SCIENCE:

GRADE 1–ENERGY

Energy

Energy in Everyday Life

TEKS

1 (6) Force, motion, and energy. The student knows that force, motion, and energy are related and are a part of everyday life.

(A) The student is expected to identify and discuss how different forms of energy such as light, heat, and sound are important to everyday life.

Content Objective

I can identify and discuss how sound, light, and heat energy are important to my life.

Science

Science Process Skills

1 (1) Scientific investigation and reasoning. The student conducts classroom and outdoor investigations following home and school safety procedures and uses environmentally appropriate and responsible practices.

(B) The student is expected to recognize the importance of safe practices to keep self and others safe and healthy.

1 (2) Scientific investigation and reasoning. The student develops abilities to ask questions and seek answers in classroom and outdoor investigations.

(C) The student is expected to collect data and make observations using simple equipment such as hand lenses, primary balances, and non-standard measurement tools.

(E) The student is expected to communicate observations and provide reasons for explanations using student-generated data from simple descriptive investigations.

1 (4) Scientific investigation and reasoning. The student uses age-appropriate tools and models to investigate the natural world.

(A) The student is expect to collect, record, and compare information using tools, including computers, hand lenses, primary balances, cups,

bowls, magnets, collecting nets, notebooks, and safety goggles; timing devices, including clocks and timers; non-standard measuring items such as paper clips and clothespins; weather instruments such as classroom demonstration thermometers and wind socks; and materials to support observations of habitats of organisms such as aquariums and terrariums.

Mathematics

1 (9) Probability and statistics. The student displays data in an organized form.

(A) The student is expected to collect and sort data.

(B) The student is expected to use organized data to construct real-object graphs, picture graphs, and bar-type graphs.

1 (10) Probability and statistics. The student uses information from organized data.

(A) The student is expected to draw conclusions and answer questions using information organized in real-object graphs, picture graphs, and bar-type graphs.

English Language Arts and Reading

1 (14) Reading/comprehension of informational text/expository text. Students analyze, make inferences, and draw conclusions about expository text and provide evidence from text to support their understanding.

(B) Students are expected to identify important facts or details in text, heard or read.

1 (19) Writing/expository and procedural texts. Students write expository and procedural or work-related texts to communicate ideas and information to specific audiences for specific purposes.

(B) Students are expected to write short letters that put ideas in a chronological or logical sequence and use appropriate conventions (e.g., date, salutation, closing).

1 (27) Listening and speaking/listening. Students use comprehension skills to listen attentively to others in formal and informal settings. Students continue to apply earlier standards with greater complexity.

Energy

(A) Students are expected to listen attentively to speakers and ask relevant questions to clarify information.

(B) Students are expected to follow, restate, and give oral instructions that involve a short related sequence of actions.

1 (28) Listening and speaking/speaking. Students are expected to share information and ideas about the topic under discussion, speaking clearly at an appropriate pace, using the conventions of language.

1 (29) Listening and speaking/teamwork. Students are expected to follow agreed-upon rules for discussion, including listening to others, speaking when recognized, and making appropriate contributions.

Figure 19.

Reading/comprehension skills. Students use a flexible range of metacognitive reading skills in both assigned and independent reading to understand an author's message. Students will continue to apply earlier standards with greater depth in increasingly more complex texts as they become self-directed, critical readers.

(C) The student is expected to monitor and adjust comprehension (e.g., using background knowledge, creating sensory images, re-reading a portion aloud).

(D) The student is expected to make inferences about text and use textual evidence to support understanding.

(F) The student is expected to make connections to own experiences, to ideas in other texts, and to the larger community and discuss textual evidence.

English Language Proficiency Standards

3 (E) Cross-curricular second language acquisition/speaking. The student is expected to share information in cooperative learning interactions.

5 (B) Cross-curricular second language acquisition/writing. The student is expected to write using newly acquired basic vocabulary and content-based grade-level vocabulary.

Energy

Language Objective

I can write about the ways heat, light, and sound energy are important in my everyday life.

Response to Intervention/Tier 1 Differentiation

All science lessons support students in receiving quality Tier 1 instruction. Using the 5E model, knowledge is taught in a variety of contexts, integrating math, science, and ELA content, thus supporting the active engagement of students with the content. Lesson-specific differentiation strategies for addressing diverse student needs can be found throughout each lesson in sections titled "Differentiation Strategy."

Differentiation should

- focus on skills students did not understand and extend the lesson for advanced students;
- be conducted in small groups or embedded in whole-group instruction; and
- provide students with a variety of strategies to process the information, such as
  - allowing for additional opportunities for verbal brainstorming of words associated with a topic (with teacher taking dictation);
  - making clear connections of new and more complex concepts to foundational aspects and prior knowledge;
  - participating in more tangible experiences, such as experiments, investigations, and active exploration;
  - sorting academic vocabulary words into categories by common attributes—process words or science content vocabulary;
  - organizing brainstorming into semantic maps or creating graphic organizers;
  - discussing the meaning of a graphic organizer with a partner; and
  - creating a visual representation to demonstrate understanding.

See the handout in the Content Resources section that addresses instructional strategies.

Energy

College and Career Readiness Standards

I.E1 Effective communication of scientific information. Use several modes of expression to describe or characterize natural patterns and phenomena. These modes of expression include narrative, numerical, graphical, pictorial, symbolic, and kinesthetic.

I.E2 Effective communication of scientific information. Use essential vocabulary of the discipline being studied.

Vocabulary Focus

coldest
energy
heat
hottest
light
sound
temperature

Prerequisite Knowledge

K (6)(A) The student is expected to use the five senses to explore different forms of energy such as light, heat, and sound.

K (6)(C) The student is expected to observe and describe the location of an object in relation to another such as above, below, behind, in front of, and beside.

Energy

5E Lesson Summary

Engage
Students identify different forms of energy in pictures.

Explore
Students explore heat, light, and sound energy.

Explain
Students explain how different forms of energy are important to everyday life.

Elaborate
Students identify everyday sources of heat, light, and sound energy.

Evaluate
Students write a letter about energy in their everyday life.

Energy

Engage

Teacher Note

The abbreviation RM stands for reproducible master. RMs include activity cards with instructions for students to follow or pages on which they can record observations and data.

Materials

For teacher

- class science notebook
- computer with audio capability
- interactive kitchen animation
- projector

For student pairs

- 1 page of RM 1

Advance Preparation

Use a large flip chart to create a class science notebook.

Print a picture from *RM 1: Picture of Energy for Everyday life* for each pair of students.

Teacher Note

In this portion of the lesson, students will be working with a partner to observe and discuss the different forms of energy in their pictures. One strategy for facilitating student pairs may include Think, Pair, and Share, which encourages each student to think of his own ideas and then share them with a partner. Once student pairs have co-constructed their answers, they can share them with the whole group.

You may choose to use the Interactive Kitchen to explore as a class or allow each student time to explore the animation on a computer.

Differentiation Strategy

ELL: Partnering an ELL student with a proficient speaker will provide the English language learner with a language model and provide an opportunity for the English language learner to practice English skills one on one before sharing with the class.

Teacher Instruction

- Pass one page of *RM 1* to each pair of students.
- Instruct students to work with their partner to observe, identify, count, and discuss the different forms of energy in their pictures.
- Allow adequate time for student pairs to complete the activity.
- Ask the following: What different forms of energy did you see in your pictures?
- Create a list in the class science notebook of objects from the

pictures that exhibit each form of energy.

- Lead a class discussion about each object that exhibits energy.
- Add to the list as students continue to identify objects that exhibit different forms of energy.

