Energy Unit Teacher Masters: Table of Contents

Introductory Letter to Families

Teacher Masters

Family Links

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Dear Families,

Our class is beginning the Science Companion® Energy Unit, filled with hands-on experiences to make the abstract, but immensely relevant, concept of energy accessible to students.

Through a variety of explorations, students will discover that energy is at the root of all change occurring in the world around them. As they observe, describe, and experiment, children hone their science process skills and begin to discover the forms energy takes, how energy transfers from one object to another, and how it is harnessed in everyday machines.

During the Energy Unit, the students will:

- Discuss what they think energy is, where it is found, things it does, and how it is used.
- Search for examples of each form of energy on an "Energy Walk" on the school grounds.
- Operate a variety of "energized" toys and identify the forms of energy that make them run.
- Build three different types of boats, each employing a different type of energy transfer.
- See how warmer objects that are close to or touching cooler objects transfer some of their heat energy until both objects are the same temperature.
- Investigate how heat energy is conducted through different materials at different rates.
- Attempt to limit heat energy transfer by designing and testing insulation for water bottles.
- Compare the light and heat output of incandescent light bulbs and compact fluorescent light bulbs to understand the concept of energy efficiency.
- Develop and illustrate ideas for their own inventions, showing how a collection of ordinary objects interacting in a chain-like reaction could perform a task they decide on.

You and your child can explore this rich topic together at home by:

- Reading energy-related science books together that your child checks out from the class Science Center or the local library.
- Visiting the web site at *www.ScienceCompanion.com/Links* to find a list and descriptions of recommended web sites about energy.
- Perusing the *Energy Student Reference Book*, which provides readings, pictures, and other resources designed to enhance what your child learns in class.

- Working together on the Family Link activities and homework that are sent home from time to time. Your child may also want to repeat and vary some of the activities we do in class, as well as explain what they discovered and learned. Try to encourage their independent experimentation at home.

The Energy Unit will be fun! We hope the children will bring their discoveries and enthusiasm home, inviting you to learn alongside them—asking questions, discussing their work, and sharing their adventures in science.

Sincerely,

Request for Materials

Dear Families,

In science class we will be performing an exploration that requires the following materials:

If you can donate or lend any of these items, please send them in with your child

by _____.

(requested date)

Thank you for your support,

_____

Energy Walk Reference Sheet

Teacher Version

This table lists some representative examples of different forms of energy that you may find around your school.

Electrical	Light	Motion	Chemical
Electrical sockets and plugs	Sunlight	Students walking, participating in PE, etc.	Trees, grass, flowers, houseplants, etc.
Fire alarms	Overhead projector	Whirling fans	Muscles at rest
Overhead lights	Overhead lights	School buses driving	Batteries
Computers	Computer monitor (turned on)	Class pets moving about	Class pet's food
Televisions	Television screen (turned on)	Elevators operating	Student lunches
Cafeteria or faculty room appliances (coffee pots, ovens, mixers, refrigerator)	Flashing yellow traffic light alerting drivers that school is in session	Flags blowing in the wind	Gasoline in buses, lawnmowers, etc.
Wall clocks	Solar-powered calculators	Balls rolling	Vending machine selections

Energy Walk Reference Sheet

Teacher Version

This table lists some representative examples of different forms of energy that you may find around your school.

Heat	Sound	Elastic	Gravitational
Hot plate	Loudspeaker	Archery equipment	Child at the top of a slide
Overhead projector and lights	Student traffic (particularly in stairwells)	Trampoline	Students jumping rope or jumping off play equipment
Cafeteria or faculty room appliances (oven, stove, microwave, toaster, coffee pot)	Nearby construction or automobile traffic	Wind-up timers, toys, etc.	Falling water: water faucets, fountains
Furnace	School bell or fire alarm	Bouncing balls	Bouncing balls
Hot asphalt	Bird calls	Rubber bands, bungee cords	Cyclist coasting down a hill
Heat registers or radiators	Audiovisual equipment in use	Stapler (springs inside)	Students running down the steps
Teacher's coffee or tea	Walkmans and MP3 players	Hair bands and head bands	Children swinging

Name: _____ **Date:** _____

Identifying Energy Forms

Thing or Event	Energy Form(s)
Example: *A hamburger*	*chemical energy*

Energy Station Directions

- -

Station 1: Pop-up Toy

1. Press down gently on the toy's head until the suction cup sticks to the base.
2. Watch and wait.

- -

Station 2: Dominoes

1. Line up the dominoes—with dominoes placed upright on their shortest end—so that the space between every two dominoes is slightly less than the length of one domino.
2. Gently tap the first domino in the line so it falls in the direction of the second domino.

- -

Station 3: Magic Bracelet

1. Place your hands in the paper bag and slip the beaded bracelet onto your wrist.
2. Remove your hand from the bag and notice how the bracelet looks.
3. Position your wrist so that sunlight or the clamp light shines on the bracelet. Keep your hand a safe distance from the clamp light to prevent burns.
4. Look carefully at the beads on the bracelet. What is happening?
5. Place the bracelet back in the paper bag for the next group.

- -

Energy Station Directions

- -

Station 4: Pull-back Toy Car

1. Hold the car in one hand and place the wheels on a flat, level surface.
2. Pull the car backwards about 1/2 meter, or until you hear a clicking sound. DO NOT OVERWIND.
3. Release and observe.

