



Precious Earth: Mineral Properties

A single lesson, cross-curriculum Curiosity Pack for Year 4

At a Glance

Topic: Mineral Properties

Age Level: Year 4

Session Length: 45–60 minutes

Wonder Seekers will:

- observe rocks, minerals, gems, or crystals
- compare different mineral properties
- record observations
- sort and classify information
- create a way to show what they discovered

Lesson Overview

This Curiosity Pack introduces Wonder Seekers to the ways scientists observe, compare, and identify rocks, minerals, gems, and crystals. Learners investigate different mineral properties such as colour, shine, texture, shape, and hardness while noticing how these features help scientists sort and classify natural materials.

The lesson combines science, observation, creativity, and inquiry learning through hands-on investigation and flexible creative tasks.

This learning experience supports:

- observation and questioning
- comparing and classifying
- recording and organising information
- scientific thinking and investigation
- creative communication
- explaining ideas in different ways

The lesson is designed using inclusive learning principles, supporting diverse learning needs through:

- self-paced learning
- visual supports
- flexible activity choices
- movement and hands-on exploration
- multiple ways to show learning



- opportunities for discussion, drawing, building, writing, and creating

Session Length

Total learning time: 45–60 minutes

Wonder Seekers may:

- ✓ complete the lesson in one session
- ✓ pause and return later
- ✓ spend longer on favourite activities
- ✓ simplify or extend the task

Learning Focus

This Curiosity Pack explores:

- rocks, minerals, gems, and crystals
- how crystals form
- where gems come from
- mineral properties and classification
- observation and scientific investigation

Learners will:

- ✓ investigate rocks, minerals, gems, and crystals
- ✓ notice and compare mineral properties
- ✓ organise ideas visually
- ✓ communicate discoveries through drawing, building, writing, or discussion
- ✓ create a crystal, gem, or mineral project

Success Looks Like

Success may look different for each Wonder Seeker.

Examples may include:

- ✓ identifying different rocks, minerals, gems, or crystals
- ✓ describing how crystals form
- ✓ explaining where gems come from
- ✓ comparing mineral properties
- ✓ creating a labelled diagram, chart, or fact page
- ✓ building a model or display
- ✓ designing a crystal, gem, or mineral project
- ✓ sharing discoveries in a way that works for them

Exploring, noticing, testing, and creating are all part of success.



Materials

You may want:

- paper or workbook
- pencils and coloured pencils
- pictures of rocks, gems, or crystals
- books or websites about rocks, minerals, gems, and crystals
- scissors
- glue or tape
- cardboard or craft paper

Optional:

- magnifying glass
- building materials (blocks, LEGO, or similar)
- modelling materials (clay, playdough, or similar)
- recycled materials
- craft materials (foil, beads, coloured paper, or similar)
- tablet/computer
- printer
- rocks, crystals, minerals, or gemstones (if available)

Suggested Learning Resources

National Geographic Kids – Rocks and Minerals

<https://kids.nationalgeographic.com>

Photographs, facts, and information about rocks, minerals, gems, and crystals.

DK Find Out – Rocks and Minerals

<https://www.dkfindout.com>

Pictures and simple explanations about mineral properties, crystals, and gemstones.

Britannica Kids – Rocks and Minerals

<https://kids.britannica.com>

Age-appropriate information about minerals and how scientists identify them.





SciShow Kids – Rocks and Minerals

<https://www.youtube.com/@SciShowKids>

Short videos introducing rocks, minerals, and crystals.

Online Safety Reminder

When exploring online, remember:

-  Ask an adult first
-  Use trusted learning websites
-  Keep personal information private
-  Tell an adult if something feels wrong

Stay curious and stay safe.

Universal Design for Learning Supports



This Curiosity Pack supports different ways of learning by providing flexible choices for engagement, learning, and expression.

Multiple ways to engage

Learners can:

- choose which minerals or rocks to investigate
- work independently or with support
- move between activities
- take movement or sensory breaks

Multiple ways to learn

Learners can:

- look at pictures
- observe real objects
- watch short videos
- discuss observations
- use diagrams and charts

Multiple ways to show learning

Learners can:

- draw or write ideas
- build or craft
- explain ideas verbally
- create a digital design or diagram





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Wonder Guide







Welcome Wonder Seeker!

Wonder Seekers sometimes notice that rocks, minerals, gems, and crystals can look very different from one another. Some are shiny, some are dull, some are colourful, and some form unusual shapes and patterns.

Scientists learn about rocks and minerals by observing their features and comparing what they notice. Looking closely at colour, texture, shape, and shine can help scientists identify and sort different minerals. These observations also help scientists learn more about how the Earth works.



In this Curiosity Pack, Wonder Seekers explore rocks, minerals, gems, and crystals through observation, comparison, and investigation. Looking carefully at natural materials can help Wonder Seekers discover patterns, ask questions, and think like scientists.

During the Wonder Journey, Wonder Seekers may:


-  explore rocks, minerals, gems, and crystals
-  observe and compare mineral properties
-  sort and organise information
-  investigate patterns and features
-  create a diagram, display, model, or fact page
-  record discoveries in different ways


The activities guide Wonder Seekers through different parts of the journey. Ideas are explored by observing minerals, noticing patterns, comparing features, and creating something that shares discoveries from the investigation.


Ideas may be shown in many ways:

-  drawing
-  writing short notes




 creating charts or tables

 building a model

 making or crafting

 creating digitally

 explaining ideas aloud

Activities may be completed in order or Wonder Seekers may begin with the part that feels most interesting. Taking breaks, asking questions, noticing details, and making discoveries are all part of the Wonder Journey.

Wonder Investigation

Scientists learn about rocks, minerals, gems, and crystals by observing their features carefully.

Some minerals are shiny.

Some are dull.

Some are smooth.


Some are rough.

Some are colourful.


Some form unusual crystal shapes.

Looking closely at these features can help Wonder Seekers understand how scientists identify and compare different minerals.

Minerals to explore may include:

 quartz

 amethyst

 pyrite


 emerald

 ruby

 granite


or another rock, mineral, gem, or crystal.

Mineral Investigation


 Wonder Seekers may choose one or more minerals, crystals, rocks, gemstones, or photographs to explore.

Wonder Seekers may notice:


 colour

 shine

 texture

 shape

 size


 patterns



Wonder Seekers sometimes compare what they notice.

Questions to explore:

- ? Which mineral is the shiniest?
- ? Which mineral has the most unusual shape?
- ? Which minerals look similar?
- ? Which minerals look different?

 Ideas may be recorded by:







- drawing the mineral
- labelling features
- writing short notes
- making a chart
- creating a comparison table

Wonder Studio








Wonder Seekers now bring ideas together.

Create something that shares what you discovered about rocks, minerals, gems, or crystals.

You may create:

-  a poster
-  a fact page
-  a comparison chart
-  a model
-  a crafted display
-  a digital project

Wonder Seekers may include some of their discoveries:

-  the name of a rock, mineral, gem, or crystal
-  colour
-  shine
-  texture
-  shape
-  labels or facts
-  something interesting you noticed

You may keep your creation simple or add lots of detail.

There is no single correct way to create. Different Wonder Seekers may choose different ways to share their discoveries.

Reflection



How did this Curiosity Pack feel?

😍 Loved it

😊 Interesting

😐 Okay

😞 Challenging

Wonder Seekers may think about:

- Which rock, mineral, gem, or crystal was most interesting?
- What features did you notice when you looked closely?
- What surprised you?
- What would you like to explore next?

You may reflect by:

- talking
- drawing
- writing
- building
- recording a short explanation

