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# Case 1: Your Mission

## Parts A, B and C

**Goal: Introduce Students to the Project and to the Concepts of Team Work by Forming a Detective Agency and Registering With Headquarters**

**Objectives:**

- ▶ **Introduce the Project**
- ▶ **Model an Effective Team Meeting**
- ▶ **Share Team Work Strategies**
- ▶ **Choose a Name for Your Detective Agency**
- ▶ **Introduce Students to the Web Site**
- ▶ **Register Your Detective Agency Online**

**Time Required:**

**2 After-School Sessions**

### Day 1 - Parts A & B

**Materials Required**

*Message from Headquarters (CD),  
Chalk Board*

**Student Handout**

*Your Mission*

**Assessment Tool**

Participation Rubric

**Learning Standards Addressed**

Language Arts:

Goals 3 A, 4 A and 4 B

Math:

Goals 6 B and C

**Applied Learning Standards Addressed**

Communicating, Using Technology  
and Working on Teams

**Vocabulary Words**

Icebreaker: (noun) Technique for introducing people to each other

Brainstorm: (noun) Group discussion to produce ideas

## Part A - Introduce the Project



### Step 1: Play the CD *Message from Headquarters*

A CD containing *Message from Headquarters* has been included with your teaching materials. This is a short (3 slides) narrated PowerPoint for your students.

The message on this CD explains to your class that energy is being wasted at your school. This costs the school money that could be spent on education, it hurts the environment and it can make the building occupants uncomfortable. CPS has chosen them to help solve this problem which is being called *The Great Energy Caper*.

### Step 2: Distribute the Student Handout: *Your Mission*



After you've played the CD, distribute the Student Handout entitled *Your Mission*. Let your students know that to solve *The Great Energy Caper* they will establish a Detective Agency and work as a team to complete several energy cases. To help them, Headquarters has assigned Special Agent Flip the Switch to work with them over the Internet.

Also, within your school, some of the older students will be forming a team of Energy Coaches. The Coaches will also help the Detectives solve *The Great Energy Caper*.



### Step 3: Icebreaker Exercise

In order to operate as a team, your students will first need to cooperate and communicate with each other. To make that easier, you will want to conduct an Icebreaker. Tell them that you want them to begin thinking of themselves as Detectives. To do that, ask them to sit in a circle.

Once in the circle, ask them to introduce themselves to each other by their first name followed by a detective-related word beginning with the first letter of their first name (ie. Ann Alibi).

### Step 4: Discussion

Sitting in the same circle, ask for 2 volunteers to write notes on the board while you lead a discussion with the class.

Lead a discussion with the class about teams. Point out to them that a good discussion has some ground rules such as:

- ✓ No Interrupting
- ✓ Be Respectful of Each Other
- ✓ Listen to Understand
- ✓ Everyone Participates

#### Taking Notes

Use headings  
Only write the key words

Ask the group to be respectful of the note taker's need to complete their task.



# Participation Rubric

## Listening and Asking Questions for Clarification

Student Name:

Listen attentively by facing the speaker and making eye contact.

1 2 3 4 5  
 Poor Excellent

Demonstrate ways that listening attentively can improve comprehension such as asking probing questions, providing feedback to the speaker, summarizing and paraphrasing complex spoken messages.

1 2 3 4 5  
 Poor Excellent

Ask questions and respond to questions to improve comprehension.

1 2 3 4 5  
 Poor Excellent

Use good grammar and manners when asking or responding to questions.

1 2 3 4 5  
 Poor Excellent

Apply listening skills such as note taking, waiting to ask questions until timing is appropriate, not asking a question which has already been asked and answered.

1 2 3 4 5  
 Poor Excellent

x 4 =

x 4 =

x 4 =

x 4 =

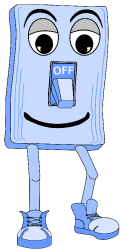
x 4 =

Total Score



## Your Mission

Headquarters would like you to help solve *The Great Energy Caper*.



This is an important job so Headquarters has assigned **Special Agent Flip the Switch** to help you.

Together with your school's Energy Coaches, your mission is to catch and help reform 5 groups of Energy Suspects:

*Behavior Burglars*  
*Leaky Looters*  
*Evil Equipment*  
*Lighting Larceny*  
*Air Abductors*

The **Behavior Burglars** are known to waste energy by leaving things on when they're not needed. Examples include lights, televisions, appliances and water. The *Behavior Burglars* may not realize the damage they're doing. It will be your job to track these Energy Suspects and teach them to Flip the Switch.

The **Leaky Looters** wastes energy by stealing the comfortable air from inside a building and forcing that air outside. This makes the furnace or air conditioners work harder and longer which costs extra money. The only way to stop the *Leaky Looters* is to find the places where they sneak in and plug the leaks. It will be your job to find those places.

The last three suspects: **Evil Equipment, Lighting Larceny and Air Abductors** are groups of con men that steal energy by convincing people to buy energy wasting products like incandescent lights and non-Energy Star rated appliances and equipment.

Good luck Detectives - We're counting on you!

## Day 2 - Part C: Register Your Detective Agency

### Materials Required

Computers with Internet Access,  
Detective Identification Cards,  
Pencils, Scavenger Hunt Form

### Learning Standards Addressed

Language Arts:  
Goals 1 A and B; 3 A and B;  
4 A and 5 A

### Student Handout

Scavenger Hunt

### Applied Learning Standards Addressed

Communicating, Using Technology  
and Working on Teams

### Evaluation Tool

Participation Rubric

## Step 1: Get Online

### Establish Partners

Divide your class into teams of two before you head for the computers. Determine which student will be at the keyboard for the first half of the lesson and which student will be at the keyboard for the second half. Make sure each student has a pencil, knows who their partner is and knows what computer they should use.

Once students are seated at the computers, distribute a Detective Identification Card to each student.

### Log On

Each team will be asked to log on to the project home page at [www.Energy-Detectives.net](http://www.Energy-Detectives.net). Before you give them the URL, ask the student who is not at the keyboard to raise their hand. They should keep their hand raised until their partner has successfully logged on to the home page. This will let you know if a team is having problems without the need for students to yell.

Each student will have their own user name and password. This will allow them to use the journal. Ask each student to post a message on the journal or to respond to their Secret Agent's *Welcome* message.

## Step 2: Scavenger Hunt

A scavenger hunt has been developed to familiarize your students with the web site. Working in their teams of two, distribute one sheet to each team. One student will work the mouse while the other student will fill in the answers. After approximately 5 minutes, ask the team to switch roles.

## Scavenger Hunt

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## Answer Key

Begin at the project home page <<http://www.Energy-Detectives.net>>.

1. Let's Play a Game!
  - ✓ Click on the *EnergyNet Community Web* link under *Additional Sources*.
  - ✓ Click on the *Games* link on the left navigation bar.

What is the name of the first Energy Game?      Energy Memory Game
2. Leave the EnergyNet Community Web
  - ✓ Click on the *X* in the upper right hand corner.

Where are you now?      Back at the CPS Energy Project Web Site
3. Let's Explore the Project Home Page!

How many areas do you see?      Three
4. What Are The Names of Each Area?      Buildings, Energy Data and Journals
5. Let's Check Out the Journal!

This is where you can send and get messages.

  - ✓ Find the message called "Scavenger Hunt."

What does the message tell you?      October is National Energy Month



# Scavenger Hunt

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\_\_\_\_\_ **Name**

Begin at the project home page <<http://www.Energy-Detectives.net>>.

1. Let's Play a Game!  
✓ Click on the *EnergyNet Community Web* link under *Additional Sources*.  
✓ Click on the *Games* link on the left navigation bar.

What is the name of the first Energy Game?

2. Leave the EnergyNet Community Web  
✓ Click on the X in the upper right hand corner.

Where are you now?

3. Let's Explore the Project Home Page!

How many areas do you see?

4. What Are The Names of Each Area?

5. Let's Check Out the Journal!  
This is where you can send and get messages.  
✓ Find the message called "Scavenger Hunt."

What does the message tell you?



**Detective Identification Card**

**Name** \_\_\_\_\_

**Online User Name**

\_\_\_\_\_

**Online Password**

\_\_\_\_\_



**Detective Identification Card**

**Name** \_\_\_\_\_

**Online User Name**

\_\_\_\_\_

**Online Password**

\_\_\_\_\_



**Detective Identification Card**

**Name** \_\_\_\_\_

**Online User Name**

\_\_\_\_\_

**Online Password**

\_\_\_\_\_



**Detective Identification Card**

**Name** \_\_\_\_\_

**Online User Name**

\_\_\_\_\_

**Online Password**

\_\_\_\_\_



**Detective Identification Card**

**Name** \_\_\_\_\_

**Online User Name**

\_\_\_\_\_

**Online Password**

\_\_\_\_\_



**Detective Identification Card**

**Name** \_\_\_\_\_

**Online User Name**

\_\_\_\_\_

**Online Password**

\_\_\_\_\_



**Detective Identification Card**

**Name** \_\_\_\_\_

**Online User Name**

\_\_\_\_\_

**Online Password**

\_\_\_\_\_



**Detective Identification Card**

**Name** \_\_\_\_\_

**Online User Name**

\_\_\_\_\_

**Online Password**

\_\_\_\_\_



## Case 2: Energy: The First "E" Parts A and B

**Goal: Demonstrate the Basics of Energy Conservation While Allowing Students to Discover How Much They Actually Know About the Subject**

- Objectives:**
- ▶ Compare Energy Conservation Opportunities for Schools to the Techniques Humans Use to Control Their Own Thermal Comfort
  - ▶ Identify Opportunities for Energy Conservation
    - Insulation
    - Sealing Air Leaks
    - Efficient Use of Natural and Artificial Light
  - ▶ Present Data that Prioritizes Energy Efficiency Techniques
  - ▶ Increase Students' Comfort Level With the Material by Engaging Them in a Fun Activity

**Time Required:** 2 After-School Sessions

### Day 1 - Part A

#### Materials Required

*Hat, Coat, Draft Detector<sup>1</sup>, Ear Muffs, Scarf, Sunglasses and Our School is Energy Efficient Handout*

#### Student Handout

*Our School is Energy Efficient  
Help Energy Ed Get Ready for Winter*

#### Assessment Tools

*Our School is Energy Efficient  
Help Energy Ed Get Ready for Winter*

#### Learning Standards Addressed

Language Arts:

Goals 1 A, B and C;  
4 A and 5 A

Math: Goal 6 A

Science: Goals 12 C, 13 B

#### Applied Learning Standards Addressed

Solving Problems, Communicating,  
Working on Teams and Making  
Connections

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<sup>1</sup> A simple draft detector can be built by clipping a piece of tissue paper or plastic wrapping to a coat hanger. Hold the coat hanger in front of a suspected leak; any movement of the paper will indicate air leakage.

## Vocabulary Words

Insulate: (verb) Cover with non-conducting material to prevent the passage of conditioned air

Cellulose: (noun) A material created from fiber such as paper or cotton

Caulk: (noun) A waterproof filler and sealant

Weatherstrip: (noun) Metal, plastic or felt strips designed to seal spaces between windows and door frames

## Procedure

Use a volunteer who will be the *school building*. The *building* will be retrofitted to show the basics of energy conservation. Review your points by removing the retrofits from your volunteer *school building* in reverse order. Then, distribute the handout.

### Step 1: Choose a Volunteer

Explain that you will be discussing the basics of energy conservation in schools. Ask how many of the students feel comfortable that they know the basics and how many don't.

Then, request a volunteer to serve as the *school building* to illustrate the principles of energy conservation. Welcome the *school building* and thank the student for volunteering.

### Step 2: Weatherize the School Building

The following information should be presented in order. Once the class has identified an energy conservation technique, select a student to *install* the technique. Be careful that the students don't get so excited that they mistreat the *school building*.



