



Unit 7 Water and Weather

Essential Question - How does energy from the sun effect the weather?



Unit Questions

What is the water cycle?

What is weather?

How can we measure weather?

How do changes in the weather affect the water cycle?

Standards: 3-ESS2-1, 3-ESS2-2, RI.3.1, W.3.8, MP.5,
3.MD.A.2, 3.MD.B.3

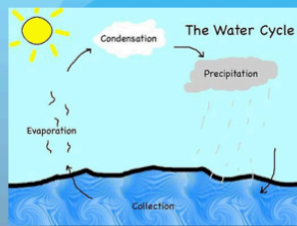


Water Cycle

- Create a PowerPoint explaining each phase of the Water cycle.
- Use pictures and your vocabulary words:
 - Water Cycle
 - Evaporation
 - Condensation
 - Precipitation

The Water Cycle

Student Sample



The Water Cycle

- The Water cycle- is the never-ending movement of water between Earth's surface and the air.
- Consists of 4 stages:
 - Evaporation
 - Condensation
 - Precipitation
 - Groundwater

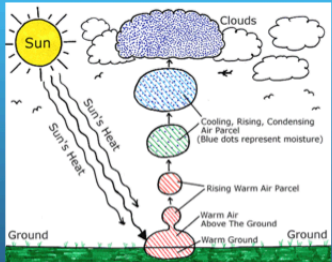
Evaporation

- Evaporation- the change of state from a liquid to a gas.
- The sun heats the ocean which causes water to evaporate and become water vapor.
- The water vapor mixes with other gases and moves high up in the air.



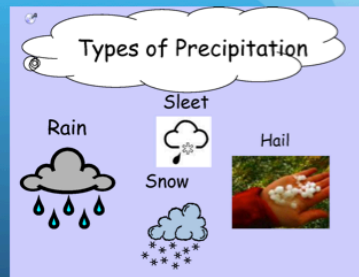
Condensation

- Condensation- the change of state from a gas to a liquid.
- When water vapor loses heat, it changes back to liquid water.
- As water vapor rises, it cools. The water vapor condenses to form water droplets on clouds.



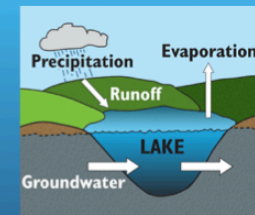
Precipitation

- Precipitation- water that falls from the sky.
- Precipitation can be
 - Rain
 - Sleet
 - Snow
 - Hail
- The type of precipitation that falls depends on the temperature of the air around it.



Groundwater

- Groundwater- the water that flows underground.
- After water falls, it moves across land. Some water flows underground.
- Groundwater and surface water flow back to the ocean.



The Water Cycle



Student Sample Powerpoint

Project 1

My Water Cycle PowerPoint Rubric

Category	4	3	2	1
Content	Covers topic in-depth with details and examples. Subject knowledge is excellent.	Includes essential knowledge about the topic. Subject knowledge appears to be good.	Includes essential information about the topic but there are 1-2 factual errors.	Content is minimal OR there are several factual errors.
Organization	Content is well organized using headings or bulleted lists to group related material.	Uses headings or bulleted lists to organize, but the overall organization of topics appears flawed.	Content is logically organized for the most part.	There was no clear or logical organizational structure, just lots of facts.
Requirements	All requirements are met and exceeded.	All requirements are met.	One requirement was not completely met.	More than one requirement was not completely met.
Mechanics	No misspellings or grammatical errors.	Three or fewer misspellings and/or mechanical errors.	Four misspellings and/or grammatical errors.	More than 4 errors in spelling or grammar.
Presentation	Well-rehearsed with smooth delivery that holds audience attention.	Rehearsed with fairly smooth delivery that holds audience attention most of the time.	Delivery not smooth, but able to maintain interest of the audience most of the time.	Delivery not smooth and audience attention often lost.

My Score _____/20

Project 1 Rubric



Weather

- Pick an area on the globe. Create a brochure explaining the types of weather that area experiences.
- Include temperature, what type of clothing should be worn, and types of severe weather they experience.

Have you ever wanted to travel to a new place, but didn't know what to bring in your suitcase?

You think to yourself, what should I pack?

What will the weather be like during my trip?

Is there any time I would not want to visit due to the weather?



This brochure is created to help you understand New York City's weather at anytime during the year.