- -

Station 5: Energy Ball

1. Touch both metal strips on the ball at the same time.
2. Look and listen.

- -

Station 6: Hand-held Electrical Generator

1. Hold the generator firmly in one hand.
2. Use your other hand to turn the crank handle.
3. Observe.

- -

Name: _____ **Date:** _____

Identifying Energy Transfers

Event	Energy Form Transferred
Example: *A sled racing down a snowy hill*	*Gravitational energy to motion energy*

How to Build a Balloon Boat

Goal: Build a boat that uses energy transfers to "go."

Materials:

- Basin to hold water
- Empty milk carton, pint-size
- Straws
- Large balloons (12")
- Scissors
- Rubber band, small
- Tape
- Paper cup with several drops of dish soap, filled with warm water
- Paper cup filled with clean warm water
- Paper towels, several sheets (to clean up any water spills)

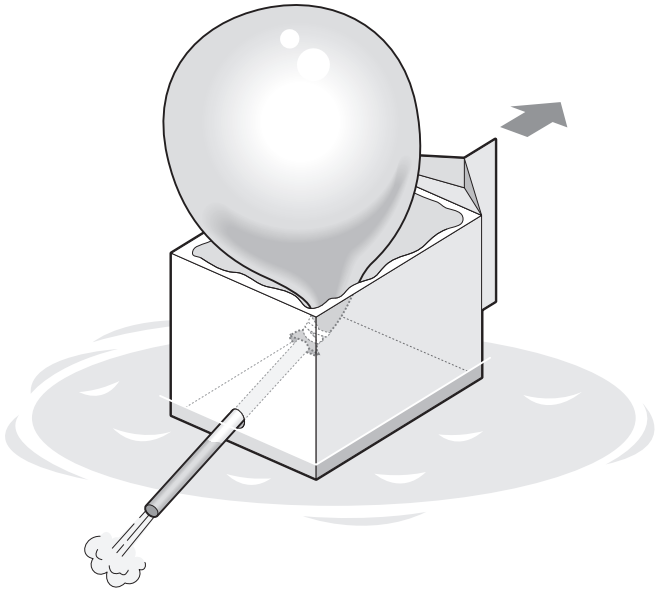
Directions:

Follow these steps to build your boat. You can make changes to these directions if you need to in order to make your boat go.

1. Make a watertight seal by taping the top of the milk carton shut so it looks unopened. (Then return the tape to the supply area for other groups to use.)
2. Lay the milk carton on its side. The taped edge of its top should go up and down vertically.
3. Cut out the side of the milk carton that faces up so that you have a large rectangular opening.
4. Make a small hole in the middle of the back of the boat. Make the hole slightly smaller than the diameter of the straw.
5. Insert the straw into the neck of the balloon about 2½ cm (1 in). Put a rubber band around it to keep it in place.
6. Choose **one** group member to blow up the balloon. To avoid spreading germs, this individual is the **only** one allowed to blow up the balloon. (*Group members with extra straws can create their own balloon setups but should be careful to use only their own balloon and straw*.) Test it by blowing into the open end of the straw to see if the balloon inflates. If necessary, adjust the rubber band and the balloon so the connection is tight and secure.

How to Build a Balloon Boat

7. Working from the inside of the boat, put the end of the straw that isn't attached to the balloon through the hole in the back of the boat. The balloon should be inside the boat.



Operating your boat:

1. Use a water pitcher to fill the basin halfway with water. (Then return the pitcher to the supply area for other groups to use.)
2. Move the straw and balloon so that the balloon sticks up out of the milk carton at an angle. Have the selected group member blow on the other end of the straw to inflate the balloon all the way.
3. Without letting the air from the balloon escape (keep the free end of the straw covered with your finger), quickly place the balloon boat at one end of the basin, with the straw pointing backwards. Then release it. Make sure the free end of the straw is beneath the surface of the water.
4. **Important:** After each trial, rinse the end of the straw that you blew on. Use the cup of warm soapy water, followed by the warm rinse water.

Challenge: Modify your boat to improve its performance. Try using different balloon sizes and shapes, changing the angle of the straw, and other ideas.

How to Build a Rubber Band Boat

Goal: Build a boat that uses energy transfers to "go."

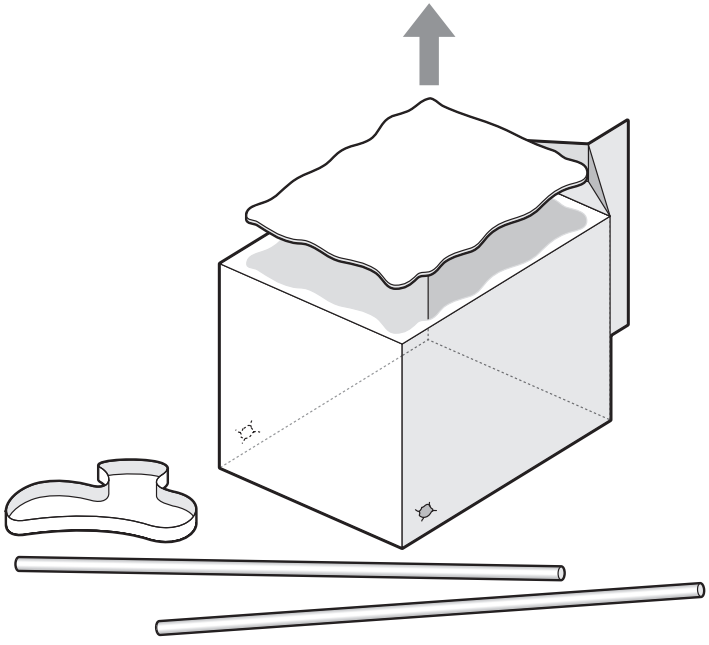
Materials:

