

Grade 9-12 Earth/Space Science	Comparison of Types of Rocks and Minerals
Overview	The students will categorize all the rocks and minerals presented to them into three different categories, Igneous, Sedimentary, and Metamorphic. In addition, the students will list three characteristics and at least one use of each type of rock or mineral that is presented to them.
Objective	<ol style="list-style-type: none"> <li>1. Using bubbl.us, the students will compare rocks and minerals, and classify them into their respective types, Igneous, Sedimentary, and Metamorphic.</li> <li>2. Within the students bubbl.us mind map, the students will write down at least three characteristics of each rock and mineral that will help them show characteristics of each type.</li> <li>3. In addition, the students will write down at least one use of each rock and mineral if available.</li> </ol>
Standards	ES.1.22 Compare the properties of rocks and minerals and their uses.
Material	<ul style="list-style-type: none"> <li>• Computer and Internet access</li> <li>• Different types of rocks and minerals</li> </ul>
Procedure	<ol style="list-style-type: none"> <li>1. Instruct the students to log onto bubbl.us.</li> <li>2. Once on bubbl.us, direct the students to make two main parent bubbles, labeled rocks and minerals.</li> <li>3. Instruct the students to make three bubbles underneath the rock main parent bubble labeled Igneous, Sedimentary, and Metamorphic.</li> <li>4. Then pass out a sheet of paper with the names of all the rocks and minerals.</li> <li>5. Tell the students that they need to make bubbles under rocks and minerals with the names of the respective rocks and minerals.</li> <li>6. Then direct the students to conduct at least three tests on each rock and mineral to distinguish what type of characteristics each rock and mineral has.</li> <li>7. Then have the students put the characteristics from the tests, which were conducted in bubbles attached to the rock and mineral's names.</li> <li>8. Instruct the students to print out their mind map when they have finished putting all their information into their mind map.</li> </ol>
Evaluation	<p>The students will be evaluated on how well they meet the objectives listed above. Below is an example rubric.</p> <p>----</p> <p>Objective 1- Using bubbl.us, the students will compare rocks and minerals, and classify them into their respective types, Igneous, Sedimentary, and Metamorphic.</p> <p>* Students create bubbles labeled: Rocks, Minerals, Igneous, Sedimentary, and Metamorphic. (1 pt per bubble)(5 pts)</p>

\*\* Total 5 pts

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Objective 2- Within the students bubbly mind map, the students will write down at least 3 characteristics of each rock and mineral that will help them show characteristics of each type.

\* Students write at least 3 characteristics for each rock and mineral. (3 pts per rock and mineral)

\*\* Total pts depends on the amount of rocks and minerals that are given to the students.

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Objective 3- In addition the students, will write down at least one use of each rock and mineral if available.

\* Students write at least one use for each rock and mineral if available (1 pt per rock and mineral)

\*\* Total pts depends on the amount of rocks and minerals that are given to the students.

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Grand Total 5 pts + 4(number of rocks and minerals)