⚡ Lesson Plan: Energy Resources

Grade Level: 5
Subject: Science
Duration: 45–60
NGSS 5-ESS3-1: Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.

🎯 Learning Objectives

By the end of this lesson, students will be able to:

- **Define** renewable and nonrenewable energy resources.
- **Identify** different types of fossil fuels and explain how they are formed.
- **Explain** the advantages and disadvantages of alternative energy resources like solar, wind,

ocean floor.

💼 Materials Needed: (all links are included in this PDF)

- Printed copies of the Study Guide (https://newpathworksheets.com/api/guide/study-guide-science-grade-5-energy-resources.pdf)
- Practice Worksheet 0 (https://newpathworksheets.com/api/worksheet/worksheet-science-grade-5-energy-resources-0.pdf)

- Practice Worksheet 1 (https://newpathworksheets.com/api/worksheet/worksheet-science-grade-5-energy-resources-1.pdf)
- Practice Worksheet 2 (https://newpathworksheets.com/api/worksheet/worksheet-science-grade-5-energy-resources-2.pdf)
- Vocabulary Set 1 (https://newpathworksheets.com/api/vocabulary/vocabulary-science-grade-5-energy-resources-1.pdf)

Lesson Procedure

Step 1: Introduction (5 minutes)

- Hook students by asking: 'Where does the electricity in our school come from, and what happens if those resources run out?'
- Briefly introduce the concepts of renewable and nonrenewable resources using everyday examples like sunlight and coal.

placement and the disadvantages of hydroelectricity. (https://newpathworksheets.com/api/worksheet/worksheet-science-grade-5-energy-resources-2.pdf)

Step 4: Independent Practice (15 minutes)

- Assign students Worksheet 0 to independently test their understanding of general resource types and how fossil fuels are formed. (https://newpathworksheets.com/api/worksheet/worksheet-science-grade-5-energy-resources-0.pdf)

- Have early finishers start on Worksheet 1 to review the specifics of natural gas, coal, and wind energy. (https://newpathworksheets.com/api/worksheet/worksheet-science-grade-5-energy-resources-1.pdf)

Step 5: Assessment (10 minutes)

- Review the answers to Worksheet 0 as a class to check for correct understanding.
- Conduct a quick oral quiz asking students to name one renewable and one nonrenewable resource and explain why they chose them.

Differentiation Strategies

For advanced learners:

- Have students research and present a short report on a specific alternative energy source and its viability in their local community.

Complete List of Available Resources:

- NewPathWorksheets: Energy Resources (https://newpathworksheets.com/science/grade-5/energy-resources)
- Study Guide (https://newpathworksheets.com/api/guide/study-guide-science-grade-5-energy-resources.pdf)
- Practice Worksheet 0 (https://newpathworksheets.com/api/worksheet/worksheet-science-grade-5-energy-resources-0.pdf)

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ENERGY RESOURCES

A **resource** is a supply of something that will meet someone's need. When we talk about energy resources, we are discussing those materials and events that can produce energy and thus become a resource to humans.

Two kinds of energy resources: renewable and nonrenewable.

A **renewable resource** is a resource that can be naturally restored or at least replenished as it is needed. So a renewable resource must be produced in a relatively short time, such as solar energy, which can become available as a resource whenever the sunlight shines on the earth.

layers of earth changed the dead material into oil, natural gas, and coal.

Crude Oil

Type of resource:	nonrenewable resource
Where it is found:	beneath the Earth's surface and below the ocean floor
What it is used for:	gasoline, diesel fuel, and other fuels
What it is used to make:	plastic, asphalt, grease, wax

Natural Gas

Type of resource:	nonrenewable resource
Where it is found:	in the ground
What it is used for:	cooking, for heat, and in power plants to make electricity
Interesting fact:	Natural gas is flammable, but has no odor, so it's mixed with a chemical that makes it smell like rotten eggs so people can tell if there's a natural gas leak!

Coal

Type of resource:	nonrenewable resource
Where it is found:	beneath the surface of the earth, at different depths
What it is used for:	Power plants burn the coal to create electricity

Lesson Checkpoint: What is crude oil used for?

renewable?

So with these disadvantages in mind, we need to find alternative choices!

What are some alternative energy resources?