- Basin to hold water
- Empty milk carton, pint-size
- 2 chopsticks
- Scissors
- Tape
- Rubber bands, assorted sizes
- Paper towels, several sheets (to clean up any water spills)

Directions:

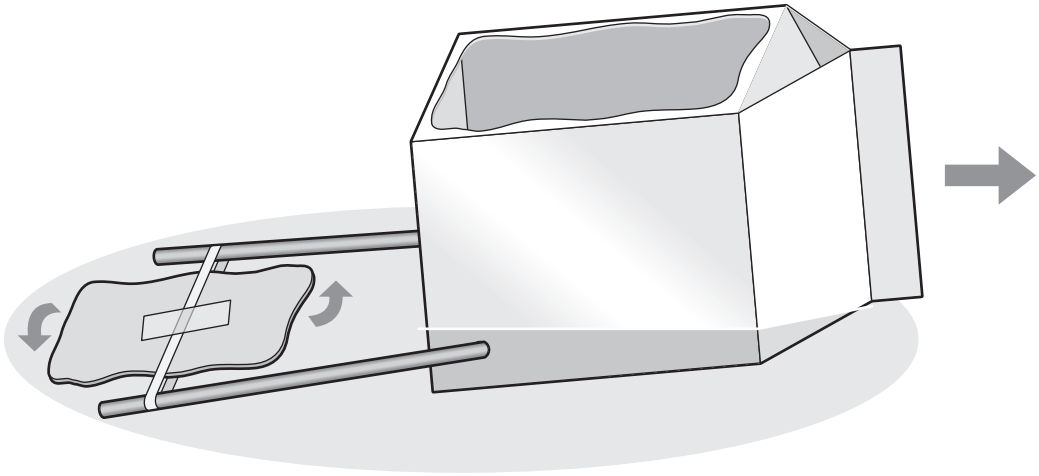
Follow these steps to build your boat. You can make changes to these directions if you need to in order to make your boat go.

1. Make a watertight seal by taping the top of the milk carton shut so it looks unopened. (Then return the tape to the supply area for other groups to use.)
2. Lay the empty milk carton on its side. The taped edge of its top should go up and down vertically.
3. Cut out the side of the milk carton that faces up so that you have a large rectangular opening. Save the cut-out rectangular piece for a paddle.
4. Make a small hole in the lower back corner of one of the sides of the milk carton. Make it 1 cm (½ in) from the bottom and 1 cm (½ in) from the side and slightly smaller than the diameter of a chopstick.



How to Build a Rubber Band Boat

5. Make a second hole on the opposite side of the milk carton that mirrors the location of the first hole.
6. Working from the outside of the boat, put a chopstick into each of the holes until they hit the front of the boat and can't move any further.
7. Loop a rubber band around the two ends of the chopsticks sticking out of the carton. Make sure the rubber band is large enough—the chopsticks should stick straight out from the back of the boat and be parallel to one another.
8. Cut the rectangular piece of milk carton you saved to make a paddle. Make it wide enough to move the water, but not so wide that it hits the chopsticks when it spins between them.
9. Put the paddle inside the stretched rubber band and tape it in place as shown.



Operating your boat:

1. Use a water pitcher to fill the basin halfway with water. (Then return the pitcher to the supply area for other groups to use.)
2. Twist the upper part of the paddle away from the milk carton a few times until the rubber band is tight.
3. Hold the paddle so it doesn't spin back in the other direction while you put the boat in the water at one end of the basin. (Be sure to point the milk-carton end of the boat in the direction you want the boat to go.) Let go of the paddle and watch the boat go.

Challenge: Modify your boat to improve its performance. Try out different rubber band sizes and tensions and any other changes you can think of. What happens when you wind the paddle in the other direction?

How to Build a Secret Potion Boat

Goal: Build a boat that uses energy transfers to "go."

Materials:

- Basin to hold water
- Empty water bottle with a pull-up sport cap, 16 oz
- 2 paper cups
- Baking soda, 1 box
- White vinegar, 1 bottle
- 2 small balloons (7")
- Rubber bands
- Washers
- Plastic spoon
- Paper towels, several sheets (to clean up any water spills)
- Vinyl gloves, 1 pair per group member
- Safety goggles, 1 pair per group member

Directions:

Follow these steps to build your boat. You can make changes to these directions if you need to in order to make your boat go.

