## Unit Timeline

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<tr>
<th>Lessons</th>
<th>Class Time</th>
<th>Lesson Objective(s)</th>
<th>Lesson Prep</th>
<th>Key Vocabulary</th>
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| **1**   | **Introduction to Weathering** | 25 min | - Students demonstrate their prior knowledge on weathering and erosion using the “Mountain Age” probe.  
- Students will use reasoning based on prior knowledge or experience with rocks to determine the age of a mountain. | Make one copy per student of “Mountain Age” Probe | n/a |
| **2**   | **Mechanical weathering – Salt and Chalk Lab** | 30 min | - Students will create a simple model of mechanical weathering to demonstrate the abrasion process on rock.  
- Students will build group process skills and participate in constructive science discourse.  
- Students will observe and then reflect on this lab, and be able to express their thinking in a Claim/Evidence/Reasoning format as an exit ticket. | Set materials out on a tray for each work group the following:  
1. Fill each zipper lock bag with about ½ cup of salt  
2. Put in one piece of colored sidewalk chalk into the bag with salt  
3. Timer  
4. Make one copy per student of Salt & Chalk Mechanical Weathering worksheet | Abrade/abrasion  
- Claim  
- Evidence  
- Reasoning  
- Sediments  
- Weathering |
### Weathering Instructional Case: A series of student-centered science lessons

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| 3       | 135 min    | - Identify five types of mechanical weathering, and five types of chemical weathering  
- Identify and recognize the important factors affecting rates of weathering  
- Complete two graphic organizers to reflect new knowledge  
- Create a “mind-map” to organize weathering concepts  | - Print one mechanical weathering graphic organizer per student  
- Print one chemical weathering graphic organizer per student  
- Print one weathering mind map per student  
- Print off cards using a color printer, then laminate. Prepare one set for every 2-3 students, if possible  | - Abrasion  
- Acid rain  
- Carbon dioxide  
- Chemical Weathering  
- Dissolve  
- Freezing  
- Mechanical Weathering  
- Organisms  
- Oxygen  
- Particles  
- Pressure  
- Thawing  
- Weathering |
| 4       | 45 min     | - To engage students by giving them the freedom to create different tests  
- To collect data using scientific instruments  
- To use evidence collected to explain how temperature and other factors affect the rate of dissolution.  | - Make copies of the Effervescent Antacid Weathering  
- Prepare trays/bins of following materials for each group  
1. 3 packets of Alka-Seltzer (total of 6 tablets)  
2. clear plastic cup  
3. thermometer  
4. timer  
5. waste bowl  
6. disposable coffee cups (for hot water)  | - Dissolve  
- Prediction  
- Procedure  
- Weathering |
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<tr>
<td>5 Weathering Competition</td>
<td>90 min</td>
<td>• Identify factors that affect rates of chemical and mechanical weathering</td>
<td>Technology (if possible)</td>
<td>n/a</td>
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<td>• Predict which factors will affect the rate of weathering in a real rock sample and explain how each selected factor will affect rock</td>
<td>• Set up document camera PowerPoint slide to project worksheet instructions and graph of class results.</td>
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<td>• Create a class bar graph to display group data</td>
<td>Day 1</td>
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<td>• Analyze class graph</td>
<td>• Label plastic jars with period and group number</td>
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<td>• Use the C-E-R format to explain their thinking behind their hypothesis and results</td>
<td>• Make trays of materials for each group that include the following for each group: 1 plastic, wide mouth, screw top jar, Electronic scale with 0.1g accuracy, Timer, and a Funnel</td>
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<td>• Identify an easily accessible location set up a variable station with premeasured plastic portion cups of each of the solid variables (sand, gravel, salt), and 8 oz cups of each of the liquid variables (tap water, seltzer water, vinegar).</td>
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<td>• Create and label trays by period for students to set their bottles on after experimenting.</td>
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<td>Day 2</td>
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<td>• Prepare trays of materials for each group including: Jars (with rocks and variables), funnel, plastic bowl, plastic spoon, scale, calculator, and paper towels</td>
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<td>• Designate a central location for the large waste container for students to pour their liquid/solid mixtures (so they do not go in the sink)</td>
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