

HUMAN IMPACT ON NONRENEWABLE RESOURCES

Science Reading

Human Impact on Nonrenewable Resources

Fossil Fuels
Fossil fuels, including coal, oil, and natural gas, are essential energy sources formed from ancient plants and animals buried millions of years ago. Over time, heat and pressure transformed these remains into the fuels we use today. The distribution of fossil fuels is uneven, depending on past geologic conditions, and human extraction of these resources has significant environmental effects.

Freshwater Resources
Water is essential for life, but its availability varies across different regions due to geoscience processes. Freshwater exists in lakes, rivers, and glaciers, but a large portion is stored underground as groundwater. The movement and storage of water depend on the water cycle, rock types, and landforms, which influence where freshwater resources are found and how humans access them.

Minerals
Minerals are natural, non-living substances found in Earth's crust. They form through different geologic processes, including igneous, sedimentary, and metamorphic changes. The type of process determines where and how minerals are found, shaping the distribution of valuable resources such as gold, copper, and salt.

Reading Passages
✓
Notes
✓
Worksheets
✓
Task Cards
✓

Diagram 1: Coal is formed from the remains of ancient swamp plants buried under sediment layers. Over millions of years, heat and pressure transformed the plant material into coal. Diagram 1 shows the process of coal formation.

Diagram 2: A person mining for gold during the California Gold Rush of 1849 might be seen panning in a river or digging through rocky soil in search of glittering flakes. The gold they were after had been brought near the surface by powerful tectonic activity—colliding plates, and ancient volcanic eruptions exposed gold-bearing rocks in the region. Thanks to these geologic processes, gold is now concentrated in areas like the Sierra Nevada. Gold had been concentrated over millions of years.