Facilitation Questions

- What do you see in your picture? *Answers will include a kitchen, a street, or a classroom.*
- What forms of energy did you observe in your pictures? *We observed light, heat, and sound energy in our pictures.*
- How do you know that something has light energy? Sound energy? Heat energy? *If something has light or gives off light, I can see that it has light energy. If something makes noise, I can hear that it has sound energy. If something is hot, warm, or gives off heat, I can feel that it has heat energy.*
- What objects in your pictures exhibit light energy? How do you know? *Accept all reasonable answers and add them to the list.*
- What objects in your pictures exhibit sound energy? How do you know? *Accept all reasonable answers and add them to the list.*
- What objects in your pictures exhibit heat energy? How do you know? *Accept all reasonable answers and add them to the list.*
- Where else have you seen objects that exhibit light, heat, and/or sound energy? *Accept all reasonable answers and add them to the list.*
- In what ways to do you use heat, light, and sound energy every day? *Accept all reasonable answers.*

Use these apps for circling items in the pictures corresponding to light, heat, and/or sound energy.

Android™: Dear Diary, Orange Diary, qPDF notes

iPad®: Penultimate, iDiary, PDFpen

Refer to the Mobile Technology Integration document in Drop Boxes in your Science Academies for Grades K–4 Project Share group.

Energy

Explore

Activity 1

Materials

For teacher

- RM 2 sound files
- RM 2
- computer with sound files and audio capability

For each student

- 1 page of RM 2
- 16 bingo marker pieces, such as small paper squares or pennies

Use these apps for students to use *RM 2* on a mobile device

Android™: qPDF notes

iPad®: PDFpen

Refer to the Mobile Technology Integration document in Drop Boxes in your Science Academies for Grades K–4 Project Share group.

Content Builder

It is important for students to understand that heat, light, and sound energy exist even though they may not be observed in the same way by all people. Students may have limited experience with or knowledge of people who are blind or deaf. As you discuss light and sound energy, be aware of and address how people who are blind may not experience light energy as people with sight do, if at all. In the same way, people who are deaf may not experience sound energy as people with hearing do, if at all.

Advance Preparation

Prior to Activity 1, test the sound files provided to ensure that the audio is working and that every student will be able to hear the sounds.

Teacher Instruction

- Pass one page of *RM 2: Sound Identification Bingo* and 16 bingo marker pieces to each student.
- Identify and name the pictures on each bingo card as a class.
- Play one sound and ask students to use a bingo marker to cover the picture that corresponds with the sound. Some students may find they do not have a corresponding picture because there are five different cards.
- Instruct students to say “bingo” when they have covered four pictures vertically, horizontally, or diagonally in a row.
- Instruct students to continue using bingo markers to cover the pictures of objects as they hear each sound.
- Play the sounds one at a time until someone says “bingo.”
- Instruct all students not to remove the bingo markers from their boards. You will continue to play until all the sounds have been played.
- Ask the student(s) who said “bingo” to list the sounds in their row.
- Lead a discussion about the importance of sound energy in everyday life.

- Use the following sentence stem to model how to explain why a sound is important to students:

  The sound of the clock beeping is important because it lets me know it is time to wake up.

Facilitation Questions

- What sounds help you? *Accept all reasonable answers, such as the sound of my alarm clock tells me it is time to get up in the morning and the bell ringing tells me it is time for school to start.*
- What sounds help you know you might be in danger? *Answers may include the following: Fire/smoke alarms tell us there is fire, tornado sirens tell us there might be a tornado and we need to take cover, as well as other warning bells and whistles.*
- What would your life be like if there were no sounds? *Answers may vary. Encourage students to respond with the prompt: If there were no sounds, . . .*

Activity 2

Teacher Note

Lights On! Lights Off! should be played by groups of four students or as a class divided into four teams. Each group or team will need their own set of cards. It may be helpful to play one game as a class and then allow students to play in small groups.

Advance Preparation

Prepare a set of *RM 3: Lights On! Lights Off*! cards for each group. Print the cards on cardstock and laminate for future use.

Teacher Instruction

- Review the game rules on *RM 3* with the class.
- Pass a set of cards to each group of students.
- Instruct each group to play Lights On! Lights Off!
- Allow adequate time for students to play the game.
- Circulate through the room to facilitate game play and discussion.

Materials

For teacher

- RM 3 (game rules page)
- cardstock
- small resealable plastic bags

For student groups

- RM 3

Download Grade1_ Elaborate_ Energy from Drop Boxes in your Science Academies for Grades K–4 Project Share group to use on your SMART™ or Mimio® interactive whiteboard.

Energy

- Ask the winning player/team to tell how the light energy source on each card is important to everyday life.

Facilitation Questions

- What are some sources of light energy? *Answers may include the following: The Sun, lamps, flashlights, fire, night-lights, flashlights, headlights, etc., are sources of light energy.*
- How is light energy important in your life? *Answers may include the following: Light energy from the Sun lights the world and helps things grow, flashlights and candles help me see in the dark, a lamp makes it easier to read, etc.*
- What would your life be like without light energy? *Answers may include the following: I would not be able to do things as easily at nighttime; there would be no traffic lights, which may cause more wrecks to occur; I would not have video games, television, etc.*

Materials

For teacher

- air popper
- bowl for popcorn
- napkins
- popcorn kernels

For each student

- science notebook or blank paper
- pencil

Activity 3

Teacher Note

Set up for the teacher demonstration so that you have access to an electrical outlet and students can easily observe the popper. Be aware that some popcorn poppers may be too hot to touch while popping. Set guidelines for student observations with this in mind.

Content Builder

To avoid teaching misconceptions, this lesson will not use microwave ovens as examples of heat energy. Microwave ovens use electromagnetic radiation rather than heat energy. Microwaves (of the electromagnetic spectrum) speed up the vibrations of water molecules. Each popcorn kernel has water inside. The heated water turns to steam, building up pressure. When there is enough pressure inside, the kernel explodes into popcorn.

Teacher Instruction

- Measure and pour the popcorn into the popper according to manufacturer instructions.
- Ask the following: What do you see? Hear? *Accept all reasonable answers.*

- Instruct students to record in their science notebooks their observations of the setup.
- Plug in and turn on the air popper.
- Ask the following: What do you see? Hear? *Accept all reasonable answers.*
- Instruct students to record in their science notebooks their observations throughout the activity.
- Allow each student to touch and taste a small amount of popcorn.
- Ask the following: What do you see? Hear? Feel? *Accept all reasonable answers.*
- Instruct students to record in their science notebooks observations about the form(s) of energy they observed.

Facilitation Questions

- What did you observe before the air popper started? *I could see the popcorn popper, and I saw my teacher pouring popcorn kernels into the popper. I heard the popcorn kernels fall into the popper.*
- What did you observe as the air popper was heating the popcorn kernels? *I could hear the popper working and the popcorn kernels moving around inside the popper. I could hear the popcorn kernels popping. I could smell the popcorn popping. I could feel heat from the popcorn popper. I could see popped popcorn fill the chamber and fall into the bowl.*
- What did you observe after the air popper stopped? *I could no longer hear the popper working. I could see the popcorn in the bowl. I could smell the popcorn. I could taste the popcorn.*
- What caused the popcorn kernels to change into popcorn? *The heat energy from the popcorn popper caused the popcorn kernels to change into popcorn.*
- What types of energy did you observe? *I observed heat and sound energy. If your popcorn popper has a light on it, students may say they observed light energy.*
- What other sources of heat energy might be used to pop popcorn? *Popcorn can be popped using heat energy from a stove top or a fire.*
- In what ways do you use heat energy every day? *Accept all reasonable answers.*

Energy

Explain

Teacher Instruction

- Read and discuss *Letters to My Energy Superheroes*.

