

Climate Tweets: Examining Global Climate Change

GRADE LEVEL: 3 - 5

MATERIALS: “the Investigator: Climate Change Edition” by the USDA Pacific Northwest Research Station, Issue Number 2, Winter 2011, internet access, computer or iPad, “Get Down to Earth! What You Can Do to Stop Global Warming” by Laurie David and Cambria Gordon

OBJECTIVE: Develop an understanding of why climate change is considered a problem, encourage students to take action

SKILLS: Critical reading, critical thinking, problem solving

VOCABULARY: (global) climate change, global warming

OVERVIEW (for students): Scientists study all types of things to try to understand them better. Veterinarians are scientists that study pet health. Their studies have helped us learn how to fix broken bones, treat different pet diseases, and even understand how a pet might think. This is very important information because our pets can't tell us when they are hurt or sick, or just feeling a bit down. People combine what they know about their pet specifically (like, my dog loves popcorn!), along with the general knowledge the veterinarians provide (like, don't ever give your dog chocolate!), to do their very best to take care of their pets and help them grow up healthy and strong.

Climate scientists, or climatologists, study the Earth's climate the same way a veterinarian studies pet health. It is important to know what climate is, because it is NOT the same thing as the weather! Climate is how we know that when winter comes to North Dakota, you better have some good snow pants and boots. In the same way, we know that it never snows in winter in Florida, but the summers are hot and humid. The difference is that weather is a short period of time, and small area. It might be rainy in Fargo the same time it is sunny here. Climate is much bigger. Climate is seasonal, over many years, and over a large region. Our climate considers what winters and summers have been like since your grandparents were kids, since UND was established (1883), and even before that.

We know that our weather will change from day to day. Eventually these daily weather changes indicate we are in a new season. However, climate can change too! It just does it a lot more slowly because it's a much bigger thing. But how do we know if the changes we see in our climate are good or bad? Take a minute to think about pets. Growing from a puppy to a dog is a normal, healthy thing. However, if the dog is sick, it will show symptoms. Maybe it will run a fever, cough, lose a lot of weight quickly, or get REALLY tired. These changes from normal let others know there is something wrong. Climate scientists look for evidence of changes in climate, like the symptoms of illness for a pet, to show there may be something to be concerned about for the Earth's climate.

PART I: Becoming a Climate Scientist

INTRODUCTION (for students): Scientists perform a lot of research before they can come to a conclusion about what they see. They gather data, read reports, and talk to other scientists and sometimes the general public, before they offer a suggestion on how to fix a problem. For this part of the lesson, you are going to work on becoming a climatologist. Take a look at the “the Investigator: Climate Change Edition” by the USDA Pacific Northwest Research Station, and the NASA ClimateKids website. These resources have several activities, stories, games, links to videos, and more that can help you understand Earth’s climate and the changes scientists have found that have them concerned about climate change.

An important part of any research is taking careful notes about what you find. As you explore “the Investigator” and ClimateKids website, make sure to take notes because you will be blogging about your work. Keep in mind what read, what you did, what you learned, and what you think about climate change based on what you found.

DIRECTIONS (for teachers): Assign students to groups of no more than 3 and have them spend time exploring “the Investigator” and the ClimateKids website. <http://climatekids.nasa.gov/> Students should not write in the books, as they will be used over again for others. Feel free to make copies of puzzles or games in the book, for students to complete. Ask the students to take notes on what they find and what they have learned. Individually, the students will write a short blog entry about what they did, and what they learned. They can also include any early thoughts/feelings about climate change.

PART II: Scientific Exchange

INTRODUCTION (for students): As mentioned before, scientists also talk to each other and the general public to get more information and develop a better understanding of their topic. People are able to share their opinions about climate change through social media such as blogs or Twitter. As a class, you are going to share your blogs about what you learned from “the Investigator” and the ClimateKids website. You can share how what you learned has made you feel about the idea of climate change. You will also be taking a look at tweets left by people about climate change. Think about how the author might have felt when they wrote their tweet, where they live, and what might make them feel climate change is important enough to write about it.

DIRECTIONS (for teachers): Start by reviewing as a class the students blogs about their time spent using “the Investigator” and the ClimateKids website. Ask them to share their experiences, and in particular, their opinions about climate change. Encourage the students to note the most common and most unique things by looking for patterns in the class discussion. Have one or two students keep a class record of the common or most unique things they find on an easel, dry erase board, or other location where everyone can see it.

After the class has reviewed their findings with each other, share several of the climate change tweets with the class from the list (see Climate Tweets List Access instructions). Encourage the students to be thinking about the tweets and their own class findings. Have the students write a second blog entry about whether they think climate change is a problem based on the evidence they saw, and the opinions they have heard/read. The students should also decide if they think the climate change problem is fixable.

PART III: Think Globally, Act Locally

INTRODUCTION (for students): Based on the data they have gathered, most climate scientists agree that our global climate is changing faster than ever before, and not for the better. The good news is that they don't feel we are helpless against it! There is greater emphasis on controlling pollution, recycling, and protecting our environment. Everyone, no matter how old, can contribute to helping the Earth. Here is your chance to design your own program or activity to be used in your school to help our environment. Keep in mind, the most successful programs and activities start off with simple and inexpensive ideas that are easy to participate in. For example, little free libraries are popping up in towns all over the US, including here in Grand Forks! It was based on the idea that not everyone has books at home, and not everyone can make it all the way to the public library. But, they CAN walk to a neighbor's house, or the end of their block to borrow a book. Your class will vote for the best idea. It will be used in your classroom, or school for the rest of the year to help promote protecting the environment.

DIRECTIONS (for teachers): Share pages 8 – 23 of “Get Down to Earth! What You Can Do to Stop Global Warming” by Laurie David and Cambria Gordon with the students. Group the students into teams of 4 to brainstorm ideas for a project, program, or activity that can be implemented in their school. Each team will create a short presentation or video clip explaining their concept and why they feel their idea is the best. The videos will be shared with the class and/or school and students will decide what idea they think is the best one to try to implement for the rest of the year. Consider contacting your PTO to see if they would be able to provide limited funding to offset material costs to implement the program.

ADDITIONAL RESOURCES:

Natural Inquirer: Middle School Science Education Journal. You can order or download copies of “the Investigator: Climate Change Edition” by the USDA Pacific Northwest Research Station. You can also access other issues of “the Investigator” here. <http://www.naturalinquirer.org/Climate-Change-Investigator-%28Pacific-Northwest-Research-Station%29-i-41.html>

Earth Day Network: Climate Education Week. This site contains links to other lesson plans at multiple grade levels to help understand how a changing climate can have far-reaching effects. <http://www.earthday.org/climateeducationweek/itextbook-apple-store-release-on-april-18th/>