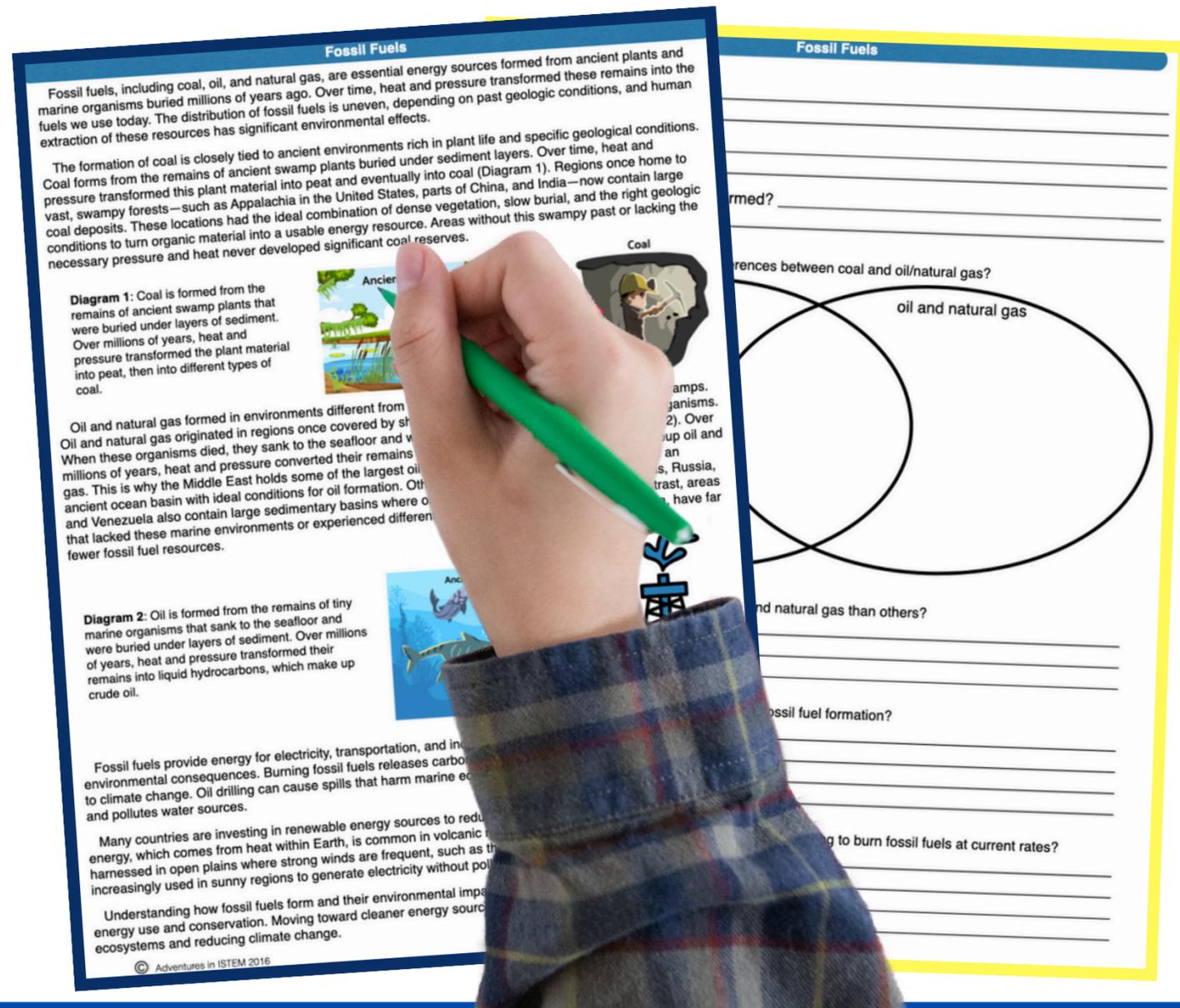
Scroll Through

To take a peek inside!

Help students learn about how nonrenewable resources like minerals, fossil fuels, and groundwater are formed and produced and why it's important to protect them and use them wisely and then test their comprehension with these easy to read science reading passages.

HUMAN IMPACT ON NONRENEWABLE RESOURCES

Science Reading



Topics Included

Minerals

Fossil Fuels

Freshwater resources

Each topic *includes*

- ✓ **One page science reading passage to teach the topic.**
- ✓ **Notes with questions to guide their reading**
- ✓ **Comprehension worksheets to review the information using multiple levels of questioning**
- ✓ **Task cards to extend their learning and for extra review**
- ✓ **Answer keys to easily check the student knowledge**
- ✓ **Digital version for more flexibility on how to use the lesson**
- ✓ **Lesson Design to help you differentiate the lesson in your classroom**

Minerals

Class: _____ Date: _____

Question: How are humans impacting our Earth's mineral resources?

Notes

Define / Describe:

1. What are minerals?
2. What are the three main types of geologic processes that form minerals?
3. How do tectonic plate movements affect mineral deposits?

Matching:

4. Draw lines from the minerals to the geological process that forms them.

Iron
Copper
Silver
Diamond
Bauxite
Gold

Minerals

Minerals are natural, non-living substances found in Earth's crust. They form through different geologic processes, including igneous, sedimentary, and metamorphic changes. The type of process determines where and how minerals are found, shaping the distribution of valuable resources such as gold, copper, and salt.

Minerals form through a variety of natural processes inside the Earth, and each process helps determine where different types of minerals are found (Diagram 1). Igneous processes occur when magma cools and solidifies, causing minerals to crystallize. Volcanic activity can create deposits of valuable minerals like diamonds, which form under extreme pressure, and copper, which is often found in volcanic rock. Sedimentary processes happen over time as minerals settle in layers. Ancient seas and lakes evaporate, leaving salt deposits like those found in the Great Salt Lake in Utah. Sediments can also concentrate minerals like iron and bauxite, which are used to make steel and aluminum. Metamorphic processes occur when heat and pressure deep within the Earth change existing minerals into new ones. This process forms marble from limestone and enriches areas with gold and silver deposits.

Diagram 1: Minerals form through igneous, sedimentary, and metamorphic processes, each creating different types of mineral deposits. These processes produce valuable resources like diamonds, copper, salt, iron, bauxite, gold, and marble, depending on the conditions under which they form.

Earth's tectonic plates are constantly moving, and this movement affects the distribution of mineral resources. When plates collide, they can form mountain ranges and subduction zones, affecting how and where minerals are found. In subduction zones and fault movements—led to the exposure of geologic conditions helped set the stage for the California Gold Rush in the late 1800s, which drew thousands of people to mine the newly discovered gold. Intense volcanic activity from ancient plate movements brought minerals to the surface, creating some of the world's most productive mineral deposits. The ongoing collision between the Indian and Eurasian plates has formed by the ongoing collision between the Indian and Eurasian plates, creating some of the world's most productive mineral deposits. These powerful geologic processes have formed some of the world's most productive mineral deposits.

