

Humans and Energy

The texts in this unit explore the relationship between humans and energy. Though a mix of diverse myths and content-rich informational texts, students will encounter a variety of words that describe how different types of energy are produced and consumed. Students will build knowledge about how people harness energy and how sources of energy continue to evolve over time.

The activities in this guide are designed to be used flexibly. See **Introduction to Building Knowledge with Vocabulary** for more details on how integrate these activities in your classroom.

UNIT CONCEPT WORDS

energy (n.) the ability to do work. *Plants use energy from the sun to grow.* (pp. 346, 366, 367, 368, 369, 370, 372, 373, 374, 381, 382, 384, 385, 389, 393, 394, 398, 399, 407)

generate (v.) to bring into being or to produce: *The human body generates heat.* (p. 369)

renewable (adj.) able to be revived, regenerated, or restored to an original state or condition: *Because bamboo grows fast, it is considered a highly renewable resource.* (p. 366) Renewable appears in the following forms: *renewable* (p. 366); *nonrenewable* (p. 366).

Unit Concept Word Maps

15-20 minutes

Use the Unit Concept Words to introduce to students the unit topic of *Humans and Energy*.

- Display the Unit Concept Words and invite volunteers to say what they know about the words. Tell students that they can explain what each word means, share types of energy they are familiar with, or examples of renewable and nonrenewable resources.
- Explain to students as needed that the word *energy* has multiple meanings, and when used in science, it has a very specific meaning. Tell students that they will learn more about the different meanings of the word *energy* during this unit.
- If students are unfamiliar with the words, share the definitions and sample sentences with them.

- Have students work in small groups to create a **Word Map** (Building Knowledge with Vocabulary handout) for one of the Unit Concept Words. Try to have at least one group work on each word.
- Have groups share their word map with the whole class.
- Encourage students to make predictions about how these words are going to connect to the texts that they will read in the unit. Ask: *What types of energy do you think we will read about? What connections can you make between energy and generate? What word parts can you identify in the word renewable?*

Create an Interactive Word Wall

5-10 minutes to introduce

Create an Interactive Word Wall to help students build their vocabulary around the topic of *Humans and Energy*. Use the three Unit Concept Words, *energy*, *generate*, and *renewable*, as the first blocks in the wall.

- Explain to students that throughout the unit, they will be adding words to the word wall that connect in some way to the Unit Concept Words and the unit topic. There can be many different types of connections. For example, you might build sections of the word wall using any of these categories: *types of energy*, *sources of energy*, *benefits and problems with different sources of energy*, and *examples of renewable and nonrenewable resources*. In addition to words, students can add images, either photos or pictures that they draw, that are related to the words as well.
- As a class, add new words to the wall after you complete the Talk About the Topic in Session 1 of each lesson. Ask: *What new words can we add to the wall? How are the words connected to the unit topic? How are they connected to the Unit Concept Words?*
- Challenge students to add new words to the wall throughout the unit. They can add a word after they finish reading a text, when they add a word to their Word Journals, or when they hear a related word used in another text. The words can come from anywhere!
- Encourage students to use the wall for reference as they talk and write about the texts.

Build a Unit Glossary

5–10 minutes to introduce

- At the beginning of each lesson, have students review the words for that lesson in the **Building Knowledge with Vocabulary** handout. Have them rate their knowledge of each word.
- Tell students that as they encounter the word in the lesson, they can write a definition and complete the “What I Know” column.
- Challenge students to think about how the words connect to the unit topic. Invite them to add the words to the word wall as they learn them.
- Have students compile their lesson vocabulary charts to create a Unit 6 glossary. Students can also include their Unit Concept Word Maps.
- For extra support, you may choose to share the student-friendly definitions and sample sentences (p. 4) to introduce the words to students.

UNIT
6 BUILDING KNOWLEDGE WITH VOCABULARY GRADE 4

Humans and Energy

| Lesson 18: First Fires | Definition | What I Know |
|---|--------------------------------|--|
| Word Read the word. Rate your knowledge using the scale below. disguise <i>noun</i> (p. 355) 1 2 3 4 | Write the meaning of the word. | Choose one. <ul style="list-style-type: none">Use the word in a sentenceMake a personal connection to the wordAdd a photograph or draw a picture that shows an example |
| fiery <i>adjective</i> (p. 361) 1 2 3 4 | | |
| fuel <i>noun</i> (p. 346) 1 2 3 4 | | |
| furious <i>adjective</i> (p. 351) 1 2 3 4 | | |
| outdone <i>verb</i> (p. 362) 1 2 3 4 | | |
| wriggled <i>verb</i> (p. 362) 1 2 3 4 | | |
| Rating Scale 1 = I have not seen or heard the word. 2 = I have seen or heard the word but do not know what it means. 3 = I have seen or heard the word and have an idea of what it means. 4 = I know the word and can define it. | | |

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Vocabulary Related to the Unit Concepts

| Lesson 18: First Fires | Lesson 19: Sources of Energy | Lesson 20: Solar Power | Connect It: Smarter Energy |
|--|--|---|--|
| Focus Question: What do myths tell us about the importance of fire? | Focus Question: Why have people used energy from different sources? | Focus Question: Why and how do people use solar power? | |
| disguise (p. 355) fiery (p. 361) fuel (p. 366)* furious (p. 351) outdone (p. 362) wriggled (p. 362) | nonrenewable (p. 366)* organic (p. 377)* pollution (p. 374)* pressure (p. 373) waste (p. 377)* | array (p. 394)* forum (p. 385) national (p. 403) global (p. 384) | incorporate (p. 403) labor (p. 401) roots (p. 403) |

* Appears multiple times and/or in multiple forms.