<b>Building Envelope</b>	
<b>Teacher's Script</b>	<b>Additional Information</b>
<p><b>1. [Teacher]</b>  <b>Our <i>school building</i> seems to be losing its heat. What do you think would be the first thing we can do to keep heated - or cooled - air from leaving the building?</b></p> <p><b>[Answer]</b>            Insulate. Yes, first you insulate your ceiling or attic and then your walls.</p> <p><b>[Action]</b>  <b>Would someone come up and show us how to insulate our <i>school building</i>?</b></p> <ul style="list-style-type: none"> <li>▶ Put the hat on first</li> <li>▶ Then the coat</li> </ul>	<p><b>Technique #1: Insulation</b>  <b>(Cellulose does the best job in walls and ceilings)</b></p> <p>Facts:</p> <ul style="list-style-type: none"> <li>▶ Insulating reduces energy costs by 20-30%</li> <li>▶ Heating is 75-95% of a school's natural gas expense</li> <li>▶ Cooling is 10-15% of a school's electric energy expense</li> </ul>
<p><b>[Teacher]</b>  <b>There are a number of things we can do to reduce our energy use, save money and be more comfortable. One way is to reduce drafts. Let's see if our <i>school building</i> has any drafts.</b></p> <ul style="list-style-type: none"> <li>▶ Place draft detector in front of the <i>school building's</i> face and ask them to blow.</li> </ul> <p><b>Oh my yes, we seem to have a drafty building. What can we do to seal the drafts?</b></p> <p><b>[Answer]</b>            Caulk around windows and any openings like window air conditioners, electric outlets, plumbing and wiring. Weatherstrip around doors.</p> <p><b>[Action]</b>  <b>May I have a volunteer to help seal our <i>building's</i> air leaks?</b></p> <ul style="list-style-type: none"> <li>▶ Put a scarf over the mouth</li> <li>▶ Then hand them some ear muffs saying you think you heard some air escaping there as well</li> </ul>	<p><b>Technique #2: Caulk and Weatherstrip</b></p> <p>Note:</p> <ul style="list-style-type: none"> <li>▶ You can also save money by properly maintaining your heating equipment. Make sure it's tuned up regularly and clean filters once a month.</li> </ul>

<b>Lighting</b>	
<b>Teacher's Script</b>	<b>Additional Information</b>
<p><b>[Teacher]</b>  <b>How can we reduce the energy our <i>building</i> uses for lighting?</b></p> <p>[Answers]</p> <ul style="list-style-type: none"> <li>▶ Use the lights wisely; turn off lights when not in use</li> <li>▶ Open drapes in the winter for light and heat</li> <li>▶ Close drapes in the summer for cooling</li> <li>▶ Switch to energy efficient lights</li> <li>▶ Plant trees for shade</li> </ul> <p><b>[Teacher]</b>  <b>Who would volunteer to help shade the <i>school building</i>?</b></p> <ul style="list-style-type: none"> <li>▶ <b>Put sunglasses on your <i>building</i></b></li> </ul>	<p><b>Facts:</b></p> <ul style="list-style-type: none"> <li>▶ 65-80% of the school's electric energy is used for lighting, cooking and running equipment</li> <li>▶ T-8 fluorescent with electronic ballasts are best for classroom use</li> </ul>

<b>Step 3: Review</b>	
<b>Teacher's Script</b>	<b>Additional Information</b>
<p><b>[Teacher]</b>  <b>Congratulate the students on how much they already know about energy efficiency. Then review what was learned by removing the items on the <i>building</i> in reverse order:</b></p> <ul style="list-style-type: none"> <li>▶ Sunglasses</li> <li>▶ Ear Muffs</li> <li>▶ Scarf</li> <li>▶ Coat</li> <li>▶ Hat</li> </ul>	<ul style="list-style-type: none"> <li>▶ Shading the school with trees and using our blinds can save energy</li> <li>▶ Drafts make us uncomfortable and waste energy. Remember to caulk windows and weatherstrip doors</li> <li>▶ Insulation keeps cooled and heated air in our building. <b>Ask the building: "Are you warm?"</b></li> </ul>

## Step 4: Assessment

Assessments are offered for three age groups:	
<p>1) Using the worksheet <i>Help Energy Ed Get Ready For Winter</i>, ask your students to identify the top three ways to reduce air infiltration (drafts). Students will be asked to color the items of Energy Ed's clothing that corresponds to:</p> <ul style="list-style-type: none"><li>▶ Attic Insulation</li><li>▶ Wall Insulation</li><li>▶ Weatherstripping</li></ul>	Grades 3-5
<p>2) Using the worksheet <i>Our School is Energy Efficient</i>, ask your students to complete the sentences to identify actions that will reduce energy use. You may choose to provide younger students with a list of the correct vocabulary words for this exercise. The correct actions are:</p> <p>Heated and cooled air can't escape because we <b>insulated</b> attics and walls.</p> <p>We keep the doors shut and stop drafts by <b>weatherstripping</b>.</p> <p>At night we <b>close</b> the shades.</p> <p>Trees are great! Their shade keeps the school <b>cool</b> in the Spring and Summer and blocks the cold <b>wind</b> in the Winter.</p> <p>In the Spring we open the windows to be cool. In the Winter we stop drafts by <b>caulking</b>.</p> <p>When it is sunny we <b>open</b> the blinds and turn <b>off</b> the lights.</p>	Grades 6-8





## Day 2 - Part B

### Day 2 - Part B

#### Materials Required

*Guest Speaker on Demand CD:*  
*Match Schtick the Magnificent*

#### Additional Teacher Resources:

*Issues, Evidence and You C1:*  
*Investigating Energy Transfer, C7:*  
*Electrical Energy: Sources and*  
*Transmission, C9: Energy from the*  
*Sun*

#### Learning Standards Addressed

Language Arts:

Goals 1 A, B and C;  
4 A and 5 A

Math:

Goal 6 A

Science:

Goals 12 C, 13 B

#### Applied Learning Standards Addressed

Solving Problems, Communicating,  
Working on Teams and Making  
Connections

#### Vocabulary Words

Potential Energy: (noun) Energy that is ready to be released

Kinetic Energy: (noun) Energy that is already in motion

Renewable: (adjective) Can be replaced, renewed in a short time

Non-Renewable: (adjective) Can not be replaced, took millions of years to create

HydroElectricity: (noun) Electricity generated using moving water

Biomass: (noun) Waste from plants and animals

Geothermal: (adjective) Energy produced by the internal heat of the earth

Hydrogen: (noun) A colorless, odorless, highly flammable gas; the lightest of the chemical elements

Uranium: (noun) A gray dense radioactive metallic chemical element; used as a fuel in nuclear reactor



**Step 1: Play the CD *Match Schtick the Magnificent***

A CD containing *Match Schtick the Magnificent* has been included with your teaching materials. This is a narrated PowerPoint describing the energy sources and the production of electricity.

**Step 2: Suggest that the Students Take Notes**

Before you play the CD, suggest that the Detectives may want to make notes as they listen.

**Step 3: Discussion**

Ask the students if they have any questions about the information on the CD. You may choose to ask some leading questions to be sure they understood. Questions might include:

So what energy sources can we use to make electricity?

What energy sources are renewable? What does that mean?



## Case 3: Economics - The Second "E"

**Goal:** Introduce Students to Graphing Using Real Data and Provide Them With Information on How Much a School Spends on Energy

**Objectives:**

- ▶ Introduce Students to the Use and Creation of Bar Graphs
- ▶ Provide Students with Information on the Cost of Energy
- ▶ Visually Demonstrate the Relationship Between Weather and Energy Use

**Time Required:** 1 After-School Session

### Materials Required

School's Utility Costs and Use from the Previous School Year, Definitions of Data and Bar Graph, Example of a Bar Graph, Data Collection Forms, Rulers or Straight Edge, Colored Pencils

### Learning Standards Addressed

Language Arts:  
Goals 1 A, B and C;  
4 A and 5 A  
Math: Goal 6 A  
Science: Goals 12 C and 13 B

### Student Handouts

Data Collection Forms (7)

### Applied Learning Standards Addressed

Solving Problems, Communicating, Working on Teams and Making Connections

### Assessment Tool

Completed Data Collection Forms

### Additional Teacher Resource:

<http://www.math.com/teachers.html>

### Vocabulary Words

Bar Graph: (noun) A way to show information that uses bars to stand for data

Kilowatt: (noun) A unit of electricity equal to 1,000 watts

Kilowatt Hours: (noun) A unit of electricity equal to one kilowatt for one hour

Therm: (noun) A unit of gas fuel equal to 100,000 Btus

### Prior to Class

You will need to obtain your school's utility data for the past school year. To do this, simply go to the Energy Data section of the project web site ([www.Energy-Detectives.net](http://www.Energy-Detectives.net)). You will need the following data for each of the 12 months of the previous school year:

1. Total units of energy used and the related costs on a monthly basis

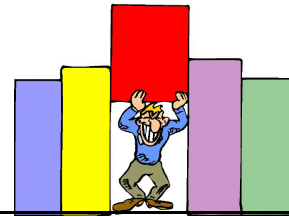
You will be looking for:

Electricity= kWh

Natural Gas= Therms

2. Total cost for each fuel source on a monthly basis

Data collection forms for both electricity and natural gas are provided for your use



Bar Graph:	A way to show information that uses bars to stand for data
Data:	Information collected about people or things

### Step 1: Introduce Lesson

Begin by explaining that, in order to solve the *Great Energy Caper*, the detectives will need to know how much energy is being used and for what purposes. Let them know that you have obtained copies of the school's utility bills for the previous school year.

### Step 2: Explain a Bar Graph

Explain a bar graph and its uses. If this is a new concept to your students you may choose to show them some simple examples. If you are working with older students who are comfortable with bar graphs, you might ask them to complete the next exercise using the computer.

### Step 3: Explain the Exercise

Explain to the students that they will be working in teams to accurately graph the amount of energy used by type and the cost for that energy during the last school year by month. You will provide the data and they will be expected to create the bar graphs.

### Step 4: Small Group Work

Divide the class into four groups. Provide each group a data collection form, rulers or straight edge, colored pencils and the appropriate blank bar graph form.

Each team's first task will be to determine the amounts to put in the left column of the graph. If you have younger students, you might choose to complete this for them.

Each team should complete their graph. After completing the graph they should answer the questions and present their findings to the rest of the class.

## Data Collection Form Electricity

In a school, electricity provides power to lights and equipment like computers, fans and televisions. Electricity can also provide power to air conditioners and heaters.

Month	kWh Used	Cost for Electricity
August		
September		
October		
November		
December		
January		
February		
March		
April		
May		
June		
July		
TOTAL		

**Data Collection Form**  
**Natural Gas**

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In your school, the heating of air and water is provided by natural gas. Natural gas is measured in therms.

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Month	Therms Used	Cost for Natural Gas
August		
September		
October		
November		
December		
January		
February		
March		
April		
May		
June		
July		
TOTAL		

