



# Properties of Rocks and Minerals

## Rocks & Minerals Unit



### Standards Covered

ELA	Math	Science	Social Studies
SL.8.1, L.8.4, L.8.6, L.7.6, SL.6.1, SL.7.1, L.6.6, SL.8.5, RI.6.7, W.8.9, W.6.2, W.7.2, W.8.2, L.8.6, W.6.6, W.7.4, W.7.6, W.6.7, W.7.7, W.8.6, W.8.7, L.7.6, SL.7.5, L.6.6, RI.6.1, RI.7.1, RI.8.1, RI.6.4, RI.7.4, RI.8.4, W.8.9, W.8.8, L.8.4, L.8.6, W.6.8, W.7.8, W.6.9, W.7.9, L.6.4, L.7.4	6.NS.5, 7.EE.3, 7.G.1	6.PS.1, 6.ESS.1, 6.ESS.2, 6.ESS.3, 7.ESS.1, 7.PS.1, 8.ESS.4, 8.LS.1, 6.ESS.5	SS.8.16, SS.7.20, SS.8.11



### Vocabulary

See *Unit Vocabulary folder*



### Text Set

See *Rocks and Minerals Text Set* from the OCALI Lending Library

Note: this lending library kit will be updated soon – print packing list after updated



### Materials

Materials for these lessons will be linked within the weekly/daily outline



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## Instructional Outline

### Week One - Collect rocks and sort by appearance

**Days 1-3** Gather rocks or locate a rock collection to use as samples for exploration. *Note: the OCALI Lending Library has a Rocks and Minerals Kit that contains specimen samples.* Create labels using super sticky notes or small address labels with the words: **color, size, shape, and texture**. Lay chart papers or poster boards with the headers: **color, size, shape, and texture** out on the tables or floor. See [Rock Properties poster](#) in folder and [Gemstone List](#) resource. As a whole group, each student selects a rock to examine. Pass the rock around and each student answers 4 specific questions about each sample rock. Use communication/vocabulary choices as needed. See [vocabulary icons](#) in folder.

- What color is this rock?
- Is the rock small, medium or large? Light or heavy?
- What is the overall shape of the rock? Round edges? Square edges?
- How does the rock feel? Rough? Smooth? Sharp? Bumpy?

Record findings for each rock in *Rocks and Minerals Journal/Book*. See [template](#) in folder.

**Day 4** – Learn about additional characteristics: luster, magnetism, sheen, layers/striation, etc. Determine if rocks are metal or non-metal. See [Periodic Table of Elements with pictures](#) Color Key at the top right.

**Day 5** – Introduction to the terms **sedimentary, metamorphic, and igneous** rocks. Print the [diagram Rock Cycle-1](#) in the folder to talk through the rock cycle. Use Wikki Stix to circle on the diagram where **sedimentary, metamorphic, and igneous** rocks are formed. AND watch the [Rock Cycle overview video](#) (at the top of the page or on YouTube) describing the rock cycle happening under our feet.

### Week Two – Three Rock Types: Identify rocks and minerals by their properties

**Day 1** – Opening Videos [How are rocks classified?](#) [What is the difference between a rock and a mineral?](#) [More about the Earth's minerals.](#)

During Week 1 we gathered and examined many different rocks. We looked at their characteristics and labeled and sorted. This week we will be learning about and sorting into three specific rock categories: **sedimentary, metamorphic, and igneous** rocks. See [Rock Types chart](#) and [Types of Rocks poster](#) in folder. Under each rock type make notes using picture symbols to identify properties of each. See [Rock Characteristics poster](#) sample in folder. [Learn about](#)



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additional characteristics of these rock types. (e.g. layers or no layers, hardness, formed by: cooling magma/lava, sediment, heat and pressure) See *Rock Characteristics poster in folder.*

**Days 2-4** - Lay out or hang up chart papers or poster boards with the headers: **sedimentary, metamorphic, and igneous** to gather notes on the tables, wall or floor.

Sort rock specimens (or pictures) once again into the 3 types based on additional characteristics/properties. Attach choices to poster papers/boards.

Students add notes to *Rocks and Minerals Journal/Book* to classify and name rocks and add **sedimentary, metamorphic, and igneous** to each rock's properties.

