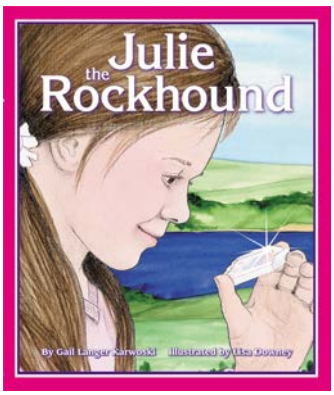
Teaching Activities

for



Teaching Activities are intended for use at home, in the classroom, and during story-times.

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Questions to ask children before reading the book

- What do you think the book is about by looking at the cover? (or one or two of the inside illustrations) *Sometimes it is easy to tell from the cover, other times it is not.*
- What does the cover illustration show?
- Does the title tell you what the book is about?

What do children already know?

- Young children are naturally inquisitive and are sponges for information. The whole purpose of this activity is to help children verify the information they know (or think they know) and to get them thinking "beyond the box" about a particular subject.
- The children should write down their "concepts" (or adults for them if the children are not yet writing) on the provided chart found on the next page.
- Use the questions to get children thinking about what they already know. Feel free to add more questions or thoughts according to the child(ren) involved.

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What do children already know—activity chart

Ask children to write down what they think they know before reading the book. If the information is verified while reading the book, check "yes." If the information is wrong, mark "no" and cross it off. Write the correct information in another section, below. Make a note of how you verify the information.

What do I think I know?	Yes	No	Verified
What is a rockhound?			Text Illustration Info in FCM Other
What is a mineral?			Text Illustration Info in FCM Other
What things are made from minerals?			Text Illustration Info in FCM Other
What is a quartz crystal?			Text Illustration Info in FCM Other
What are some different types of quartz?			Text Illustration Info in FCM Other
How are quartz crystals made?			Text Illustration Info in FCM Other

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What do I think I know?	Yes	No	Verified
What is a pocket of crystals?			Text Illustration Info in FCM Other
What is a mineral vein?			Text Illustration Info in FCM Other
Tan beach sand is usually what mineral?			Text Illustration Info in FCM Other
What is the hardest mineral?			Text Illustration Info in FCM Other
What is the softest mineral?			Text Illustration Info in FCM Other
How can you tell when a mineral is harder or softer than another one?			Text Illustration Info in FCM Other
What are sedimentary rocks?			Text Illustration Info in FCM Other
What are metamorphic rocks?			Text Illustration Info in FCM Other

Use this chart for any other thoughts the children might have.

What do I think I know?	Yes	No	Verified
			Text Illustration Info in FCM Other
			Text Illustration Info in FCM Other
			Text Illustration Info in FCM Other
			Text Illustration Info in FCM Other
			Text Illustration Info in FCM Other
			Text Illustration Info in FCM Other
			Text Illustration Info in FCM Other
			Text Illustration Info in FCM Other

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After reading the book – writing prompts & thinking it through

- Did the cover "tell" you what the book was about?
- If not, how does the illustration on the front relate to the story?
- Draw your own cover
- Can you think of another title for the book?
- Did the illustrator include anything in the pictures that were not in the story or are there things hidden in the art?
- Write a different ending to the story

Re-read the book looking for more information

Go back and re-read the book studying each page carefully.

- What, if any, facts are mentioned in the text?
- What can be seen or inferred from the illustrations that is not or are not mentioned in the text?
- What, if anything, can be inferred from the text?
- Pause during second readings and ask the child(ren) if they remember what happens next.

Comprehension Questions

- What did Julie find?
- Where did she find it?
- Most quartz is found in areas that are disturbed. What do you think disturbed the field behind Julie's new house?
- What did Julie's dad do when he saw the crystal?
- What did they find when they dug?
- Why was Julie's crystal special?
- What is a Rockhound?

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What do children already know activity conclusion

- Do the children have any more questions about minerals or quartz? If so, write them down on the chart.

- Identify whether the information was verified and how.

- If the concept is correct, make a note of how the information was confirmed (illustration, in text, in fun fact notes)

- If the concept was not correct, what IS the correct information – with above confirmation notes as above.