**Data Collection Form - General**

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School Name: \_\_\_\_\_

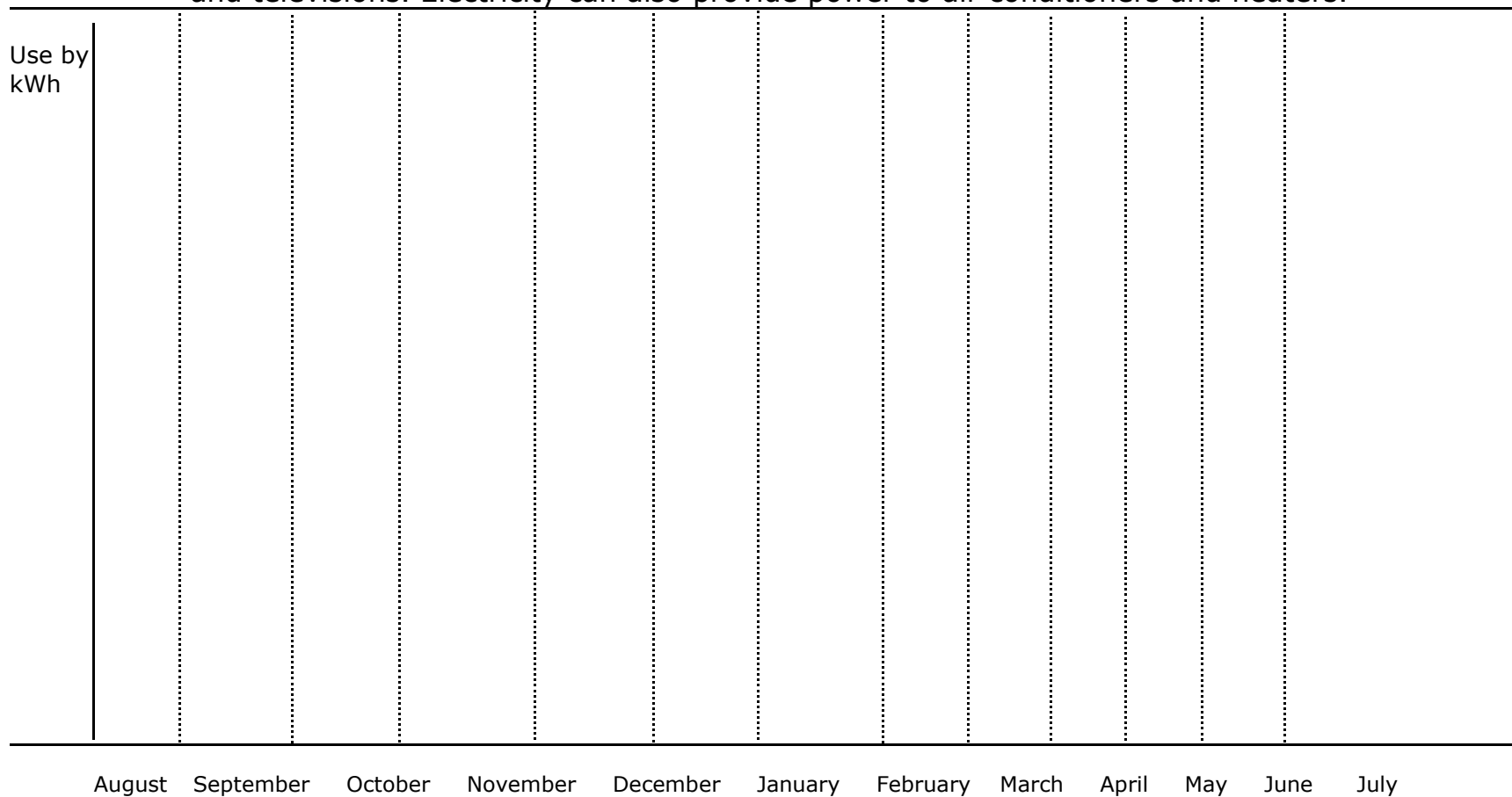
Date School Was Built: \_\_\_\_\_

Total Square Footage of School: \_\_\_\_\_

Total Occupants (Teachers, students and staff): \_\_\_\_\_

### Graph of Electricity Use

In a school, electricity provides power to lights and equipment like computers, fans and televisions. Electricity can also provide power to air conditioners and heaters.



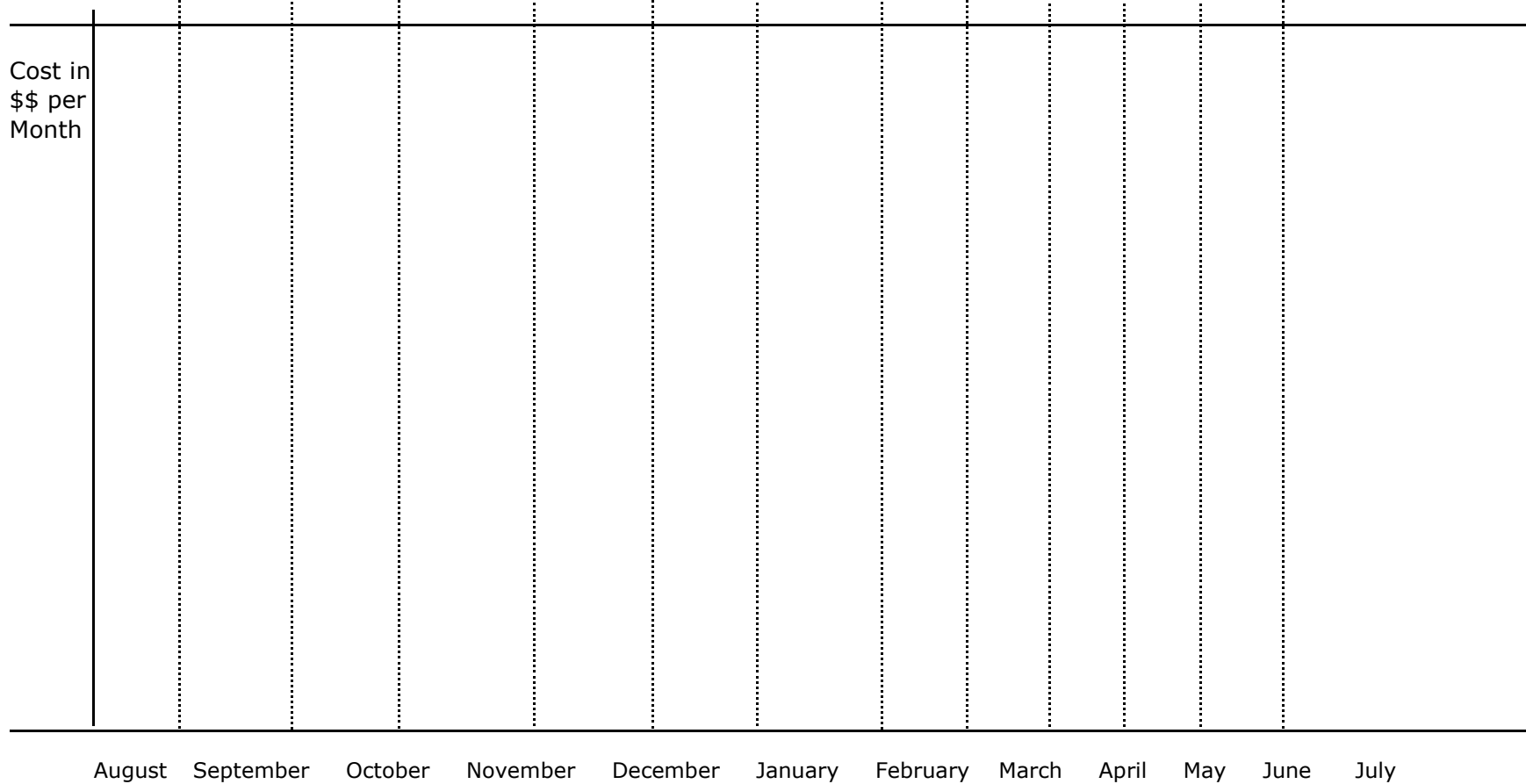
What months had the highest use?

Why?



### Graph of Electricity Cost

In a school, electricity provides power to lights and equipment like computers, fans and televisions. Electricity can also provide power to air conditioners and heaters.



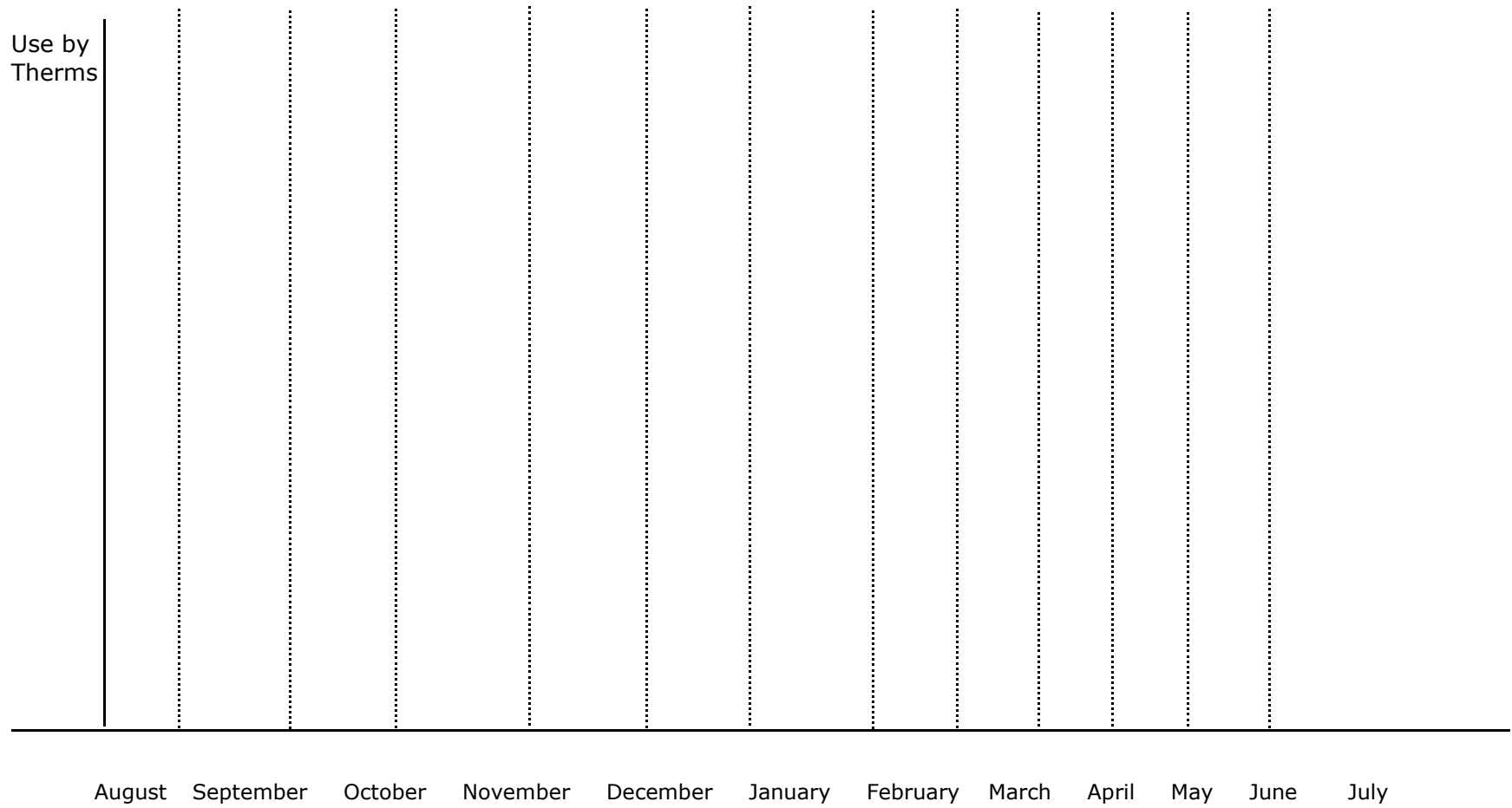
What months had the highest costs?

Why?

What was the total cost for electricity for the last school year?

### Graph of Use of Natural Gas

In your school, the heating of air and water is provided by natural gas. Natural gas is measured in therms.

