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| **GRADE LEVEL 4 (developed by KM)** |
| **COURSE / SUBJECT Earth Science** |
| **UNIT OF STUDY Weather** |
| **THEME / ESSENTIAL QUESTION(S)****What is weather?**  |
| **STANDARDS** | **ENDURING UNDERSTANDINGS *What are the long term, big-ideas of content I want students to understand?*** | **KNOWLEDGE / SKILLS *What do I want Students to Know & Be Able to Do?*** |
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| Standard: 6. Explain how air temperature, moisture, wind speed and direction, and precipitation make up the weather in a particular place and time\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Standard: 9. Differentiate between weather and climate\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Standard: 10. Describe how water on earth cycles in different forms and in different locations, including underground and in the atmosphere (review) | What is temperature? What is moisture?What is precipitation?What is air pressure?How are storms created?\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*How is weather data collected?How does the weather affect our lives?How are weather and climate different?\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*What is the water cycle? | Students will:\* review learning from prior grade about the aspects of weather, specifically the water cycle ( precipitation, evaporation, condensation)\*use thermometers to take readings in both Celsius and Fahrenheit scales\*create a diorama to demonstrate how air fronts travel and/or collide and that warm fronts imply fair weather, and cold fronts imply strong weather\*Connect altitude with pressure…living at sea level vs. higher altitude\*construct clouds at different levels of the atmosphere to demonstrate why clouds are different (diorama with cotton balls…STEAM activity)\*Create snowflakes that show what the atmosphere was like when they were formed (STEAM activity, brain pop on snowflakes)\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*use tools and technology to collect specific data(keep a weather journal or chart) on weather including: barometers, anemometers, thermometers and online resources. (STEAM lab…outside weather stations)\*Write a weather report or forecast for Mashpee \*analyze weather data to create weather predictions.\*Create a weather “recipe” to demonstrate that weather is a combination of atmospheric states \*identify careers in the fields of weather\*Demonstrate how weather events can effect abiotic aspects of the environment (erosion, drought, building destruction) by designing a home that can withstand common destructive weather on Cape Cod (STEAM lab idea)\*compare and contrast weather and climate\*compare and contrast weather and climate of different locations ( i.e. Mt.Washington and Cape Cod, Massachusetts and California, North America and Australia) Connect to Social Studies…hemispheres, equator, etc.\*analyze changes in climate and predict how they may alter the way an entire food chain functions\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Review solid, liquid, gas aschanges in physical state due to heat\*Identify the locations on this planet where water is located…compare fresh to salt, frozen to running, etc. \*Make a model to illustrate how water cycles through the Earth, including how pollutants are absorbed into ground water (connect back to Thornton Burgess Soil Lab)\*Design a filtration system (STEAM lab idea) |
| **ASSESSMENT: *How will I know they have learned? What will be the evidence?******\*KWL charts******\*Common unit assessment ( needs to be developed)******\*STEAM Inquiry/design labs ( hands on, investigative, problem solving based labs…minimum of 2 labs)*** |
| **TECHNOLOGY & RELATED CONTENT INTEGRATION:****\*Use of specific weather tools to collect data to use in analyzing, evaluating, and designing.****i.e design a building that could withstand hurricane force winds on Cape Cod****\*Ongoing data collection, analysis, and predictions using online weather sites such as weather.com and Mashpee’s “Weather Bug”, “Mount Washington Observatory.”****i.e. Use data collected to make** **\*www.brainpop.com (search weather topics, videos, quizzes, additional assignments)****\*www.studyjams.com (search weather within science topics…videos, quizzes, slides to print, etc)****Measure various forms of precipitation. Bring a measured sample of snow into the classroom, allow it to melt, and compare the amount of water that results with the original measurement.****Collect daily temperature and precipitation data, preferably by observation, at school. At the****same time use the Internet or a newspaper to collect the same data for a nearby city and a city on the****west coast of the U.S. After three months, take various averages of the daily data for the three locations. Graph the data. Discuss how the long-term daily weather averages begin to describe each climate.** |