Student Work Example of Course Outcome Gyanwali Spring 2020

Grading rubric: Each Part 20 points, preparing a report 20 points
In each part: data collection – 5 points, presentation – 5 points, analysis – 5 points, resource and conclusion – 5 points

A

Sandstone. This is an example of Clastic Sedimentary. Sedimentary rock is composed of sand-size grains of mineral, rock, or organic material. It is formed from minerals found in sand. Sandstone is very common. The US, South Africa, and Germany are the world's leaders. The most common colors are tan, brown, yellow, red, grey, pink, white, and black. It is crystalline. It is between 6 and 7 on Moh's hardness scale. It forms at a slow rate which means it has history embedded in it.

Basalt. This is an example of volcanic igneous. It is composed mostly of plagioclase and pyroxene minerals. It forms in small intrusive bodies, such as an igneous dike or a thin sill. It can also form from lava runoff. Basalt underlies more of Earth's surface than any other rock type. Most areas within Earth's ocean basins are underlain by basalt. It us usually black to grey. It usually contains large crystals. Moh's Hardness scale has it as between 5-9. It is Earth's most abundant bedrock.

Granite. This is an example of Plutonic igneous. Granite is composed mainly of quartz and feldspar with minor amounts of mica, amphiboles, and other minerals. It forms from the slow crystallization of magma below Earth's surface. Much of the earth's continental crust is made of granite, and it forms the cores of the continents. The mineral composition usually gives granite a red, pink, gray, or

white color with dark mineral grains visible throughout the rock. Moh's hardness scale has granite between 6 and 7. The chemical composition of granite is typically 70-77% silica. This is found in many homes today, being used as counter top.

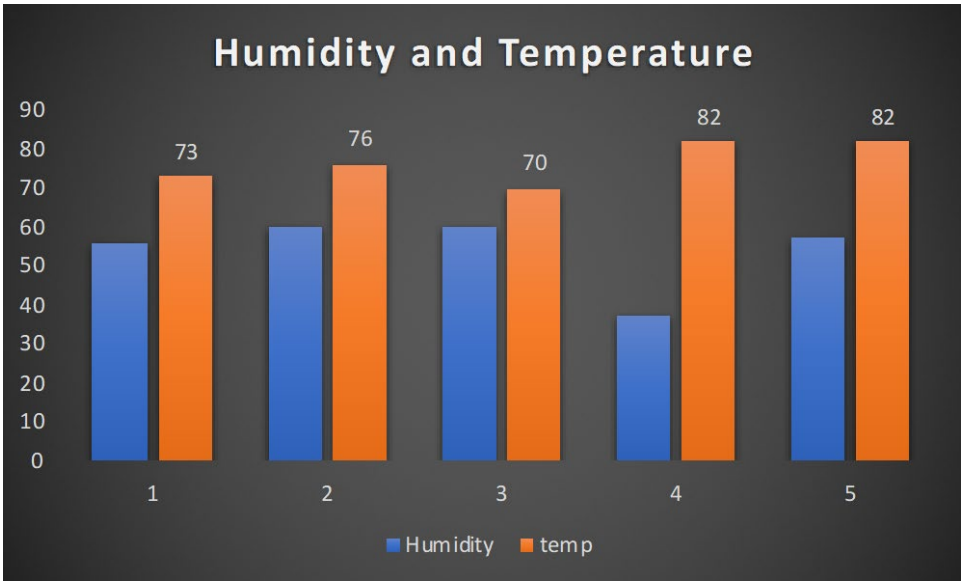
Slate rock. This is an example regional metamorphic. It is composed of clay or volcanic ash through low-grade regional metamorphism. It is formed by a metamorphosis of clay, shale and volcanic ash that results to a fine-grained foliated rock, resulting in unique slate textures. Slate is produced on the east coast of Newfoundland, in Eastern Pennsylvania, Buckingham County, Virginia, and the **Slate** Valley of Vermont and New York, where colored slate is mined in the Granville, New York area. It is gray. It has a hardness rating of 5.5. Slate is used for roofs.

