

MULTI STEM Spring 2019 Math w Weather & Climate Data

Auraria

JANELLE JOHNSON FEB 22, 2019 02:18PM

Introductions

JANELLE JOHNSON MAR 09, 2019 08:49AM

Please introduce yourself!

- Name
- School & Grade
- Preservice or inservice
- New to MULTI?
- Describe your focal students

Hello! My name is Tara Kimmey and I'm a middle school science teacher at Colorado STEM Academy. My Level 6s are studying Earth and Space while my Level 7s focus on Life Science. My focal students want to do well, but don't know how. They are late to school (daily) and don't see the importance of homework or projects. They are behind in their reading; but given long comprehension state assessments. They thrive for knowledge; but don't know how to advocate to get the help and support they need. I give scaffolding support with lots of visuals.

— TARA KIMMEY

Hi I'm Julie Pitz. I'm a level 4 teacher at Colorado STEM Academy in Westminster. Both of my focal students are ELs. The girl NG rushes through her work and just tries to get stuff done as quickly as possible. She is very apathetic towards math and science and sees it as something she just has to get done. My other focal student TR struggles with reading and vocabulary. If he doesn't understand something right away he will just give up and stop trying.

— JULIE PITZ

Matthew Davis, MSU Denver post-bac, preservice, New? ELLs, those that think they can't "science" or don't want to", bright kids that need challenges but haven't been

— MATTHEW DAVIS

JANELLE JOHNSON FEB 22, 2019 02:21PM

Quick look at Padlet

How to find other resources
Remaking the modules
"Like" the padlet for ease
Other questions?

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Our definition of STEM

From Outlier Research: "In all cases, it is clear that some of the most valued components of STEM schools are not STEM-discipline specific, but relate to broader, transferrable, lifelong skills...Educational philosophers such as Dewey, Piaget, Vygotsky, and Bruner have advocated for inquiry and constructivist approaches for over a century. They argued for student autonomy, relevance, collaboration with peers, and learning-by-doing."

JANELLE JOHNSON FEB 22, 2019 02:18PM

MULTI

Funded by NSF

Community based approach--Check out FB and Twitter!
Focus on teacher PD to more effectively engage underserved students

Earth systems science based learning activities--GLOBE
(Global Learning & Observations to Benefit the Environment)
Workshops & research on implementation

Our research: STEM content, 21st century skills, career pathways

Questions about follow up?

MULTI

A MULTI Approach to Engaging
Students and Teachers in Effective
STEM Education

MSUDENVER



The GLOBE (Global Learning and Observations to Benefit the Environment) program is based on looking at the impact of human activities on the Earth's surface temperature and how the surface temperature changes the atmosphere. Looking at the atmosphere, looking at the weather, and looking at the climate are all part of understanding how the Earth's system function within its system. The surface temperature measurements contribute to our understanding of the Earth's system.

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GLOBE Student Research

View and upload Student Research Reports, as well as find
Resources for Students and Teachers

Student Research Reports - GLOBE.gov

Check out student research reports from around the world! Would you like to have your report added? Click on the graphic to the right to submit your report. Please note that projects can be uploaded in any language!

GLOBE



UHIE-Surface Temperature - GLOBE.gov

Surface Temperature Campaign is not new to the GLOBE Program. The data collection for the Surface Temperature Protocol Campaign as mentioned on the GLOBE website is being done in December when snow occurs. The campaign will encourage individuals to take daily measurements when doing the atmosphere protocols.

GLOBE



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GLOBE International Virtual Science Symposia

2019 IVSS is accepting reports **NOW** through **April 10!**

2019 International Virtual Science Symposium - GLOBE.gov

Dr. Julie Malmberg from the GLOBE Implementation Office hosted an informational webinar about the 2019 GLOBE International Virtual Science Symposium on Thursday, 25 October 2018. The webinar featured an overview of the IVSS and information about the newly updated virtual badges.

GLOBE



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GLOBE: Earth as a System

Perceiving Earth as a system begins when we first feel warmth from sunshine or get wet standing in the rain. Understanding Earth as a system – Earth System Science – requires a quantitative exploration of the connections among all parts (atmosphere, hydrosphere, lithosphere, and biosphere) of the system. The measurements of The GLOBE Program provide students with the means to begin this exploration for themselves.