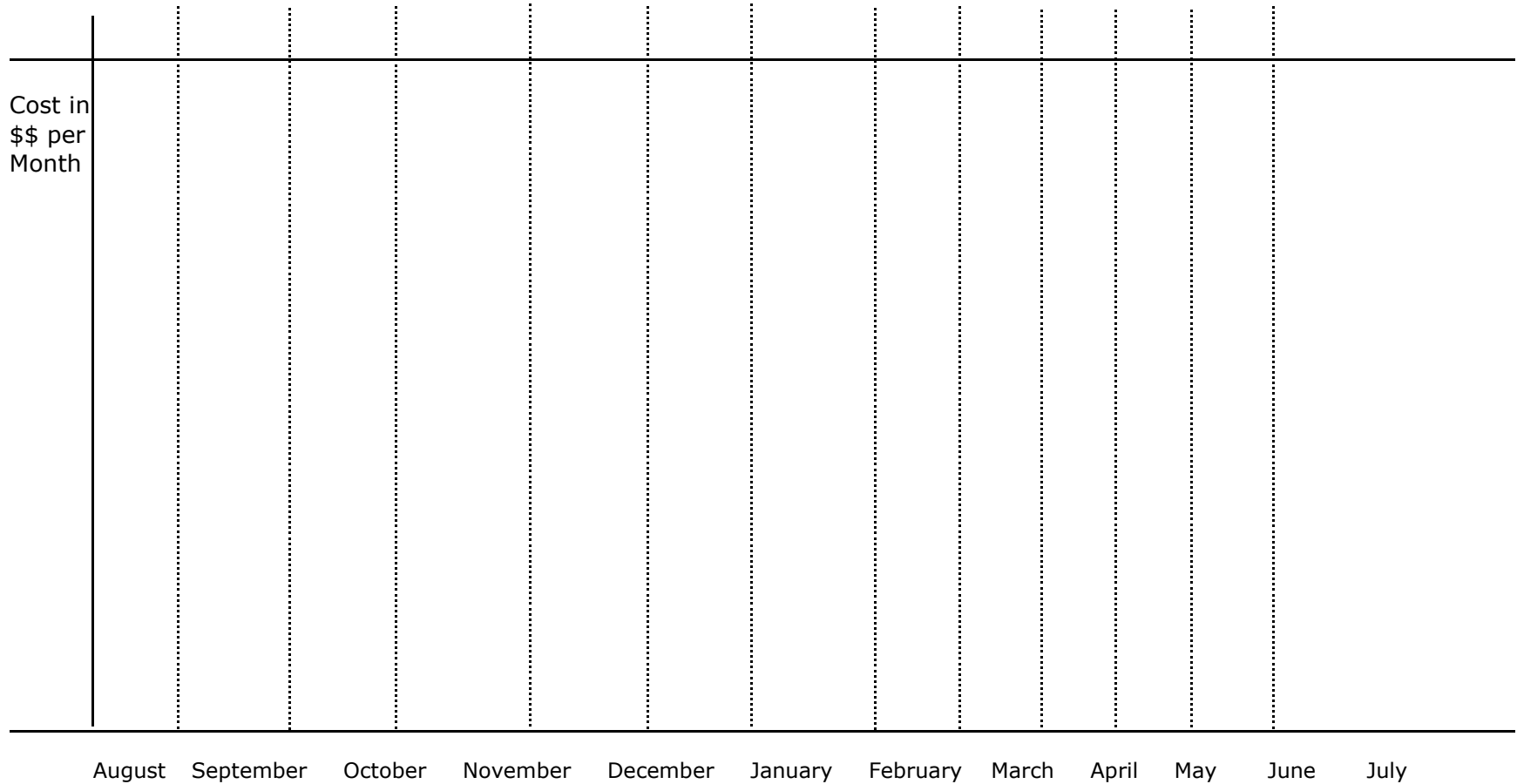


What months had the highest use?

Why?

### Graph of Cost of Natural Gas

In your school, the heating of air and water is provided by natural gas. Natural gas is measured in therms.



What months had the highest costs? Why?

What was the total cost for natural gas/propane/other for the last school year?



## Case 4: Environment - The Third "E"

**Goal:** Students Will Use the Internet as a Tool to Discover Information on the Environmental Impact of Energy

**Objectives:**

- ▶ Provide Students with Practice Visiting Internet Sites
- ▶ Provide a Sampling of Energy and Environmental Sites
- ▶ Introduce the Impact of Energy Use on the Environment

**Time Required:** 1 After-School Session

### Materials Required

Internet Access, Scavenger Hunt Form for Each Team and Writing Instruments

### Learning Standards Addressed

Language Arts:  
Goals 1 A, B and C;  
4 A and 5 A

### Student Handouts

Scavenger Hunt Form

### Assessment Tool

Completed Scavenger Hunt Form

### Applied Learning Standards Addressed

Communicating, Using Technology, Working on Teams and Making Connections

### Additional Teacher Resource:

Web Sites Listed in Scavenger Hunt

### Vocabulary Words

Renewable: (adjective) Can be replaced, renewed in a short time

Non-Renewable:(adjective) Can not be replaced, took millions of years to create

Incandescent: (adjective) Containing a filament which glows white-hot when heated by an electric current

Fluorescent: (adjective) Based on fluorescence from a substance lit by ultraviolet light (Notice the unique spelling fl UO rescent)

Recycle: (verb) Convert waste into reusable material

### **Step 1: Introduce the Lesson**

Explain that students will be working in teams of two to complete the Online Environmental Scavenger Hunt. The purpose of this activity is to point out how energy use has an impact on the environment. Throughout the activity, students will be directed to visit various web sites.

### **Step 2: Establish Partners**

Divide your class into teams of two before you head for the computer lab. Determine which student will be at the keyboard for the first six questions and which will be at the keyboard for the last four questions. Make sure each student has a pencil, knows who their partner is and knows what computer they should use. The student who is not at the keyboard should raise their hand if they have technical difficulty.

Once in the lab and the students are seated at the computers, distribute the Scavenger Hunt form.

### **Step 3: Complete the Form**


As soon as a team has their form, they may begin. They should switch places at the end of five correct questions. When their form is completed, the team should put their name on their form and turn it in.

### **Step 4: Review**

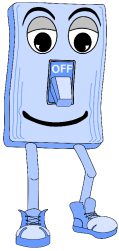
Review the correct answers with your students and ask your students some leading questions such as:

- What new information did they learn and what did they already know?
- What information surprised them?
- What actions will they take as a result of what they learned?

## Environmental Scavenger Hunt

Detectives:  
Your first set of clues  
are at 

<http://www.energynet.net/detectives/hunt.htm>




1. What is the single most effective action you can take to help the environment?

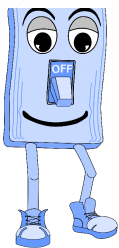
\_\_\_\_\_

2. Circle the type of energy source that can cause pollution  
Renewable  
Non-Renewable  
Both

3. Circle all of the energy sources that are renewable  
Natural Gas  
Solar  
Coal

Detectives:  
Your next set of clues  
are at 

<http://www.ase.org/content/news/detail/2336>



4. If everyone in America replaced four 100 watt incandescent light bulbs with compact fluorescent bulbs, we'd save as much energy as produced by **how many** power plants annually? \_\_\_\_\_

5. Click on the Hog. Who is he and what does he do?

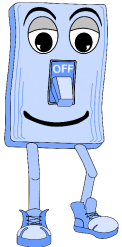
\_\_\_\_\_

6. Review the Handbook to learn about saving energy in your home. To save water, limit your showers to \_\_\_\_\_ minutes.

**It's time to switch roles. If you were operating the computer, you will now be reading the questions and writing in the answers. Of course, both of you will be working together to find the answer!**

Detectives:  
Your next clue can  
be found at 🗺️

<http://www.epa.gov/epaoswer/osw/kids/games/index.htm>

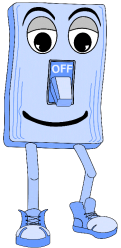


6. Visit the EPA's Raw Materials Lineup to learn that plastic toys are made from this non-renewable energy source:

---

Detectives:  
Your final clues  
can be found at 🗺️

<http://www.epa.gov/recyclecity>



7. Go to Recycle City and visit the Southwest section of town. This is where the school is. Ms. Redux' class is learning about the 3 R's. What are the 3 R's:

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8. Give two examples of the first R:

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9. Give two examples of the second R.

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**Congratulations! You have completed the Scavenger Hunt.**  
**Please write your names on the lines below and then turn your completed Scavenger Hunt form into your teacher.**

Name: \_\_\_\_\_

Name: \_\_\_\_\_

## Environmental Scavenger Hunt Answer Key

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- Clue: <http://www.energynet.net/detectives/hunt.html>
1. What is the single most effective action you can take to help the environment?  
**Use Energy Wisely**
  
  2. Circle the type of energy source that can cause pollution (answer in bold)  
Renewable  
Non-Renewable  
**Both**
  
  3. Circle all of the energy sources that are renewable (answer in bold)  
Natural Gas  
**Solar**  
Coal
  
  

Clue: <http://www.ase.org/content/news/detail/2336>

    4. If everyone in America replaced four 100 watt incandescent light bulbs with compact fluorescent bulbs, we'd save as much energy as produced by **30** power plants annually.
  
    5. Click on the Hog. Who is he and what does he do? **Sucks the energy out of the home**
  
    6. Review the Handbook to learn about saving energy in your home. To save water, limit your showers to **5** minutes.
  
  

Clue: <http://www.epa.gov/epaoswer/osw/kids/games/index.htm>

      6. Visit the EPA's Raw Materials Lineup to learn that plastic toys are made from this non-renewable energy source: **oil**



- Clue: <http://www.epa.gov/recyclecity>
7. Go to Recycle City and visit the Southwest section of town. This is where the school is. Ms. Redux' class is learning about the 3 R's.  
What are the 3 R's: **Reduce, Reuse, Recycle**
  8. Give two examples of the first R. **Purchasing goods that use less packaging, sharing or renting things (like carpet cleaners) that aren't needed regularly instead of buying them, and buying household cleansers that do not contain hazardous ingredients.**
  9. Give two examples of the second R. **Using glass or plastic jars after they're empty, or taking a cloth sack to the store when you shop (you don't need a bag, and you can use the sack again the next time).**

**Here at the school, many of the kids bring their lunches in plastic containers, which they can wash and use over and over again, instead of wrapping their food in plastic and paper that they throw away every day. Meanwhile, some businesses have donated their old computers to the school for reuse, and the local theatre company donates its used sets and costumes to the Drama Club.**



## Case 5: All Points Bulletin

**Goal:** Allow Students to Use Real Data to Explore the Concept of Numerical Comparisons

**Objectives:**

- ▶ Introduce Students to the Concepts of Numerical Comparisons
- ▶ Allow Students to Better Understand the Meaning of Their School's Energy Use and Cost Data

**Time Required:** 1 After-School Session

### Materials Required

Copies of the Completed Bar Graphs From Case 3

### Student Handouts

None

### Learning Standards Addressed

Language Arts:

Goals 4 A and B

Math:

Goals 8 B, 10 A and C

### Applied Learning Standards Addressed

Communicating and Making Connections

### Procedure

The Coaches will meet with the Detectives to present your school's energy use and cost data. They will also compare your school's energy use and costs to the other Chicago Public Schools participating in the EnergyNet After-School Program.

#### Step 1: Introduce Activity

Explain that your school's Energy Coaches will be making a presentation about your school's energy use and costs. Also let the Detectives know that at the conclusion of the Coaches' presentation, the Detectives will be able to ask questions.

Remind the Detectives that they are expected to listen and be respectful.

#### Step 2: The Presentation

The Coaches will present their information and answer questions. Then they will read the All Points Bulletin (APB) from Headquarters. The APB will provide the Detectives with the next step in *The Great Energy Caper* and will encourage them to plan their Stakeout.



## A Message From Headquarters

Dear Detectives!

Headquarters has issued an **All Points Bulletin**. *Behavior Burglars* and *Leaky Looters* have been spotted in the area of your school. *Behavior Burglars* have been seen wasting energy by leaving on lights and equipment when no one's using them.

*Behavior Burglars* have also teamed up with *Leaky Looters* to leave windows and doors open and to create leaks all throughout the building.

Good Luck!

X

Headquarters





## Case 6: Planning the Stakeout

**Goal:** Students Will Prepare to Conduct the Stakeout

- Objectives:**
- ▶ Provide Students with Experience Organizing an Event
  - ▶ Provide Students with Experience Using the Team Meeting Format
  - ▶ Develop the Schedule, Tasks and Assignments for Conducting the Stakeout

**Time Required:** 1 After-School Session

### Materials Required

Floor Plan of the School, Stakeout Forms, Meeting Agenda and Chalk Board or Large Writing Surface

### Student Handouts

Meeting Agenda, Stakeout Form and All Points Bulletin

### Assessment Tool

Meeting Rubric

### Learning Standards Addressed

Language Arts:

Goals 4 A and B

Math:

Goals 6 A, B, C and D; and 10 B

### Applied Learning Standards Addressed

Solving Problems, Communicating and Working on Teams

### Vocabulary Words

Agenda: (noun) A list of items to be discussed at a meeting

Goal: (noun) An aim or desired result

Objectives: (noun) Smaller goals, the steps you take to achieve your goal

Territory: (noun) An area in which one has certain rights or responsibilities

Stakeout: (verb) Watch a place or person

### Procedure

Using a team meeting format, students will organize themselves to conduct a Stakeout of the Behavior Burglars and the Leaky Looters.

#### Step 1: Introduce the Lesson

Explain to your Detectives that it is time to plan the Stakeout. This will be done in a team meeting. Begin by asking them to sit in a circle. Then, provide them with the meeting agenda, the All Points Bulletin and a copy of the Stakeout Form. Give them time to look over both.

## Step 2: Icebreaker

Ask the students to introduce themselves as if they were an energy thief. To do this, have them use their first name followed by an energy wasting activity beginning with the first letter of their first name (ie. Ann Always Leaving Lights On).