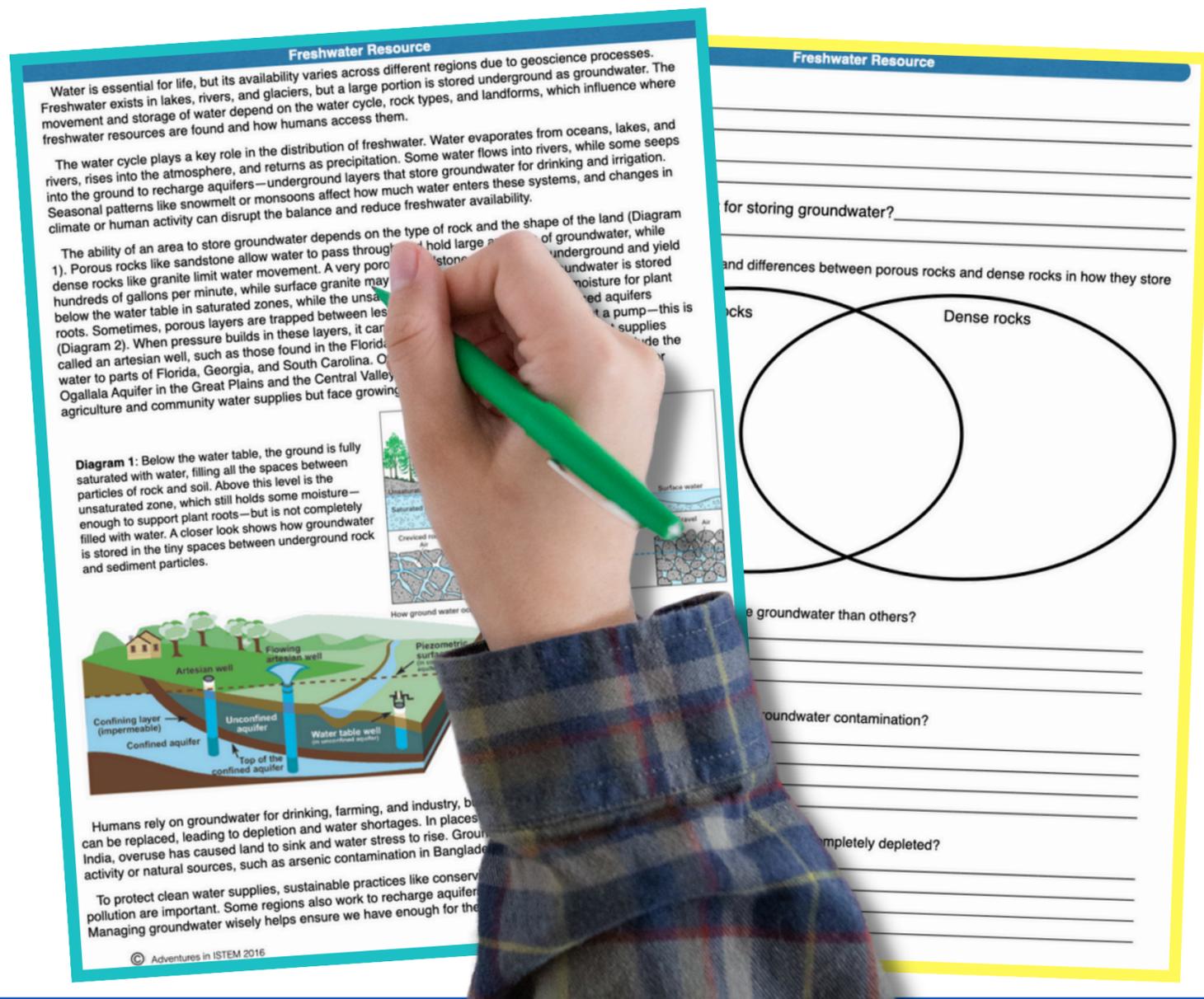
Diagram 2: A person mining for gold during the California Gold Rush of 1849 might be seen panning in a river or digging through rock in search of glittering flakes. The gold they were after had been brought near the surface by powerful tectonic activity—colliding plates, fault movements, and ancient volcanic eruptions exposed gold-bearing rocks throughout the region. Thanks to these geologic processes, miners were drawn to areas like the Sierra Nevada, where gold has been concentrated over millions of years.

Humans rely on minerals for construction, technology, and industry. Mining can destroy ecosystems, pollute water, and release greenhouse gases. Understanding mineral formation and distribution helps humans make better decisions about how to use these resources. Recycling metals and using alternative materials, help reduce the environmental impact of mining. Understanding mineral formation and distribution helps humans make better decisions about how to use these resources.

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HUMAN IMPACT ON NONRENEWABLE RESOURCES

Science Reading



What Are *students* Doing?