The processes comprising the global environment are interconnected. Many of the major environmental issues of our time have driven scientists to study how these connections operate on a global basis – to understand Earth as a system.

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GLOBE Mission Mosquito campaign

Mission Mosquito - GLOBE.gov

The goal of GLOBE Mission Mosquito is to create an organized citizen science community - primarily through formal education, with targeted outreach to informal education - that will conduct and report local observations using the GLOBE Observer Mosquito Habitat Mapper (GO MHM).

GLOBE



JANELLE JOHNSON FEB 22, 2019 02:18PM

GLOBE Urban Heat Island Effect campaign

Introduction

Why Study Earth System Science?

Perceiving Earth as a system begins when we first feel warmth from sunshine or get wet standing in the rain. Understanding Earth as a system – Earth System Science – requires a quantitative exploration of the connections among all parts (atmosphere, hydrosphere, lithosphere, and biosphere) of the system. The measurements of The GLOBE Program provide students with the means to begin this exploration for themselves.

The processes comprising the global environment are interconnected. Many of the major environmental issues of our time have driven scientists to study how these connections operate on a global basis – to understand Earth as a system.

Studies of the stratospheric ozone layer involve questions about the processes which create and destroy ozone. Scientists have learned that ozone, a chemical primarily found in a layer centered about 25 km above Earth's surface, is connected to biological activity happening in the soil on Earth's surface. Different chemicals, present in the air in trace amounts, control the abundance of ozone in the atmosphere. The sources of these trace constituents include microorganisms in the soil and water, land plants, and even some animals along with human activity.

Scientists studying climate change are also interested in the connections among the different Earth processes. Some of the trace gases in the atmosphere make it more difficult for heat (infrared radiation) to escape from Earth's surface to space. The amounts of these greenhouse gases found in the atmosphere are tied to the physical, chemical, and biological processes taking place in soil and water and on land. They are also influenced by the circulation of the oceans and atmosphere. To predict the future course of the climate we need to understand this detailed fabric of connections.

Ecologists study the way in which the living and non-living components of an ecosystem interact. Individual organisms and species compete and cooperate with one another. In some cases, interdependence is so strong that different plants and animals cannot reproduce or even exist without each other. There is a web of life with extensive recycling of nutrients, and each organism plays a role. If one component of the ecosystem is changed the effects ripple through the system.

Scientists do not know all the Earth system connections yet, but they keep working to gain a more complete understanding. GLOBE students can help through data collection and student research. GLOBE students and scientists working together will improve our understanding of the Earth system. As students conduct a wide range of GLOBE measurements (perhaps spread over several school years in multiple grades), they should gain a perception that the environment is the result of an interplay among many processes that take place locally, regionally, and globally on time scales ranging from seconds to centuries. This is a key GLOBE lesson. The learning activities in this chapter help students learn this as they study annual variations in environmental parameters (the Seasons section) and examine the connections among the various phenomena measured in GLOBE on local, regional, and global spatial scales (the *Exploring the Connections* section).

The Big Picture

The planet we call Earth is made up of five 'spheres', the atmosphere, hydrosphere, lithosphere, cryosphere, and biosphere, connected to each other in a complex web of processes. See Figure EA-I-1. The atmosphere consists of the gases and particles suspended in the air. The oceans, inland water bodies, ground water, and ice sheets (cryosphere), comprise the hydrosphere. The lithosphere refers to the solid earth; the core, mantle, crust, and soil layers (pedosphere). The places on Earth where organisms live are collectively known as the biosphere. Instead of focusing on the individual parts of Earth, Earth system scientists use chemistry, biology, and physics to study the cycles that connect these spheres with each other and with the energy from the sun, which ultimately drives almost all of these processes.



Welcome

Introduction

Protocols

Learning Activities

Appendix

GLOBE® 2014

Introduction - 1

Earth System Science

Earth_as_a_System_Introduction.pdf

PDF document

PADLET DRIVE

secondary science teacher at Gateway High School in Aurora. This year 10th grade chemistry.

Inservice, and this is my 4th time here. My focal students are diverse group of people who come from predominately lower economic strata. Many are transient who's background in math and science is spotty at best. Many follow most "misconceptions" in science.

What's the phenomenon/problem?

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Why study the atmosphere?