## Step 3: Request a Volunteer

Request a volunteer to serve as note taker.

## Step 4: Begin the Meeting

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### Agenda

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**Goal:** Plan a successful Stakeout of our school. During the Stakeout, Detectives will look during the school day and after school for the *Behavior Burglars* and *Leaky Looters*.

**Objectives:**

- ▶ Establish teams so that a Stakeout Form is completed for each room in the school
- ▶ Provide teams with materials they will need like enough Stakeout Forms and a list of rooms to visit
- ▶ Provide a place for teams to take their completed forms

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#### Task 1: Discuss Strategy

The teacher should review the goals and objectives of the meeting so that everyone knows what will be discussed.

#### Task 2: Establish Teams

As a group, determine how many Detectives should be on a team. Some questions to consider are:

What jobs need to be done?

Should there be an even number or an odd number on each team?

Once decided, determine how to assign Detectives. Then write each Detective's team assignment on the back of their Detective ID card.

#### Task 3: Territory

Determine each team's territory by identifying the rooms for which they should complete Stakeout Forms. Remember, each team should have about the same amount of work.

One way to do this would be to divide the number of hallways by the number of teams. This would tell you how many hallways (and all the rooms attached to them) each team would cover. Can you think of other ways to divide up the school?

**Task 4: Time Frame**

Determine how many days you will spend on your Stakeout.

**Task 5: Materials / Permission**

Once you know how many rooms each team will be visiting, you can determine what materials they will need. This will include:

- Pencils with erasers

- Clip Boards or some hard surface to write on

- Stakeout Forms - including some extras in case there is a problem

- Permission from Principal

- Help getting into locked rooms from Janitors, etc.

You will also determine who will be responsible for getting the materials, permission and assistance.

**Task 6: Review the Stakeout Form and Procedures**

Review the form to make sure that all Detectives understand how to fill it out. It is important that the information be absolutely correct.

Remind all the Detectives to be quiet while doing the Stakeout so that energy thieves do not know they are being watched.

Tell all Detectives where to pick up their materials and where to drop off their completed Stakeout Forms.

**Step 5: End Meeting**

This is a good time for questions. Be sure that all Detectives have had a chance to have their questions answered.



# Energy Detectives Stakeout Form

## Looking for Behavior Burglars and Leaky Looters

Date: \_\_\_\_\_ Detective(s): \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

Please Circle the Time of Day You Conducted Your Stakeout and the Key that Describes What You Found:

Time of Day:	Key:	
Morning	+	Room Occupied - Energy Used Wisely
Afternoon	-	Room Occupied - Energy Not Used Wisely
After School	E+	Room Not Occupied - Energy Not in Use
After School	E-	Room Not Occupied - Energy in Use

Location: \_\_\_\_\_

Room # - or - Room Description (Office, Closet, Hallway, etc.)



Please Circle Any Energy Crimes You Found:

- Lights On But No One's Home
- Lights On But Not Necessary - Sunlight Available
- Equipment On But No One's Home
- Leaks/Drips:       Hot Water    - or -       Cold Water
- Drafts Around:     Doors        - and/or -     Windows
- Windows Open:    Heat            or              Air Conditioning On
- Outside Doors Open
- Recyclables Found in Trash:     Paper       Aluminum Cans

Comments:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_







# Energy Detectives Stakeout Form

Date: \_\_\_\_\_

Detective(s): \_\_\_\_\_

Time of Day:

- Morning
- Afternoon
- After School
- After School

Key:

- + Room Occupied - Energy Used Wisely
- Room Occupied - Energy Not Used Wisely
- E+ Room Not Occupied - Energy Not in Use
- E- Room Not Occupied - Energy in Use

Location: \_\_\_\_\_

Room # - or - Room Description (Office, Closet, Hallway, etc.)



Energy Crime:

- Lights On But No One's Home
- Lights On But Not Necessary - Sunlight Available
- Equipment On But No One's Home
- Leaks/Drips:  Hot Water - or -  Cold Water
- Drafts Around:  Doors - and/or -  Windows
- Windows Open / Heat or Air Conditioning On
- Outside Doors Open
- Recyclables Found in Trash:  Paper       Aluminum Cans

Comments:

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## Case 7: The Stakeout

**Goal:** Students Will Conduct the Stakeout

- Objectives:**
- ▶ Observe the Energy Behaviors and Comfort Levels in All Rooms Within the School
  - ▶ Complete Stakeout Forms Correctly for All Rooms Within the School

**Time Required:** Several After-School Sessions

### Materials Required

Floor Plan of the School,  
Stakeout Forms, Hall Passes  
and Any Materials  
Determined During the  
Previous Team Meeting

### Student Handouts

Stakeout Forms

### Assessment Tool

Review Completed Stakeout  
Forms

### Learning Standards Addressed

Language Arts:  
Goals 3 B and C; 4 A

Math:  
Goals 6 A and C

Science:  
Goals 11 A; 12 C; 13 A  
and B

### Applied Learning Standards Addressed

Solving Problems,  
Communicating and  
Working on Teams

### Procedure

Detectives will look both during the school day and after school for *Behavior Burglars* by seeing how energy is used in each room in the school.

During their after school time, Detectives will look for *Leaky Looters* by looking at the school's walls, doors, windows and water faucets for leaks, drips and gaps.

#### Step 1: Gather Teams

Take attendance at the beginning and end of each Stakeout period. Be sure the students know their task, have their materials and have been reminded to move through the school quietly. Establish a time when they should return to the classroom.

#### Step 2: After Stakeout

Collect Stakeout Forms and thank the students for their efforts.



### Supervision Options During Stakeout

- ▶ You may choose to spot check the student's activities.
- ▶ You might ask an authority figure to be present on each floor in case the students have questions or require supervision.
- ▶ You may choose to be available in your classroom if students have questions.



# Case 8: The Suspects

**Goal:** Detectives Will Review Their Stakeout Forms to Determine Potential Areas of Energy Inefficiencies

- Objectives:**
- ▶ Provide Students With Experience Analyzing Non-Numerical Data
  - ▶ Provide Students With Experience Making Decisions in Small Groups
  - ▶ Prepare a Short Presentation to the Class

**Time Required:** 1 After-School Session

## Materials Required

Completed Stakeout Forms,  
Several Suspect Forms, Several  
Presentation Forms, Calculators for  
each Stakeout Team and (optional)  
Access to Internet



**Invite the Energy Coaches to Participate in this Session**

## Learning Standards Addressed

Language Arts:

Goals 1 B; 3 C; 4 A and B;  
5 A and C

Math:

Goals 6 A, B and C; 10 A, B  
and C

Science:

Goals 11 A; 12 C; 13 A  
and B

## Student Handouts

Completed Stakeout Forms,  
Several Presentation Forms

## Applied Learning Standards Addressed

Solving Problems, Communicating,  
Working on Teams and Making  
Connections

## Assessment Tool

Review Completed Presentation  
Form and Suspects Form

## Procedure

The Energy Coaches will work with each Stakeout team to help students review their Stakeout Forms, organize their findings and complete a Suspect Form.

If desired, they can contact Flip the Switch for assistance.

**Step 1: Introduce Activity**

Explain that it is the responsibility of each Stakeout Team - with assistance from a team of Energy Coaches - to analyze their Stakeout Forms. By reviewing the data they collected on the Stakeouts, Detectives will be able to identify suspected energy wasters. This information will be presented at the next after-school session and will be used to identify an Action Plan. A Presentation Form has been developed for their use.

Ask one member of each Stakeout Team to collect the appropriate Stakeout Forms from you as students regroup into their Stakeout Teams with the Energy Coaches.

**Step 2: Work in Small Groups**

Students will work in their Stakeout Teams with a team of Energy Coaches to first complete the Presentation Form and then the Suspect Form. Each group will also need to identify who will present this information to the rest of the team at the next after-school session.

# Presentation Form

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The following form will help you organize your thoughts.

We visited \_\_\_\_\_ (#) rooms on the \_\_\_\_\_ (1<sup>st</sup>, 2<sup>nd</sup>, etc) floor and on the (North, South, etc) side of the building.

(NOTE: Please use another form if you visited rooms on more than one floor or more than one side of the building.)

We visited these rooms during \_\_\_\_\_(time of the day).

We found it uncomfortably **hot** in the following rooms:

We found it uncomfortably **cold** in the following rooms:

We believe this is due to: \_\_\_\_\_  
(Temperature settings, doors and/or windows open or leaking, blinds not closed, etc. Please be as specific as possible.)

<u>Room</u>	<u>Cause</u>
-------------	--------------

We found \_\_\_\_\_ (lights, equipment, water, etc. Please be as specific as possible.) left on in the following rooms:

We found (broken windows, cracks, dripping faucets, no weatherstripping and/or no caulking) in the following rooms:



## Suspect Form

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Behavior Burglar Suspects

Possible Crimes

Leaky Looter Suspects

Possible Crimes





## Case 9: Developing an Action Plan Parts A and B

**Goal:** Students Will Agree Upon the Most Significant Energy Wasters and Will Develop an Action Plan to Reduce the School's Energy Use

- Objectives:**
- ▶ Provide Students With Experience Presenting Information both Verbally and Visually
  - ▶ Provide Students With Experience Using the Team Meeting Format
  - ▶ Provide Students With Experience Making Decisions in Large and Small Groups
  - ▶ Provide Students With Experience Developing a Work Plan
  - ▶ Provide Students With Experience Evaluating Their Own Skills

**Time Required:**

Two After-School Sessions

### Day 1 - Part A

#### Materials Required

Completed Suspect Forms, Meeting Agenda and Chalk Board or Large Writing Surface

#### Student Handouts

Suspect Forms and Meeting Agenda

#### Assessment Tool

Meeting Rubric

#### Learning Standards Addressed

Language Arts:

Goals 1 B; 3 C; 4 A and B; 5 A and C

Math:

Goals 6 A, B, C and D; 10 A, B and C

Science:

Goals 11 A and B; 12 C; 13 A and B

#### Applied Learning Standards Addressed

Solving Problems, Communicating, Working on Teams and Making Connections

#### Procedure

Using the team meeting format, students will identify the significant energy wasters, will develop the activities which will be included in the Action Plan to reduce energy use and will develop the Action Plan.

## Part A

### Step 1: Introduce the Lesson

Tell students that today's goal is to conduct a meeting that includes the presentation of information and the use of that information to reach conclusions. During the next meeting they will develop a plan to act on that information.

You will need their cooperation following the four ground rules for a successful meeting.

It is a good idea to write those ground rules on a large piece of paper so that everyone can see them throughout the meeting.

#### Ground Rules

- ✓ No Interrupting
- ✓ Be Respectful of Each Other
- ✓ Listen to Understand
- ✓ Everyone Participates

### Step 2: Share the Meeting Agenda

After reviewing the ground rules, distribute or post the meeting agenda. Also, request 1-2 volunteers to serve as note takers. They should write their notes on the board.



#### NOTE To Teacher:

**An annotated meeting agenda is attached for your use and a non-annotated agenda is provided for use by the students.**

### Step 3: Conduct the Meeting

---

## Decision Making Meeting Agenda for Use by the Teacher

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### Review the Agenda

Teacher will review the meeting agenda.

### Presentations

Stakeout teams will each have 3 minutes to present their findings. After each presentation, the rest of the Detectives should be provided an opportunity to ask questions.

### Combine Data

Using the Stakeout Form, the meeting note takers should keep track of the total number of rooms visited and the total number of each type of Energy Crime reported. For example, the note takers should indicate how many rooms had "Lights On But No One's Home."

It may be helpful to determine the percentages associated with each Energy Crime. This would be done by dividing the total number of occurrences for each crime by the total number of rooms visited. For example, if 60 rooms had "Lights On But No One's Home" and the school has 120 rooms, then  $60 \div 120 = 50\%$ .