Materials

For teacher

- *Letters to My Energy Superheroes* book

Facilitation Questions

- How does light energy help you? *Answers may include the following: Light energy helps me see and helps plants grow.*
- How does heat energy help you? *Answers may include the following: Heat energy helps me stay warm, cook food, take a warm bath, and dry my clothes and hair.*
- How does sound energy help you? *Answers may include the following: Sound energy helps me know when I am in danger, know what is happening around me, know when my cat is happy or hungry, and know when my favorite song is on the radio.*
- What would life be like without light energy? Heat energy? Sound energy? *Accept all reasonable answers.*
- Which Energy Superhero would you like to write to? Why? *Answers will vary.*

Use these apps to model writing a letter on a mobile device.

Android™: Dear Diary, Orange Diary

iPad®: Penultimate, iDiary

Refer to the Mobile Technology Integration document in Drop Boxes in your Science Academies for Grades K–4 Project Share group.

Science Notebook Entry

Invite student volunteers to help write a letter to an Energy Superhero in the class science notebook. Be sure to model how to include the date, salutation, and closing on the letter. Students will be asked to write their own letters for the Evaluate portion of this lesson.

Elaborate

Advance Preparation

Students will work in groups to sort the energy cards using a Venn diagram or sorting circles. Prepare a Venn diagram or sorting circles for each group. You can instruct students to use the Venn diagram on a sheet of chart paper or to overlap the sorting circles to create a Venn diagram. Hula hoops can be used as sorting circles.

You will need three groups of students with one set of energy cards (*RM 4: Energy Cards*) for each group.

Prepare one set of *RM 4* for each group and place in a plastic resealable bag. Prepare one pair of labels (Light and Heat, Heat and Sound, or Light and Sound) for each group. Cut and paste the *RM 5: Forms of Energy Bar Graph* pages together for each group to create a bar graph.

Materials

For teacher

- RM 4
- RM 5
- chart paper
- marker

For student groups

- RM 4
- RM 5
- sandwich-size, resealable plastic bag
- Venn diagram on chart paper or 2 sorting circles

Teacher Instruction

- Divide the class into three groups.
- Pass a pair of labels and a Venn diagram or sorting circles to each group. Each group should have a different pair of labels (Group 1: Light/Heat, Group 2: Heat/Sound, Group 3: Light/Sound).
- Instruct each group to label the circles of their Venn diagram or sorting circles using the labels they were given.
- Pass a set of energy cards (*RM 4*) to each group.
- Instruct each group to sort the energy cards according to the labels on their Venn diagrams or sorting circles. If students are unfamiliar with using a Venn diagram or sorting, present examples to the whole class.
- Allow adequate time for student groups to complete the activity and to discuss how they sorted the energy cards. Students will find that they will not have a place for all their cards. Instruct students to place extra cards outside both circles. For example, if students have the labels “Light” and “Heat” and they receive a card with a picture of rainfall, they would determine that rainfall does not show light or heat energy. Therefore, the picture of rainfall would go outside both circles.

Download Grade 1 Elaborate_ Energy from Drop Boxes in your Science Academies for Grades K–4 Project Share group to use on a SMART™ or Mimio® interactive whiteboard.

Energy

- Lead a discussion about heat, light, and sound energy and how each form of energy is important to everyday life.

Facilitation Questions

- Were you able to place all the energy cards in a sorting circle? *Answers will include the following: No, we had Light and Heat labels, and some of the cards did not belong in either group. Yes, we had Light and Sound labels, and all of the cards belonged in a group. No, we had Heat and Sound labels, and some of the cards did not belong in either group.*
- Did you find many cards that belonged in both circles? *Answers will vary. (See answer key for possible answers.)*
- How did you decide in which circle to put the cards? *Answers will vary.*
- What pictures/cards would you create to add to your circles? *Accept all reasonable answers. Students may use sticky notes for their pictures/cards.*
- What would your life be like without heat? Light? Sound? *Accept all reasonable answers.*

Teacher Instruction

- Pass a prepared graph (*RM 5: Forms of Energy Bar Graph*) to each group.
- Instruct each group to use the cards from their Venn diagram to complete the bar graph. If students need assistance or are unfamiliar with creating a bar graph, you can use the digital interactive activity to lead student groups in using their results to create a bar graph. You may also create a bar graph as a whole class by passing one or two cards to each student to place on the bar graph.
- Instruct students to discuss the energy source shown on each card and to use their experience from sorting to place the card in the correct column on the table. Students will find that some of the cards they placed in the “Light and Heat” and “Heat and Sound” sections of their Venn diagrams belong in the “Light, Heat, and Sound” column of the bar graph.

Energy

- Allow adequate time for student groups to place the energy cards on their bar graphs.
- Instruct students to count and record the total number of pictures in each column.
- Remind students to use all of their cards, including those they placed in the bag, to complete the bar graph.
- Use the digital interactive to lead a whole-class discussion and to check for misunderstandings.