- ✓ **Marking the text**
- ✓ **Filling in the guided note-taking template**
- ✓ **Reviewing and applying their knowledge**
- ✓ **Reinforcing their understanding**

HUMAN IMPACT ON NONRENEWABLE RESOURCES

Science Reading

Minerals

Define / Describe:

1. What are minerals?
2. What are the three main types of geologic processes that form minerals?
3. How do tectonic plate movements affect mineral deposits?

Matching:

4. Draw lines from the minerals to the geologic process that forms them.

Iron
copper
diamond
silver
bauxite
gold

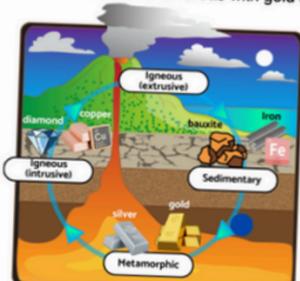
Elaborate / Extend:

5. Why do desert regions often have salt and other minerals?
6. How does volcanic activity contribute to mineral formation?
7. What are the long-term effects of mining on the environment?

Minerals

Minerals are natural, non-living substances found in Earth's crust. They form through different geologic processes, including igneous, sedimentary, and metamorphic changes. The type of process determines where and how minerals are found, shaping the distribution of valuable resources such as gold, copper, and salt.

Minerals form through a variety of natural processes inside the Earth, and each process helps determine where different types of minerals are found (Diagram 1). Igneous processes occur when magma cools and solidifies, causing minerals to crystallize. Volcanic activity can create deposits of valuable minerals like diamonds and bauxite, which form under extreme pressure, and copper, which is often found in volcanic rock. Sedimentary processes happen over time as minerals settle in layers. Ancient seas and lakes evaporate, leaving salt deposits like those found in the Great Salt Lake in Utah. Sediments can also concentrate minerals like iron and bauxite, which are used to make aluminum. Metamorphic processes occur when heat and pressure deep within the Earth change minerals into new ones. This process forms marble from limestone and enriches areas with gold and silver.



Earth's tectonic plates are constantly moving, and this motion plays a major role in shaping the location of mineral resources. When plates collide, they can form mountain ranges, cause volcanic eruptions, and create subduction zones and fault movements—led to the exposure and concentration of gold-bearing rocks. These geologic conditions helped set the stage for the California Gold Rush of 1849 and the Alaska Gold Rush in the late 1800s, which drew thousands of people to mine the newly discovered deposits (Diagram 2). In Africa, intense volcanic activity from ancient plate movements brought diamonds from deep within the Earth's mantle to the surface, creating some of the world's most productive diamond mines. The towering Himalayas were formed by the ongoing collision between the Indian and Eurasian plates, which exposed and concentrated minerals such as quartz and mica. These powerful geologic forces reshape Earth's surface and control the formation and uneven distribution of valuable mineral resources, making certain areas richer in resources than others.

Diagram 2: A person mining for gold during the California Gold Rush of 1849 might be seen panning in a river or digging through rocky soil in search of glittering flakes. The gold they were after had been brought near the surface by powerful tectonic activity—colliding plates, fault movements, and ancient volcanic eruptions exposed gold-bearing rocks throughout the region. Thanks to these geologic processes, miners were drawn to areas like the Sierra Nevada, where gold had been concentrated over millions of years.



Humans rely on minerals for construction, technology, and industry, but extracting them has environmental consequences. Mining can destroy ecosystems, pollute water, and cause deforestation. Overusing certain minerals, such as rare earth elements, for electronics can lead to shortages. Sustainable practices, like recycling metals and using alternative materials, help reduce the demand for newly mined minerals. Understanding mineral formation and distribution helps humans use these resources responsibly, balancing economic needs with environmental protection.

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Different ways to use the *science readings*

✓ Substitute plan on days you will be out

✓ Introduction of the material at the beginning of the unit

✓ During the explain phase of the 5E model

✓ As part of a science station

✓ For reteach to reinforcing their understanding

✓ During the review at the end of the unit

Why? SCIENCE READING PASSAGES?