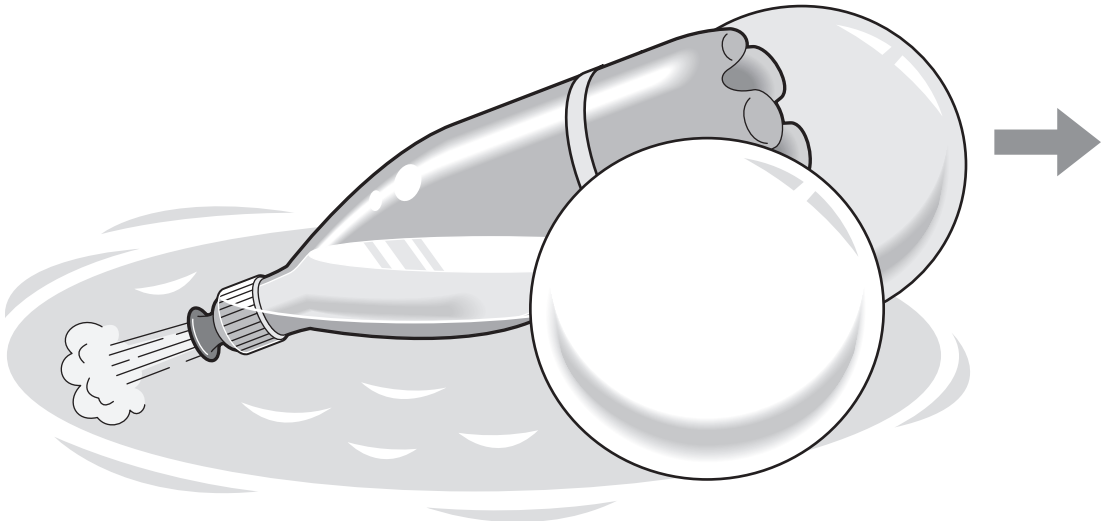
1. Blow up each of the small balloons and tie off the ends to keep the air from escaping.
2. Loop a large rubber band around the bottom of the water bottle—about a quarter of the way up from the bottom. Double it over as necessary to create a snug fit.
3. Tuck the tied ends of both balloons underneath the rubber bands so that the balloons stick back away from the top of the bottle.

Operating your boat:

1. Put on goggles to protect your eyes and gloves to protect your hands as you work with the vinegar and baking soda.
2. Use a water pitcher to fill the basin halfway with water. (Then return the pitcher to the supply area for other groups to use.)

How to Build a Secret Potion Boat

3. Place the water bottle and balloon setup on its side in the water. Adjust the position of both the rubber band and the balloons until the top of the bottle just dips below the surface of the water. (*The balloons will be on the bottom of the bottle so that the top of the bottle tilts down.*) If needed, use rubber bands to loop washers to the neck of the bottle to pull the top of the bottle under water.
4. Remove the "boat" from the water and unscrew the top.
5. Use the plastic spoon to scoop approximately 60 ml (¼ cup) of baking soda into one of the paper cups. (Use a beaker from the supply area to measure if you wish, then return it.)
6. Squeeze the top of the cup to create a pouring spout and carefully pour the baking soda into the water bottle.
7. Pour approximately 60 ml (¼ cup) of vinegar into the second paper cup. (Use a second beaker from the supply area to measure if you wish, then return it.)
8. Prepare to launch the boat:
    a. Make sure the bottle cap is in the open, or unlocked, position (meaning water can be squeezed out of it).
    b. Have one member of the group hold the opened bottle cap and be ready to quickly screw it on the top of the bottle when signaled.
    c. Be prepared to quickly place your boat at one end of the basin, balloon side down and facing front, so the top of the bottle dips below the water's surface and points towards the back.



How to Build a Secret Potion Boat

9. Launch the boat:
    a. Have one person squeeze the top of the cup holding the vinegar to create a pouring spout and carefully, but quickly, pour the vinegar into the water bottle.
    b. Have the person holding the bottle cap quickly screw it back onto the bottle so it is tight, being careful not to push down on the cap (this could accidentally lock it).
    c. Quickly place the boat at one end of the basin, balloon side down and front-facing, so the top of the bottle dips below the water's surface and points towards the back. Release it.

Challenge: Modify your boat to improve its performance. Try out different balloon sizes and positions, and any other changes you can think of.

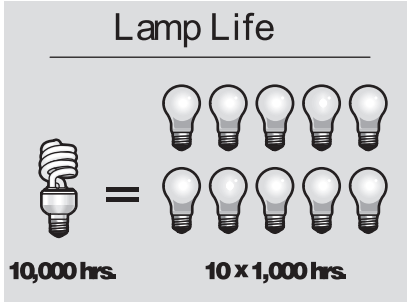
Name: _____ **Date:** _____

Consumer Math

Basic Costs

Use the information in the diagram and table below to determine how much money you could save using CFL light bulbs.

	Incandescent Light Bulb	Compact Fluorescent Light Bulb (CFL)
Approximate Purchase Price	$0.75	$8.00



1. How much you will spend to purchase enough CFL light bulbs to operate for 10,000 hours? $_____

2. How much you will spend to purchase enough incandescent light bulbs to operate for 10,000 hours? $_____

3. How much more will you spend if you purchase CFL light bulbs rather than incandescent light bulbs to operate for 10,000 hours? $_____ (Answer A)

Name: _____ **Date:** _____

Consumer Math

Operating Costs

Electricity is billed in kilowatt hours. Electric companies keep track of how much electricity you use and then determine how many kilowatt hours that equals. A kilowatt hour is the equivalent of using 1000 watts of electricity for one hour straight.

Let's compare the watts used by two light bulbs—one an incandescent light bulb and the other a CFL light bulb—that both produce about the same amount of light. (Recall that the amount of light produced is measured in lumens.)

Lumens (Light Output)	Incandescent Light Bulb	Compact Fluorescent Light Bulb
~1,600	100 watts	27 watts

If you operate both light bulbs (replacing them as needed) for 10,000 hours, you'll find that you will be billed for the following kilowatt hours (KWH):

Compact fluorescent light bulbs: 270 KWH

Incandescent light bulbs: 1,000 KWH

Let's assume that your electric company charges you about $.08 for every KWH.