- If the concept was neither confirmed nor denied, look the information up in a reliable source and note where it was confirmed.

- Wrap it all up by adding notes with new information that they learned either through the reading or the research while looking up something else.

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Language Arts

Developing a vocabulary "word wall"

If using the book as a way to introduce a topic or subject, this is also a great way to introduce subject-related vocabulary words. If you don't have the time (or the inclination) to develop the word wall by playing the Vocabulary Game (below), we have provided a vocabulary list for you.

Vocabulary words for the "word wall" may be written on index cards, on a poster board, or on a chalk board. If writing on poster board or chalk board, you might want to sort into noun, verbs, etc. right away to save a step later. Leaving the words posted (even on a refrigerator at home) allows the children to see and think about them frequently.

Vocabulary game

This activity is designed to get children thinking of vocabulary words which will then be used as the beginning vocabulary list for a science lesson.

Select an illustration and give children a specific length of time (five minutes?) to write down all the words the children can think of about the particular subject. *If you do not have classroom sets of the book, it is helpful to project an illustration on a white board. Check Web site (www.ArbordalePublishing.com) for book "previews" that may be used for this purpose.*

Their word list should include anything and everything that comes to mind, including nouns, verbs and adjectives. At the end of the time period, have each child take turns reading a word from his/her list. If anyone else has the word, they do nothing. If however, they are the only one with the word, they should circle it. While reading the list, one person should write the word on a flashcard or large index card and post it on a bulletin board or wall.

At the end, the child with the most words circled "wins." And you have a start to your science vocabulary list. *Note if children use an incorrect word, this is a good time to explain the proper word or the proper usage.*

Putting it all together

The following activities may be done all together or over a period of several days.

- Continue to add words to the vocabulary list as children think of them.
- Sort vocabulary words into nouns, verbs, adjectives, etc. and write what it is on the back of the card. When the cards are turned over, all you will see is "noun," etc. *(These can then be used to create silly sentences, below)*
- Now sort the vocabulary words into more specific categories. For example, nouns can be divided into plants, animals, rocks, minerals, etc. They can be divided into living/non-living, or into habitat-related words.
- Have children create sentences using their vocabulary words. Each sentence could be written on a separate slip of paper.
- Have children (individually or in small groups) sort and put sentences into informative paragraphs or a story.
- Edit and re-write paragraphs into one informative paper or a story.

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Julie the Rockhound

Suggested vocabulary list

nouns	verbs	adjectives
magma	Sparkle	sedimentary
lava	Found	igneous
limestone	Dig	metamorphic
granite	Change	pink
obsidian	Builds	clear
marble	Scratch	beautiful
luster	made	shiny
mineral		flat
quartz		pointy
diamond		smoky
talc		white
rockhound		hot
cement		liquid
vein		below
amethyst		tan
rocks		common
rose quartz		
crystals		
silicon dioxide		
pocket		
heat		
pressure		
sand		
mud		
shells		
layers		

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Julie the Rockhound

Silly sentence structure activity

This is a fun activity that develops both an understanding of sentence structure and the science subject. Use words from the "word wall" to fill in the blanks. After completing silly sentences for fun, have children try to fill in the proper words by looking for the information in the book.

_____ is one of the most _____ minerals on
noun adjective
Earth.

_____s are the building blocks of our world.
noun

_____ are made from minerals.
noun

Quartz _____ comes in different colors but always
noun
have _____ sides and a pointy end.
adjective

When quartz is brown or grey, it is called _____
adjective
quartz.

Purple quartz is called _____.
adjective

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Julie the Rockhound

Sequence sentence strips

Preparation: Cut into sentence strips, laminate if desired, and place in a “center.” Have children put the events in order. Children may work alone or in small groups. Cards are in order but should be mixed up when cut apart.

----------✂----------

Julie saw something sparkle on the hillside behind her new house.

----------✂----------

She ran down the hill to show it to her dad. They washed it off, and he called it a crystal.

----------✂----------

Julie showed her dad where she found her crystal. She helped him dig a deep, wide hole.