- **Weather** (the air temperature, rain, snow, relative humidity, cloud conditions, and atmospheric pressure and the coming and going of storms);
- **Climate** (the average and extreme conditions of the atmosphere);
- **Energy Budget** (Land-Atmosphere interactions);
- **Atmospheric Composition** (the trace gases and particles in the air).

Each of these characteristics of the atmosphere affects us and our environment.

What we wear and what we can do outside today depend on *weather*. Is it raining? Snowing? Sunny? Cold?

How we build our homes and schools, what crops we grow, what animals and plants naturally live around us all depend on *climate*.

Does rain come mainly in winter or summer or every day? Do we get frost or snow? How long do dry spells last?

DESA DEBANE MAR 09, 2019 09:05AM

Desa

I attend MSU Denver and will be student teaching next semester. I observe at CVHS in Castle Rock in APES and freshman Bio. The freshman bio students overall are

DANIEL BILLER MAR 09, 2019 09:11AM

Intro

Dan Biller

MSU Denver, Post-Bacc Secondary Ed.-Biology

Pre-Service @ Evergreen Middle School, 7th Grade Science

Focal Student: The students who don't see themselves as scientists and giving them the opportunity to see themselves in science.

TONY BULLOCK MAR 09, 2019 09:17AM

I am a s

Scientists are investigating the atmosphere. They want to understand and predict:

- Weather (the air temperature, rain, snow, relative humidity, cloud conditions, and atmospheric pressure and the coming and going of storms);
- Climate (the average and extreme conditions of the atmosphere);
- Energy Budget (Land-Atmosphere interactions); and
- Atmospheric Composition (the trace gases and particles in the air).

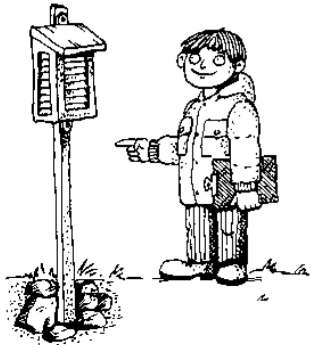
Each of these characteristics of the atmosphere affects us and our environment. What we wear and what we can do outside today depend on weather. Is it raining? Snowing? Sunny? Cold?

How we build our homes and schools, what crops we grow, what animals and plants

naturally live around us all depend on climate. Does rain come mainly in winter or summer or every day? Do we get frost or snow? How long do dry spells last?

The composition of the atmosphere affects how our air looks and feels and how far we can see. On days when clouds don't completely cover the sky, does the sky look blue or milky? Does it ever have a brown tint? Do sunsets have lots of red color? All these are dependent on the composition of our air.

GLOBE scientists want several types of atmosphere data from schools to help in their investigations. As a GLOBE student, you can do research on the atmosphere, too. You can investigate your local weather, climate, and atmospheric composition and how these vary from place to place, season to season, and year to year. You will learn more about the air around you.



GLOBE® 2014
Introduction - 1
Atmosphere

GLOBE_Atmosphere_Introduction.pdf

PDF document

PADLET DRIVE

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Why study Weather?

On a **day-to-day** basis, we want to know many things about the weather we will encounter today. For example, we might like to know what the air temperature will be and whether it will rain so we can decide what type of clothes to wear; whether we need to take an umbrella with us when we go outside; or if we need to wear a hat and sunscreen to protect us from the sun's ultraviolet rays. We want to be sure the air we breathe is good for us. We want warnings so that we may protect ourselves and our property from severe storms.

JANELLE JOHNSON FEB 22, 2019 02:18PM

Why study Climate?

We also want information about the atmosphere on a **longer term** basis. Farmers need to know if their crops will get enough rain. Ski resorts need to know if enough snow will fall. Insurance underwriters for areas struck by hurricanes would like to know how many hurricanes to expect in a given year and how strong they will be when they make landfall. Nearly everyone would like to know what the weather is going to be not only tomorrow or the next day, but next week, and what the climate will be six months, a year, or even ten years from

now! People have long said, "Everyone complains about the weather, but no one does anything about it." Today, scientists are working hard to understand and predict the full range of atmospheric phenomena, from storms to ozone. Atmospheric scientists study not only what is going on with the atmosphere today, but why it was a certain way in the past and what it will be like in the future. While controlling the weather is generally beyond human ability, the collective effects of human activity influence weather, climate, and atmospheric composition. Scientific understanding of the atmosphere and the ability to forecast its future state grows through the application of fundamental laws and extensive observations. Since we care about the atmosphere on scales ranging from the individual farm to the entire globe and on timescales from a few minutes in severe storms to decades for the climate, vast quantities of data are needed.

