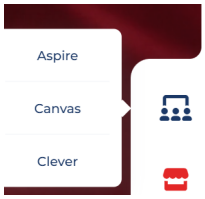
Dear Parents,

Here is the work for our Virtual Learning Day. Please help your student complete assignments.

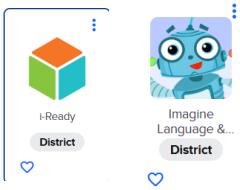
Instructions for logging in to Canvas



1. Go to hawthornacademy.org
2. Hover over the Clever icon. It looks like this:
3. Click Clever
4. Select “Login with Google”
5. Click

6. Enter your student’s username:
   firstname.lastname (no spaces) followed by @hawthornstudent.org
   Example: *emily.smith@hawthornstudent.org*
   Password: hawthorn lunch number (no spaces)
   Example:hawthorn1234

Accessing i-Ready and Imagine Learning



1. Once logged in, locate and click the i-Ready icon.
2. This will take them to their lessons they need to work for 15 minutes
3. Once they finish that they will click on the Imagine Learning icon.
4. They will work on this for 20 minutes.

Assignments for the day

1. The assignments are attached here, scroll down to see the assignments for today..
2. You can either print the assignments or have students do the work on a separate piece of paper. Either option can be turned in to their teacher when we return to school. You can also email a picture to the teacher.

Thank you for your support in helping your student succeed on our virtual learning day!

Weathering and Erosion

By Lynda R. Williams

Weathering is the process of breaking down rocks. Wind and water work at the surface of a rock to wear away fragments and dust, chiseling and polishing the surface. There are two forms of weathering, chemical weathering, and mechanical weathering.

Rocks Smoothed By a River

Chemical Weathering

Chemical weathering involves a chemical change in at least one of the minerals within the rock. Rocks are not just crumbled into smaller rocks; they are actually being chemically altered. That is to say, after chemical weathering, we end up with a different substance than the one we started with. There are several types of chemical weathering that can occur.

Hydrolysis

When water interacts with a mineral and changes it, the process is known as ***hydrolysis***. One example of this is with the mineral feldspar found in granite rocks. When water encounters the feldspar, it changes into clay.

Oxidation

Another type of chemical weathering is ***oxidation***. When a substance reacts with oxygen you have oxidation. Rust is the result of oxidation. Rocks that contain iron can rust. When iron reacts with oxygen it forms iron-oxide which is not a very strong substance, From there the rock may crumble and break down further.

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Another form of chemical weathering is ***carbonization***. Carbonation is the mixing of water with carbon dioxide to make carbonic acid. This type of weathering is how caves are formed. When carbon dioxide dissolves in rainwater or in moist air, it forms carbonic acid, and this acid reacts with minerals in rocks. For example, the mineral calcite which is in limestone can be dissolved in carbonic acid. This can hollow out the rock and form a cave!

Some rocks contain a lot of salt. These rocks are susceptible to another form of chemical weathering: ***hydration***. These rocks absorb water into their structure and swell as a result. Hydration is mechanical weathering because the absorption of water and then the evaporation of that water causes the rocks to swell and contract, creating cracks in their structure. However, hydration is also a form of chemical weathering because new substances are formed. For example. anhydrite absorbs water and becomes gypsum.

Cave Formed Through Carbonization

Organic weathering is caused by interactions between plants and rocks. Lichen extracts iron from rocks through a process called reduction. Decomposing plants release humic acid which attacks calcium, magnesium, and iron minerals causing chemical changes in the rock.

Lichen on a Rock

Weathering and Erosion

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Mechanical weathering involves physically breaking the rock into fragments without changing the chemical composition. Mechanical weathering slowly chisels and buffs rocks and other surfaces. An example of mechanical weathering is the formation of Antelope Canyon in Arizona. Rushing water carved out the sandstone leaving wavy-looking rock formations.

Antelope Canyon

Yosemite Valley

Erosion is when the rock particles are moved by wind or water. These pieces may be transported a short distance like just a few inches or a long-distance like several miles. The rock pieces will mix with other matter like sand and plant debris to become sediment. This is an important part of the rock cycle. These sediments will layer and become compressed, compacted, and cemented over time creating sedimentary rock.

Sometimes weathering and erosion happen simultaneously. For example, glaciers are enormous bodies of ice that scrape against the sides of rocks and mountains carving out huge canyons. As they move along, they pick up huge pieces of rock. They carry the rocks along. When the ice recedes, rocks can be left scattered in the valley that has been formed. One of the most striking examples of a glaciated valley can be seen in Yosemite National Park. Glaciers literally shaved away the mountainsides, creating deep valleys with tall vertical walls.

Thinking About the Reading

Name_____

1. **What can you infer from this statement? *Some rocks contain a lot of salt. These rocks are susceptible to another form of chemical weathering: hydration.***

2. On page two, what is one example the author gives to support the idea that organic weathering involves plants?

3. Explain how weathering and erosion contribute to the rock cycle.

Reading Response

Name_____

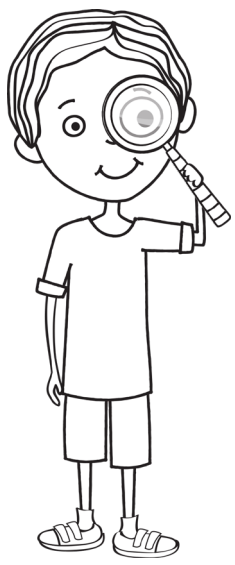
1. What was the author's purpose in writing this article?

2. Explain the difference between mechanical and chemical weathering?

3. Sediment is carried by a stream down to a valley. Which is this, weathering or erosion?

4. Explain how caves are formed through carbonization.

5. How does a glacier provide both weathering and erosion?



Name:_____ Date:_____

Compare (addition and subtraction)

Directions: Simplify both sides, then compare.

1. $0.551 + 0.179 \square 0.194 + 0.302$
2. $0.583 - 0.055 \square 0.77 - 0.335$
3. $0.854 - 0.304 \square 0.29 - 0.021$
4. $0.769 + 0.019 \square 0.712 + 0.009$
5. $0.128 + 0.752 \square 0.835 + 0.097$
6. $0.415 + 0.624 \square 0.785 + 0.438$
7. $0.448 - 0.389 \square 0.51 - 0.147$
8. $0.694 - 0.584 \square 0.13 - 0.056$
9. $0.551 + 0.657 \square 0.016 + 0.334$
10. $0.647 + 0.482 \square 0.836 + 0.113$
11. $0.805 - 0.371 \square 0.48 - 0.237$
12. $0.635 - 0.263 \square 0.25 - 0.097$
13. $0.894 + 0.104 \square 0.251 + 0.323$
14. $0.819 + 0.886 \square 0.013 + 0.791$
15. $0.675 - 0.632 \square 0.19 - 0.083$