----------✂----------

In the hole, they found many sparkly crystals poking into a small cavity.

Julie washed and sorted the crystals.

----------✂----------

The afternoon sun beat down on the hillside.

----------✂----------

After supper and a bath, Julie felt as shiny as a crystal.

----------✂----------

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Julie the Rockhound

Riddle me this

Using information about the Moh's Hardness Scale and other information found in the "For Creative Minds" educational section or the book, answer the following riddles:

What am I?

I am a hard mineral and scratch everything. _____

I am a soft mineral and everything scratches me. _____

I grow on fingers and am a 2.5 on the hardness scale. _____

I am a coin and scratch fingernails. _____

I am a type of rock made from hot lava. _____

I am a type of rock made from layers of sediment. _____

I am a purple quartz and am often used for jewelry. _____

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Julie the Rockhound

Word search

Find the hidden words. Even non-reading children can try to match letters to letters to find the words! Easy – words go up to down or left to right.

For older children, identify the coordinates of the first letter in each word (number, letter).

	A	B	C	D	E	F	G	H	I	J
1	A	H	A	R	D	N	E	S	S	I
2	I	C	R	Y	S	T	A	L	A	D
3	M	I	N	E	R	A	L	A	S	T
4	Y	E	S	S	O	F	T	A	L	C
5	G	R	A	T	V	I	O	A	Q	I
6	P	O	C	K	E	T	P	U	U	T
7	I	C	A	N	I	O	A	N	A	R
8	E	K	S	A	N	D	Z	O	R	I
9	A	S	E	D	I	M	E	N	T	N
10	T	O	J	U	L	I	E	O	Z	E

__, __ QUARTZ
__, __ SEDIMENT
__, __ PRESSURE
__, __ MINERAL
__, __ JULIE

__, __ POCKET
__, __ ROCKS
__, __ SAND
__, __ CRYSTAL
__, __ HARDNESS

__, __ VEIN
__, __ TALC
__, __ CITRINE
__, __ TOPAZ
__, __ SOFT

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Science
Rocks and minerals all around us

Rocks and minerals are around us all the time. We use minerals to help us to live, both in our bodies and in things that we use.

Aluminum is not just a foil to wrap food or the can of soda pop, it is used to make cars and planes.

Clay is not just for art class. Floor tiles and dishes are often made from clay.

Those pennies in your piggy bank are made from **copper**. It is also used for water piping—the pipe connecting water to your refrigerator is probably copper.

Gypsum is used to make sheet rock and could be the "walls" in the room you are in.

Helium is used in balloons.

Iodine is used to clean out cuts. It's also used in ink.

Iron ore is used to make steel for buildings, cars, and airplanes.

Lead is in batteries.

Phosphate is used as fertilizers for grass and food crops.

Salt is probably sitting on your kitchen table or counter and is used to season your food. It is also used to melt the ice on roads in the winter.

Sand is not just for making castles on the beach! It is used to make concrete and bricks. Do you have a concrete driveway or sidewalk? Is the building you are in right now made with bricks? It can also be used to filter water in swimming pools.

Stones of all kinds are used to make roads and buildings. Look around your house or school and see if you see any stones.

Talc is used as baby powder.

Have you ever put **zinc** on your nose to keep it from getting sunburned? Zinc is also used in body lotions and paints.

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Understanding the rock cycle

The recipes in the book are not the only ways for children to understand how rocks are made. Another, very simple method is using some of the different colored mini-marshmallows.

Ask children how each of the three types of rocks are made.

How can they “show” how sedimentary rocks are made using the marshmallows? Have them explain what to do and what they think the result will look like.

How can they “show” how metamorphic rocks are made using the marshmallows? Have them brainstorm ideas and describe the technique used.

How can they “show” how igneous rocks are made using the marshmallows? Have them describe how and what they expect to happen.

Ask children to draw pictures of each one before and after making their “rocks.”

Sedimentary: compress with hand or rolling pin or squeeze into a ball (conglomerate).
Igneous: heat in microwave for 30 seconds.
Metamorphic (heat and pressure) heat in microwave about 10 second and then compress with hands. How does the heat change it from the sedimentary, above?