Gneiss. This is an example of contact metamorphic. It has a mineral composition. It is formed by the metamorphosis of granite, or sedimentary rock. It is found mostly in Precambrian regions. The stone can be black and white, or black and pink, or black and gold, or nearly any combination thereof. It is a 6-7 on the hardness scale. Gneiss is said to be a German word meaning sparkling or bright.

Coal. This is an example of biochemical sedimentary. Coal is composed of dead plants and animals. It is formed when these things die and go underground and form into coal. Coal reserves are available in almost every country worldwide. It is typically black. Coal is a popular resource.

B.

Day/date	Monday/ 27	Tuesday/28	Wednesday/ 29	Thursday/ 29	Friday/ 30
Weather condition	Sunny	Cloudy/Rain	Partly Sunny	Sunny	Sunny
Maximum temperature	73	76	70	82	82
Relative humidity for the day	56%	60%	39%	37%	57%
Minimum temperature	62	57	50	65	68
Average wind speed	8 MPH	5 MPH	16 MPH	9 MPH	7 MPH



The more humidity the hotter the air feels. Even if it doesn't get hotter on a thermometer. It feels much hotter because it holds more moisture which makes it heavier and denser.

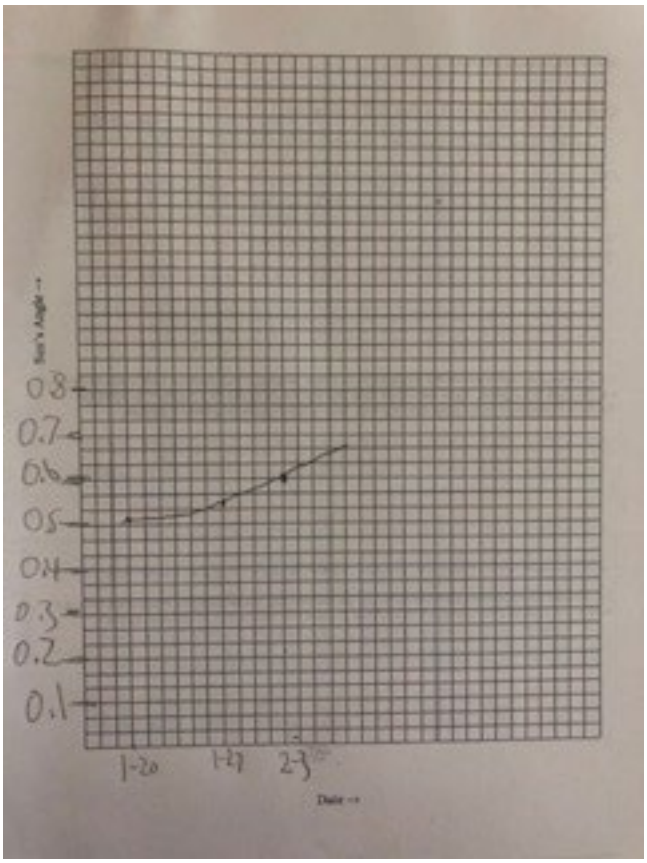
C. Cirrocumulus. This was taken on Monday April 27th. They are made up of small white clouds called cloudlets. They are usually at high levels. Precipitation from these clouds usually doesn't reach the surface, so they are associated with fair weather. This doesn't lead to any outstanding weather.

Cirrus. This was taken on Monday April 27th. Cirrus clouds are short, detached, hair-like clouds found at high altitudes. Cirrus clouds are composed of ice crystals that originate from the freezing of super cooled water droplets in regions where air temperature is lower than -20 °C or -30 °C. They are associated with fair weather and will only lead to fair weather. These appear a lot in warm days. Humidity is relatively low with these clouds.

Strato Cumulous. Taken Sunday April 26th. These clouds tend to be low and puffy. They are usually gray. Not usually associated with precipitation. Usually with mid to high humidity. They usually come at the beginning or end of a storm.

Status. This is a Stratus cloud; the picture was taken May 3rd. They are uniform clouds that usually cover the sky. They almost look like fog that hasn't hit the ground. They might have a light rain or drizzle. They stay below 6,000 feet and are usually thin. They are often associated with calm weather. Usually there is a low humidity when they are present.