### Identify the Suspects

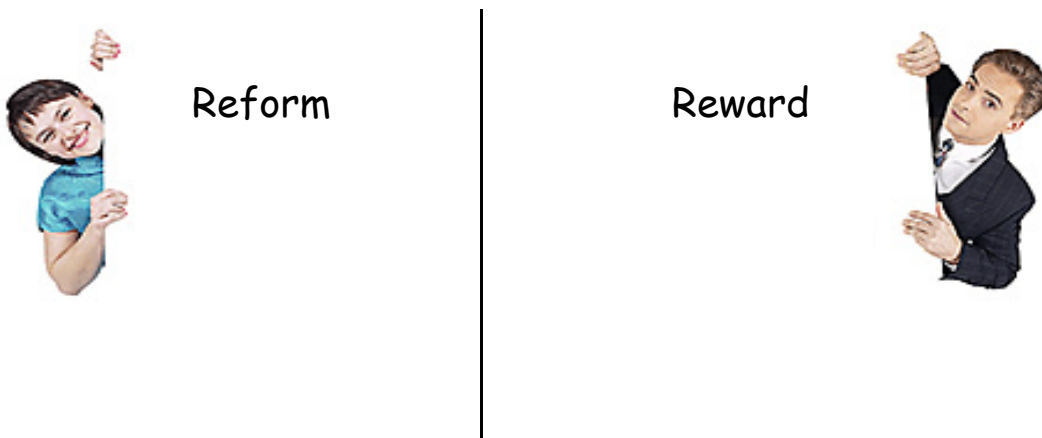
Using the combined data, the Detectives should determine -as a group - the most serious suspects. The note takers should list these on the board.



## Reform the Suspects / Reward Good Citizens

The meeting leader should ask the Detectives to brainstorm possible ways of reforming the suspects and rewarding good citizens. A description of brainstorming follows:

Ask the note takers to draw two columns on the board. One should be labeled "Reform" and the other "Reward." The Detectives should identify if they are suggesting a *Reform* or a *Reward* suggestion. The suggestions can then be written under the appropriate column.




### Decision Point

First make sure that everyone understands the ideas presented during brainstorming. If anyone needs an idea explained, take time to do that. Once everyone understands the ideas, it is time to choose the ideas which will be included in the Action Plan. There are two steps in this process. First, ask the Detectives to look at the list and decide if any of the ideas are similar and can be combined. If they can be combined, do so.

After all similar ideas have been combined, the Detectives will be asked to vote on the ideas to be included in the Action Plan. Using a show of hands, allow the Detectives to vote for the ideas they want to include in the Action Plan. During the first round, a Detective can vote for as many ideas as they like. You should end up with a group of ideas in each category with a lot of votes and then a group with few votes. Eliminate the ideas with few votes. If you have less than 10 ideas and you think you can handle all of them, then you are ready to move on to the Action Plan.

If you still have too many ideas, conduct another vote allowing each Detective two votes.

## Decision Making Meeting Agenda

WHAT	WHO
Review Agenda:   Goal: To Identify the Energy Suspects and Determine Ways to Reform the Suspects and Reward Good Citizens	Teacher
Presentations: Each Stakeout Team Will Describe What They Found Using the Presentation Form	Stakeout Teams (3 minutes each)
Combine Data	Note Takers
Identify Suspects	All Detectives Led by Teacher
Brainstorm: Ways to Reform the Suspects and Reward Good Citizens	All Detectives Led by Teacher Note Takers Write Down Ideas
Clarify and Combine Ideas from Brainstorming	All Detectives Led by Teacher
Decision Point: Identify the Ways Your Detective Agency will Reform the Suspects and Reward Good Citizens	All Detectives Led by Teacher

## Day 2 - Part B

### Materials Required

Action Plan, Sample Action Plan  
Either as a Handout or Overhead,  
Overhead Projector, Self  
Assessment Form, List of *Reform*  
and *Reward* Activities Developed  
During Class #1, Post-it Notes and  
Chalk Board or Large Writing  
Surface

### Learning Standards Addressed

Language Arts:  
Goals 1 B; 3 C; 4 A and B;  
4 A and B; 5 A  
Math:  
Goals 6 A, B and C; 10 C  
Science:  
Goal 12 C



### Invite the Energy Coaches to Join You for the Last Half of This Session

### Applied Learning Standards Addressed

Solving Problems, Communicating,  
Working on Teams and Making  
Connections

### Student Handouts

Sample Action Plan (optional), Self  
Assessment Form

### Assessment Tool

Completed Action Plan

## Part B

### Step 1: Introduce Lesson

Tell students that today's goal is to use the activities chosen during the last class to develop an Action Plan to reform the Behavior Burglars and the Leaky Looters. The Detectives will implement this Plan while the Coaches work on activities related to reforming the Evil Equipment and Air Abductor Gangs. The Coaches and Flip the Switch will be available to help the Detectives.



### Goal

**To Catch and Reform the Behavior Burglars and Leaky Looters at Our School**

### Step 2: Introduce the Action Plan

An Action Plan is an organized way of planning an activity. First, the Plan lists each major activity and then breaks it down into smaller parts. For instance, if you were planning a birthday party in your classroom you might break it into 5 parts:

- ✓ Invitations
- ✓ Food
- ✓ Decorations
- ✓ Games
- ✓ Thank You Notes

Next, each of these parts have to be planned. You need to decide who will be responsible for each, what those responsible will need, when they should have their part completed and how to determine if they completed their work successfully.



**NOTE To Teacher:**

A completed chart is provided as an example.



**NOTE To Teacher:**

It is now time to invite the Coaches to join you. They have been doing similar work to prepare for developing the Action Plan.

### **Step 5: Group Review**

Ask the entire group to review the forms and write any suggestions on Post-it Notes next to the appropriate form.

After this process is complete, read the Post-it Notes, discuss the suggestion and decide as a group whether to accept or reject the suggestion.

Once this is completed, you will have an Action Plan.

### **Step 6: Make Assignments**

It is time to make assignments. Each *Reform* and *Reward* activity which has an Action Plan will need a committee leader. Those who said they were good at planning and organizing would make good committee leaders. Ask those people to choose an activity to lead. Do you have too many or too few committee leaders? If so, ask the entire group what they suggest. A solution will emerge which will either be the consensus of the group or the teacher can choose.

Next, ask the remaining students to select a committee or committees for which they will work. They should tell the committee leader what tasks they would like to do. The committee leader will accept committee members until all tasks have been filled.

### **Step 7: Conclusion**

Congratulate the Detectives and Coaches on their successful work. Tell them that during the next class, committees will begin their work.



#### **NOTE To Teacher:**

It is possible for a student to be on several committees. For instance, if they excel at drawing, they could be viewed as the artist in residence who is responsible for completing tasks for several committees.

**Self Assessment Form**  
**(Check all that apply)**

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I am good at:

- Drawing
- Using Clip Art on the Computer
- Math
- Planning and Organizing
- Speaking over the P.A. System
- Speaking in Front of People
- Typing
- Writing Plays or Stories
- Writing Letters
- Writing Songs
- Singing
- Graphing Using the Computer

## Action Plan

### Major Activity: **Invitations**

Activity	Assigned To	Resources Needed	Due Date	Assessment
Address Invitations	2 people with good handwriting	List of People to Invite  Invitations and Envelopes	2 weeks before party	
Deliver Invitations	If mailed, 2 people who are responsible  If delivered, 2 people who are responsible and comfortable talking with others	Stamps or Hand Delivery	2 weeks before party	Were invitations sent to everyone on the list?
Track RSVP's - Call if necessary	1 person who can create a chart either on the computer or neatly on paper  1 person to track RSVP's who is organized and responsible	Chart	1 week before party track the number of RSVP's and contact those you haven't heard from	
Tell Other Committees How Many People to Expect	The same person who has been tracking the RSVP's	Chart	1 weeks before party, 2 days before party and the day before the party	How many people did you expect and how many people actually came?

### Energy Detectives Action Plan

Activity	Assigned To	Resources Needed	Due Date	Status



### Energy Coaches Action Plan

Activity	Assigned To	Resources Needed	Due Date	Status



## Case 10: Reforming the Energy Thieves

**Goal:** Students Will Implement Their Action Plan

- Objectives:**
- ▶ Provide Students With Experience Working in Teams to Accomplish a Common Goal
  - ▶ Help Students Track Their Progress and Adjust Their Activities as Necessary
  - ▶ Show Students that a Variety of Content Skills are Necessary to Accomplish Their Task

**Time Required:** The Remainder of the School Year

### Materials Required

Identified in the Action Plan  
Developed by the Students

### Student Handouts

Action Plan Forms for Tracking  
Progress

### Applied Learning Standards Addressed

Solving Problems, Communicating,  
Using Technology, Working on  
Teams and Making Connections

### Learning Standards Addressed

Language Arts:

Goals 1 A, B and C; 3 A, B  
and C; 4 A and B;  
5 A, B and C

Math:

Goals 6 A, B, C and D; 8 A,  
B, C and D; 10 A, B and C

Science:

Goals 11 A and B; 12 C and  
E; 13 B

Fine Arts:

Goals 25 B; 26 A and B

### Procedure

Working in their committees, students will implement the Action Plan they developed. This activity will continue throughout the school year, even though additional tasks will be happening as well.

### Step 1: Tracking Progress

Teachers, during the implementation of the Action Plan, committees will be working on separate and distinct tasks. You will want to work closely with the committee leaders to review upcoming activities, track progress and assess student learning and participation. This is where the *Status* column on the Action Plan is used.

It is suggested that a regular meeting time (preferably the end of the after-school session) be established when all committee leaders present the status of their Action Plan. During the meeting you might ask one of the committee leaders to take notes for you. This can be done using the following agenda or you may choose another format that better suits your needs. The choice is yours.

## **Meeting Agenda** **Action Plan Status**

### Committee Leaders Daily Report:

Committee Leaders, please respond to the following questions:

"Did you meet your goals for today?  
Why or why not?"

### Committee Leaders Goals:

Committee Leaders, please respond to the following questions:

"What are your goals for the next class?  
What will you need?"

### Problems or Issues:

Committee Leaders, are you having any problems that you would like to discuss?

### **Step 2:      Sharing Progress**

Teachers, you are encouraged to provide all Detectives with a regular update on the progress of the Detective Agency. This can be done by posting the updated Action Plan sheets on a bulletin board, asking committees to give reports, having a communications committee that posts the Detective Agency's progress on the online Detective Discussion Area or producing a newsletter.



Remember that the EnergyNet staff and/or Flip the Switch are available to help. Contact us either by telephone toll-free at 877/359-ENET (3638) or by email. Students should be encouraged to post their questions on the Detectives Discussion Area on the web site. Feel free to add to this section

by posting your own questions or helpful hints on the web site.



### **NOTE To Teacher:**

Students may be out of the classroom for a portion of time while they are conducting Action Plan activities. Those who will be leaving the classroom should first report for attendance, receive a hall pass (if necessary), and be told what time they are expected to be back in the classroom. Students must report back to the classroom before leaving for the day.

Ask a student to create a chart that lists each student's name followed by a box the size of a post-it note. In the box, write *In*. If the student will be out of the class for a portion of time, write their location, activity and the time they are expected back on a post-it note and place it in this first column. Hang this chart in an easy to see location.



# Case 11: All Points Bulletin . . .

## The Home Front

### Parts A and B

**Goal:** Introduce Students to Residential Energy Efficiency Opportunities

- Objectives:**
- ▶ Give Students the Opportunity to Apply Their Knowledge in a Residential Setting
  - ▶ Expand the Energy Efficiency Opportunities the Students Consider
  - ▶ Reinforce the Energy Knowledge Students Have Obtained

**Time Required:** 1 After School Session

### Part A

#### Materials Required

All Points Bulletin from Headquarters, 1 Computer with Projection Capability, *Guest Speaker on Demand* CD-ROM: *At Home With Diva* and Outline of PowerPoint for Each Student

#### Student Handouts

Outline of PowerPoint Presentation

#### Learning Standards Addressed

Language Arts:

Goals 3 B and 4 A

Science:

Goals 12 C and 13 B

#### Applied Learning Standards Addressed

Communicating, Using Technology, Working on Teams and Making Connections

#### Introduce the Topic

Headquarters has issued another All Points Bulletin. It appears that the Energy Thieves have begun invading the neighborhood. Many families have filed complaints about high energy bills and uncomfortable conditions.

Headquarters has asked Flip's friend Diva to brief the Detectives on ways to detect energy thieves in homes. As they listen to Diva's presentation, encourage the Detectives to write questions and notes on the PowerPoint outline.



