

PHENOMENA, DRIVING QUESTIONS AND SEPUP STORYLINE

EARTH'S RESOURCES

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Unit Issue: How the use of natural resources by humans can affect the availability of these resources and how these resources vary in their distribution around the world.

Anchoring Phenomenon: Humans affect the availability of natural resources, such as metals, fossil fuels, and freshwater. Examples explored include human use of oil, gas, mineral, and fresh water resources to meet human needs. Students generate and answer questions such as: How are natural resources formed and used? Why do some places have more of certain natural resources than others? How important are natural resources to people?

Investigative Phenomena	Driving Questions	Guiding Questions	Activities	PE	Storyline
The availability and use of natural resources (eg., copper, oil, freshwater) varies around the world.	What are natural resources? Where and how are natural resources found and used?	What are natural resources? (Activity 1)	1, 2, 3, 4, 5	MS-ESS3-1, MS-ESS3-4	Nonrenewable resources are found on Earth, and people value some of these resources more than others.
		How has an increase in human population affected resource consumption? (Activity 2)			The consumption of natural resources has changed over time due in part to changes in human population.
		What makes one mineral resource different from another? (Activity 3)			The characteristics and properties of natural resources vary.
		How are natural resources used globally? (Activity 4)			Per capita consumption varies country by country.
		How are underground deposits of natural resources located? (Activity 5)			Energy resources are distributed unevenly in particular geographic areas.
Geologists use what they know about geological features to predict where they can find resources.	What role have geoscience processes played in the formation of natural resources?	How are resources extracted from the earth? (Activity 6)	6, 7, 8	MS-ESS3-1	Natural resources must be extracted from the earth, and such extractions have environmental impacts.
		How are natural resources formed? (Activity 7)			Resources such as petroleum and metal ores form by different processes (including volcanic activity and weathering) over long periods of time.
		How does groundwater form, and how is it extracted? (Activity 8)			Groundwater is distributed unevenly on Earth's surface and affects the formation of natural resources.

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EARTH'S RESOURCES (continued)

Investigative Phenomena	Driving Questions	Guiding Questions	Activities	PE	Storyline
Natural resources have formed over Earth's 4.6-billion-year history.	How do you use evidence to determine when major events in Earth's history have occurred?	Which rock layers are the oldest? (Activity 9) When did particular events in Earth's history occur? (Activity 10)	9, 10, 11, 12	MS-ESS1-4	Deposition and compaction are processes that help form sedimentary rock.
		How long have organisms been living on Earth? (Activity 11)			Fossils provide evidence of organisms that lived in the past.
Human decisions will affect the future availability of natural resources.	What decisions do people make that affect natural resource consumption?	How are rock strata and fossils used to sequence Earth's history? (Activity 12)	13, 14	MS-ESS3-1, MS-ESS3-4	Rock strata and fossils are used to establish the sequence of events in Earth's history.
		How is a growing human population and increasing resource consumption impacting the earth? (Activity 13) What action should be taken to meet the needs of a growing population? (Activity 14)			The growing human population is increasingly using Earth's natural resources. Natural resources are distributed unevenly, and people make decisions about their extraction.