4. How much will it cost you to operate the CFL light bulb for

   10,000 hours? _____

5. How much will it cost you to operate the incandescent

   light bulb for 10,000 hours? _____

6. How much more will you spend if you choose incandescent bulbs over CFLs and

   operate them for 10,000 hours? _____ (Answer B)

Name: _____ **Date:** _____

Consumer Math

Total Costs

Now we are ready to see how CFL light bulbs save you money over the long run. They are more expensive to purchase, but since they last longer and are cheaper to operate, you actually save money over the life of the light bulb. Let's see just how much money we are talking about.

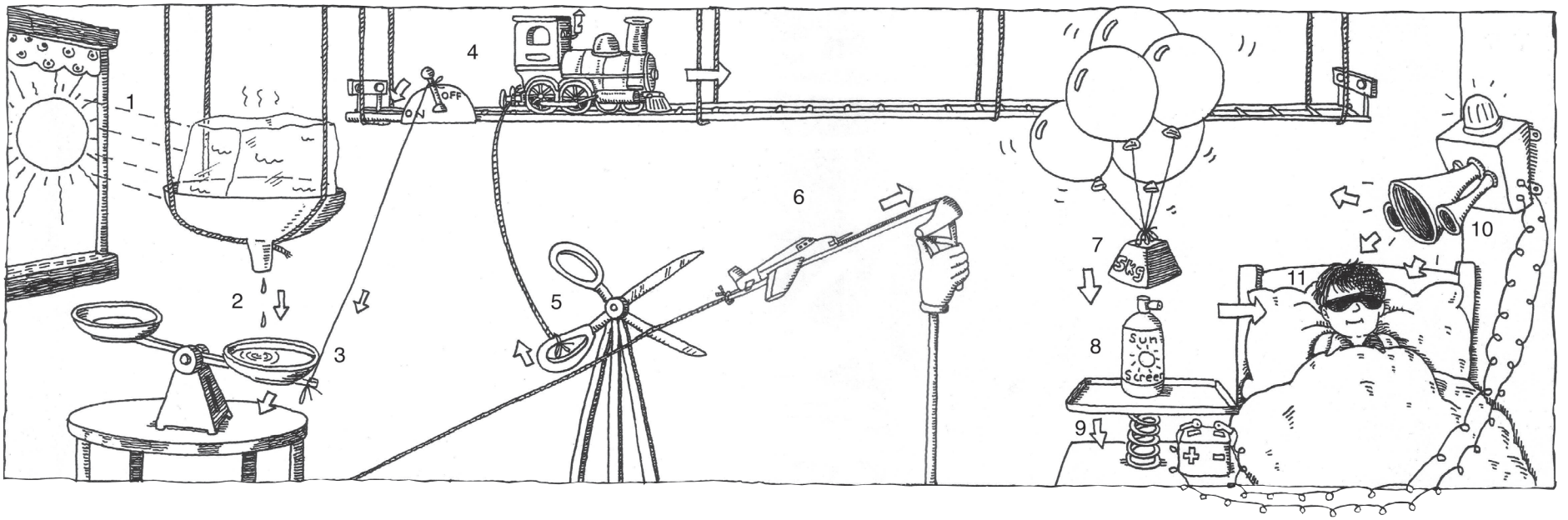
Take the extra cost you would spend to buy one CFL light bulb over 10 incandescent light bulbs (see "Answer A") and subtract it from how much money you would save if you operated a CFL light bulb rather than an incandescent light bulb (see "Answer B").

7. Write your total savings here $_____

Now you have proof—CFL light bulbs use less energy, last longer, and save you money!

Automatic Sunscreen Applicator and Alarm

Invention Sketch



Automatic Sunscreen Applicator and Alarm

Teacher Explanation

1. As the sun shines through the window the block of ice melts. (Light to heat)
2. Water from the melting ice is channeled through a spout into the tray of a balance scale. (Heat to gravity to motion)
3. As the water collects in the tray the scale is weighted down towards the right. A string that is attached to the tray and the lever for a model train is pulled down. (Motion to motion)
4. The lever is moved to the "On" position and the train moves forward towards the right side of the room. (Electricity to motion)
5. A string that is attached to the train at one end and one of the handles of a pair of open scissors at the other end is pulled forward causing the scissors to close down on a string holding the rubber band of a toy plane's launcher taut. (Motion to motion)
6. The scissors cut the string releasing the rubber band and sending the plane flying. (Elastic to motion)
7. The plane, which has a pin attached to its nose, travels towards a bouquet of helium balloons holding up a 5 kg weight. As one of the balloons is popped the weight lowers, pressing down on the pump of a bottle of sunscreen directed towards the person sleeping in the bed. (Gravity to motion)
8. The compressed pump sprays sunscreen onto the face of the sleeper. (Elastic to motion)
9. At the same time, the 5 kg weight presses down on the tray holding the sunscreen, compressing the spring supporting it from below. (Gravity to motion)
10. As the spring is compressed, the battery beneath it is brought into firm contact with the electrode below, completing the circuit for an alarm/noisemaker. (Motion to chemical to electricity to sound)
11. The sleeper awakes, ready to face the sunny day!

Name: _____ **Date:** _____

Measuring Accurately

Temperature

Materials:

- 2 thermometers
- Foam cups
- Warm water
- Cold water

Procedure:

1. Carefully fill a foam cup halfway with warm water.
2. Select one thermometer and measure the temperature of the water by submerging the bulb of the thermometer completely in the water.
3. Once the red line has stopped moving, record the temperature of the water in the data section below. Be sure to read the Celsius scale.
4. Repeat steps 1–3 with a different thermometer.
5. Repeat steps 1–4 with a cup of cold water.