JANELLE JOHNSON FEB 22, 2019 02:18PM

Weather and Climate, the Atmosphere Over Time

Weather and climate are not the same. By weather we mean what is happening in the atmosphere today, tomorrow, or even next week. By climate we mean weather averages, variability, and extremes over time. For example, in a certain city the current temperature may be 25° C; this is weather. If instead we were to look at the weather records for the past 30 years, we might find that the average temperature in that city on that particular day is 18° C (this is climate). We also might find that over this 30-year period the temperature in this city has ranged from as high as 30° C to as low as 12° C on that particular day. Therefore, the present temperature of 25° C is not unusual. When we study the history of Earth's climate, we notice that temperature and precipitation in any given region vary over time and that the composition of the atmosphere has changed. For example, images from certain satellites show that great rivers used to run through the Egyptian Desert. We also know that thousands of years ago, glaciers were present in places like New York City where today air conditioning is routinely used to cope with summer heat. If Earth was so different in the past, can we predict what might happen in the future? Predicting climate is a major goal of Earth Science today.

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Scientists Need GLOBE Data

People often think that scientists know what is happening in all parts of the world, but this is far from true. There are many regions where scientists have only the most general understanding of environmental factors such as air temperature and precipitation. Even in regions where there seems to be an abundance of data, scientists still do not know

how much precipitation and temperature vary over relatively short distances. Official weather monitoring stations have contributed much data for a century or more in some locations while satellite technology has given us pictures of large areas every 30 minutes and global images at least twice daily for decades. Some areas have special monitors of atmospheric gases, and increasingly, airports monitor winds, not only at the ground, but up to heights of several kilometers. Despite all these wonderful efforts, there are gaps in coverage. The atmosphere varies significantly within these gaps, and GLOBE student measurements can improve the coverage for many types of observations. Atmospheric conditions have an important impact on the types of plants and animals that live in a certain area, and even on the kind of soil that forms there. The measurements that students take for the GLOBE Atmosphere Investigation are important to scientists who study weather, climate, land cover, phenology, ecology, biology, hydrology, and soil.

KAY BOLERJACK MAR 09, 2019 10:12AM

Resources for Phenomenon integration into units/lessons

Next Generation science storylines

Check out the guidance for the steps to designing a coherent NGSS aligned storyline. Explore unpacking, identifying phenomena, and sequencing investigations to help students build science ideas, step by step.

NEXT GENERATION SCIENCE STORYLINES



Information & resources

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How to study Weather

Perhaps your students study weather. If so, their GLOBE work can become an integral part of this learning. By “weather” we mean the current condition and short-term changes in the atmosphere. Students may be familiar with weather reports and forecasts, and you could introduce the GLOBE protocols by asking them to explain what they think “weather” means. They will probably mention things like the temperature, whether it’s raining or snowing, whether it’s cloudy, whether it’s windy and the direction of the wind. Some students may also mention barometric pressure, cloud types, and humidity. All of these are aspects of what meteorologists mean by “weather,” and all can be measured in GLOBE. Thus, by doing GLOBE measurements, your students can begin to measure,

monitor, study, track and forecast the weather.

Here is a suggested sequence for introducing GLOBE measurements through the study of weather.

1. Cloud and contrail measurements are the easiest place to start. They require only a cloud chart and the human eye. Two learning activities are good to do before beginning the actual cloud cover and cloud type protocols:
 - [Observing, Describing, and Identifying Clouds](#)
 - [Estimating Cloud Cover: A Simulation](#)
2. In order to submit your cloud cover and cloud type observations, you need to define an Atmosphere Study Site and submit site definition data to GLOBE. You may want to do this before you set up the instrument shelter, so that if you experience delays in getting your shelter set up, you can still define your site and submit your cloud data.
3. You also can begin taking aerosols, water vapor, relative humidity, surface temperature, and barometric pressure readings without having the instrument shelter.
4. Current temperature measurements can also be taken without the instrument shelter. When you are able to install the instrument shelter you will be able to take and submit daily maximum and minimum air temperature measurements.
5. Taking and submitting liquid precipitation measurements requires the installation of a rain gauge on a post, but you can measure snow depth, liquid equivalent, and pH without the installation of the rain gauge.
6. If you use certain automated weather stations, you can add wind speed and direction to your set of GLOBE data following these protocols.
7. You must check the calibrations of your instruments (thermometers, barometer or altimeter, sling psychrometer) before you begin.