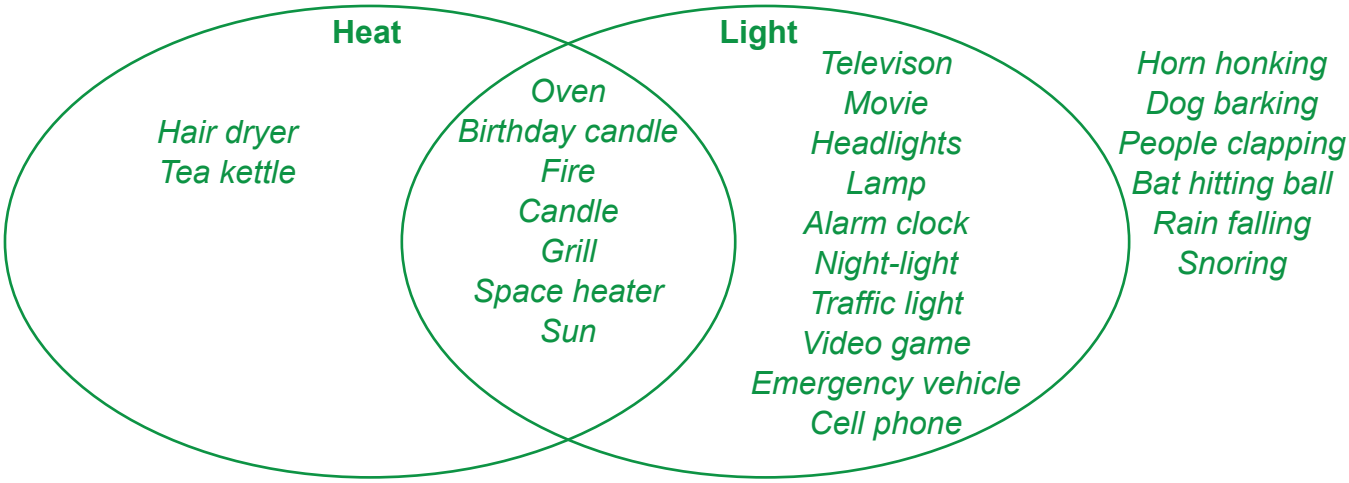
Facilitation Questions

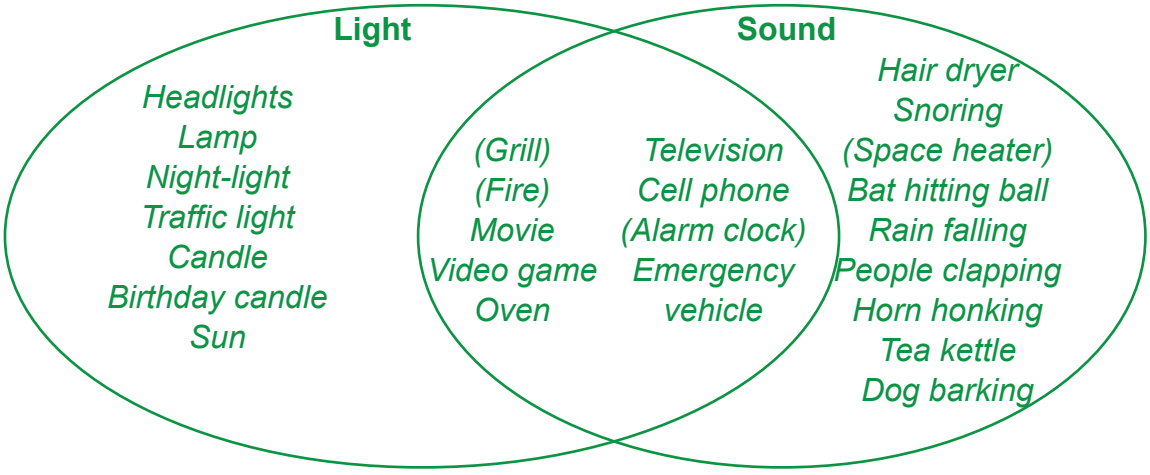
- Which energy category shows the most pictures? Fewest? *The sound category has the most pictures, and the heat category has the fewest.*
- Your bar graph shows more _____cards than _____ cards. Does this mean that _____ energy is more important than _____ energy? *No, we just had more of those type of cards. All forms of energy are important.*

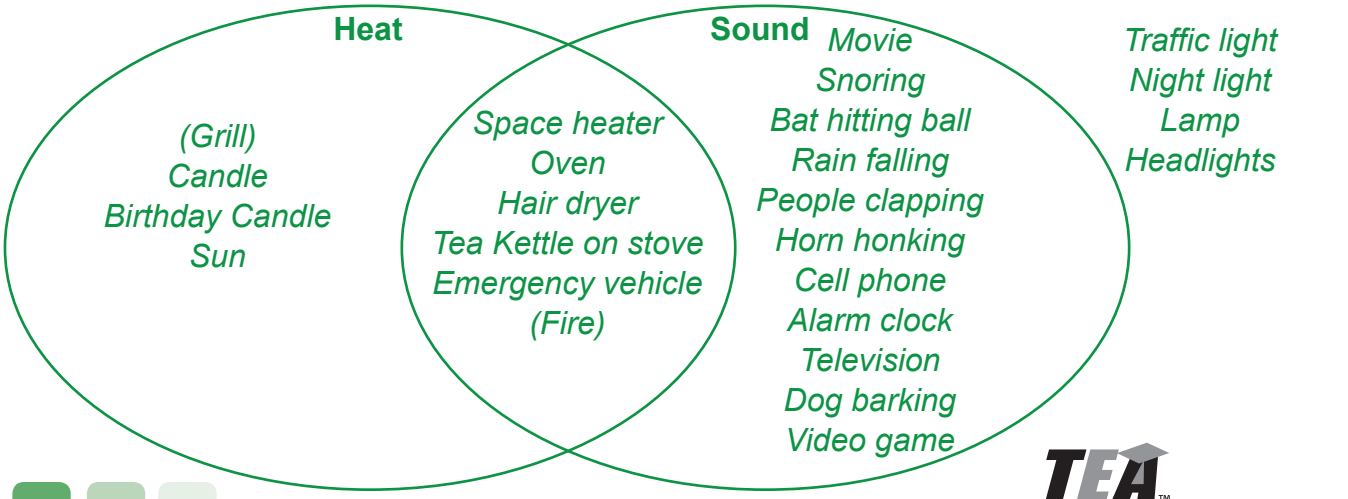
Energy

RM 4 Answer Key

Items listed in parentheses are shown in the columns and sorting circles where students may place them. Some items may be placed outside the circles if they do not have either form of energy. Either location is acceptable if students can share valid justification.







Energy

GRADE 1

RM 5 Answer Key

Light	Heat	Sound	Light and Heat	Light and Sound	Heat and Sound	Light, Heat, and Sound
Headlights		Snoring				
Lamp		Bat hitting ball		Video game		
Night-light		Rain falling		Television		
Traffic light	(Grill)	People clapping	Birthday candle	Movie		
		Horn honking	Fire	(Alarm clock)		
		Alarm Clock	Candle	(Cell phone)		
		(Cell phone)	Sun	Emergency vehicle	Tea kettle on stove	(Oven)
		Dog barking	Space heater	(Oven)	Hair dryer	(Grill)

Energy

Evaluate

Materials

For each student

- RM 6
- pencil
- crayons
- white or manila paper
- science notebook

Differentiation Strategies

Students will be asked to write a letter to the Energy Superhero of their choice. To differentiate for varying student needs, some students may write three separate letters and other students may write one letter. Depending on the student, you may ask him or her to dictate a letter to you and then add an illustration. Accept all reasonable letters.

It would also be appropriate to provide sentence stems and labeled pictures of different energy sources in everyday life.

G/T: Instruct students to write a letter from the perspective of an energy superhero explaining how he or she provides energy to people.

Teacher Instruction

- Refer back to the letter you wrote in the class science notebook during Explain as a model for students to follow.
- Provide each student with *RM 6: Letter Template*.
- Instruct students to write a letter to an energy superhero (Light Energy Woman, Sound Energy Woman, or Heat Energy Man) thanking him or her for helping them in everyday life or asking him or her to help more in everyday life.

Visit http://www.voicethread.com to use VoiceThread for students to share their superhero letters. Visit http://voicethread.com/share/3027251/ to view a sample.

Grade 1

RM 1: Picture of Energy in Everyday Life

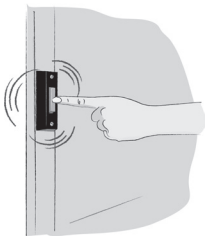
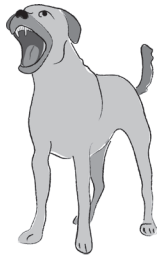
RM 1: Picture of Energy in Everyday Life continued

Grade 1

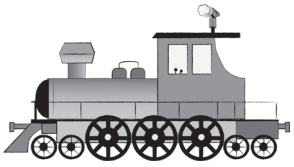
RM 1: Picture of Energy in Everyday Life continued

Grade 1

RM 2: Sound Identification Bingo

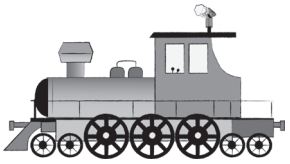
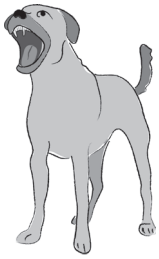
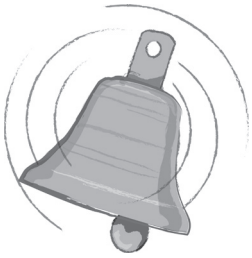
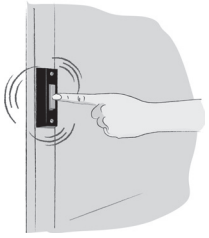
 Water running	 Laughing	 Doorbell ringing	 Clock beeping
 Baby crying	 Whistle blowing	 Door closing	 Piano playing
 Insect buzzing	 Cat meowing	 Horn honking	 Dog barking
 Siren blaring	 People clapping	 Toilet flushing	 Bell ringing