Data:

Name: _____ **Date:** _____

Calibrating Thermometers

It is important to check the accuracy of the scientific tools you work with. To check how accurately a thermometer measures the amount of heat energy in something, you can **calibrate** it by bringing its temperature down to about freezing 0°C (32°F) in a cup of ice water.

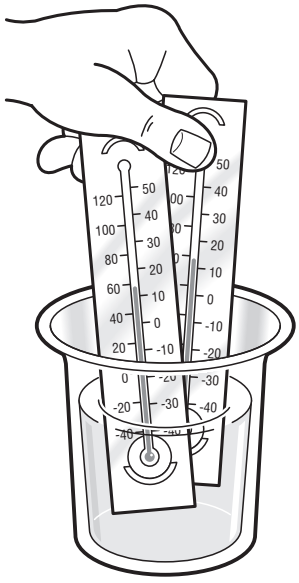
If the thermometer does not measure a temperature of about 0°C (32°F), then you know that your thermometer is inaccurate and needs to be calibrated to the correct temperature. (This means that you make a record of how different the thermometer is from the actual temperature—or from the temperature the other thermometer you're using registers.) Once you know how far off the thermometer is, you can adjust that data from your experiment to make up for the difference.

Materials:

- Cup of ice water
- 2 thermometers
- Permanent marker
- Masking tape

Procedure:

1. Suspend both thermometers in the middle of the ice water for two minutes.



Name: _____ **Date:** _____

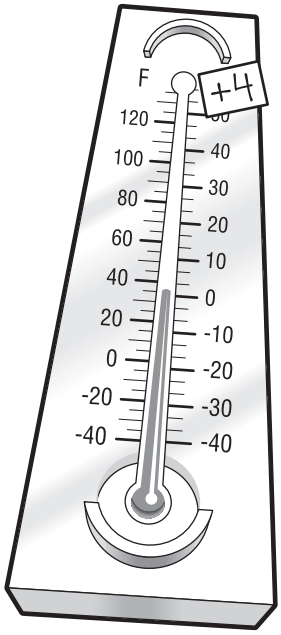
Calibrating Thermometers

2. After two minutes, check their temperatures. If their temperatures do not read about 0°C (32°F), note the difference (+2, -1, etc.) for each thermometer below.

Temperature of Thermometer 1 = _____**°C** Adjustment needed = _____**°C**

Temperature of Thermometer 2 = _____**°C** Adjustment needed = _____**°C**

3. Place a piece of masking tape on the top right corner of each thermometer and use a permanent marker to mark the adjustment needed for the thermometer (+1, +2, -1, etc.).