Try your hand at forecasting. One interesting way for students to use the data they collect is to try to make weather forecasts using their own data and to compare their forecasts to those of professional meteorologists. Who is more accurate? What data are most helpful in making a prediction? What additional data do the professionals use that are not available to students? There are many interesting questions that can be pursued.

JANELLE JOHNSON FEB 22, 2019 02:18PM

How to study Climate

Climate is another major topic that your students may study and that can be explored using GLOBE measurements and data. “Climate” is the long-term trend of the atmosphere and

other variable aspects of the environment. There is an old saying, “Climate is what you expect. Weather is what you get.” Climate refers to averages and extremes of temperature, clouds, precipitation, relative humidity and their annual patterns. Through looking at GLOBE data from their own school and from other sites around the world, students can begin to gain an appreciation for climate patterns and what causes them. They can notice seasonal trends, variations based on latitude, and variations based on proximity to large bodies of water. By using the GLOBE student data archive, students can compare the climate of their school, nearby schools, and schools in widely varying spots around the globe. Students can take it as a challenge to build a long-term database that describes the climate of their locality. Most newspapers publish monthly summaries of the weather and compare them to climatic expectations. If not, then consult the meteorologist at your local airport or radio/TV station. These climatologies can provide the basis for interesting discussions of what is “normal” for your locale. Has it been a wetter than normal month? Hotter? Cooler? Cloudier? Using their GLOBE data and local climatic information, students can begin to answer these questions and think about how their climate may be changing. To study climate your students will use the same atmosphere protocols as for weather, except they need not measure or look up barometric pressure. Routine measurements of daily amounts of precipitation and maximum and minimum air temperatures are critical for climate study. Measurements of soil temperature and moisture and of phenology are also important in studying climate. The temperature of water bodies and when they are dry or frozen are also useful. Students can think about and debate which of the GLOBE measurements are most important for describing the climate. In order to study climate using GLOBE measurements, you will want your students to access data from other schools using the GLOBE Web site. GLOBE provides graphing tools online and the ability to download a school's data as a table that can be imported into other data analysis programs such as a spreadsheet.

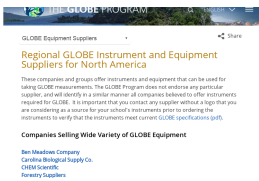
JANELLE JOHNSON FEB 22, 2019 02:18PM

GLOBE Resources

GLOBE Resources

This list of links and notes are resources from GLOBE that may be helpful to your overall GLOBE work.

PADLET



JANELLE JOHNSON FEB 22, 2019 02:18PM

What happened to the scientific method?

"This approach often obscures or distorts the processes of inquiry as they are practiced by scientists. Practices, such as reasoning carefully about the implications of models and theories; framing questions and hypotheses so that they can be productively investigated; systematically analyzing and integrating data to serve as evidence to evaluate claims; and communicating and critiquing ideas in a scientific community are vital parts of inquiry. However, they tend to be missed when students are taught a scripted procedure designed to obtain a particular result in a decontextualized investigation. Furthermore, these higher-level reasoning and problem-solving practices require a reasonable depth of familiarity with the content of a given scientific topic if students are to engage in them in a meaningful way. Debates over content versus process are not in step with the current views of the nature of science.... Science is seen as a fundamentally social enterprise that is aimed at advancing knowledge through the development of theories and models that have explanatory and predictive power and that are grounded in evidence. In practice this means that content and process are deeply intertwined."(NRC, 2012b, p. 127)

JANELLE JOHNSON FEB 22, 2019 02:18PM

GLOBE Teacher's Guide

The [GLOBE Teacher's Guide](#) is an online collection of background information, science protocols (data collection procedures), and learning activities organized by Earth spheres: Atmosphere, Biosphere, Hydrosphere, and Pedosphere (Soil).