RM 2: Sound Identification Bingo continued

 Insect buzzing	 People clapping	 Toilet flushing	 Whistle blowing
 Phone ringing	 Popcorn popping	 Fire alarm bell ringing	 Siren blaring
 Piano playing	 Train whistle blowing	 Glass breaking	 Water running
 Laughing	 Dog barking	 Horn honking	 Baby crying

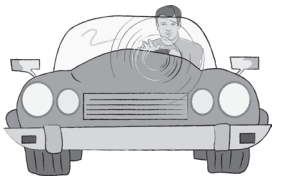
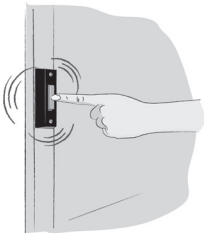
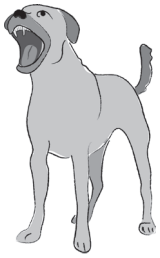
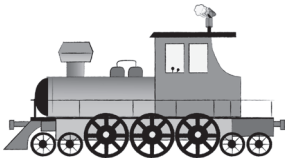
Grade 1

RM 2: Sound Identification Bingo continued

 Horn honking	 Siren blaring	 Glass breaking	 Popcorn popping
 Train whistle blowing	 Laughing	 Whistle blowing	 Clock beeping
 Dog barking	 Bell ringing	 Phone ringing	 Cat meowing
 Door closing	 Baby crying	 Doorbell ringing	 Fire alarm bell ringing

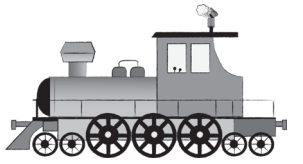
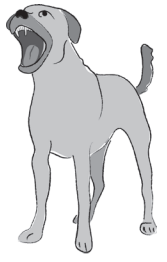
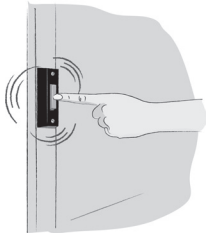
Grade 1

RM 2: Sound Identification Bingo continued

 Toilet flushing	 Cat meowing	 Horn honking	 Popcorn popping
 Whistle blowing	 Doorbell ringing	 Glass breaking	 Piano playing
 Phone ringing	 Bell ringing	 Siren blaring	 Water running
 Dog barking	 Fire alarm bell ringing	 Insect buzzing	 Train whistle blowing

Grade 1

RM 2: Sound Identification Bingo continued

 Piano playing	 Whistle blowing	 Door closing	 Cat meowing
 Laughing	 Water running	 Clock beeping	 Insect buzzing
 People clapping	 Phone ringing	 Toilet flushing	 Train whistle blowing
 Baby crying	 Dog barking	 Doorbell ringing	 Fire alarm bell ringing

Grade 1

RM 3: Lights On! Lights Off!

LIGHTS ON!
Count this card as
1
Light Energy Card!

LIGHTS ON!
Take another turn!
Place this card in the discard pile and draw another card.

LIGHTS ON!
Take another turn!
Place this card in the discard pile and draw another card.

LIGHTS ON!
Take another turn!
Place this card in the discard pile and draw another card.

LIGHTS ON!
Count this card as
1
Light Energy Card!

LIGHTS OFF!
Put all your cards in the discard pile and draw five new cards.

LIGHTS OFF!
Put all your cards in the discard pile and draw five new cards.

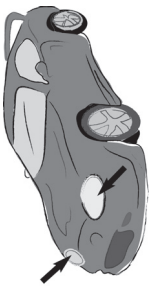
LIGHTS ON!
Count this card as
1
Light Energy Card!

