1. Greenhouse gases are of concern to scientists interested in climate change.

Write Y (yes) next to each statement that helps explain why scientists are concerned about greenhouse gases; write N (no) next to each statement that does not help explain the concern.

_____ Greenhouse gases absorb thermal energy radiated by the Sun.

_____ Carbon dioxide (a greenhouse gas) is breathed out by billions of people all over the world.

_____ Greenhouse gases absorb more energy from visible light than from infrared radiation.

_____ Thermal energy that encounters greenhouse gases cannot escape the atmosphere.

2. Do you think humans are responsible for global warming trends? Why or why not? Be sure to include evidence to support your claim.

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INVESTIGATION 9 I-CHECK
WEATHER AND WATER

Climate data for New York, New York

3. Write your answers based on the information you see in the graphs.

   a. Write T if the statement is true; write F if the statement is false.

      ____ The change in temperature from January to February is the same pattern in both graphs.

      ____ There is more precipitation in April than in May in both graphs.

      ____ There was more precipitation in 1981–2010 compared to 1901–1930.

      ____ January, July, and December temperatures were higher in 1981–2010 than in 1901–1930.

      ____ You don’t need so many years of data to show climate change; 5 years is enough.

   b. Do these data support climate change?

      (Mark the one best answer.)

      ○ A Yes, because the climate has changed in New York

      ○ B No, because these data include only one city

      ○ C Yes, because the temperature has increased over time

      ○ D No, because the changes are not very large
4. This map shows the paths of hurricanes that occurred in 2011.
   a. Someone showed you this map, and said that this is evidence that hurricanes do not occur in Florida (X on the map). Do you agree? Why or why not?

   *(Mark the one best answer.)*

   - A  Agree, this map shows no hurricanes reached Florida in 2011.
   - B  Agree, hurricanes follow the same path year after year.
   - C  Disagree, you need to look at data from more than one year.
   - D  Disagree, there must be missing data because Florida has at least one every year.

   b. Why is it helpful for scientists to publish maps such as this one for people who are not scientists?

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5. Read the newspaper article, then answer the questions.

Our community has seen unseasonably warm weather this year. The local meteorologists predict it will continue through the coming month. While this trend might bring joy to those who love the sun, it is a clear sign of danger—climate change [A]. The rest of the world as well as our community have been surprised by a series of temperature records set this year [B]. March was the most unusually warm month on record by far, alarming many observers [C]. But that record was broken immediately in April [D].

In our community, April 2016 was the warmest April on record [E]. And this week, our local meteorologist released seasonal predictions: we should expect above average temperatures to continue across the country throughout May and possibly June [F].

The meteorologist says, “May won’t be a record-setter, but it will most likely be above normal” [G].

The current pattern of warm weather is partly due to the presence of the 2015 El Niño, a large area of unusually warm water spread across the Pacific Ocean [H]. El Niño is breaking up, but that means the warmer water is spreading to places in the Southern Hemisphere, raising temperatures there [I].

a. In this article, the author talks about “a clear sign of danger—climate change.” Do you think he did a good job providing evidence to support his argument? Why or why not?

b. If you could interview the author of this article, what questions would you ask in order to clarify evidence about the factors that have caused the rise in global temperatures?