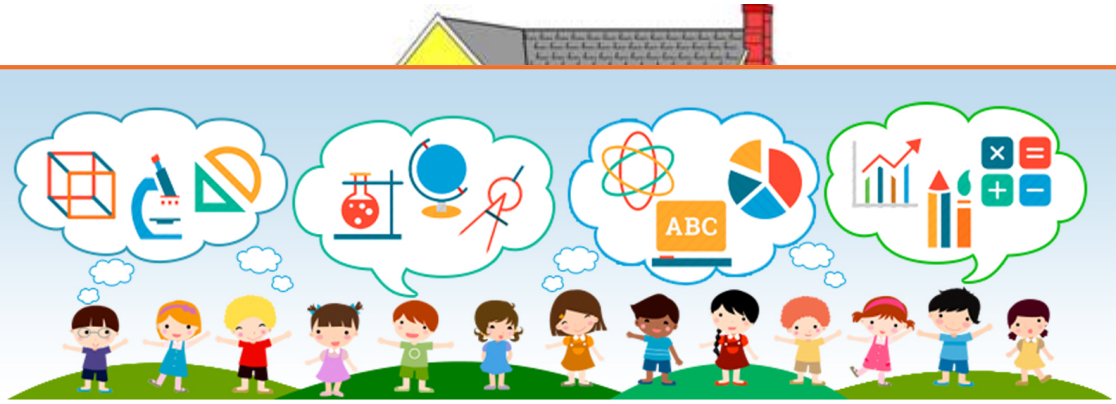
The power of WIND

We can use WIND to create electricity! A windmill is moved by the wind which then turns a turbine. The turbine runs a generator that makes electricity. The more wind, the more electricity is created.

Advantage: no air pollution
Disadvantage: wind does not blow all the time (no wind = no electricity)

Advantages: no air pollution and its renewable
Disadvantages: sun does not shine all the time (no sun = no electricity), it is expensive, and A LOT of solar panels are needed to create electricity

The power of the EARTH
Geothermal energy is heat from the earth.
(geo = earth and thermal = heat)
A geothermal type heating system has pipes buried beneath the ground and uses the earth's heat to buildings.



Biomass includes material or materials from organisms that was once alive – plants and trees, animal waste, and food waste. Garbage is burned to create electricity.

Advantages: helps eliminates garbage (less in landfills) and it's renewable
Disadvantage: causes air pollution when burned

Lesson Checkpoint: What is one energy resource that does NOT create pollution?

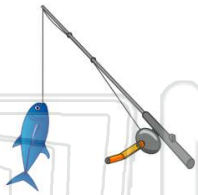
Energy resources

Sci E

Name_____ Class_____ Date_____

1 Which of the following is a **supply** of something that will **meet someone's need**?

A requirement
B demand
C resource
D store



2 To help humans, many natural resources are **burned** to _____.

A protect the environment
B grow food
C produce energy
D create pollution

3 What type of resource can be **naturally restored** or at least replenished quickly enough as it is needed?

A extinct resource
B renewable resource

4 Which of the following is an example of a **renewable** resource?

A trees
B coal
C oil

C plants and animals that died long ago
D rocks and minerals

C micro bacteria
D heat and pressure from being buried

9 What **nonrenewable** energy resource is found **beneath the Earth's surface** and below the ocean floor?

A coal
B gas
C crude oil
D sodium

10 Which of the following activities can happen because of **crude oil**?

A People can eat.
B People can see in the dark.
C People can drive cars around.
D People can paint in different colors.

Energy resources

Sci E

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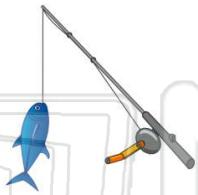

C

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7

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Energy resources

Sci E

Name_____ Class_____ Date_____

1 **Natural gas** is a(n) _____ energy resource that can be found in the ground.

A renewable
B nonrenewable
C infinite
D unlimited

2 Natural gas can be **dangerous**, so in order to protect people it is mixed with a chemical to make it **smell of rotten eggs**. This is done because natural gas _____.

A is naturally odorless and flammable
B has a strong natural smell
C is odorless, but not flammable
D has only a faint natural odor

3 _____ is a **nonrenewable** resource that can be found in different depths of the Earth and is **burned in power plants** to create electricity.

A Hydrogen
B Coal

4 Which is an **advantage** of fossil fuels?

A easy to store
B hard to move to different places

5

C They cause pollution.
D Fossil fuel plants can only be built in deserts.

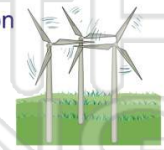
D All

7

9 **Wind** can create electricity. A windmill is moved by the wind, which then turns a **turbine**. What happens next?

A the turbine turns a wheel to move water
B the turbine runs a generator that makes electricity
C electricity turns the turbine
D the turbine sends electricity to wires

10 If **more wind** is blowing on a windmill, _____.



A more electricity is created
B less electricity is created
C more wind is created
D no electricity is created

Energy resources

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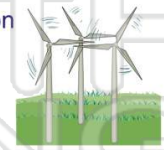


A

Energy resources

Sci E

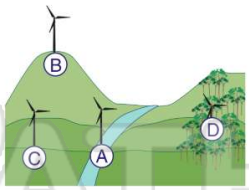
Name_____ Class_____ Date_____

1 Why is it **unreasonable** to **rely totally** on wind energy?

A because wind does not constantly blow
B because wind is unlimited
C because wind also causes storms
D because windmills are expensive

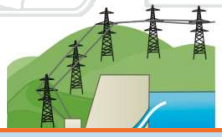
2 To gather the most wind power, where would be the **best location** for a windmill?

