 countries)* Number **1** in CO_2 Emissions	**NAPINSANY** Population (2007)= 40,448,191 Land Area= 504,782 km² 80 people per km² Energy Consumption (2005) in quads= 6.6 CO_2 Emissions (2004) in million metric tons= 355 14 Candy pieces Number **13** in Energy consumption*(out of 214 countries)* Number **17** in CO_2 Emissions
WESTMOASA Population (2007) = 195,000 Land Area= 2831 km² 69 people per km² Energy Consumption (2005) in quads= 0.003 CO_2 Emissions (2004) in million metric tons= 0.1 2 Candy pieces Number **186** in Energy consumption *(out of 214 countries)* Number **175** in CO_2 Emissions	**EBALIZA** Population (2007) = 294,385 Land Area= 22,806 km² 13 people per km² Energy Consumption (2005) in quads= 0.015 CO_2 Emissions (2004) in million metric tons= 0.8 4 Candy pieces Number **174** in Energy consumption *(out of 214 countries)* Number **152** in CO_2 Emissions

YANIKIA	**GAMTULALA**
Population(2007) = 36,913,721 Land Area= 569,250 km^2 65 people per km^2	Population (2007) = 12,728,111 Land Area= 108,420 km^2 117 people per km^2
Energy Consumption (2005) in quads= 0.185 CO_2 Emissions (2004) in million metric tons= 12	Energy Consumption (2005) in quads= 0.193 CO_2 Emissions (2004) in million metric tons= 11
8 Candy pieces	10 Candy pieces
Number **98** in Energy consumption *(out of 214 countries)*	Number **90** in Energy consumption *(out of 214 countries)*
Number **91** in CO_2 Emissions	Number **94** in CO_2 Emissions
ZIRALIA	**COOLANDRIA**
Population (2007) = 190,010,647 Land Area= 8,456,510 km^2 22 people per km^2	Population (2007) = 301,931 Land Area = 100,250 km^2 3 people per km^2
Energy Consumption (2005) in quads= 9.3 CO_2 Emissions (2004) in million metric tons= 346	Energy Consumption (2005) in quads= 0.145 CO_2 Emissions (2004) in million metric tons= 2
12 Candy pieces	6 Candy pieces
Number **9** in Energy consumption *(out of 214 countries)*	Number **103** in Energy consumption *(out of 214 countries)*
Number **19** in CO_2 Emissions	Number **136** in CO_2 Emissions

NICHICIA	**INFIRDIDDY**
Population (2007) = 1,321,851,888 Land Area= 9,596,960 km^2 138 people per km^2	Population (2007) = 1,129,866,154 Land Area= 3,287,590 km^2 344 people per km^2
Energy Consumption (2005) in quads= 67.1 CO_2 Emissions (2004) in million metric tons= 5,205	Energy Consumption (2005) in quads=16.2 CO_2 Emissions (2004) in million metric tons=1,199
18 Candy pieces	16 Candy pieces
Number **2** in Energy consumption *(out of 214 countries)*	Number **5** in Energy consumption *(out of 214 countries)*
Number **2** in CO_2 Emissions	Number **6** in CO_2 Emissions

Eating Up Energy- Teacher Data Chart

Country	**Population 2007**	**Land Area km^2**	**Persons per km^2 2007**	**Energy Consu-mption 1995** (quadrillion Btus)	**Energy Consu-mption 2005** (quadrillion Btus)	**% Change in Energy Consu-mption 1995-2005**	**CO_2 Emissions 1995** (Million Metric Tons)	**CO_2 Emissions 2004** (Million Metric Tons)	**% Change in CO2 Emissions 1995-2004**	**CO_2 Emissions Per Capita** (in metric tons)
United States	301,139,947	9,161,923	33	91.2	100.1	10%	5215	5889	13%	19.6
China	1,321,851,888	9,596,960	138	34.9	67.1	92%	3821	5205	36%	3.9
Spain	40,448,191	504,782	80	4.4	6.6	50%	252	355	41%	8.9
India	1,129,866,154	3,287,590	344	11.4	16.2	42%	838	1199	43%	1.0
Iceland	301,931	100,250	3	0.087	0.145	67%	2	2	0%	6.7
Brazil	190,010,647	8,456,510	22	7	9.3	33%	267	346	30%	1.8
Western Samoa	195,000	2831	69	0.002	0.003	50%	0.1	0.1	0%	0.5
Guatemala	12,728,111	108,420	117	0.108	0.193	79%	7	11	57%	0.8
Belize	294,385	22,806	13	0.005	0.015	200%	0.4	0.8	100%	2.8
Kenya	36,913,721	569,250	65	0.140	0.185	32%	8	12	50%	0.3

