

## Teacher Survey

**Instructions:** Please complete the following evaluation.

1. Did you make any adjustments to the learning module? If so, what did you change or omit?

2. From your observations, are the students more interested in atmospheric science?

3. What part of the lesson was most effective or interesting to them?

4. What concept did the students have most trouble understanding or applying?

## Student Survey

Please distribute this survey to the students before and after completing the module.

**Instructions:** Circle the answer that best describes your feelings about science.

1. I like science.
  - a. I strongly disagree.
  - b. I disagree.
  - c. I am indifferent or unsure.
  - d. I agree.
  - e. I strongly agree.
  
2. How often do you talk to your *family* about what you do in science class?
  - a. Never
  - b. Rarely (less than once a week)
  - c. Once a week
  - d. A few times a week
  - e. Every day
  
3. How often do you talk to your *friends* about what you do in science class?
  - a. Never
  - b. Rarely (less than once a week)
  - c. Once a week
  - d. A few times a week
  - e. Every day
  
4. I think science will be useful when I am older.
  - a. I strongly disagree.
  - b. I disagree.
  - c. I am indifferent or unsure.
  - d. I agree.
  - e. I strongly agree.
  
5. I would like to be a scientist when I am older.
  - a. I strongly disagree.
  - b. I disagree.
  - c. I am indifferent or unsure.
  - d. I agree.
  - e. I strongly agree.

## Effectiveness Assessment

### Part 1: Pre and Post Assessment (Student Evaluation)

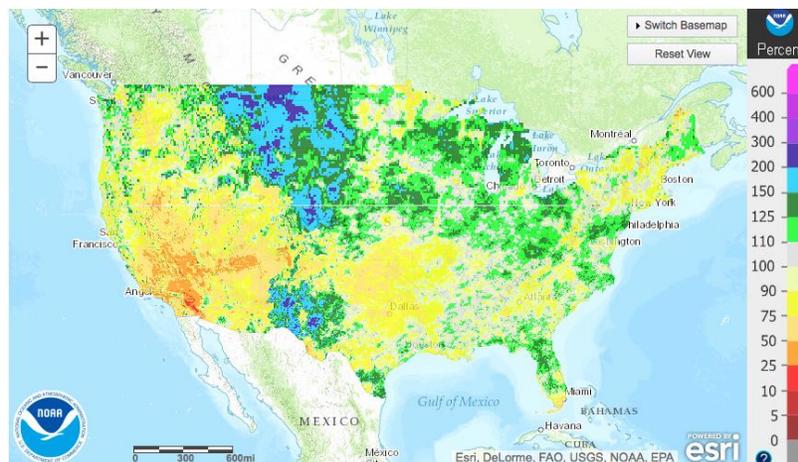
**Instructions:** Please distribute and score the **Student Evaluation** for each student before and after completing the module. Each question is worth 1 point.

#### Student Evaluation

**Instructions:** After completing the lesson on heat waves and drought, please have the students answer the following questions below.

1. Based on a 10-year average, how many people die from heat each year?
  - a. 40
  - b. 50
  - c. 100
  - d. 115
  - e. 200
  
2. Which of the following groups is not especially vulnerable to extreme heat exposure?
  - a. Children
  - b. Elderly persons
  - c. People with asthma
  - d. People with seasonal allergies
  - e. People with chronic illnesses
  
3. How does a drought begin in the western United States?
  - a. Insufficient rainfall
  - b. Insufficient snowpack
  - c. Above average temperatures
  - d. Lack of thunderstorms
  
4. The drought monitor takes into account
  - a. relative humidity
  - b. temperature
  - c. short-term conditions
  - d. long-term conditions
  - e. thunderstorms

5. Below 95°F, the human body can efficiently cool itself by
  - a. conduction
  - b. convection
  - c. radiation
  - d. evaporation
  - e. all of the above
  
6. Heat waves and drought are the deadliest forms of weather. T     F
  
7. Drought is associated with persistent low pressure systems. T     F
  
8. Drought has caused famine, war, and widespread poverty. T     F
  
9. The Heat Index accounts for how moisture in the atmosphere affects how efficiently your body can cool. Briefly explain why high humidity makes you feel hotter.
  
10. The map below shows the annual precipitation (percent of average). If the shading is more than 100%, the annual precipitation is above average. The average annual precipitation for Chicago, IL is 52 inches. If Chicago has experienced 130% of their annual average precipitation to date, how much precipitation has fallen so far this year?
  - a. 40 inches
  - b. 52 inches
  - c. 67.6 inches
  - d. 104 inches



**Part 2: Math & Science Proficiency (Take Home Assignment: Parts 2 & 3)**

Please score **Take Home Assignment: Parts 2 & 3** for each student using the rubric below. This problem is aligned with the following academic standard:

<b><u>NGSS.MS-ESS3-2</u></b>
<b>MS-ESS3-2. Human Impacts:</b> Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects.

**Scoring Rubric**

<b>Questions</b>	<b>Score (0 – 3)</b>
Did the student demonstrate the ability to analyze data from the drought monitor (P2: Q1)?	
Did the student demonstrate knowledge of the causes of drought in the U.S. (P2: Q2)?	
Did the student demonstrate knowledge of the instruments used to monitor drought (P2: Q4)?	
Did the student demonstrate the ability to read a table to calculate the heat index (P3)?	
Did the student include the correct units for heat index (P3)?	

- 0 – Incomplete*
- 1 – Completed with incorrect answer*
- 2 – Complete with small errors*
- 3 – Complete with correct answer*

## **Take Home Assignment: Part 2. Drought**

Now, view the current Drought Monitor map by clicking the link and answer the questions below.

### **Drought Monitor**

1. Where in the U.S. is extreme/exceptional drought occurring (Example: western, central, eastern U.S.)?
2. In this particular region of the U.S., what causes drought?
3. What are the four variables that require careful observation when monitoring a drought?
4. Name two commonly used instruments to monitor precipitation and drought?

## **Take Home Assignment: Part 3. Heat Waves**

**Instructions:** Calculate the heat index for 3 days in Chicago, IL and answer the following questions.

Day 1: T = 102°F, RH = 40%      Heat Index    \_\_\_\_\_

Day 2: T = 100°F, RH = 45%      Heat Index    \_\_\_\_\_

Day 3: T = 117°F, RH = 55%      Heat Index    \_\_\_\_\_