- ✓ Increase science literacy in the classroom
- ✓ Simple passages to help students comprehend the information
- ✓ Note-taking template to help students interact with the reading
- ✓ Worksheets to review and apply their knowledge
- ✓ Reinforcement task cards to continue their understanding



“My students and I absolutely loved this resource!!! The way this was planned out with the reading, diagrams, and questions was perfect. I mainly used this with my students but they used it one day with a substitute and they wrote to tell me how great it was! (I think they thought I created it so I have to tell them otherwise!)” -

Nicole

HUMAN IMPACT ON NONRENEWABLE RESOURCES

Science Reading

Fossil Fuels **Answer Key**

Define / Describe:

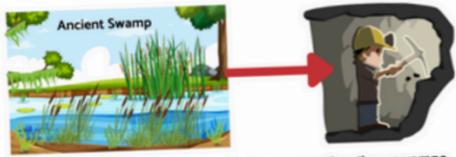
1. What are fossil fuels? Energy sources formed from ancient plants and marine organisms.
2. How is coal formed? From the remains of ancient swamp plants that were buried and compressed over time.
3. How are oil and natural gas formed? Oil and natural gas are formed from the buried remains of tiny marine organisms that were transformed into hydrocarbons by heat and pressure over millions of years.

Fossil Fuels

Fossil fuels, including coal, oil, and natural gas, are essential energy sources formed from ancient plants and marine organisms buried millions of years ago. Over time, heat and pressure transformed these remains into the fuels we use today. The distribution of fossil fuels is uneven, depending on past geologic conditions, and human extraction of these resources has significant environmental effects.

The formation of coal is closely tied to ancient environments rich in plant life and specific geological conditions. Coal forms from the remains of ancient swamp plants buried under sediment layers. Over time, heat and pressure transformed this plant material into peat and eventually into coal (Diagram 1). Regions once home to vast, swampy forests—such as Appalachia in the United States, parts of China, and India—now contain large coal deposits. These locations had the ideal combination of dense vegetation, slow burial, and the right geologic conditions to turn organic material into a usable energy resource. Areas without this swampy past or lacking the necessary pressure and heat never developed significant coal reserves.

Diagram 1: Coal is formed from the remains of ancient swamp plants that were buried under layers of sediment. Over millions of years, heat and pressure transformed the plant material into peat, then into different types of coal.



Coal

Oil and natural gas formed in environments different from coal, mainly in ancient oceans rather than swamps. Oil and natural gas originated in regions once covered by shallow seas filled with microscopic marine organisms. When these organisms died, they sank to the seafloor and were buried by layers of sediment (Diagram 2). Over millions of years, heat and pressure converted their remains into hydrocarbons—compounds that make up oil and gas. This is why the Middle East holds some of the largest oil reserves in the world; it was once part of an ancient ocean basin with ideal conditions for oil formation. Other major oil-producing regions like Texas, Russia, and Venezuela also contain large sedimentary basins where oil and gas are naturally trapped. In contrast, areas that lacked these marine environments or experienced different tectonic activity, such as the Rocky Mountains, have far fewer fossil fuel resources.

Diagram 2: Oil is formed from the remains of tiny marine organisms that sank to the seafloor and were buried under layers of sediment. Over millions of years, heat and pressure transformed their remains into liquid hydrocarbons, which make up crude oil.



Oil and Natural Gas

- Formed from tiny marine organisms
- Found in areas that were once shallow seas
- Liquid (oil) or gas (natural gas)
- Common in regions like the Middle East, Texas, and Russia

Fossil fuels provide energy for electricity, transportation, and industry, but their extraction and use have significant environmental consequences. Burning fossil fuels releases carbon dioxide (CO₂), a greenhouse gas that contributes to climate change. Oil drilling can cause spills that harm marine ecosystems, while coal mining and processing can pollute water sources.

Many countries are investing in renewable energy sources to reduce their reliance on fossil fuels. Geothermal energy, which comes from heat within Earth, is common in volcanic regions like Iceland. Wind energy is harnessed in open plains where strong winds are frequent, such as the Great Plains in the U.S. Solar energy is increasingly used in sunny regions to generate electricity without pollution.

Understanding how fossil fuels form and their environmental impact helps us make informed choices about energy use and conservation. Moving toward cleaner energy sources is essential for protecting Earth's ecosystems and reducing climate change.

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Check out what teachers just like you have said about the science reading products:



“I love using reading passages in my science classes because I am able to reinforce all the learning strategies they have learned in the past and give the students more understanding of the information provided.” – Suzzane



“I was really glad to find a bundle that included so many of our objectives since we do not have a curriculum” – Amanda



“This article kept my 8th graders engaged while reviewing this topic” Brower Power Science

HOW TO USE THE RESOURCE IN

3 simple steps

1

Print the PDF version, make copies, and hand out to students

2

Use the digital version by clicking the titles in the RED BOX to make your own copy (found at the end of the PDF)

3

Share the resource with your students using your favorite LMS (Google Classroom, Powerschool (schoolology), Canva...)