Spring



Fall



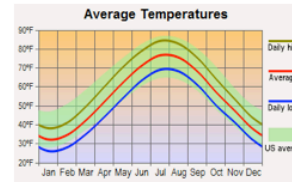
Summer



Winter



Welcome to
New York
City!



New York City Weather

New York City is located in the North East part of the United States. It has weather that changes with the seasons.

In the **spring**, the temperature is getting warmer. They experience days that range from 50-65 degrees. As the summertime approaches it gets warmer.

During the **summer** months, New York City will experience temperatures ranging from 70-90 degrees.

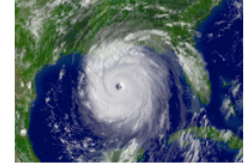
As the **fall** months approach, the temperature cools down. During the fall, New York City ranges from 45-60 degrees.

During the **winter** months, it gets cold and ranges from 20-45 degrees.

What should I Pack in my suitcase?

If you are planning to travel to New York City, you need to be prepared for what the weather will be like.

If you are traveling in the months of March, April, and May, you will need to pack pants, t-shirts and a nice light jacket. You might want to pack some rain boots because New York City has a lot of rainfall in the spring. During the summer months, you can pack shorts and t-shirts. The weather is hot and you might find yourself wanting ice cream to cool down. During the fall, you will want to pack long pants and long-sleeved shirts. You might also want to pack a fleece. The weather is quite chilly. Lastly, during the winter, you will want to pack a heavy coat and some snow boots. During the winter months, there tends to be ice and snow on the ground.



New York City has seen some odd weather in the past.

Hurricane Season lasts from June 1st until November 30th. You typically see more hurricanes during the late summer months. A **hurricane** is a tropical storm with winds of 119 kilometers (74 miles) per hour or more. Hurricanes can cause trees to blow over and cause damage. The wind is so strong, it can also cause damage to buildings and homes.

New York City also experiences thunderstorms that have thunder and lightning. Thunderstorms can also bring heavy rain and strong winds too.

During the winter months, New York City can experience blizzards. A blizzard is a snowstorm with strong winds, lots of snow, and very low temperatures.

Student Sample - WeatherBrochure

Project 2

My Weather Brochure Rubric

Category	4	3	2	1
Writing - Organization	Each section in the brochure has a clear beginning, middle, and end.	Almost all sections of the brochure have a clear beginning, middle and end.	Most sections of the brochure have a clear beginning, middle and end.	Less than half of the sections of the brochure have a clear beginning, middle and end.
Writing - Grammar	There are no grammatical mistakes in the brochure.	There are no grammatical mistakes in the brochure after feedback from an adult.	There are 1-2 grammatical mistakes in the brochure even after feedback from an adult.	There are several grammatical mistakes in the brochure even after feedback from an adult.
Spelling & Proofreading	No spelling errors remain after one person other than the typist reads and corrects the brochure.	No more than 1 spelling error remains after one person other than the typist reads and corrects the brochure.	No more than 3 spelling errors remain after one person other than the typist reads and corrects the brochure.	Several spelling errors in the brochure.
Writing - Vocabulary	The authors correctly use several new words and define words unfamiliar to the reader.	The authors correctly use a few new words and define words unfamiliar to the reader.	The authors try to use some new vocabulary, but may use 1-2 words incorrectly.	The authors do not incorporate new vocabulary.
Attractiveness & Organization	The brochure has exceptionally attractive formatting and well-organized information.	The brochure has attractive formatting and well-organized information.	The brochure has well-organized information.	The brochure's formatting and organization of material are confusing to the reader.

My Score _____/20

Project 2 Rubric



Measuring Weather

- Research weather patterns from the area you live.
- Research temperature, wind direction, and amount of rainfall over three weeks.
- Record and share your data by creating a newsletter.

Our Classroom Weather Newsletter

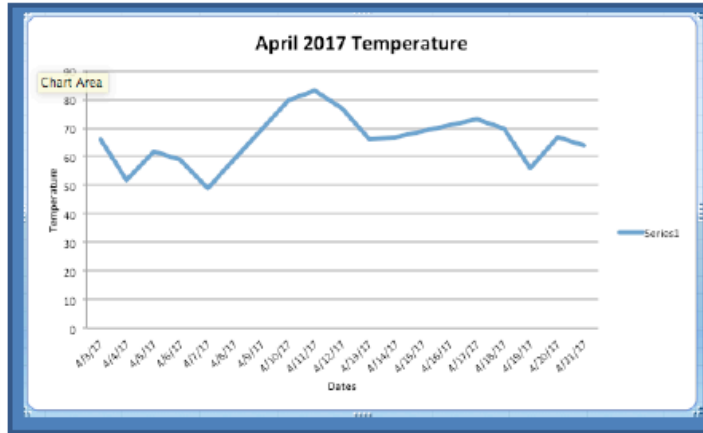
Measuring Weather

April 2017

April's Weather

April's weather has brought warmer temperatures than March. There was a surge in the temperature on the 10th and 11th resulting in very warm days that reached into the 80's.