This chart was created using data from the following online sources: www.geography.org , www.cia.gov, www.eia.doe.gov/pub/international/iealf/tableb1.xls, www.factmonster.com, http://earthtrends.wri.org/pdf_library/data_tables/cli2_2005.pdf, www.cait.wri.org

Eating Up Energy-Air Space Area

Country Name: _____

Place your country's wrappers only in the white space below. **DO NOT** place any wrappers in or above this box or on the back of this paper.

Eating Up Energy- Student Data Chart

Name _____ Date_____

Country	**Population 2007**	**Land Area km^2**	**Persons per km^2 2007**	**Energy Consumption 1995** (quadrillion Btus)	**Energy Consumption 2005** (quadrillion Btus)	**% Change in Energy Consumption 1995-2005**	**CO_2 Emissions 1995** (Million Metric Tons)	**CO_2 Emissions 2004** (Million Metric Tons)	**% Change in CO_2 Emissions 1995-2004**	**CO_2 Emissions Per Capita** (in metric tons)
United States				91.2			5215			
China				34.9			3821			
Spain				4.4			252			
India				11.4			838			
Iceland				0.087			2			
Brazil				7			267			
Western Samoa				0.002			0.1			
Guatemala				0.108			7			
Belize				0.005			0.4			
Kenya				0.140			8			

This chart was created using data from the following online sources: www.geography.org , www.cia.gov, www.eia.doe.gov/pub/international/iealf/tableb1.xls, www.factmonster.com, http://earthtrends.wri.org/pdf_library/data_tables/cli2_2005.pdf, www.cait.wri.org

Eating Up Energy - Student Sheet

Country Name: _____

Population: _____ people

Land Area: _____ km^2

Energy Consumption: _____ quadrillion Btu's

CO_2 Emissions: _____ million metric tons

PART ONE

Remember: Each wrapper represents CO_2 emissions. Each piece of candy represents a benefit the people of your country receive.

Complete the following:

1. How many pieces of candy did your country receive? _____
   These are your benefits.

2. Brainstorm a list of benefits in correlation to the number of pieces of candy your country received. List them in the table below. **Begin with Basic Needs and, if you have enough candy to cover needs, list Wants.**

Benefit Table

Benefits **Basic Needs**	Benefits **Wants**
Ex: Food	Ex: CD player
TOTAL:	TOTAL:

3. How many wrappers were you able to fit on your country's Air Space Area?_____

4. How many total wrappers are on the World Air Space Area? _____

PART TWO

Complete the following:

1. How many extra wrappers did you have? _____

2. List the countries where you were able to tape your extra wrappers.

3. What are some reasons why these countries have extra air space?

4. Complete the table below after hearing summaries from all of the countries.

Country	# Candies	# Wrappers after sharing Air Space
Unstattica		
Nichicia		
Napinsany		
Infirdiddy		
Coolandria		
Ziralia		
Westmoasa		
Gamtulala		
Ebaliza		
Yanikia		

5. What happened to the countries whose extra air space was taken up by countries with extra wrappers? Did their benefits increase, decrease or stay the same?

6. How do your country's extra wrappers affect the world as a whole?

DAY 2

You will find out the real name of your country on Day 2 of this activity.

1. What is the name of the real country your group represented?

USE THE DATA CHART TO MAKE THE FOLLOWING CALCULATIONS:

2. Calculate percent change in Energy Consumption from 1995-2005 for your country. Use the formula below and show all work.