### **Run the Presentation: *At Home With Diva***

*At Home With Diva* is a narrated PowerPoint Presentation. Click on the PowerPoint presentation icon on your desktop. Click on Slide Show and then on View Show. The show will run itself. Each slide contains its own narration and animation. Distribute the PowerPoint outline to each student.

### **Discuss the Presentation**

Allow the students to process what they've heard by discussing it in the classroom. This can be done in a number of ways such as holding a facilitated discussion and/or organizing a panel discussion. Suggestions for topics include:

- ▶ What areas in your home do you expect are the major energy users
- ▶ What ideas would you suggest for modifying your family's energy behaviors
- ▶ What key words would you use to search online for resources which would be especially helpful to the project

## A Message From Headquarters

Dear Detectives!

Thank you for working to solve The Great Energy Caper! What have you discovered so far?

Headquarters has issued an **All Points Bulletin**. Notorious energy thieves have been seen in your neighborhood. Many families have filed complaints about high energy bills and uncomfortable conditions.

Sort of like this 



Headquarters has asked Flip's friend Diva to brief the Detectives on ways to detect energy thieves in homes.

Good luck!

X

Headquarters

## Day 2 - Part B

### Materials Required

1 Computer with Projection Capability, *Guest Speaker on Demand* CD-ROM: *Let's Talk About Lighting* and Outline of PowerPoint for Each Student

### Student Handouts

Outline of PowerPoint Presentation

### Assessment Tool

Quiz Covering *At Home With Diva* and *Let's Talk About Lighting*

### Learning Standards Addressed

Language Arts:

Goals 3 B and 4 A

Science:

Goals 12 C and 13 B

### Applied Learning Standards Addressed

Communicating, Using Technology, Working on Teams and Making Connections



### Run the Presentation: *Let's Talk About Lighting*

*Let's Talk About Lighting* is a narrated PowerPoint Presentation. Click on the PowerPoint presentation icon on your desktop. Click on Slide Show and then on View Show. The show will run itself. Each slide contains its own narration and animation. Distribute the PowerPoint outline to each student.

### Discuss the Presentation

Allow the students to process what they've heard by discussing it in the classroom. This can be done in a number of ways such as holding a facilitated discussion and/or organizing a panel discussion. Suggestions for topics include:

- ▶ What areas in your home do you expect are the major energy users
- ▶ What ideas would you suggest for modifying your family's energy behaviors
- ▶ What key words would you use to search online for resources which would be especially helpful to the project

**Quiz**  
***At Home With Diva***

---



Name: \_\_\_\_\_

1. The building envelope includes five features of a home. Name four of the five:

\_\_\_\_\_

\_\_\_\_\_

2. Name two types of insulation:

\_\_\_\_\_

\_\_\_\_\_

3. What do you do with a caulking gun?

\_\_\_\_\_

4. Filling in the small gaps around windows and doors add up to big energy savings. Fill in the blank: The average house contains cracks and gaps between building materials that add up to a hole about \_\_\_\_\_ square.

5. Compact Fluorescent replace what lamps? \_\_\_\_\_

\_\_\_\_\_

6. Outdoor gas lamps waste energy. Replace them with solar powered lamps. What can you do with the natural gas from just eight gas lamps burning year round?

\_\_\_\_\_

7. Name two ways to reduce the use of energy associated with hot water?

\_\_\_\_\_

\_\_\_\_\_

8. Fill in the blank: Things that make \_\_\_\_\_ use the most energy.



9. Rank the following tasks in order of energy use with #1 using the most energy:

- \_\_\_\_\_ Water Heating
- \_\_\_\_\_ Lighting and Appliances
- \_\_\_\_\_ Heating and Cooling



Answer Key  
At Home With Diva

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1. The building envelope includes five features of a home. Name four of the five:  
(3 points per correct answer - total of 12 points)  
**Windows                      Doors                      Roof**  
**Floors                          Walls**
2. Name two types of insulation:  
(5 points per correct answer - total of 10)                      **Cellulose      Radiant Barrier**  
**Fiberglass**
3. What do you do with a caulking gun? (10 points) **Fill in gaps around windows**
4. Filling in the small gaps around windows and doors add up to big energy savings. Fill in the blank: The average house contains cracks and gaps between building materials that add up to a hole about **14 inches** square. (10 points)
5. Compact Fluorescent replace what lamps? (10 points)                      **Incandescent**
6. Outdoor gas lamps waste energy. Replace them with solar powered lamps. What can you do with the natural gas from just eight gas lamps burning year round? (10 points)  
**Heat an average size home for a winter**
7. Name two ways to reduce the use of energy associated with hot water? (5 points each - total of 10 points)  
**Install low-flow shower heads and faucets**  
**Insulate the water heater**  
**Only run dishwashers when they're full**  
**Buy energy efficient washers and dishwashers**
8. Fill in the blank: Things that make                      **heat** use the most energy. (10 points)
9. Rank the following tasks in order of energy use with #1 using the most energy: (6 points each - total of 18 points)  
**#3**                      Water Heating  
**#2**                      Lighting and Appliances  
**#1**                      Heating and Cooling



## Case 12: Securing the Home Front

**Goal:** Students Will Prepare to Conduct a Stakeout at Their Homes

**Objectives:** Develop the Schedule, Tasks and Assignments for Conducting a Stakeout at Their Individual Homes

**Time Required:** 1 After-School Session

### Materials Required

Home Stakeout Forms, Meeting Agenda and Chalk Board or Large Writing Surface, Internet Access

### Student Handouts

Meeting Agenda, Stakeout Form and All Points Bulletin

### Assessment Tool

Meeting Rubric

### Learning Standards Addressed

Language Arts:

Goals 4 A and B

Math:

Goals 6 A, B, C and D; and 10 B

### Applied Learning Standards Addressed

Solving Problems, Communicating and Working on Teams

### Procedure

Using a team meeting format, students will plan to conduct a Stakeout of the individual homes. They will be looking for *Behavior Burglars* and the *Leaky Looters* as well as the Con Men: *Evil Equipment*, *Lighting Larceny* and *Air Abductors*.

#### Step 1: Introduce the Lesson

Explain to your Detectives that it is time to share their knowledge with their families. Begin by asking them to sit in a circle. Then, provide them with the meeting agenda, the All Points Bulletin and a copy of the Home Stakeout Form. Give them time to look over both.

#### Step 2: Icebreaker

Ask each student to name one thing that's different about a place where you live versus their school.

#### Step 3: Request a Volunteer

Request a volunteer to serve as note taker.

#### Step 4: Begin the Meeting

# Agenda

---

**Goal:** Plan a successful Stakeout of your home. During the Stakeout, Detectives will look for the *Behavior Burglars* and *Leaky Looters* as well as the con men: *Evil Equipment*, *Lighting Larceny* and *Air Abductors*.

**Objectives:**

- ▶ Review the Home Stakeout Form
- ▶ Establish a Time Frame for Completing the Home Stakeout

---

**Task 1: Discuss Strategy**

The teacher should review the goals and objectives of the meeting so that everyone knows what will be discussed.

**Task 2: Time Frame**

Determine how many days you will spend on your Home Stakeout

**Task 3: Review the Home Stakeout Form**

Review the form to make sure that all Detectives understand how to fill it out. It is important that the information be absolutely correct.

Remind all the Detectives to be quiet while doing the Stakeout so their family doesn't know they are being watched.

Discuss what will be different about the Home Stakeout versus the School Stakeout. What are they likely to find?

Tell all Detectives where to pick up their materials and where to drop off their completed Stakeout Forms.

**Task 4: Review Safety Concerns**

Play the Home Safety Audit Game at:

[www.SafeElectricity.org/esw\\_v1-1/safe\\_choice/game.html](http://www.SafeElectricity.org/esw_v1-1/safe_choice/game.html)

Remind the Detectives:

- ▶ Never put their fingers or anything inappropriate into electric sockets
- ▶ Don't touch the furnace, boiler or water heater
- ▶ Don't go on the roof

**Step 5: End Meeting**

This is a good time for questions. Be sure that all Detectives have had a chance to have their questions answered.



# Home Stakeout Form

---

Date: \_\_\_\_\_ Detective(s): \_\_\_\_\_

Please circle the time of day you conducted your stakeout and the key that describes what you found:

---

Time of Day:  
Morning  
Afternoon  
Evening

Key:  
+ Room Occupied - Energy Used Wisely  
- Room Occupied - Energy Not Used Wisely  
E+ Room Not Occupied - Energy Not in Use  
E- Room Not Occupied - Energy in Use

Location: \_\_\_\_\_  
Room Description (Bedroom, Kitchen, Hallway, etc.)

Was the Room:

Comfortable      Hot      Cold

### Behavior Burglars

Please circle any signs of Behavior Burglars you found:

- Lights On But No One's Home
- Lights On But Not Necessary - Sunlight Available
- Equipment On But No One's Home
- Leaks/Drips:       Hot Water    - or -       Cold Water
- Drafts Around:     Doors        - and/or -     Windows
- Windows Open:    Heat            or              Air Conditioning On
- Curtains Open
- Outside Doors Open
- Recyclables Found in Trash:       Paper       Aluminum Cans/Glass

Comments: \_\_\_\_\_  
\_\_\_\_\_

**Leaky Looters**

From inside and outside your home, you can look for signs of Leaky Looters.

Please circle any of these signs of Leaky Looters that you found:

- Drafty Windows:
  - Loose fitting
  - No storm window
  - Storm window open
- Drafty Outside Walls:
  - Around electric outlets
  - Around plumbing
  - Other
- Drafty Outside Doors:
  - Gaps around doors
  - Loose windows in doors
- Foundation has Cracks:
  - Around bricks
  - Around concrete
  - Other

If you can safely get to the attic or basement, did you find any insulation?

- Yes, pink fiberglass
- Yes, cellulose
- No

Comments: \_\_\_\_\_  
\_\_\_\_\_

**Lighting Larceny**

Look at the lighting inside and outside your home. Please circle any of these signs of Lighting Larceny that you found:

- Incandescent Light Bulbs:                      How many?
- Halogen Bulbs:                                      How many?

If there were lights left on when no one was in the room, circle the kind of lights:

- Incandescent                      How many?
- Halogen                              How many?
- Fluorescent                      How many?
- LED                                      How many?

What type of outside lights and/or common area lights are in your home?

- Incandescent                      How many?
- Fluorescent                      How many?
- Other                                      How many?

Are any lights on a motion sensor?                      How many?

Comments: \_\_\_\_\_  
\_\_\_\_\_

**Evil Equipment**

Please circle any signs of Evil Equipment that you found:

Chargers plugged into the wall with no cell phone or games plugged into the charger

“Instant on” equipment plugged in (Like plasma televisions)

Equipment left on when not in use (Like computers and stereos)

Water heaters without an insulating blanket

Your water heater was set above 140 degrees

Extra refrigerators

Leaky refrigerators

Refrigerators with dirty coils (Only look at coils on the front of the refrigerator. Do not attempt to move the refrigerator.)

Comments: \_\_\_\_\_  
\_\_\_\_\_

**Air Abductors**

If you can easily see the type of heating/cooling systems you have, please circle them below. Otherwise, indicate that they are not easy to see.

- Natural gas forced air furnace
- Natural gas boiler
- Electric heat
- Other

- |                           |           |
|---------------------------|-----------|
| Window air conditioner(s) | How many? |
| Central air conditioning  |           |
| None                      |           |
| Other                     |           |

If you have radiators, are they clean?

If you have vents, are they blocked by furniture, etc?

If you have window air conditioners, are they removed in the winter?

If they are not removed in the winter, are they covered or sealed in the winter?

Do you have a programmable thermostat?

What temperature is your thermostat set at during the day?                      At night?