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Science journal

Have children draw a picture to define the vocabulary word or concept

Sedimentary
Igneous
Metamorphic

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crystal
vein
pocket

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Mineral Math

Have children bring in rocks, minerals, or pebbles that they have found (at least five).

- Have children count how many they brought:
- Who brought the most?
- Who brought the least?
- How many are there all together?
- How many students are there?
- What's the average number that they brought?

Have each student measure their biggest rock and their smallest rock.
Have each student weigh their biggest rock and their smallest rock.

- Who brought the biggest rock?
- Who brought the smallest?
- Who has the heaviest?
- Who has the lightest?

Have children sort their rocks by one of the following attributes: color, size, shape, texture, or luster.

Sorting by attribute graph

Graph the attributes that children used to sort their items.
What was the most common attribute used?

10					
9					
8					
7					
6					
5					
4					
3					
2					
1					
Attribute:	**Color**	**Size**	**Shape**	**Texture**	**Luster**

Using the chart of state minerals, rocks, and gemstones found on the next two pages, count how many states have some type of quartz as a state symbol.

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Research and geography

Find what is mined in the state in which live by going to Mine Safety and Health Administration (MSHA) http://www.msha.gov/KIDS/MINING.HTM and clicking on the name of your US state. Or go to Mineral Information Institute at http://www.mii.org/stateminerals.html.

Canadians can click on the type of mineral to see where it is mined at Minerals and Mining Statistics On-line http://mmsd1.mms.nrcan.gc.ca/mmsd/producers/default_e.asp.

State mineral, rock, and gemstone symbols

Use the chart below to determine what your state mineral, rock, or gemstone is. Is there a correlation between what is mined in the state and the state mineral, rock, or gemstone? Why would that be?

State	Mineral	Rock	Gemstone
Alabama	Hematite	Marble	Star quartz
Alaska	Gold	Jade	
Arizona	Fire Agate	Petrified wood	Turquoise
Arkansas	Quartz	Bauxite	Diamond
California	Gold	Serpentine	Benitoite
Colorado	Rhodochrosite	Yule marble	Aquamarine
Connecticut	Garnet		
Delaware	Sillimanite		
Florida			Moonstone
Georgia	Staurolite	Quartz	Amethyst
Hawaii			Black coral
Idaho			Star Garnet
Illinois	Fluorite		
Indiana			
Iowa		Geode	
Kansas			
Kentucky	Coal	Kentucky Agate	Freshwater Pearl
Louisiana	Agate	Petrified palmwood	
Maine			Tourmaline
Maryland			Patuxent River Stone
Massachusetts	Babingtonite	Roxbury Puddingstone	Rhodonite
Michigan			Chlorastrolite
Minnesota			Lake Superior agate
Mississippi		Petrified Wood	
Missouri	Galena	Mozarkite	
Montana	Agate		Yogo Sapphire
Nebraska	Blue Agate	Prairie agate	
Nevada	Silver	Sandstone	opal; turquoise

New Hampshire	Beryl	Granite	Smoky quartz
New Jersey			
New Mexico		Turquoise	
New York			Garnet
North Carolina		Granite	Emerald
North Dakota	Teredo Wood		
Ohio			Ohio Flint
Oklahoma		Rose Rock – Barite	
Oregon		Thunderegg	Oregon sunstone
Pennsylvania			
Rhode Island	Bowenite	Cumberlandite	
South Carolina	Amethyst		Amethyst
South Dakota	Rose quartz		Fairburn agate
Tennessee		Limestone	Tennessee Pearl
Texas			Texas blue topaz
Utah	Copper	Coal	Topaz
Vermont	Talc	Granite, marble & slate	Grossular garnet
Virginia			
Washington			Petrified wood
West Virginia			Silicified Mississippian fossil coral
Wisconsin	Galena	Red granite	
Wyoming			Jade

http://www.answers.com/topic/list-of-u-s-state-minerals-rocks-stones-and-gemstones

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