End with *Rock Type Vocab. Assessment* (document in folder).

Homework: Minerals at home: Use these printable room-by-room mineral exploration sheets (Rooms 1-4) to send student on a mission to find minerals in their home that they use every day. Have students bring in pictures or items they would like to share with their classmates the next day.

**Day 5** - *Rock or Mineral? - Identification Lab*

Review as a whole group *Rocks and Minerals: A Baking Analogy*

Let's use "minerals" to make "rocks" using heat, cooling and pressure.

Select a cookie/"rock" recipe as a class. Gather ingredients/"minerals" and tools. Make recipe together following step by step directions. Bake. Then, before eating dissect cookie/"rock". Can you still see any of the ingredients/"minerals"? Are there visible layers? Other textural or visual observations? Are there any real rocks that are similar in construct to your cookies?

Finally, enjoy eating the cookies. Caution everyone about not eating real rocks and minerals! ☺ ... unless it's a mineral/"ingredient" like salt. SO confusing...

## Week Three – Geology Museums in Ohio

Culmination Project: Rock Collection Science Fair (invite friends and families)

**Day 1** – Each student selects their top 5 favorite rocks, minerals, gems or fossils (students use individualized AT supports and accommodations as needed to make selections, create boards and present findings)

**Days 2-4** – Glue a sample or picture of the 5 favorites onto a display paper or board – label each with:

- Appearance (color, shape, size, texture)
- Properties/characteristics (layers, no layers, magnetic, porosity)
- Rock type (sedimentary, metamorphic, and igneous)
- Specimen with Name
- Map showing where located/formed



- Rock, mineral, gem or fossil

Students can use the *Rock Web Graphic Organizer* to describe their 5 favorites, if needed.

**Day 5** – Science Fair Presentations (students use individualized AT supports and accommodations as needed to make selections, create boards and present findings)

OR Select as many Museum Adventures as time and travel permit and bring back notes, photographs and ideas to share with families during presentations. Use the *Museum Visit Notes Sheet* in folder for students to share about their adventures.

**Rocks and Minerals Museums in Ohio include:**

- **Orton Geological Museum (Columbus):** Located at Ohio State University, this museum features over 57,000 cataloged specimens, including fluorescent minerals, crystals, a T-Rex skull replica, and a Mastodon skeleton.
- **Karl E. Limper Geology Museum (Oxford):** Housed in Miami University's Shideler Hall, it features hundreds of specimens, including fossils, rocks, minerals, and meteorites.
- **Cleveland Museum of Natural History (Cleveland):** Features an extensive Earth Sciences research collection containing minerals, meteorites, and a Moon rock.
- **David J. Lowrie Geology Mineral Museum (Wayne State, nearby OH):** Houses over 350 mineral specimens from around the world.
- **Harrison County History of Coal Museum (Puskarich):** Focuses on the geology of coal mining and its history in Ohio
- **Clarence R. Smith Mineral Museum: Home (Youngstown):** The Clarence R. Smith Mineral Museum showcases high quality specimens from around the world! Conveniently located on the campus of Youngstown State University
- **Langsdon Mineral Collection – (Celina, Ohio): Rice Northwest Museum of Rocks and Minerals.** Hidden in the back of the unassuming Mercer County Library hides a literal treasure trove of unique rocks and minerals.





## Pre and Post Assessment

Included in the unit plans:

- ☐ Work sample with checklist, rubric, or notes
- ☐ Learning progressions (task analysis) rubric
- ☐ Diagnostic data – specific skill set:
- ☐ Project with rubric

Could be added to the unit plans:

- ☐ Captioned photos
- ☐ Test or quiz in accessible format
- ☐ Audio or video recording with data sheet
- ☐ Benchmark assessment formatted like alternate assessment
- ☐ Other






## Providing All Students Access

When planning tools and supports, consider adapting and expanding teaching materials, student materials, technology, and curricular resources.

Student specific supports and services across the tier aligned to this lesson should be pulled from the IEP, RIMP, gifted, 504 plan, behavior plan, ELL plan, diversity profile, etc. Consider assistive technology, instructional strategies, and environmental adaptations.