ACTIVITIES TO DEEPEN VOCABULARY KNOWLEDGE

The activities below can be used for learning centers, independent work, or as whole-class activities.

Make Connections

15-20 minutes

Have students make **Word Connections** (Graphic Organizer 2) by connecting their new learning to what they already know. Invite students to show in both words and pictures how these words apply to their everyday lives. For example, students might choose to write about a time a person or animal was in *disguise*, a time they were *furious*, or a time when they had to *incorporate* many things into one.

Suggested Words:

Lesson 18: *disguise, furious*; **Lesson 19:** *organic*; **Lesson 20:** *array*;

Connect It: *incorporate, roots*

Word Study/Morphology: Scavenger Hunt

15-20 minutes

Model how to identify word parts and their meanings using the word *nonrenewable*. Then as students reread, have them work with a partner to look for and circle other words that use the word parts *non-*, *re-*, *new*, or *-able*. Invite students to write the word parts and related words in their Word Journals.

Suggested Words and Prefixes

| Lesson | Word Parts | Lesson Word |
|-----------|--|--------------|
| Lesson 19 | <i>non</i> - not <i>re</i> - again <i>new</i> just made <i>-able</i> having the means to do | nonrenewable |

Vocabulary Game: Categories

15-20 minutes

Provide students with a chance to practice using their new vocabulary words with this game.

Encourage students to be as creative as possible when thinking of categories for their words.

Students may group words in categories related to their topic, part of speech, or the same first letter.

Step 1: Have students create a vocabulary card deck.

1. Select eight words to use for this activity.
2. Fold a piece of paper into eight rectangles.
3. Write a vocabulary word in the center of each rectangle.
4. Cut out each rectangle to create a deck of vocabulary cards.

Step 2: Have students play the game.

1. Use **Silent Appointment** to find a partner.
2. Have one partner go first and sort out as many cards as possible into different categories.
3. Have partners try to guess how the words have been sorted, or the name for each category.
4. If the categories have not been guessed, the category maker reveals how the words were sorted before playing the game as the guesser.

Write with Vocabulary

15-20 minutes

Have students practice using their new vocabulary words with these activities.

- Have students create a presentation about an energy source of their choice that includes words from the unit.
- Have students stretch a series of sentences using their words. Invite students to write a short sentence, then a longer sentence, then an even longer sentence. (ex. *Pollution* is a *national* problem. *Pollution* and *waste* are *national* problems. *Pollution* and *waste* are both *national* and *global* problems.)

Definitions and Sample Sentences

Lesson 18

disguise (n.) the act of hiding or changing to prevent recognition: *She wore the wig and glasses as a **disguise**.* (p. 355)

fiery (adj.) flaming; on fire: *He rescued the dog from the **fiery** house.* (p. 361)

fuel (n.) anything such as wood or gasoline that is burned as a source of energy: *A car cannot operate without **fuel**.* (p. 366)

furious (adj.) very angry: *There seemed to be no way to escape the anger of this **furious** person.* (p. 351)

outdone (v.) to have done more or better than: *They worked harder than ever this year and had **outdone** themselves.* (p. 362)

wriggled (v.) to twist and turn one's body with quick movements from side to side; wiggle: *The excited children **wriggled** in their seats while waiting for the clowns.* (p. 362)

Lesson 19

nonrenewable (adj.) not able to be replaced: *Oil, natural gas, and coal are examples of **nonrenewable** sources of energy.* (p. 366)

organic (adj.) having to do with or coming from living things naturally: ***Organic** waste is a plant or animal material that breaks down over time.* (p. 377)

pollution (n.) poisons, waste, or other material that causes harm to the environment: ***Pollution** in the lake kills the fish.* (p. 374)

pressure (n.) a steady force upon a surface: *Put **pressure** on a cut to make it stop bleeding.* (p. 373)

waste (n.) something that is not wanted or needed: *The factory found a way to recycle its **waste**.* (p. 377)

Lesson 20

array (n.) a certain order or arrangement: *Mae keeps her books in a neat **array** on a shelf.* (p. 394)

forum (n.) a meeting where people share ideas: *The school district held a **forum** to hear everyone's ideas.*

national (adj.) having to do with the whole country, not just one part of it: *The President is the head of the **national** government of the United States.* (p. 403)

global (adj.) having to do with the whole earth: *Pollution in the ocean is a **global** concern.* (p. 384)

Unit 5: Connect It

incorporate (v.) to include as part of a larger thing: *If you no longer want your books, I'll **incorporate** them into my collection.* (p. 403)

labor (n.) hard work or effort: *Finishing the building required many hours of **labor**.* (p. 401)

roots (n.) the basic source or origin or something: *The family's Native American **roots** go back many generations.* (p. 403)