RM 3: Lights On! Lights Off! continued

Emergency vehicle lights

Candle

Headlights

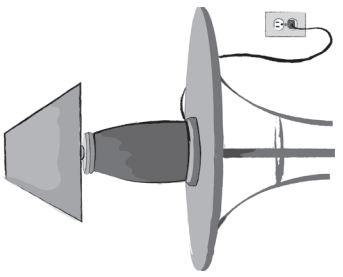


Fire

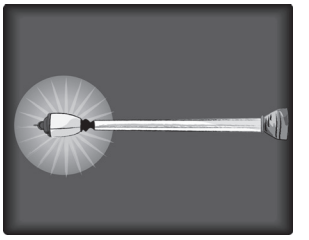
Sun

Exit sign

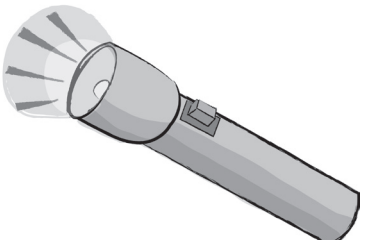
Lamp



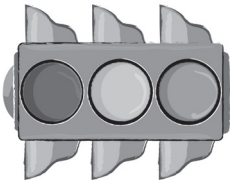
Street light



Flashlight



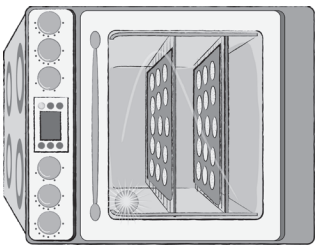
Traffic light



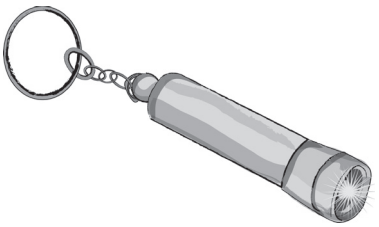
Grade 1

RM 3: Lights On! Lights Off! continued

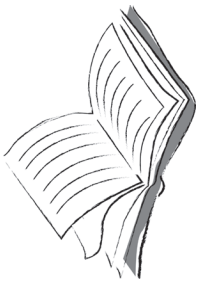
Oven light



Pen light



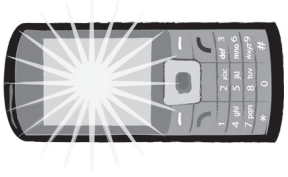
Book



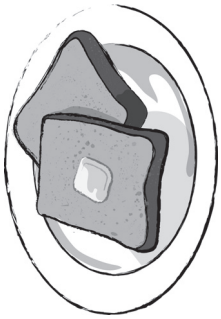
Glow stick

Paper clip

Cell phone



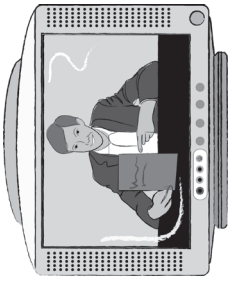
Toast



Video game

Battery

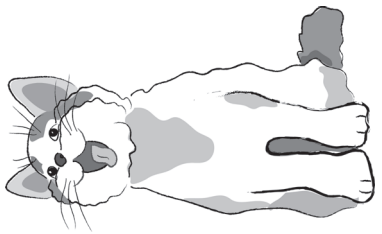
Television



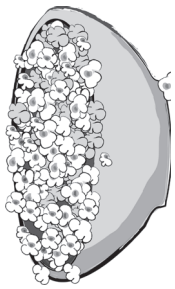
Grade 1

RM 3: Lights On! Lights Off! continued

Cat



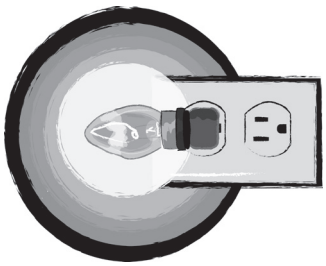
Popcorn



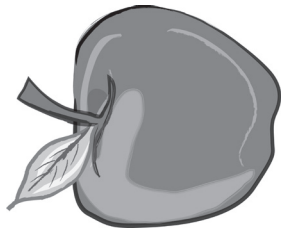
Sign

Bird

Night-light



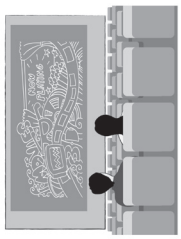
Apple



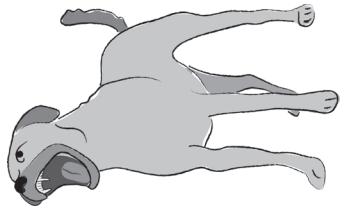
Alarm clock

Bee

Movie



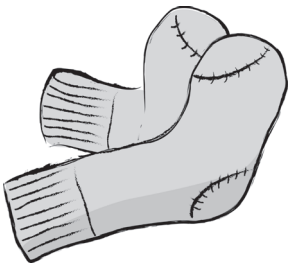
Dog



Grade 1

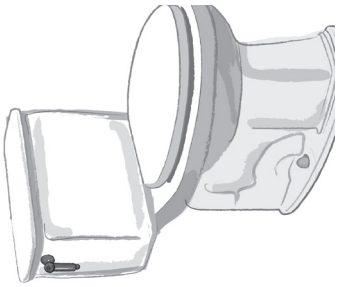
RM 3: Lights On! Lights Off! continued

Socks

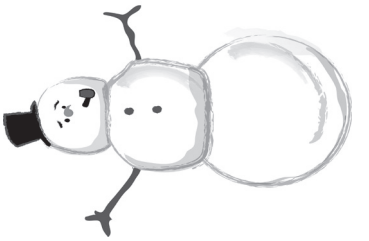


Pencil

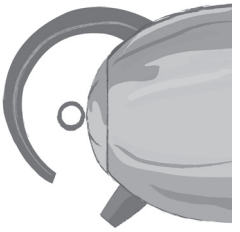
Toilet



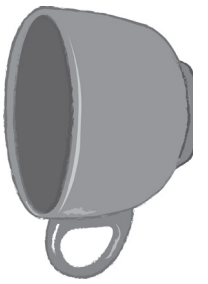
Snowman



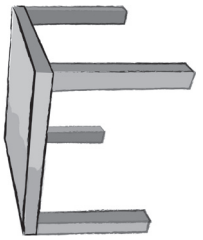
Tea Kettle



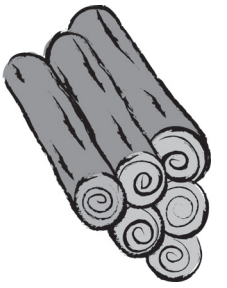
Cup



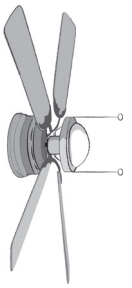
Table



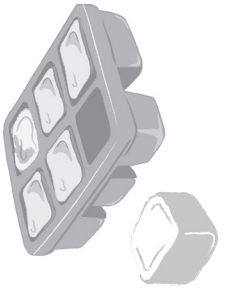
Wood



Ceiling fan



Ice tray



RM 3: Lights On! Lights Off! continued

Game Rules

Goal/Objective: Collect five Light Energy cards.

- Play with four players or four teams.
- Pass five cards to each player/team. The remaining cards go in the middle as the draw pile. Each player/team should have five cards in their hand at all times.
- The player/team with the most recent birthday goes first.
- Play begins by drawing one card.
- Read the card, follow the instructions, and discard.
- There are four different kinds of cards in the stack.

Lamp

Light Energy card: A Light Energy card will have an example of light energy on it, such as a picture of a lamp or the Sun. If you draw a Light Energy card, keep it and discard another card that does not show light energy.

Book

No Light Energy card: A No Light Energy card will have an example of something that does not provide light energy, such as a sock or a book. If you draw a No Light Energy card, decide whether to discard it or another card.

- **LIGHTS OFF! card:** If you are dealt a LIGHTS OFF! card, the card applies to your first turn.
    - Put all your cards in the discard pile and draw five new cards. After you have drawn five new cards, your turn is over. If you have drawn a LIGHTS OFF! card with your five new cards, that card will apply to your next turn.
- **LIGHTS ON! card:** If you draw a LIGHTS ON! card, you can choose to play it or discard it. The LIGHTS ON! cards say the following:
    - LIGHTS ON! Take another turn! Place this card in the discard pile and draw another card (one per turn).

      OR

    - LIGHTS ON! Count this card as 1 Light Energy card!
- When you have collected five Light Energy cards, say, “Lights On!”
- Play continues until one player/team has collected five Light Energy cards and is able to explain how the light energy source on each card is important to everyday life.

