

Brunswick School Department
Grade 4
Rocks and Minerals

Essential Understandings	<ul style="list-style-type: none"> ▪ There is evidence of past life, extinct species, and environmental changes. ▪ Processes change the earth.
Essential Questions	<ul style="list-style-type: none"> ▪ How do we know about past life, extinct species and environmental changes? ▪ How are fossils formed? ▪ What is a rock? ▪ What are some physical properties of rocks and minerals? ▪ How can the physical properties of rocks and minerals change? ▪ How does the earth's surface change?
Essential Knowledge	<ul style="list-style-type: none"> ▪ The study of rocks and fossils shows past life, extinct species, and environmental changes over time. ▪ Fossils can help us understand how organisms have changed. ▪ Fossils are formed in sedimentary rocks. ▪ A rock is a naturally formed mineral mass. ▪ The physical properties of rocks and minerals are color, texture, hardness, shape, reaction to light, streak, etc. ▪ The physical properties of rocks and minerals can change through erosion, weathering, heat and pressure. (e.g., rocks to sediment to soil; shale to slate.) ▪ The earth's surface undergoes steady or sudden changes due to forces of wind, water, ice, volcanism, and shifting of tectonic plates.
Vocabulary	<ul style="list-style-type: none"> ▪ <u>Terms:</u> <ul style="list-style-type: none"> ○ extinct, fossil, physical change, chemical change ▪ <u>Rocks:</u> <ul style="list-style-type: none"> ○ sedimentary, igneous, metamorphic, minerals, conglomerate, soil ▪ <u>Rock Cycle:</u> <ul style="list-style-type: none"> ○ rock formation, transformation, weathering, erosion, sediments ▪ <u>Physical Properties of Rocks:</u> <ul style="list-style-type: none"> ○ color, texture, hardness, shape, reaction to light, streak

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Essential Skills	<ul style="list-style-type: none"> ▪ Explain how fossils are formed. ▪ Compare fossils to one another and to living organisms. ▪ Identify kinds of rocks (e.g., igneous, sedimentary and metamorphic). ▪ Identify parts of the rock cycle (e.g., rock formation, transformation, weathering, erosion, sediments). ▪ Identify physical properties of minerals.
Related Maine Learning Results	<p><u>Science</u></p> <p>D. The Physical Setting</p> <p>D2.Earth</p> <p>Students describe the properties of Earth's surface materials, the processes that change them, and cycles that affect the Earth.</p> <p>c. Explain how wind, waves, water, and ice reshape the surface of Earth.</p> <p>d. Describe the kinds of materials that form rocks and soils.</p> <p>E. The Living Environment</p> <p>E5.Evolution</p> <p>Students describe the fossil evidence and present explanations that help us understand why there are differences among and between present and past organisms.</p> <p>b. Compare fossils to one another and to living organisms according to their similarities and differences.</p>
Sample Lessons And Activities	<ul style="list-style-type: none"> ▪ Classify rocks. ▪ Make models of rock formations. ▪ Sing "Rapid Rock Rap."
Sample Classroom Assessment Methods	<ul style="list-style-type: none"> ▪ Use a Venn diagram to compare fossils and living organisms. ▪ Complete a diagram of the rock cycle.

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Sample Resources	<ul style="list-style-type: none">▪ <u>Publications:</u><ul style="list-style-type: none">○ <u>Album of Rocks and Minerals</u> - Tom McGowen <u>The Hermit Thrush Sings</u> - Susan Butler○ <u>Janice VanCleave's Rocks and Minerals</u> - Janice Van Cleave○ <u>Rocks and Minerals</u> - David Lambert○ <u>Rocks and Minerals</u> - Keith Lye○ <u>Rocks and Minerals</u> - Chris Pellant○ <u>Rocks and Minerals</u> - Illa Podendorf○ <u>Rocks and Minerals</u> - Ann Squire○ <u>Rocks and Minerals</u> - Tracy Staedter○ <u>Rocks and Minerals</u> - Herbert Zim▪ <u>Videos:</u><ul style="list-style-type: none">○ <u>All About Rocks and Minerals</u>
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