The GLOBE Program® Teacher's Guide



2014

GLOBE_Teachers_Guide_introduction.pdf

PDF document

PADLET DRIVE



Teacher Implementation Guide

An overview of the resources and background necessary to implement
Elementary GLOBE in K-4 classrooms

Becca Hatheway and Lisa S. Gardiner



www.globe.gov/elementaryglobe

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Elementary_GLOBE_implementation_guide.pdf

PDF document

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Elementary GLOBE

Elementary GLOBE is designed to introduce students in grades K-4 to the study of Earth system science.

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3D-PAWS

The GLOBE Program and 3D-PAWS (3D Printed Automated Weather Stations) are partnering to collect real-time weather data in participating GLOBE communities.

To visit 3D-PAWS, click below

Home

Many surface weather stations across the globe suffer from incorrect siting, poor maintenance and limited communications for real-time monitoring. To expand observation networks in sparsely observed regions, the 3D-PAWS (3D-Printed Automatic Weather Station) initiative has been launched by the University Corporation for Atmospheric Research (UCAR) and the US National Weather Service International Activities Office (NWS IAO), with support from the USAID Office of U.S.

GOOGLE



JANELLE JOHNSON FEB 22, 2019 02:18PM

UCAR SciEd - GLOBE Data Explorations

GLOBE Data Explorations are classroom activities to help students learn how to analyze GLOBE environmental data while also learning atmospheric science concepts and geography.

GLOBE Data Explorations | UCAR Center for Science Education

GLOBE Data Explorations are classroom activities developed by the UCAR Center for Science Education, a GLOBE Partner, to help students learn how to analyze GLOBE environmental data while also learning atmospheric science concepts and geography. The nine activities were reviewed by science educators and staff at the GLOBE Implementation Office and field tested by teachers.



UCAR

JANELLE JOHNSON FEB 22, 2019 02:18PM

GLOBE Advanced Data Access Tool (ADAT)

The GLOBE Program's ADAT allows you to find and retrieve GLOBE data using different search parameters.

(no login required)

Labs, Data Collection, Weather Activities

RICHARD WAGNER FEB 22, 2019 02:45PM

Weather Data Using Line Plots

Exploring Colorado Severe Weather with Line Plots

Guiding Questions:

- When is Colorado's Tornado Season?
- When does Colorado see the biggest snow storms?

1.) Think about your own experiences in Colorado. When do you think the states Tornado Season is? What months do you think have the strongest tornadoes (EF3 or stronger)? Make a prediction in the space below and be sure to explain your reasoning.

2.) In the table below are all EF3 or stronger tornadoes that have happened in Colorado from 1990 to 2017 are listed. Using the provided number line, construct a line plot using the data in the table. (On the number line 1 = January, 2 = February, ect.)

Month	Day	Year	Rating
June	6th	1990	EF3
June	6th	1991	EF3
May	30th	1996	EF3
May	31st	1999	EF3
July	5th	2000	EF3
May	29th	2001	EF3



MULTI_Line_Plot_Activity.docx

Word document

PADLET DRIVE

RICHARD WAGNER FEB 22, 2019 02:46PM

Scatter Plots Using Climate Data

Question 1: Describe the scatter plot you constructed showing year and global annual temperature. Make sure your description includes whether your scatter plot has a **linear or non-linear correlation**, a **positive or negative correlation**, **how strong the correlation is** and if there are **any outliers**.

Description:

Optional Sentence Frames

My scatter plot shows a _____ Correlation.

(Linear/Nonlinear)

My scatter plot shows a _____ Association.
(positive/
Negative)

After your description is written, STOP and Raise your hand



Question 2: Construct a linear model (trend line) for your scatter plot. Remember that this line needs to best "fit" the data. It does not need to hit all the data points. This line needs to show the trend (pattern) in the data. Raise your hand when you are done.

MULTI_Scatter_Plot_Questions.docx

Word document

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RICHARD WAGNER FEB 22, 2019 02:48PM

Scatter Plot Activity Data

Name: _____ Period: _____

Date: _____



Scatter Plots, Linear Association, and Bivariate Data using Climate Data

Instructions: Below you will find a table of values and a blank scatter plot. Plot the data from the table on the blank scatter plot.