A location A
B location B
C location C
D location D



3 Electricity produced with the help of **flowing water** is called _____.

A solar power
B wind power
C hydroelectricity
D geothermal



4 What is one **disadvantage** of hydroelectricity?

A raises temperatures of waterways
B creates water pollution

PREVIEW

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5

C power
D disadvantages

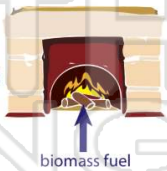
C energy generated by the water cycle
D energy generated by pumping water into the ground

7

9 Which of these materials is an example of **biomass** that can be used to produce heat or energy?

A aluminum cans
B wood
C glass bottles
D rocks

10 The following picture is an example of _____.



A heat energy being released as sound energy
B electrical energy being released as heat energy
C chemical energy being released as heat energy
D heat energy being released as chemical energy

Energy resources

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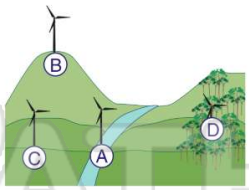

B

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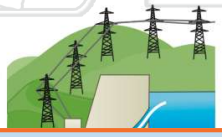

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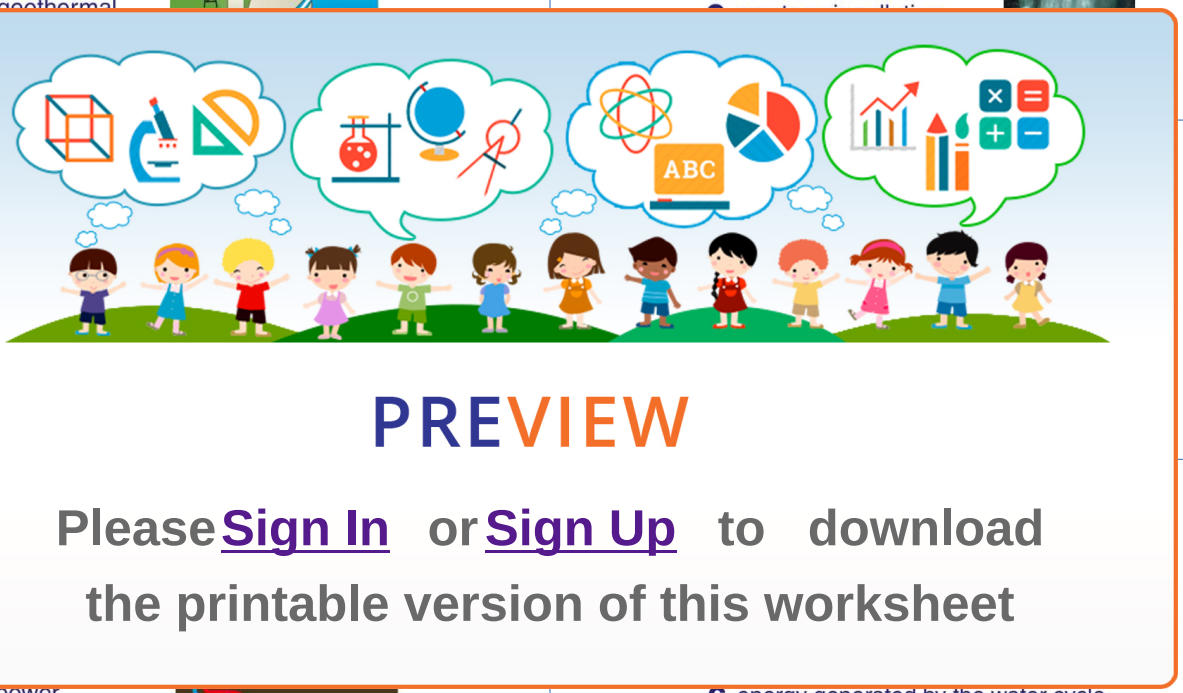

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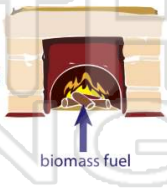

A heat energy being released as sound energy
B electrical energy being released as heat energy
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D heat energy being released as chemical energy

C

Energy resources

Name_____ Class_____ Date_____

Match each of the following terms to its definition:

Coal	Natural gas	Geothermal energy	Nonrenewable resource
Renewable resource	Biomass	Crude oil	Fossil fuel

1. - a resource that is made out of plants and animals that died long ago; a nonrenewable fossil fuel

2. - a fuel source composed of biological material, or materials from organisms that were once alive (for example, plants and trees, animal waste and food waste)

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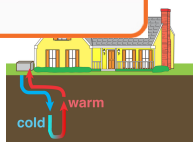

7. - a natural resource that, once consumed, cannot be renewed in a relatively quick period of time

8. - a resource that can be naturally restored, or at least replenished, as quickly as it is needed

Energy resources

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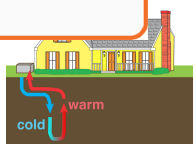

7. nonrenewable resource - a natural resource that, once consumed, cannot be renewed in a relatively quick period of time

8. renewable resource - a resource that can be naturally restored, or at least replenished, as quickly as it is needed