Do the American Public and Media *Understand Weather and Climate?*

DESCRIPTION

Students read a short article and examine selections from the media to determine whether the American public and media tend to understand the difference between weather and climate.

GRADE LEVEL
6 – 12

OBJECTIVES

Students will:

- Examine research findings
- Evaluate the portrayal of climate change in the media using two selections
- Formulate ideas about how to clarify the difference between weather and climate

TIME
20 MINUTES

COMMON CORE STATE STANDARDS

English Language Arts Standards » Science & Technical Subjects » Grade 6-8

CCSS.ELA-LITERACY.RST.6-8.1. Cite specific textual evidence to support analysis of science and technical texts.

CCSS.ELA-LITERACY.RST.6-8.8. Distinguish among facts, reasoned judgment based on research findings, and speculation in a text.

English Language Arts Standards » Science & Technical Subjects » Grade 9-10

CCSS.ELA-LITERACY.RST.9-10.1. Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions.

English Language Arts Standards » Science & Technical Subjects » Grade 11-12

CCSS.ELA-LITERACY.RST.11-12.6. Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text, identifying important issues that remain unresolved.

BACKGROUND

The public obtains most of its scientific information from the media (Boykoff and Rajan 2007), and therefore, the accuracy and reliability of the information conveyed is of utmost importance. However, portrayals of climate change in the media often demonstrate confusion between the concepts of weather and climate. This common misconception can lead to inaccurate conclusions about climate change.

Weather is a description of short-term atmospheric conditions. It can include temperature, humidity, precipitation, cloudiness, visibility, wind, and atmospheric pressure. These observations are used to describe the conditions over a short time period, from minutes to months.

Climate is the long-term pattern of weather in an area. It describes the average weather for a region over a longer time period, often defined as approximately 20-30 years or more.

Climate change refers to any significant change in the measures of climate lasting for an extended period of time. This includes global warming, changes in precipitation patterns and length of seasons, and increased frequency of extreme weather events. Note that the media will often use the terms climate change and global warming interchangeably, and in fact, this is done in the article excerpt used for this activity. Global warming describes the current increasing average global temperature. Climate change is a broader term that encompasses global warming along with many other long-term changes in climate patterns that result from warmer temperatures.

MATERIALS

- *Understanding the Difference* handout [1 per student]

PREPARATION

None

PROCEDURES

1. Pass out an *Understanding the Difference* handout to each student.
2. Instruct students to read the short article excerpt in the box at the top of the handout and look at the graphics in the box at the bottom of the handout.
3. Once it seems like most students have had enough time to read the article excerpt and look at the graphics, ask them to answer the discussion questions on the handout.

PROCEDURE VARIATIONS

Students can answer the discussion questions using one or more methods. Choose one of the following options or combine them to approach the questions in a variety of ways.

1. Students can answer all of the questions on their own. Then lead a discussion of each of the questions after students have answered them.
2. Students can answer the questions as a whole group. Lead students in a discussion of each question, soliciting answers from students and talking about their answers.
3. Organize students in small groups and have each group work on one or two questions. In their groups, students should discuss the question, determine how they would like to answer it as a group, and choose one student to explain their answer to the whole class. Have one student from each group report to the class by reading the question and summarizing their group's answer. In a large class, it may be necessary to have more than one group answer each question.
4. With a group of students who do not yet know each other or with students who may be shy about their thoughts, try mixing up the handouts. First, students answer all of the questions on their own. Then mix up the handouts and pass them out to other students. Then call on a student to read the answer of a question from the other student's handout that they are holding (without revealing the name of the student). Finally, lead the class in a discussion of the answer and whether students agree with the answer. Repeat for each question on the handout.

EXTENSIONS

1. Ask students to research climate change in the media and create a project to communicate their findings. An example topic could be to investigate the media echo chambers and reinforcing spirals framework concepts found by Yale researchers and summarized on this webpage: http://environment.yale.edu/climate-communication/article/media-echo-chambers-and-climate-change
2. Have students examine public perceptions about climate change in your state, neighboring states, and/or across the US. The interactive Yale Climate Opinion Maps website provides survey data about climate change beliefs, risk perceptions, and policy support graphically by state, congressional district, or county. As an example activity, use the website to have students compare the percentage of adults who believe that global warming is caused mostly by human activities in their state and a neighboring state. Yale Climate Opinion Maps website: http://environment.yale.edu/poe/v2014/
3. Once students determine that the media can perpetuate misconceptions about climate change, they may be left wondering where people should seek information on the topic. Challenge students to find credible sources online. Discuss how to determine whether information found on a website is reliable (see reliable information website in Additional Resources section). The list of reliable websites in the Additional Resources section may be a helpful starting point. Ask students to take it a step further and brainstorm about ways that reliable information could be shared widely with the public and what outlets the average person would most likely see.

ADDITIONAL RESOURCES

1. Article with helpful background information about climate change in the media:
   Boykoff, MT, Rajan, SR. 2007. Signals and noise: mass media coverage of climate change in the USA and UK. EMBO Rep. 8(3): 207-211. Accessed online. 21 Apr. 2015. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1808044/>.
2. Website about finding reliable information online:
   Montecino, V. George Mason University. Criteria to Evaluate the Credibility of WWW Resources. Published Aug. 1998. Web. Accessed 28. Apr. 2015. <http://mason.gmu.edu/~montecin/web-eval-sites.htm>.
3. Websites with reliable climate change information:
   Environmental Protection Agency (EPA). Climate Change: Basic Information. Published 18 Mar. 2014. Web. Accessed 09 Oct. 2014. <http://www.epa.gov/climatechange/basics/>.
   National Aeronautics and Space Administration (NASA). Global Climate Change: Vital Signs of the Planet. Updated 27 Apr. 2015. Web. Accessed 28 Apr. 2015. < http://climate.nasa.gov>.
   National Oceanic and Atmospheric Administration (NOAA). Climate.gov. Web. Accessed 28 Apr. 2015. <http://www.climate.gov>.
   National Oceanic and Atmospheric Administration (NOAA). Global Climate Change Indicators. Web. Accessed 28 Apr. 2015. <https://www.ncdc.noaa.gov/indicators/>.
   National Park Service (NPS). Climate Change and Your National Parks. Updated 24 Apr. 2015. Web. Accessed 28 Apr. 2015. <http://www.nps.gov/subjects/climatechange/index.htm>.
   Southwest Regional Climate Hub. Web. Accessed 28 Apr. 2015. <http://swclimatehub.info>.