Data retrieved from: https://www.ncdc.noaa.gov/cag/time-series/global/globe/land_ocean/1/12/1880-2016

MULTI_Global_Temp_Scatter_Plot.docx

Word document

PADLET DRIVE

RICHARD WAGNER MAR 09, 2019 08:27AM

Math Content Using Climate Data



PADLET DRIVE

Musician

DESA DEBANE MAR 09, 2019 11:24AM

climate science, teacher, pipe fitters, construction, doctors, DVM, wildlife management, forestry, ag., stats, physics, astronomy, chem, psych, computer sci, nutrition, geography, event organizers, designers,

Reflection: Application with Focal Students

JANELLE JOHNSON FEB 22, 2019 02:18PM

How can you apply today's content or approaches?

What would you need to modify for this to work with your focal students? How do you think they would respond?

I really like applying 'real world' data in the class. I just finished my Natural Hazards Unit and did a PBL called, 'Masters of Disaster'. This activity would have been a great connection for them to incorporate math data into it. My focal student would have had issues connecting the word month to the actual number on the line plot. I feel like there is a lot of time where we give a problem/activity but don't think of background information. Telling the students they have 5 minutes to plot the 10 data points can turn into a 40 minute mini lesson. Giving me an internal struggle of going forward with just the 5 minutes because that's all I can give with the pacing of the unit vs. stopping and helping them with the months and capitalizing on the learning opportunity. — TARA KIMMEY

I like to incorporate making visual representations of quantitative and qualitative data. This will both help for recognizing math application in everyday life, but also take it out of the paper-and-pencil classroom discipline sphere to a more practical hands-on approach for those students that think they will never need algebra because they want to run a liquor store to earn their living or be a stay-at-home dad. — MARISKAHAMSTRA

In Math graphing is used a lot to understand data and make connections/ equations out of the data. In a classroom setting this same activity can be used , however I would change the the date the students are analyzing to maybe something they are more intrested about. — ATZIN CABRERA

Today's approaches can be applied by having students work more with visual representations such as graphs to show their thinking. Students can understand that just because we may be focused on a science lesson, that math could be incorporated. I would explore the answers to their why questions and how what we are doing in class can be applied to their outside learning. — ARIANNA LEBLANC

At this time I find students that have a low efficacy for their ability to apply skills and find purpose in what they are doing. For these kids using relevant information that is important to them that they can use math skills to answer questions and better understand the purpose of the skills and why it can be helpful for them. Once their confidence and understanding is better then they tend to be less apprehensive of the process.

— KAY BOLERJACK

This activity could very easily help students see themselves as scientists. I may change the data that we analyze depending on what my students are interested in, but it's a good way to show students that there are a variety of ways in which scientists can be viewed. It demonstrates the interdependency of science and math. — DANIEL BILLER

Approaching math as something that isn't to be feared, that a simple graph IS math. That math can provide great discussion points and be used to prove or disprove statements. This can also be differentiated for advanced students to go even deeper into the data. — MATTHEW DAVIS

Working in a rural area, like eastern Colorado, weather is something that is extremely important. It effects their day to day life whether it is their life stock or crop, weather determines a lot in a farming community. — MORGAN GURSS

I would make it more interest base or applicable to the real world they tend to lose interest quickly. I would also how they could apply what they learned to their everyday life. — SOPHIE KORONA

I can incorporate graphing in the freshman bio class, we are going over mitosis and they could graph how many cells are in the various stages of mitosis and related that to cancer. — DESA DEBANE

Feedback & Evaluation

JANELLE JOHNSON FEB 22, 2019 02:25PM

Upcoming sessions

Save the date!

GLOBE Mosquito Madness w the Bug Chicks March 15

GLOBE IVSS & SRS--May 17 & 18th in Mescalero, NM

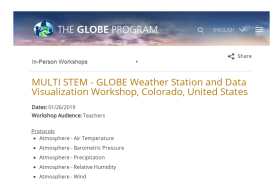
Discover STEM Career Expo-March 16

Two day summer institute June 5 & 6

In-Person Workshops - GLOBE.gov

GLOBE Training available across multiple Science Protocols around the world

GLOBE



JANELLE JOHNSON MAR 09, 2019 08:36AM

Evaluation

Thanks for your feedback!

**MULTI GLOBE STEM Workshop:
Math Using Climate Data - March
9, 2019**

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