Interactive Digital Flip Book

Teachers Guide

What You Will Need To Get Started:

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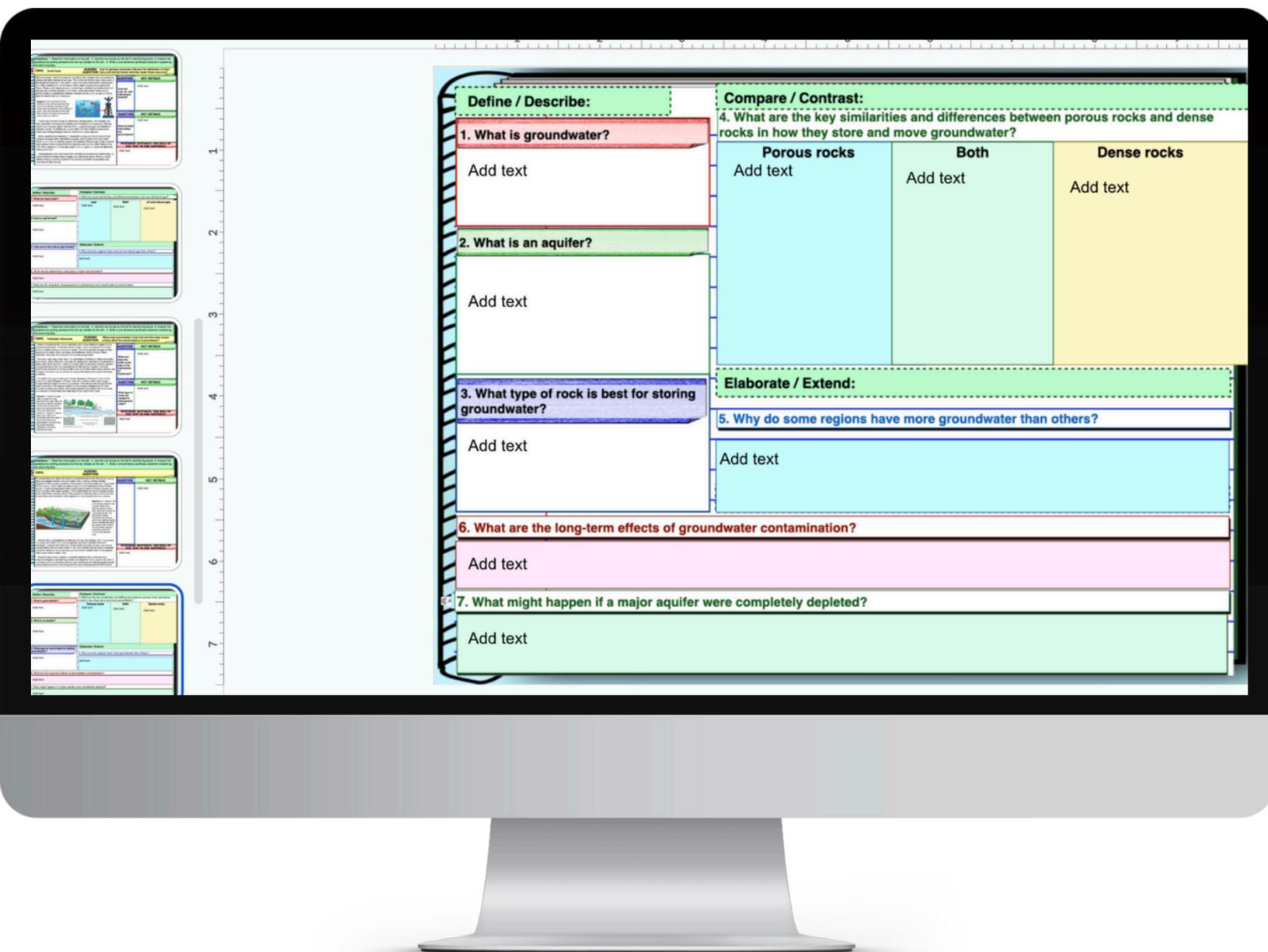
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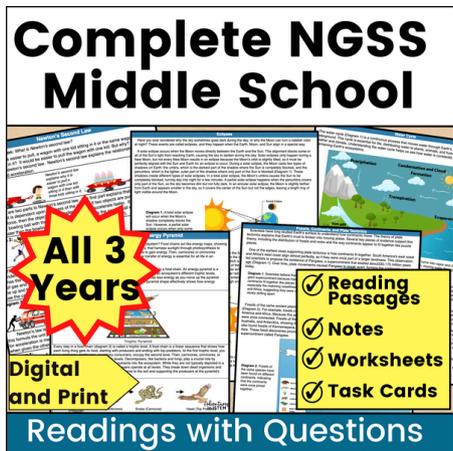
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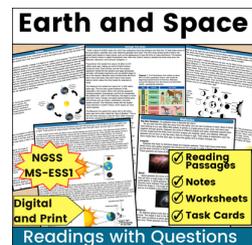
- ✓ Reading Passages
- ✓ Notes
- ✓ Worksheets
- ✓ Task Cards

