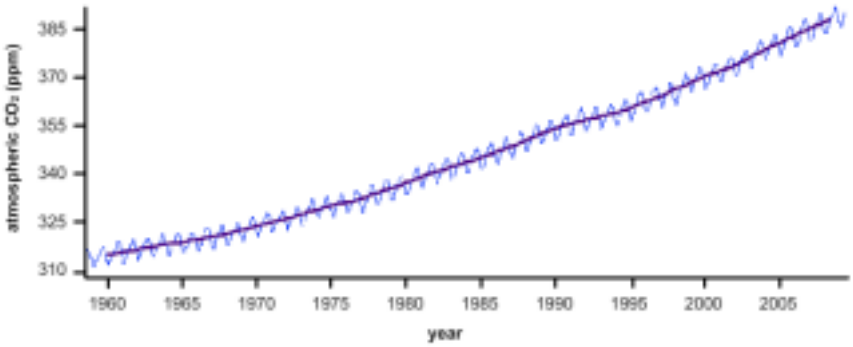
The Virtual Urchin **Name: _____**

SEP: Analyzing & Interpreting Data
SEP: Developing and Using Models

- Go to: https://depts.washington.edu/vurchin/
- Click on "Our Acidifying Ocean" in the list on the left under Ecology and Environment.

1. ***Click on Intro***: How much of the Earth is covered in oceans? _____

2. ***Click on Air***: What is the main idea of the graph to the right?

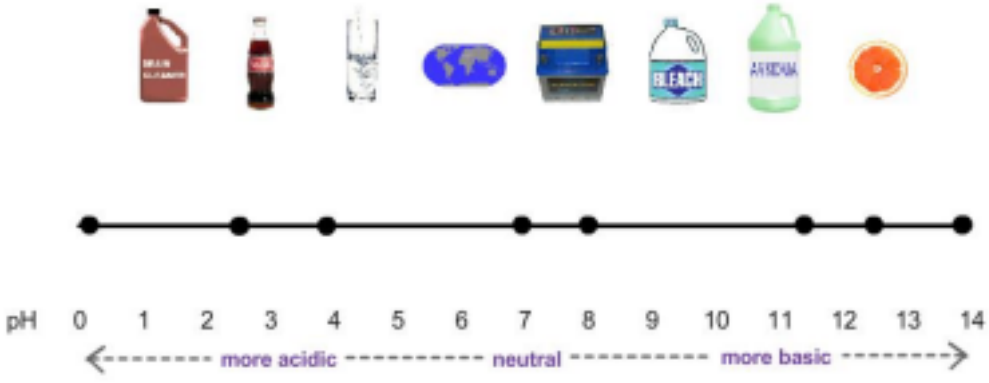


3. What is the trend shown in the graph to the right?

4. What is the difference between the solid line and the wavy line in the graph above?

5. Does this data represent an ecosystem in homeostasis or not? Explain how you know this.

6. ***Click on pH***: Connect the items to their corresponding pH level below.



7. At what pH should ocean water be? _____

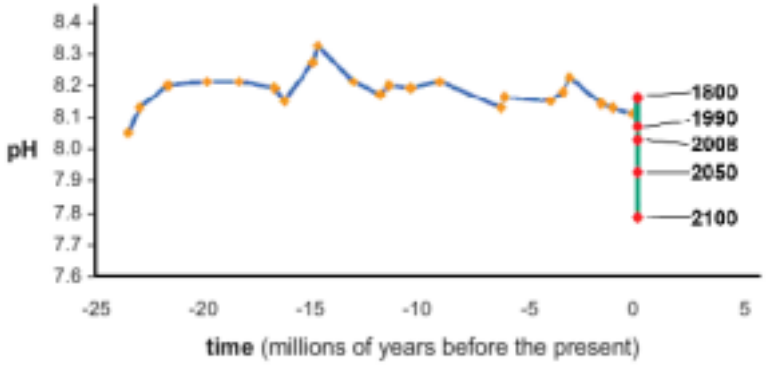
8. Which of the pH readings surprised you most? _____ Why?

9. What does pH actually measure? (You may need to look this up on your own)

10. Where would you think most of your body exists on the pH scale?

11. Where in your body would you expect a very low pH?

12. ***Click on Ocean pH:*** What is the main idea of the graph to the right?



13. What is the trend shown in the graph to the right?

14. What is the difference between the horizontal line and the vertical line in the graph above?

15. Does the data, in the graph above, represent an ecosystem in homeostasis or not? Explain how you know this.

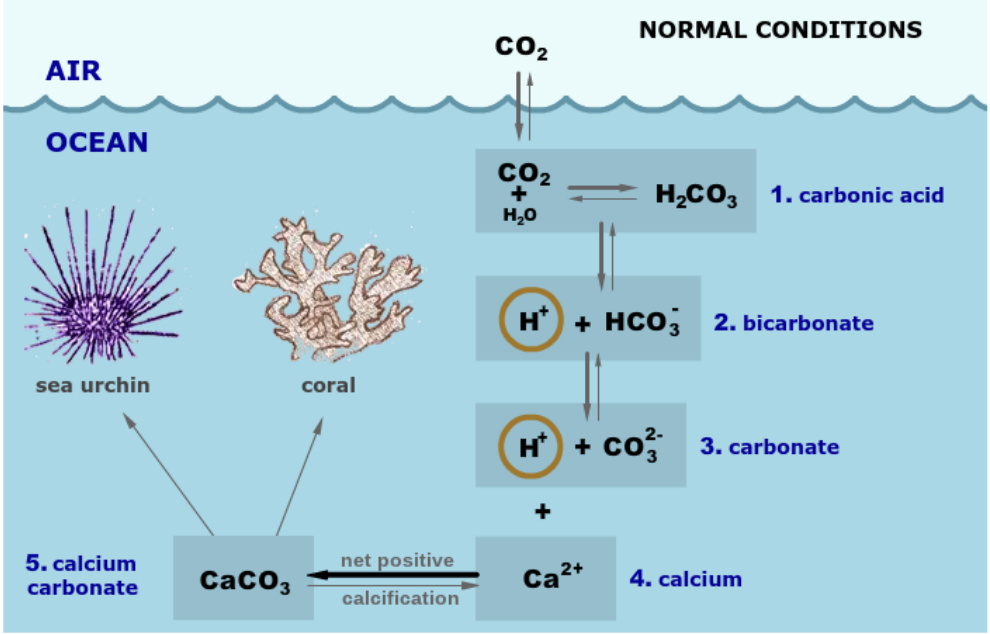
Click on Chemistry: Examine the diagram and read the text in the box below the diagram to answer the questions.

16. What are shells and skeletons of sea creatures made of?

17. Why do the arrows go in both directions?

18. Why are some arrows thick and others are not?

19. Describe the conversion from atmospheric CO_2 to calcium carbonate under normal conditions.



20. Hover over the picture to make it show red arrows. Draw the red arrows on the diagram above to show acidified conditions.

21. Why do the red arrows seem thicker than the black arrows?

22. What molecules increase due to a higher concentration of atmospheric CO2?

23. What does an increase in H+ ion concentration do to the pH value?

24. What does an increase in H+ ion concentration do to the acidity of the water?

25. Which molecule decreases due to a higher concentration of atmospheric CO2?

26. What impact does higher atmospheric CO2 have on urchin shell development?