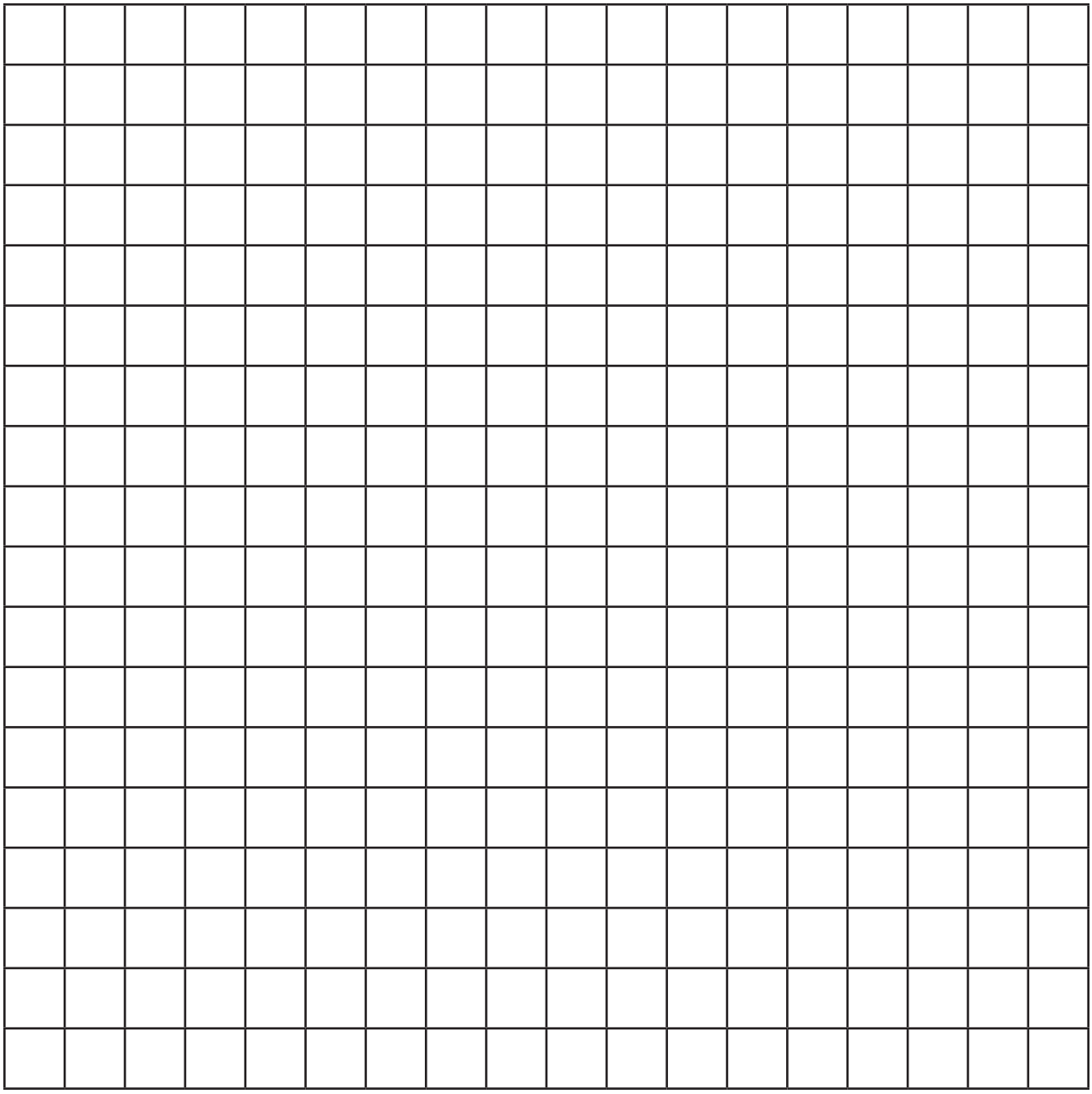


Name: _____ **Date:** _____

Graphing the Height of a Fern

The chart below lists a fern's height, in centimeters, at the end of each month from January 2011 to June 2012.

Jan 2011	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan 2012	Feb	Mar	Apr	May	Jun
5	7	10	15	20	30	45	53	59	65	68	70	70	72	75	80	86	95



Name: _____ **Date:** _____

Setting Up a Fair Test

Investigative Question:

1. What are you trying to discover?

Variables:

2. What is the <u>one</u> **variable** you will test?

3. How will you change that variable?

Name: _____ **Date:** _____

Setting Up a Fair Test

Use the chart and questions on this page to help you organize the fair test.

What variable are you going to change? _____	
What variables will you keep the same?	How will you keep the variable the same?

4. What are you going to measure?

5. How will you measure this?

Name: _____ **Date:** _____

Setting Up a Fair Test

Materials:

6. What materials do you need?

Procedure:

7. List the steps you will follow to do your experiment.

Name: _____ **Date:** _____

Setting Up a Fair Test

Data:

8. Record observations and data in the space provided below.

Conclusion:

9. What did you learn from your test?

Name: _____ **Date:** _____

Family Link with Science—Homework

Energy Log

Think about all the ways you rely on energy every day. Focus on the hours after school and think about these questions:

- How did you use energy to get home from school today?
- To fix dinner?
- To do your homework?
- To take a shower?

Use the table below to keep track of each of the different ways you use energy in your after-school hours. Record the time you used the energy, the form of energy you used, and the way you used it.

Time	Form of Energy	How It Was Used

Energy Forms			
Electrical	Chemical	Motion	Elastic
Gravitational	Heat	Light	Sound

Please return to class by _____.

Name: _____ **Date:** _____

Family Link with Science—Homework

Toy Box Science

Today in class you mapped the energy transfers that occurred when you operated several different toys. Now think about your own toys. Do any of them require an energy transfer in order to work?

Select a toy that runs as a result of energy transfers and answer the following questions.

1. What is your toy called? _____

2. What does your toy do? _____

   _____

3. Describe, or use arrows to map, how energy is transferred to operate your toy.

Bonus Activity "Wintergreens in the Dark"

1. Bring wintergreen-flavored Lifesavers® for you and a friend or family member into a dark room such a closet. Allow your eyes to adjust to the dark. Look carefully at each other's mouths as you both chew your Lifesaver. Use the space below to describe what happened.

2. Describe the energy transfer(s) that took place as you chewed the Lifesaver.

Please return to class by _____.

Name: _____ **Date:** _____

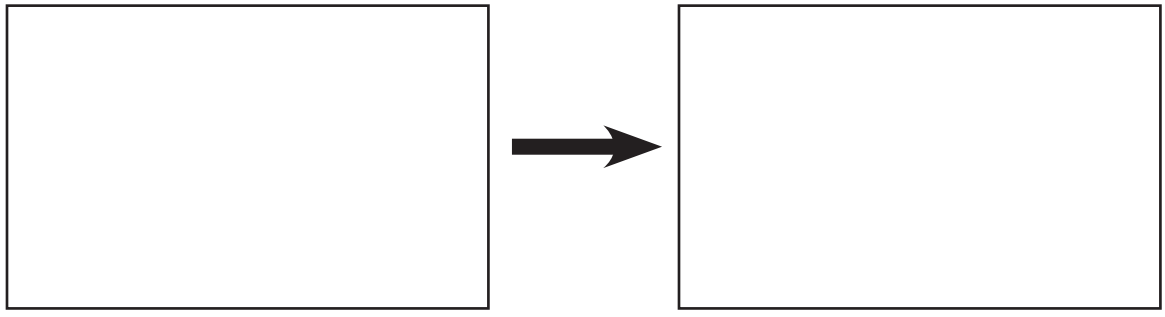
Family Link with Science—Homework

Heat Energy Transfers

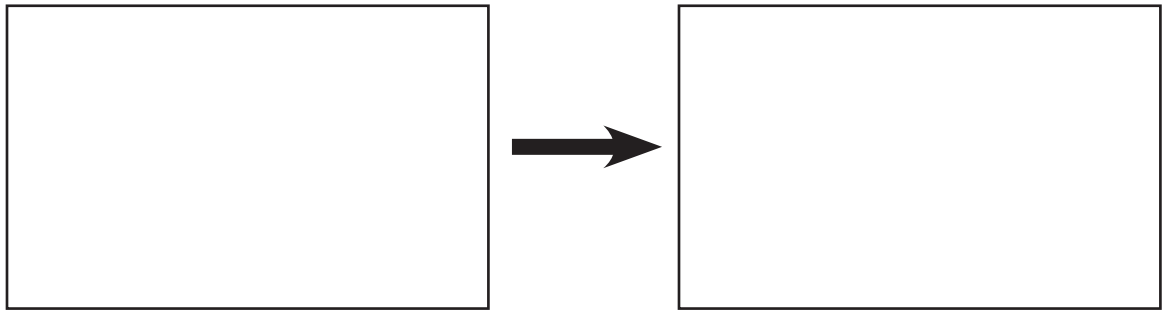
You have been studying heat energy. Today in class you explored how heat energy transfers from warmer objects to cooler objects.