Digital and Print

Readings with Questions

Earth Science Standards

Earth and Space



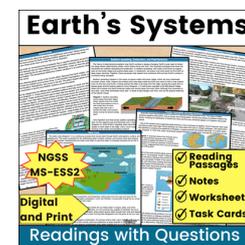
NGSS MS-ESS1

- ✓ Reading Passages
- ✓ Notes
- ✓ Worksheets
- ✓ Task Cards

Digital and Print

Readings with Questions

Earth's Systems



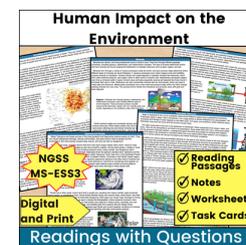
NGSS MS-ESS2

- ✓ Reading Passages
- ✓ Notes
- ✓ Worksheets
- ✓ Task Cards

Digital and Print

Readings with Questions

Human Impact on the Environment



NGSS MS-ESS3

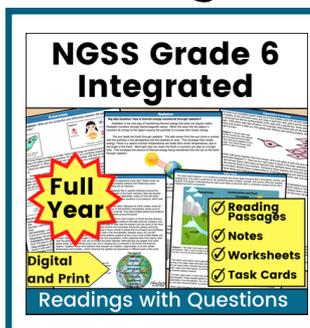
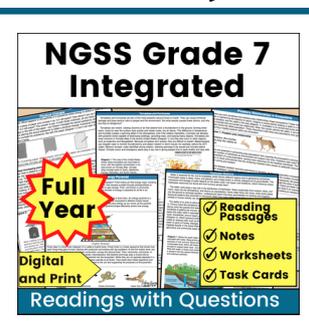
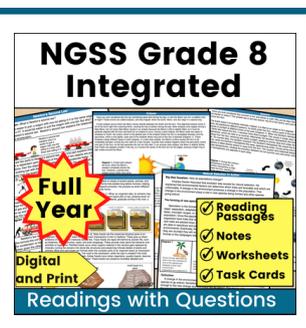
- ✓ Reading Passages
- ✓ Notes
- ✓ Worksheets
- ✓ Task Cards

Digital and Print

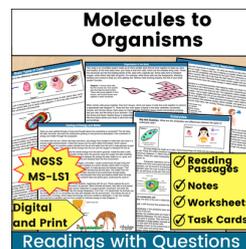
Readings with Questions

Life Science Standards

Integrated Model by Grade Level

<h3>NGSS Grade 6 Integrated</h3>  <p>Full Year</p> <ul style="list-style-type: none">✓ Reading Passages✓ Notes✓ Worksheets✓ Task Cards <p>Digital and Print</p> <p>Readings with Questions</p>	<h3>NGSS Grade 7 Integrated</h3>  <p>Full Year</p> <ul style="list-style-type: none">✓ Reading Passages✓ Notes✓ Worksheets✓ Task Cards <p>Digital and Print</p> <p>Readings with Questions</p>	<h3>NGSS Grade 8 Integrated</h3>  <p>Full Year</p> <ul style="list-style-type: none">✓ Reading Passages✓ Notes✓ Worksheets✓ Task Cards <p>Digital and Print</p> <p>Readings with Questions</p>
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Molecules to Organisms