RM 4: Energy Cards

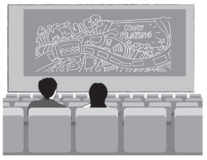
Heat	Heat
Light	Light
Sound	Sound

Grade 1

RM 4: Energy Cards continued

hair dryer

tea kettle on stove



movie in theater

television

car horn honking

cell phone ringing

emergency lights

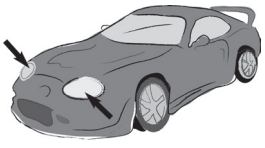
candle

birthday candle

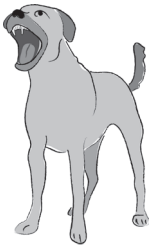
traffic light

night-light

lamp

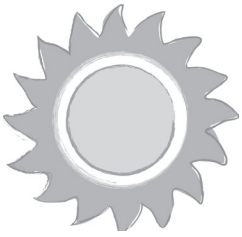


headlights

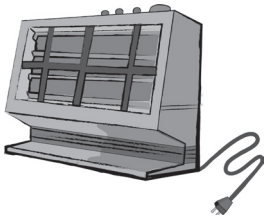


dog barking

people clapping



Sun



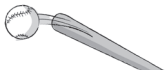
space heater

campfire

grill with flame

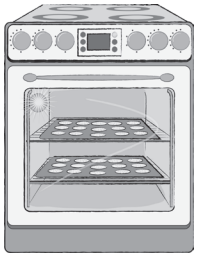
video game

alarm clock



bat hitting ball

rain falling



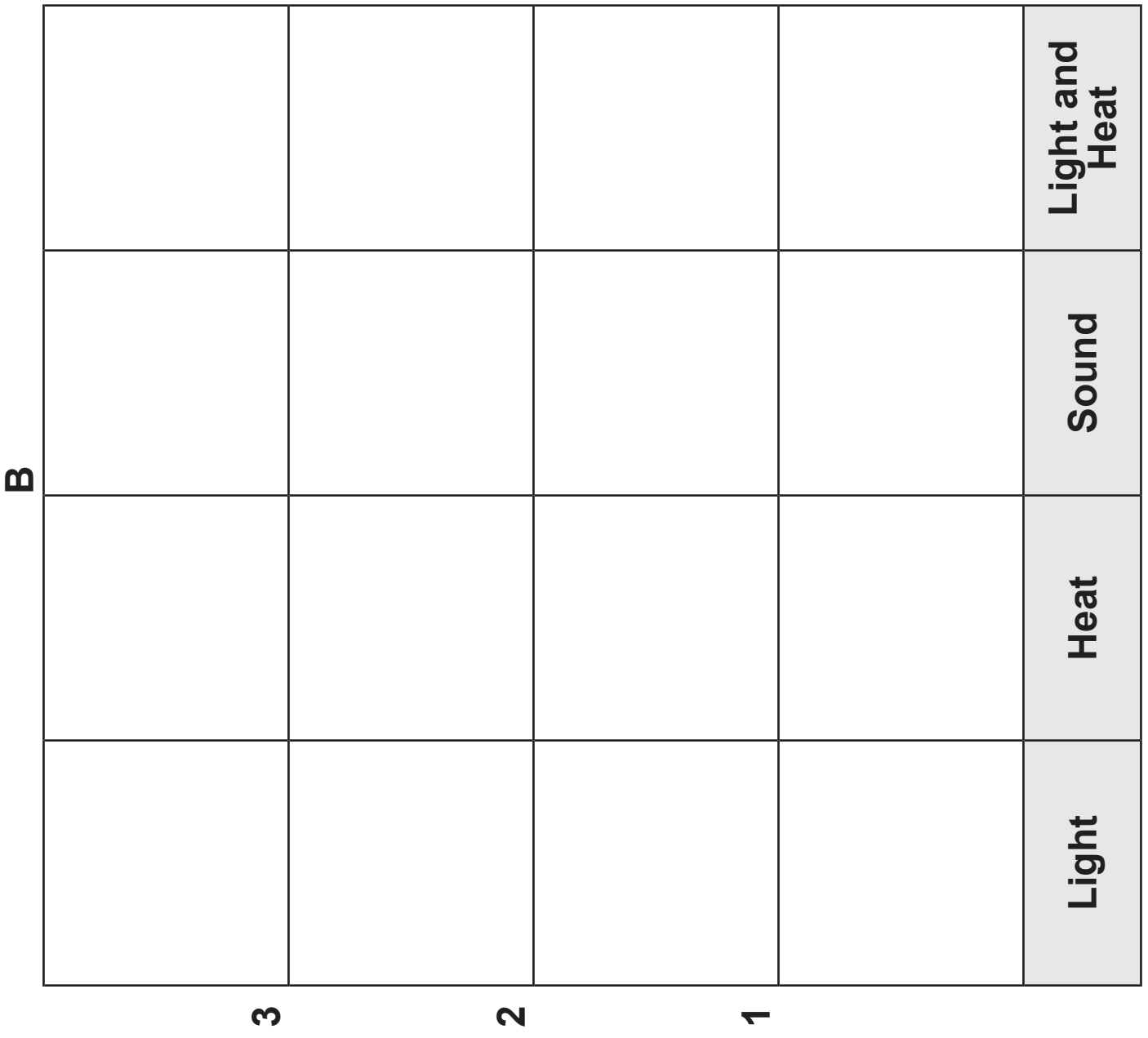
oven

snoring

Grade 1

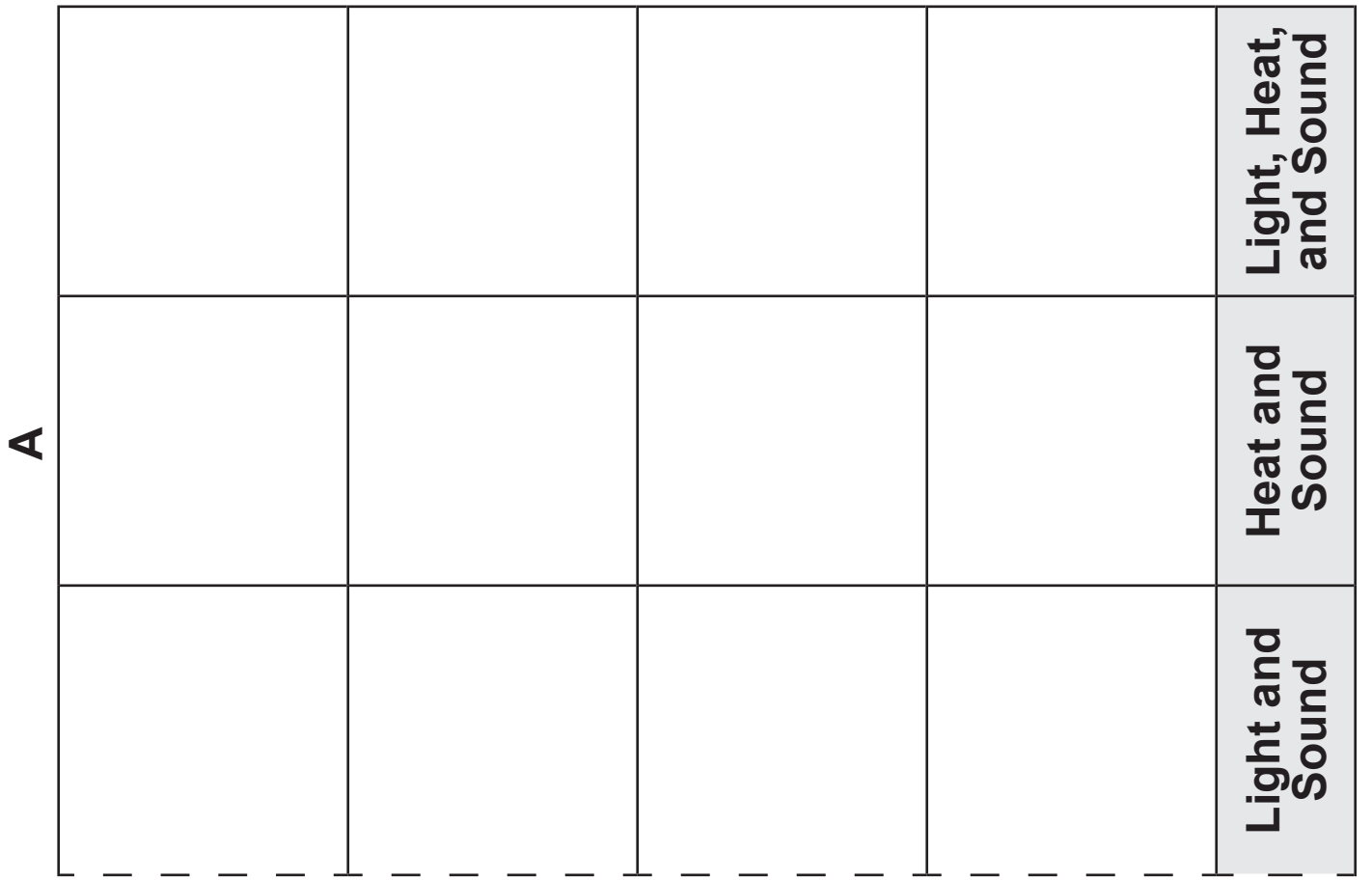
RM 5: Forms of Energy Bar Graph

Directions:
Cut along the dotted lines on all pages. Attach page A to B and page C to D. Then attach C and D to the top of A and B, creating a large bar graph.



