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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 as  changes 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.** | | |