



High School Science Virtual Learning

**Environmental Science**

**Temperature Increase**

May 7, 2020



# High School Environmental Science

## Lesson: May 7, 2020

### **Objective/Learning Target:**

Students will identify the effects of climate change on temperature increase.

1. What is the average pH of water and how does it change by adding  $\text{CO}_2$ ?
2. What happens to organisms when you decrease the pH they live in?

1. Distilled water will be around 7 while carbonated ( $\text{CO}_2$ ) water will be lower.
2. Organisms metabolism and immune response can decrease with a decrease in pH.



## Lesson Activity:

### Directions:

1. Read both of the articles linked below. While doing so, take careful notes of how climate change contributes to increases in global temperatures and the impacts this has on the Earth.
2. Create a graphic organizer to organize all the different types of causes and effects outlined in the articles.
3. Write a letter to your local politician explaining how climate change is contributing to global temperature increases and the impact this has. Your letter needs to be supported by information outlined in the articles.

### Link(s):

[Article 1](#)

[Article 2](#)

[How to Write a Business Letter](#)



# Practice

You will use the information from the activity on slide 5 to answer the following questions.



# Practice Questions

1. How much faster is the current warming projected to occur than any change over the past 65 million years?
2. How can we measure climate before 1880?
3. What proxies can be used to see yearly changes in temperature?
4. What proxies can be used to show temperature shifts over long periods of time?
5. What is significant about the “hockey stick” graph?



# Answer Key

Once you have completed the practice questions check with the work.

1. The current warming is projected to occur at a rate 10 times faster than any change over the past 65 million years.
2. Climate experts rely on biological or physical archives known as "proxies" that preserve past temperature.
3. Tree rings, coral skeletons, and glacial ice cores are proxies for annual temperature records
4. Boreholes can show temperature shifts over longer periods of time.
5. The "hockey stick" graph was the first comprehensive study combining data from many different archives of temperature including tree rings, ice cores, and coral reefs.





# More Practice

You will use the information from the activity on slide 5 to answer the following questions.



## More Practice Questions

1. How is sea turtle reproduction associated with temperature?
2. What is the issue the rising temperature is causing in sea turtles?
3. In our increase in temperature where are the warmest temperature extremes going to occur?
4. What will happen to water availability with an increase of 1.5° C?
5. What will happen to some places precipitation with a 2° C warming?

# Answer Key

Once you have completed the practice questions check with the work.

1. The temperature of the beach sand that female sea turtles nest in influences the gender of their offspring during incubation.
2. Our warming climate may be driving sea turtles into extinction by creating a shortage of males since males only hatch below 27.8° C (82° F).
3. The warmest extreme temperatures will be in Central and Eastern North America, Central and Southern Europe, the Mediterranean, as well as Western and Central Asia and Southern Africa.
4. Half as many people around the planet may experience water stress caused by climate change
5. There will be extreme precipitation that would cause higher flooding risks in the Eastern North America and other high latitude Northern Hemisphere places.



## Additional Resources

Here is an excellent article that explains how climate change contributes to increases in global temperatures: [Climate Change: Global Temperature](#)

Interested in learning how climate change and increasing global temperatures affect health of organisms? Here is an article for you: [Climate Change and Health](#)

Interested in reading more on what happens as global temperatures continue to increase? This article will explain just that: [Who Turned up the Temperature](#)