Comments: \_\_\_\_\_







# Case 13: Suspects at Home

## Parts A and B

**Goal:** Detectives Will Review Their Home Stakeout Forms to Determine Potential Areas of Energy Inefficiencies

- Objectives:**
- ▶ Reinforce Students' Earlier Work Analyzing Non-Numerical Data
  - ▶ Provide Students With Experience Making Decisions in Small Groups
  - ▶ Prepare a Short Presentation for their Family

**Time Required:** Two After-School Sessions

### Day 1 - Part A

#### Materials Required

Completed Stakeout Forms, Several Suspect Forms, Several Presentation Forms, Calculators and (optional) Access to Internet



**Invite the Energy Coaches to Participate in this Session**

#### Learning Standards Addressed

Language Arts:

Goals 1 B; 3 C; 4 A and B; 5 A and C

Math:

Goals 6 A, B and C; 10 A, B and C

Science:

Goals 11 A; 12 C; 13 A and B

#### Student Handouts

Completed Stakeout Forms, Presentation Forms and Suspect Forms

#### Applied Learning Standards Addressed

Solving Problems, Communicating, Working on Teams and Making Connections

#### Assessment Tool

Review Completed Presentation Form and Suspects Form

#### Procedure

The Energy Coaches will work with each Stakeout team to help students review their Stakeout Forms, organize their findings and complete a Suspect Form.

If desired, they can contact Flip the Switch for assistance.



#### Note to Teachers

This lesson is similar to Case 8

**Step 1: Introduce Activity**

Explain that it is the responsibility of each student - with assistance from the Energy Coaches - to analyze their Stakeout Forms. By reviewing the data they collected at their homes, Detectives will be able to identify suspected energy wasters. This information will be presented at the next after-school session and will be used to identify an Action Plan. A Presentation Form has been developed for their use.

**Step 2: Work in Small Groups**

The Energy Coaches will have also completed a Stakeout of their homes so they will begin by discussing the information they collected. The Coaches will complete their Presentation Form and will then work with the Detectives to review their information and complete their Presentation form.

Following the same process, the Coaches and Detectives will complete their Suspect Forms.

Each group will also need to identify who will present this information to the rest of the team at the next after-school session.

# **Presentation Form**

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The following form will help you organize your thoughts.

We found it uncomfortably **hot** in the following rooms: (Note: Please indicate if the rooms were on the North, South, East or West)

We found it uncomfortably **cold** in the following rooms: (Note: Please indicate if the rooms were on the North, South, East or West)

We believe this is due to: \_\_\_\_\_  
(Temperature settings, doors and/or windows open or leaking, blinds not closed, etc. Please be as specific as possible.)

Room

Cause

We found \_\_\_\_\_ (lights, equipment, water, etc. Please be as specific as possible.) left on in the following rooms:

We found (broken windows, cracks, dripping faucets, no weatherstripping and/or no caulking) in the following rooms:



## Suspects Form

---

Behavior Burglar Suspects

Possible Crimes

Leaky Looter Suspects

Possible Crimes

Lighting Larceny

Possible Crimes

Evil Equipment

Possible Crimes

Air Abductors

Possible Crimes



## Day 2 - Part B

### Materials Required

Completed Suspects and  
Presentation Forms



**Invite the Energy Coaches to  
Participate in this Session**

### Student Handouts

Completed Suspects and  
Presentation Forms

### Assessment Tool

Presentation Rubric

### Learning Standards Addressed

Language Arts:

Goals 4 A and B; 5 A and C

Science:

Goals 12 C and E

### Applied Learning Standards Addressed

Solving Problems, Communicating,  
Working on Teams and Making  
Connections

### Step 1: Introduce Activity

Students will be practicing the presentations they will make to their families. Remind the Detectives that it is important that they listen, be polite and be prepared to offer any advice that may be helpful.

### Step 2: Presentations

The Coaches and Detectives will give their presentation about what they found during their Stakeouts. Depending upon the number of students you have, you may choose to have each student give their presentation to the entire group, or you may divide into small groups. Allow time at the end of each presentation for questions and suggestions.

# Presentation Rubric

Student Name:

## Content

Quality - Comprehensive, thorough and reliable information

1	2	3	4	5
Poor				Excellent

x 4

Organization - Logical flow of ideas / established grouping of related facts

1	2	3	4	5
Poor				Excellent

x 4

## Presentation

Participation - Eager to share and listen to ideas as demonstrated by verbal and non verbal strategies

1	2	3	4	5
Poor				Excellent

x 4

Delivery - Appropriate volume, tone and pace; Attention getting, interesting

1	2	3	4	5
Poor				Excellent

x 4

Prepared - appropriate and orderly materials

1	2	3	4	5
Poor				Excellent

x 4

Total



## Case 14: Developing Your Family's Action Plan

**Goal:** Students Will Identify the Energy Wasters Their Family Can Affect and Will Develop an Action Plan to Reduce their Energy Use

**Objectives:**

- ▶ Provide Students With Additional Experience Presenting Information both Verbally and Visually
- ▶ Provide Students With Additional Experience Using the Team Meeting Format
- ▶ Provide Students With Additional Experience Making Decisions in Large and Small Groups
- ▶ Provide Students With Additional Experience Developing a Work Plan

**Time Required:** 1 After-School Session

### Materials Required

Action Plan Form, Skills  
Assessment Form, Letter from Flip to the Families

### Student Handouts

Action Plan Forms, Skills  
Assessment Form, Letter from Flip to the Families

### Assessment Tool

Completed Action Plan

### Learning Standards Addressed

Language Arts:  
Goals 1 B; 3 C; 4 A and B;  
4 A and B; 5 A

Math:  
Goals 6 A, B and C; 10 C

Science:  
Goal 12 C

### Applied Learning Standards Addressed

Solving Problems, Communicating,  
Working on Teams and Making  
Connections

### Step 1: Introduce Lesson

Tell students that today's goal is to develop an Action Plan to present to their families..

**Step 2: Review the Action Plan**

An Action Plan is an organized way of planning an activity. First, the Plan lists each major activity and then breaks it down into smaller parts.

Each of these parts have to be planned. You need to decide who will be responsible for each, what those responsible will need, when they should have their part completed and how to determine if they completed their work successfully.

**Step 3: Skills Assessment Form**

The next step in developing your family's Action Plan is to identify the skills of each member of your family. You will use this information to suggest tasks based on who has the skills for the job. [At this point, distribute the form and give each student time to complete it.]

**Step 4: Work Individually**

Allow each Detective time to complete their Action Plan. When the Detectives are done, have them post their forms around the room.

**Step 5: Organize Material for the Presentation to their Families**

The Detectives are now ready to share their suggestions with their family. Provide each of them a copy of the Letter from FliP and help them gather their materials for their presentation.

**Step 6: Conclusion**

Congratulate the Detectives on their successful work. Tell them they will be asked to keep the group updated on their progress with their family.



**Skills Assessment Form**  
**(Write the Name of Your Family Member(s) That Has the Various Skills)**

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Who is good at:

- Drawing
- Using Clip Art on the Computer
- Math
- Planning and Organizing
- Speaking in Front of People
- Typing
- Writing Plays or Stories
- Writing Letters
- Writing Songs
- Singing
- Graphing Using the Computer

### Energy Detectives' Home Action Plan

Activity	Assigned To	Resources Needed	Due Date	Status



Dear Parents:

Your child will be involved with a special project - EnergyNet's Energy Detectives. This project has been provided to our school by the Northern Illinois Energy Project and has been developed by EnergyNet .

Energy Detectives uses a student's natural curiosity to help them learn Math, Science, Technology and Language Arts. The project meets the Illinois Learning Standards.

Some of the excitement of Energy Detectives is finding its way into your home. Your child is prepared to share energy tips with you and has developed suggestions of how your family can reduce your energy bills. By encouraging your child in this activity you will enjoy reduced energy bills as well as a motivated student.

If you would like to learn more about the project, please visit the EnergyNet web site at [www.energynet.net](http://www.energynet.net) or call toll-free 877/359-3638.

Sincerely,

and the EnergyNet Team



## Case 15: Energy Efficiency at Home

**Goal:** Students Will Implement Their Action Plan at Home

- Objectives:**
- ▶ Provide Students With Experience Working With their Family to Accomplish a Common Goal
  - ▶ Help Students Track Their Progress and Adjust Their Activities as Necessary
  - ▶ Show Students that a Variety of Content Skills are Necessary to Accomplish Their Task

**Time Required:** The Remainder of the School Year

### Materials Required

Identified in the Action Plan  
Developed by the Students

### Student Handouts

Action Plan Forms for Tracking  
Progress

### Applied Learning Standards Addressed

Solving Problems, Communicating,  
Using Technology, Working on  
Teams and Making Connections

### Learning Standards Addressed

Language Arts:

Goals 1 A, B and C; 3 A, B  
and C; 4 A and B;  
5 A, B and C

Math:

Goals 6 A, B, C and D; 8 A,  
B, C and D; 10 A, B and C

Science:

Goals 11 A and B; 12 C and  
E; 13 B

Fine Arts:

Goals 25 B; 26 A and B

### Procedure

Students will implement the Action Plan they developed. This activity will continue throughout the school year in tandem with their Action Plan for the school.

### Step 1: Tracking Progress

Ask students to establish a journal or to use the Action Plan sheets to monitor their progress. It is also helpful to ask the students to share their progress online with Flip the Switch and the other schools.



## Case 16: Reporting to Headquarters

**Goal:** Students Will Compile and Submit a Written Report on Their Project Experiences

- Objectives:**
- ▶ Provide Students With an Opportunity to Reflect on Their Work
  - ▶ Provide Students With Experience Developing a Report as a Team
  - ▶ Provide Students With Experience Using the Computer for Word Processing and Formatting a Document
  - ▶ Provide Students With an Opportunity to Practice Their Writing

**Time Required:** 2 or More After-School Sessions

### Materials Required

Action Plan Forms, Scrapbook, Scrapbook Accessories (Scissors, Tape, etc.), Self Assessment, Final Report Outline



**Invite the Energy Coaches to Participate in These Sessions**

### Student Handouts

Action Plan Forms, Final Report Outline, Self Assessment

### Applied Learning Standards Addressed

Solving Problems, Communicating, Using Technology, Working on Teams and Making Connections

### Learning Standards Addressed

Language Arts:

Goals 1 A and B; 3 A, B and C; 4 A and B; 5 A, B and C

Math:

8 B, C and D; 10 A, B and C

Science:

Goals 11 A; 12 C and E; 13 a and B

Fine Arts:

Goals 25 B; 26 A and B

### Procedure

Working with the Energy Coaches, students will compile a written report on the activities of their Detective Agency.

### Step 1: Introduce Activity

The Detective Agency has successfully completed their Mission. A final report has been requested from Headquarters.

**Step 2: Review Final Report Outline**

Distribute copies of the Final Report Outline or create an overhead for review purposes.

Ask the Energy Coaches to present information on what they've already collected for the Final Report.

**Step 3: Develop a Plan**

Using student input, create an Action Plan for completing the report.

**Step 4: Complete the Report**

Following the Action Plan, complete the report. Please note, the report should be typed whenever possible. Additional information, pictures, etc. are welcome.

**Step 5: Submit the Report**

Please send the Scrapbook to:

Carol Timms  
**EnergyNet**  
302 West Hill Street, Suite 102  
Champaign, IL 61820

**Step 6: Celebrate**

Celebrate your students' achievements. Hold an final discussion asking students what they didn't like about the program and what they did like. We will ask for your comments as well.

## Final Report Outline

---

- V. Information about the Detective Agency
  - A. What is the name of this Detective Agency
  - B. What were the goals of the Detective Agency? (These should be posted with the name of the Detective Agency in the Big Book.)
  - C. Did you accomplish your goals? If so, how? If not, why not?
- VI. FLiP the Switch
  - A. Did you communicate with FLiP?
  - B. If so, what skills did you learn?
- VII. Suspects and Plan of Action
  - A. What suspects and possible crimes were discovered during the Stakeout?
  - B. What activities did you choose to *Reform Energy Thieves and Reward Good Citizens*?
  - C. What committees were formed to implement your Plan of Action?
  - D. Were the committees successful in meeting their goals? If so, how? If not, why not?
- VIII. Energy Efficiency at Home
  - A. What suspects and possible crimes were discovered during your Stakeout at your home?
  - B. What activities did you choose to interest your family in energy efficiency?
  - C. Were you successful in interesting your family in energy efficiency?
- VIII. Energy Use
  - A. What changes took place in energy use both at school and at home during and after your Plan of Action compared to the same time period last year?
  - B. If you do not know, how can you find out?
- IX. Conclusion
  - A. What did you like best about the Energy Detectives project?
  - B. Do you have suggestions for improving the project?
  - C. What do you think you learned from the project?
  - D. What suggestions do you have for future Detectives?

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Please submit a typed report to Headquarters along with your Scrapbook

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