We recorded that the wind direction on warmer days was blowing from the south to the north. On cooler days, we recorded that the wind direction was blowing from the north to the south.



Look we created our own wind direction-measuring tool!



Drawing Conclusions

What tools did you use to measure the weather?

We used a thermometer, our wind vane, and a cup and ruler for collecting and measuring rainwater.

Make a weather prediction for the next week.

Our prediction is that It will be sunny and warm. The wind will be blowing north and coming from the south.

How might you use your measurements to help others?

We could find out if its too cold to go outside without wearing a coat just by measuring the air temperature.

Our Data Table

April 3, 2017	April 4, 2017	April 5, 2017	April 6, 2017	April 7, 2017
Temperature: 66 Wind Direction: Northeast Rainfall: 0.03 in.	Temperature: 52 Wind Direction: Southeast Rainfall: 1.21 in.	Temperature: 62 Wind Direction: Northeast Rainfall: 0 in.	Temperature: 59 Wind Direction: East Rainfall: 0.8 in.	Temperature: 49 Wind Direction: Southeast Rainfall: 0 in.
April 10, 2017	April 11, 2017	April 12, 2017	April 13, 2017	April 14, 2017
Temperature: 80 Wind Direction: Northwest Rainfall: 0 in.	Temperature: 83 Wind Direction: North Rainfall: 0 in.	Temperature: 77 Wind Direction: North Rainfall: 0.07 in.	Temperature: 66 Wind Direction: Northwest Rainfall: 0 in.	Temperature: 67 Wind Direction: Northwest Rainfall: 0 in.
April 17, 2017	April 18, 2017	April 19, 2017	April 20, 2017	April 21, 2017
Temperature: 73 Wind Direction: Northeast Rainfall: 0 in.	Temperature: 70 Wind Direction: Northeast Rainfall: 0 in.	Temperature: 56 Wind Direction: Southeast Rainfall: 0 in.	Temperature: 67 Wind Direction: East Rainfall: 0.12 in.	Temperature: 64 Wind Direction: Southeast Rainfall: 0.36 in.

Weather Fun Facts: (pick three facts you find)

1. The highest temperature ever recorded in Antarctica is 14.6 °C (59 °F), recorded on January 5, 1974.
2. Rain allows us to create electricity through hydropower.
3. Depending on their strength, winds can be known as a breeze, gale, storm, or hurricane.

We found these facts at <http://www.sciencekids.co.nz/sciencefacts/weather.html>.

Student Sample Newsletter

Project 3

My Measuring Weather Newsletter Rubric

Category	4	3	2	1
Use of Class Time	Used time well during each class period. Focused on getting the project done. Never distracted others.	Used time well during each class period. Usually focused on getting the project done and never distracted others.	Used some of the time well during each class period. There was some focus on getting the project done but occasionally distracted others.	Did not use class time to focus on the project OR often distracted others.
Knowledge Gained	Student can accurately answer all questions related to facts in the newsletter and processes used to create the newsletter.	Student can accurately answer most questions related to facts in the newsletter and processes used to create the newsletter.	Student can accurately answer about 75% of questions related to facts in the newsletter and processes used to create the newsletter.	Student appears to have insufficient knowledge about the facts or processes used in the newsletter.
Attractiveness	The newsletter is exceptionally attractive in terms of design, layout, and neatness.	The newsletter is attractive in terms of design, layout and neatness.	The newsletter is acceptably attractive though it may be a bit messy.	The newsletter is distractingly messy or very poorly designed. It is not attractive.
Mechanics	Capitalization and punctuation are correct throughout the poster.	There is 1 error in capitalization or punctuation.	There are 2 errors in capitalization or punctuation.	There are more than 2 errors in capitalization or punctuation.
Grammar	There are no grammatical mistakes on the poster.	There is 1 grammatical mistake on the poster.	There are 2 grammatical mistakes on the poster.	There are more than 2 grammatical mistakes on the poster.

My Score _____/20

Project 3 Rubric