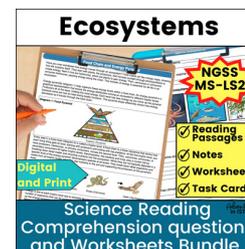
NGSS MS-LS1

- ✓ Reading Passages
- ✓ Notes
- ✓ Worksheets
- ✓ Task Cards

Digital and Print

Readings with Questions

Ecosystems



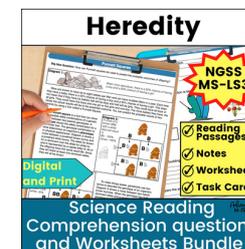
NGSS MS-LS2

- ✓ Reading Passages
- ✓ Notes
- ✓ Worksheets
- ✓ Task Cards

Digital and Print

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Heredity



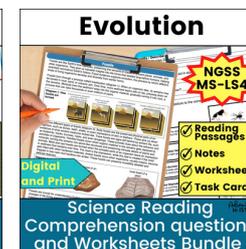
NGSS MS-LS3

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- ✓ Notes
- ✓ Worksheets
- ✓ Task Cards

Digital and Print

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Evolution



NGSS MS-LS4

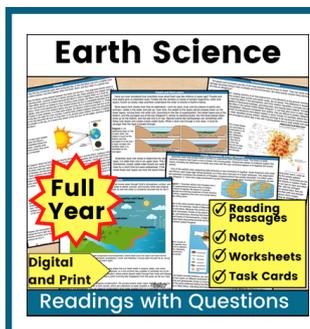
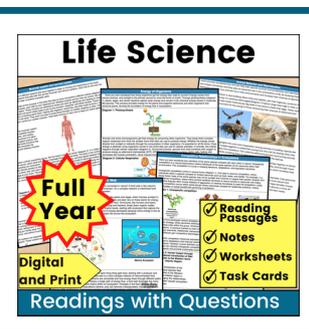
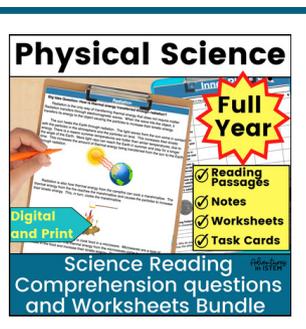
- ✓ Reading Passages
- ✓ Notes
- ✓ Worksheets
- ✓ Task Cards

Digital and Print

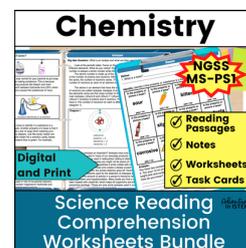
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Physical Science Standards

Alternative Model by Topic

<h3>Earth Science</h3>  <p>Full Year</p> <ul style="list-style-type: none">✓ Reading Passages✓ Notes✓ Worksheets✓ Task Cards <p>Digital and Print</p> <p>Readings with Questions</p>	<h3>Life Science</h3>  <p>Full Year</p> <ul style="list-style-type: none">✓ Reading Passages✓ Notes✓ Worksheets✓ Task Cards <p>Digital and Print</p> <p>Readings with Questions</p>	<h3>Physical Science</h3>  <p>Full Year</p> <ul style="list-style-type: none">✓ Reading Passages✓ Notes✓ Worksheets✓ Task Cards <p>Digital and Print</p> <p>Science Reading Comprehension questions and Worksheets Bundle</p>
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Chemistry



NGSS MS-PS1

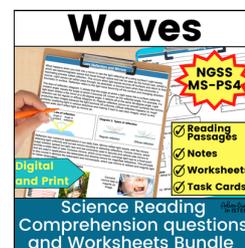
- ✓ Reading Passages
- ✓ Notes
- ✓ Worksheets
- ✓ Task Cards

Digital and Print

Science Reading Comprehension Worksheets Bundle

Chemistry also includes thermal energy

Waves



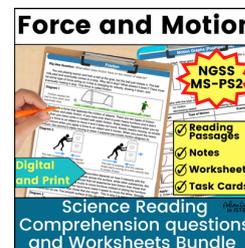
NGSS MS-PS4

- ✓ Reading Passages
- ✓ Notes
- ✓ Worksheets
- ✓ Task Cards

Digital and Print

Science Reading Comprehension questions and Worksheets Bundle

Force and Motion



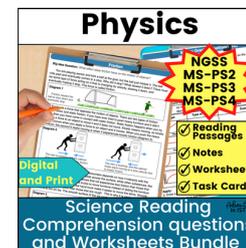
NGSS MS-PS2

- ✓ Reading Passages
- ✓ Notes
- ✓ Worksheets
- ✓ Task Cards

Digital and Print

Science Reading Comprehension questions and Worksheets Bundle

Physics



NGSS MS-PS2, MS-PS3, MS-PS4

- ✓ Reading Passages
- ✓ Notes
- ✓ Worksheets
- ✓ Task Cards

Digital and Print

Science Reading Comprehension questions and Worksheets Bundle

Physics includes mechanical energy



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