Percent Change Formula:

$$X = \frac{\text{(2005 data – 1995 data)}}{\text{1995 data}} \times 100$$

1995 Energy Consumption: _____

2005 Energy Consumption: _____

Calculate Percent change:

Percent Change in Energy Consumption: _____

3. Calculate percent change in CO_2 Emissions from 1995-2004 for your country. Use the same formula.

1995 CO_2 Emissions: _____

2004 CO_2 Emissions: _____
Calculate Percent change:

Percent change in CO_2 Emissions: _____

4. Calculate the Emissions Per Capita for your country.
   Formula: X = 2004 Emissions / 2007 Population

   Emissions Per Capita: _____

BE SURE TO WRITE ALL ANSWERS IN THE CORRECT COLUMNS IN THE DATA SHEET.

5. Why you think there were changes in both Emissions and Energy Consumption. What might have been happening in your country to account for the changes?

6. Why do some developing countries have very high emissions?

7. Why do some industrialized countries have very low emissions? What are the potential positive and negative consequences of having low emissions in an industrialized country?

8. Assuming that the world emits carbon dioxide at 2004 levels, how will global emissions change in 2050? Do you think that emissions will remain at 2004 levels in the year 2050? Why or why not?

Eating Up Energy – Student Directions

Name_____ Date_____

Materials for your group:

- Candy
- Eating Up Energy-Country Information card
- Eating Up Energy-Student sheet
- Protective gloves
- Tape
- 1 plastic bag
- 1 Eating Up Energy-Air Space Area
- 1 permanent marker
- Scissors

Background Information:

- A Btu, British Thermal Unit, is the amount of energy needed to raise the temperature of a pound (one pint) of water one degree Fahrenheit (or 252 calories). Overall energy consumption in the U.S. is often measured in Btu's.
- A Quad stands for one quadrillion (10^{15}) Btu's (or 2.93×10^{11} kilowatt hours)

Procedure:

NOTE: For the sake of simplicity, all countries, although different in size, have the same air space. The intent is to show the effects of having either a surplus or lack of enough air space to accommodate emissions.

PART ONE

- Appoint a leader for your country.
- The leader reads the energy information from the Eating Up Energy-Country Information card. Another student should count the candy to be sure it is the right amount.
- Write the name of your country on the top of the Eating Up Energy-Air Space Area and on the outside of the plastic bag using the permanent marker.
- The group members handing the candy should put on gloves.
- Split the candy among the members of your country and carefully, without ripping the wrapper, open each one.
- Place the opened candy in the baggie to represent benefits. Don't eat it! Place the baggie aside for now.
- Flatten out the wrappers completely. Tape as many, if not all, of your wrappers to your Eating Up Energy-Air Space Area with the name of the candy showing on the outside. You want to cover as much as much of the white paper as possible, but nothing can be taped above the box on the sheet. Also, only tape your wrappers on the front side of the Air Space Area sheet.

NOTE: Your wrappers CANNOT overlap or hang over the edge of the paper. Wrappers cannot be wadded up or folded in any manner. They MUST be completely flat. If you have space for just part of a wrapper, you may cut it to make it fit.

- If you have extra wrappers, write the name of your country on the blank side of the wrapper and set them aside but do not throw them away.
- Take your completed Eating Up Energy-Air Space Area to the World Air Space and tape it to the area. Again, no part of your sheet can be overlapping or hanging off the area.
- Retrieve your bag of candy. In Part One of your Eating Up Energy-Student Sheet, complete the Benefit Table. Each piece of candy represents one benefit the people of your country receive from industrialization. Continue on to Part Two if there is enough time left in class.

PART TWO

- Send one person to the World Air Space Square with the leftover wrappers. They must first present the wrappers to the teacher who will then allow them to tape the wrappers to other countries' air spaces.
- Wrappers cannot overlap other wrappers or hang over the edges of the country's Air Space Area.
- IMPORTANT! You must try to get rid of ALL of your wrappers. IF there is absolutely no more air space left on the World Air Space Square, give your leftover wrapper(s) to the teacher.
- Participate in a class discussion.
- Complete Part Two of the Eating Up Energy-Student Sheet.