Identify three heat energy transfers that occur in your home. Write the name or draw the object that is warmer to begin with. In the second box, write the name or draw the object that receives the transferred heat.

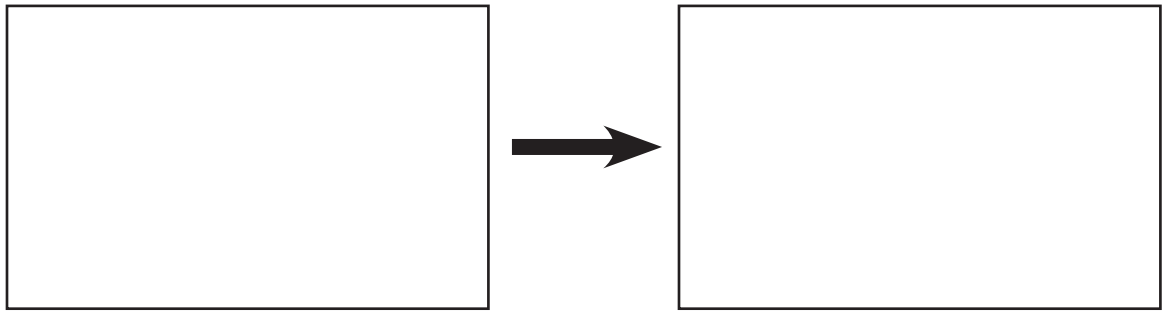
1.



2.



3.



Safety Note: Always remember to be careful around hot or warm objects. Get permission from your parents before touching anything.

Please return to class by _____.

Name: _____ **Date:** _____

Family Link with Science—Homework

Kitchen Conductors

Identify what some of the utensils and other things in your kitchen (such as cooking spoons, spatulas, oven mitts, baking pans, and cooking pots) are made of. They may be made of one material or several different materials. Some may be made of the materials you tested in class (aluminum, copper, brass, bamboo, and plastic). Note in the following table some of the items you found, what they are made of, and whether you think they are good or poor conductors of heat energy.

Safety Note: Only predict whether you think the item is a good or poor conductor of heat energy. Do not test anything unless you have an adult supervising you.

Note: Refer to Chapter 6, "Conductors of Heat Energy," in your student reference book to assist you as you identify the different types of materials the tools in your kitchen are made of.

Kitchen Item	Material(s) It's Made of	Good or Poor Conductor

Please return to class by _____.

Name: _____ **Date:** _____

Family Link with Science

Criteria for Insulators

Our science class will be designing and assembling insulated bottles. Please use the following criteria as you brainstorm materials to bring into class from home.

- Do not bring in materials that were already used in class (aluminum foil, plastic wrap, foam, or polyester batting).
- Do not bring in materials that are a safety hazard, such as fiberglass.
- Your insulated bottle must fit into a gallon-size resealable plastic bag.
- Use Chapter 7 of your student reference book for insulator ideas.

Please bring the materials to school by _____.

(Day and date)

Thank you.

- -

Name: _____ **Date:** _____

Family Link with Science

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(Day and date)

Thank you.

Name: _____ **Date:** _____

Family Link with Science—Homework

Insulator Scavenger Hunt

Search for things in your home that serve as insulators—for your house, your food, or even you! List them below.

Pick two items that you identified and explain how they work as insulators.

Item 1 _____

Item 2 _____

Please return to class by _____.

Name: _____ **Date:** _____

Family Link with Science—Homework

Is Your Home Energy-Efficient?

You have been studying how some light bulbs are more energy-efficient than others, meaning they produce the same amount of light energy and waste less heat energy while using the same amount of electrical energy as other bulbs.

Take an inventory of the different types of light bulbs (incandescent and compact fluorescent) used in your bedroom, bathroom, and living or family room.

Room	Number of Bulbs	Type of Light Bulb (incandescent, compact fluorescent)	Wattage (W)

Is there anywhere in your house where you could use less energy? Where and how?

Please return to class by _____.

Name: _____ **Date:** _____

Family Link with Science—Homework

My Invention

Today in class you discussed an idea for a chain reaction invention that would automatically apply sunscreen on sunny days. Now it's your turn to be an inventor!

1. In your next science class you will be designing a chain reaction invention. Use the space below to describe a simple task, such as keeping your pet's water bowl full, that your invention will perform. You do not need to explain how your invention will work, just describe the task it will perform.

   My invention will perform the following task:

2. Like the automatic sunscreen invention you discussed in class, your invention should be designed using ordinary, easy-to-find objects. Start thinking about some of the parts you might use if you were building this invention. (You won't actually be building it—just designing it.) Look around your room, home, and yard for ideas. Toys, sports equipment, simple tools, and kitchen utensils make good parts. Do **not** list animals or any parts that are dangerous.

   My invention could use some of the following parts:

Please return to class by _____.