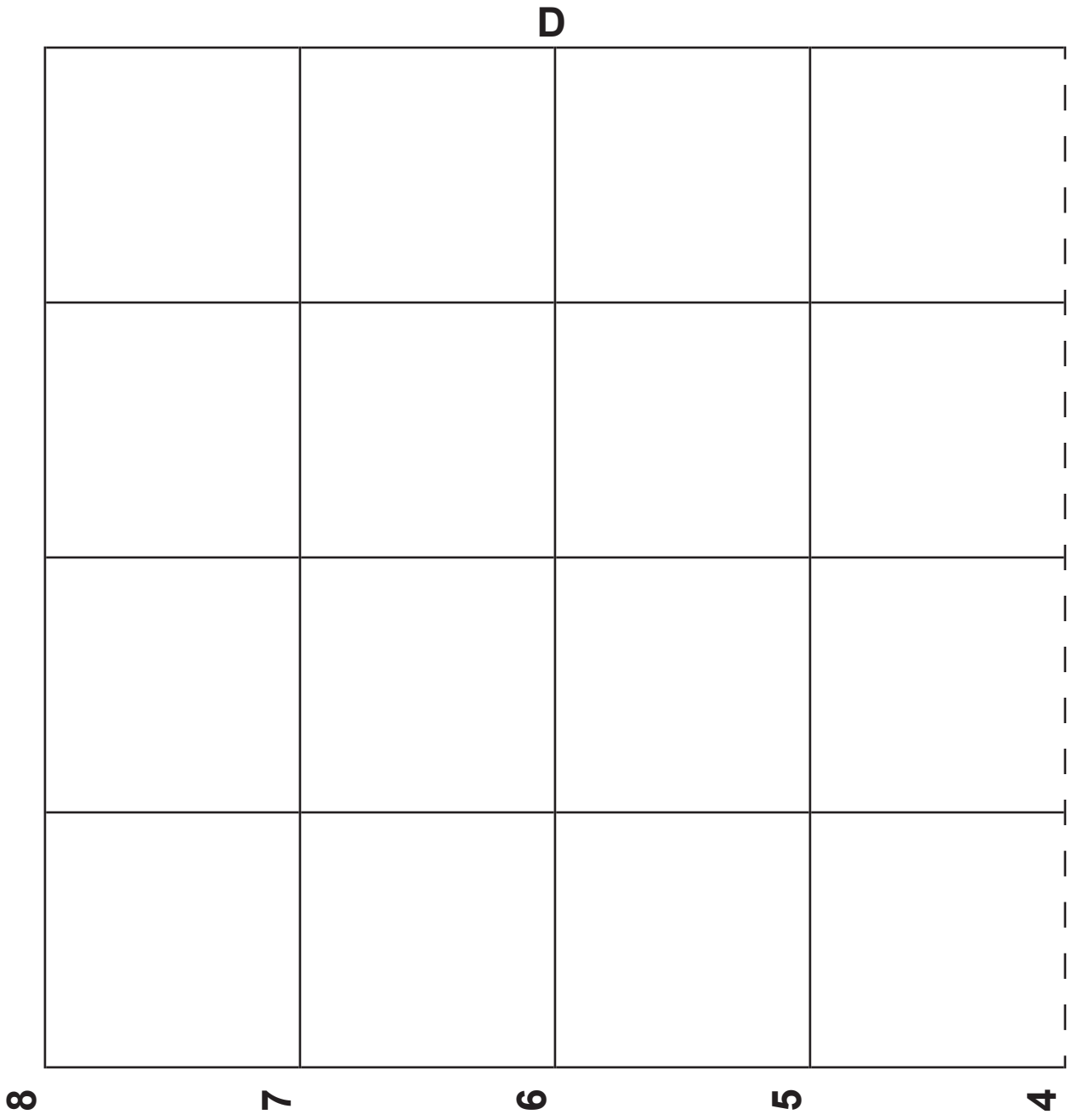
Grade 1

RM 5: Forms of Energy Bar Graph continued

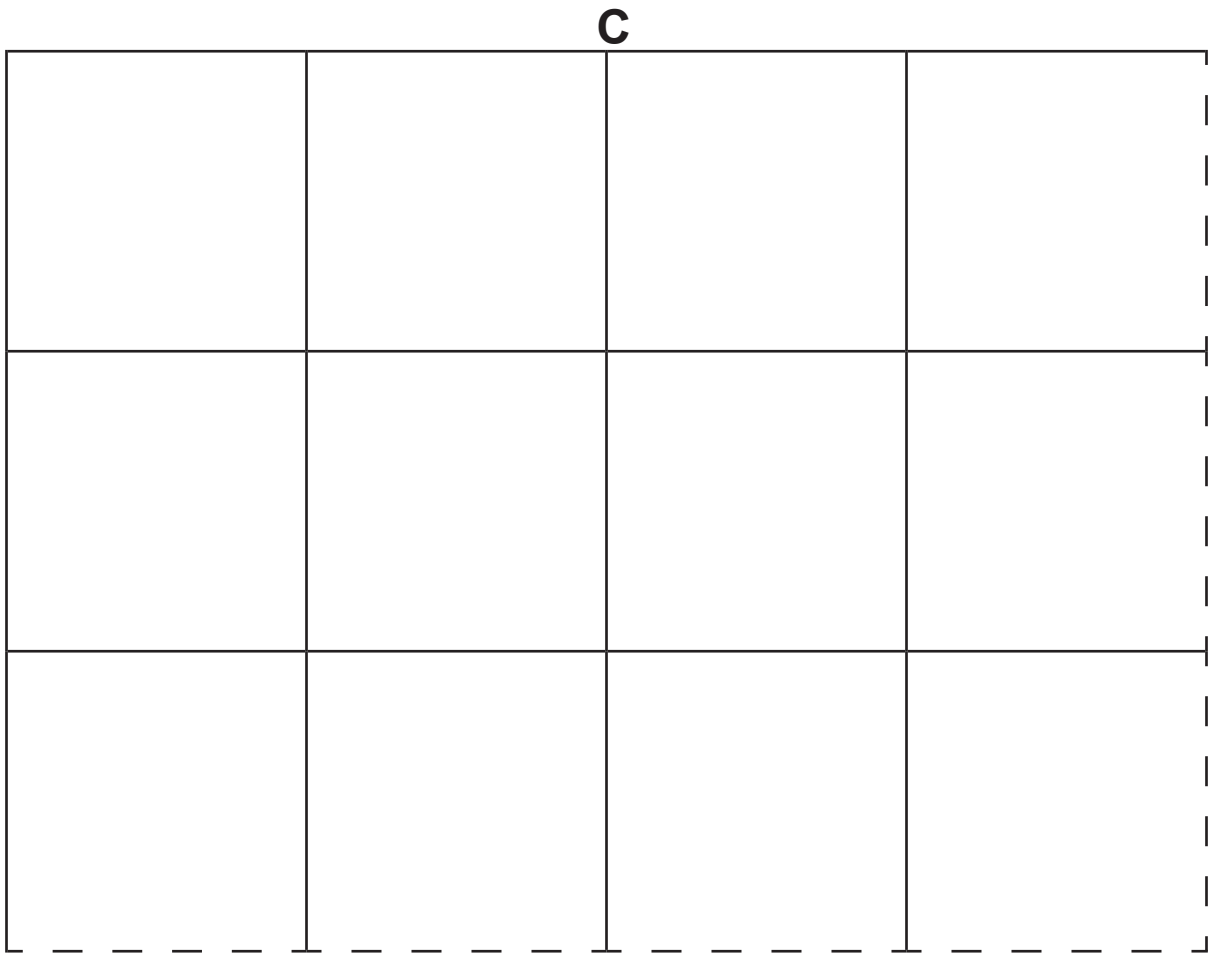


Grade 1

RM 5: Forms of Energy Bar Graph continued



RM 5: Forms of Energy Bar Graph continued



Grade 1

RM 6: Letter Template

Date_____

Dear _____,

_____

_____

_____

_____

_____

_____

_____

Your friend,

_____

NOTES

NOTES