### Designing to the Edges (Tip to Tip)

Universal Tools and Supports	Activity Specific Multiple Means & Differentiated Tools	 Student Specific Supports & AT (*add student initials or code to note individual student supports or SDI)
<b>Examples include:</b> <ul style="list-style-type: none"><li>• Learning Progression rubric to track own skill development</li><li>• Test format like AA</li><li>• Manipulatives</li><li>• chunking of tasks/items</li><li>• access to sensory breaks</li><li>• cues to refocus attention to task</li><li>• instructions and/or text read aloud</li></ul>	<b>Examples include:</b> <ul style="list-style-type: none"><li>• social stories</li><li>• verbal and/or visual models with appropriate social and transition skills (ex. hands to self, sit in seat, wait in line)</li><li>• preferential/flexible seating in the classroom to minimize distraction while working on academic tasks</li><li>• verbal and/or picture prompting to task</li></ul>	<b>Examples include:</b> L- <ul style="list-style-type: none"><li>• flexible seating choice</li><li>• deep pressure touch i.e. weighted blanket and/or weighted vest as needed, heavy work activities</li><li>• sensory chew toys</li></ul> T- <ul style="list-style-type: none"><li>• customized seating</li></ul>



<ul style="list-style-type: none"> <li>• goods and services T chart with sorting cards with pictures and words on each card</li> </ul>	<ul style="list-style-type: none"> <li>• instructions and/or texts read aloud</li> <li>• Pictures, visual cues for reading</li> <li>• Boardmaker picture cues</li> </ul>	<ul style="list-style-type: none"> <li>• presentation of communication symbols on the left in a vertical array</li> <li>• choice making with voice output single message switches</li> </ul>
<ul style="list-style-type: none"> <li>• videos with CC</li> <li>• music</li> <li>• map of Ohio</li> <li>• transition supports music, movement, objects/materials</li> </ul>	<ul style="list-style-type: none"> <li>• multiple choice selection from an array of word or word+picture choices</li> <li>• manipulatives</li> <li>• flexible seating options</li> <li>• tactile/object choices</li> <li>• sensory supports</li> <li>• reteaching as needed</li> <li>• redirection as needed</li> </ul>	
<ul style="list-style-type: none"> <li>• repetition of instruction</li> <li>• verbal and/or visual cues</li> <li>• visual/auditory timer</li> <li>• Manipulatives</li> <li>• Modeling</li> <li>• information broken down, segmented</li> <li>• chunking of tasks</li> <li>• access to sensory breaks</li> <li>• cues to refocus attention to task</li> <li>• instructions and/or text read aloud</li> </ul>	<ul style="list-style-type: none"> <li>• social stories</li> <li>• verbal and/or visual models with appropriate social and transition skills (ex. hands to self, sit in seat, wait in line)</li> <li>• preferential seating in the classroom to minimize distraction while working on academic tasks</li> <li>• verbal and/or picture prompting</li> <li>• instructions and/or texts read aloud</li> <li>• Pictures, visual cues for reading</li> <li>• Boardmaker picture cues</li> </ul>	<p>C-</p> <ul style="list-style-type: none"> <li>• flexible seating choice</li> <li>• deep pressure touch i.e. weighted blanket and/or weighted vest as needed, heavy work activities</li> </ul> <p>D-</p> <ul style="list-style-type: none"> <li>• Wiggle cushion</li> </ul> <p>R-</p> <ul style="list-style-type: none"> <li>• reinforcers</li> </ul> <p>J-</p>



<ul style="list-style-type: none"> <li>● adult support to increase independence in the school environment and during classroom tasks</li> <li>● Paraprofessional to model appropriate behavior, facilitate academic tasks, implement de-escalation strategies</li> </ul>		<ul style="list-style-type: none"> <li>● adult/peer modeling of appropriate behavior/ appropriate social communication</li> <li>● adult/peer modeling/facilitation for calming strategies</li> <li>● Personal communication device</li> <li>● LAMP- Words for Life program for communication</li> </ul> <p>T-</p> <ul style="list-style-type: none"> <li>● visual models for correct way to form letters and numbers</li> <li>● picture cues to aide in comprehension</li> </ul> <p>W-</p> <ul style="list-style-type: none"> <li>● visual model for writing</li> </ul>
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