Cumulus. This was taken Monday, April 27th. These clouds are white and puffy. They almost look like cotton candy. These are associated with good/fair weather. There is usually not a lot of pressure with these clouds, and no precipitation. If they begin to develop a top on them, they can develop into thunderstorms, which would have high pressure and humidity. If not they are associated with calm weather.

D. 

There is a continued growth in Sun's angle as time goes on. Unfortunately, due to bad cooperation from the clouds and Covid-19, the amount of desired data was not collected.

Lab Report

Date- 5/3 Instructor Dr. Gyanwali
Name-Jeb Willborg Lab partner- N/A

Objective- A. The objective was to find 6 rocks from the available list and writer a paragraph explaining them and what they are associated with.
B- The object of this experiment was to collect weather data over 5 days. It was then organized and put into a chart.
C- The objective was to observe different clouds and take pictures. Then classify those clouds giving an explanation of each cloud and characteristics of that cloud.
D- The objective of this experiment was to collect data of how much of a shadow was cast off the same item weekly. That data was to then be recorded and thrown into a graph.

Material A- Internet, A place to write a document, a way to put in pictures.
B- Weather App, data for weather condition, max and min temp, relative humidity, and average wind speed.
C- Clouds, a photo taking devise, somewhere to write information requested.
D- Information form Lab 11, yard stick, object measure off, sun, calculator, maker.

Procedure A- Pictures from the internet were placed onto a document. Each rock matched into a category listed in the prompt. After that a paragraph was written about each rock including composition, formation, location, color, crystalline/non-crystalline, hardness, silica type, erosion possibility etc. Include some interesting features about those rocks. This was done for 6 rocks from 6 different categories.
B- Five days weather was collected from a weather app (Storm Radar) . The same app was used each day. The weather condition, Max and min temperature, relative humidity, and average wind speed was recorded. From the data collected it was then put into a graph. The graph showed the correlation between the two and that was further explained in writing.
C- Pictures were taken of 5 different clouds. These clouds were identified and categorized. For each cloud a paragraph was written including information on formation condition of temperature and pressure, humidity, identifying features of the cloud, what weather condition will it lead to, etc.
D. An object was picked to measure off of. The object was to remain stationary. Every week a yardstick was held vertically to measure how long the objects shadow reached. The concrete was marked, and the upright stick was used to measure the distance between the bottom of the meter stick and the chalk mark. This provided the base of the triangle. The height of the yard stick was measured and the formula (height/base) was used to get the sun’s angle. This was done weekly. This was then put into a graph to see the correlation of the sun’s angle as time went on.

Observation A- noticed there are so many different factors that play into rocks and rock types. Along with that what we view as just rocks and are all the same, actually have many differences.

B- The more humidity the hotter it felt. It didn’t affect actual temperature, but it made the air feel much hotter.
C- Weather can be predicted by clouds. Some clouds caused rain, some made for a calm day. Most the time the weather could be predicted by the clouds.
D- With more passing time the shadow got longer.

Discussion A- Rocks are formed by many different things and temperatures, which leads to the differences in rocks.
B- The air felt much hotter with humidity, which is something Arkansas is known for. A wet heat is much hotter than a dry heat.
C- Clouds play a huge role on temperature at times. At time during tis experiment, clouds could take away from temperature by blocking sunlight. They can also release rain which, causes humidity to go up.
D- As days got longer so did the shadows. Had we had more opportunities to put this to the test that could have been further proven.

Conclusion A- Every different type of rock has its own unique features. This is why rocks can be used for so many different things. From renewable resources to counter tops rocks are very different form each other.
B- The humidity can make a hot day into a miserable day. The more humidity the hotter it feels, rather the actual temperature is raised or not.
C- Clouds have a way of helping predict what weather is coming. They also play a major factor in temperature and in weather itself.
D- The longer the days, the longer the shadows. As we did this in the second semester days were getting longer, and the sun cast further shadows.