* A good primer on pH as related to percent change, CO2, and the ocean:

[http://www.pmel.noaa.gov/co2/story/A+primer+on+pH](http://www.pmel.noaa.gov/co2/story/A%2Bprimer%2Bon%2BpH)

* A good review (text) of acidity, buffers, pH scale, and basic chemistry: <http://uccpbank.k12hsn.org/courses/APBioI/course%20files/readings/chapter2printpresentation04print1.pdf>
* A video (5 minute) review of pH including the chemistry and math involved. Has some helpful (clear) animations. <http://www.youtube.com/watch?v=gwFR_Iph5R0&feature=related>
* A good first look or review (13 minute video) of acids and bases. (Paul Anderson, Bozemanbiology channel) <http://www.youtube.com/watch?v=V4S1KlJdMbE&feature=related>
* In this video (6 min), Paul Anderson explains how temperature and pH could affect the rate of a reaction. <http://www.youtube.com/watch?v=hs75JmgGW5Y&feature=plcp>
* A tutorial on how exercise affects pH in the body; has some interesting pictures and graphs. <http://www.chemistry.wustl.edu/~edudev/LabTutorials/Buffer/Buffer.html>
* A 4 minute video about the pH range found in human blood. The first minute impresses students that human blood tolerates a relatively small range in pH - this is a helpful example when discussing the magnitude of change in the world’s ocean pH. The last few minutes explain the chemistry involved. <http://www.youtube.com/watch?v=IBJtQtzN7O8>
* Another short video (3.40 min.) mentioning human body pH and a simple explanation of logarithmic scale and pH. <http://www.youtube.com/watch?v=u837KYKyr9c>
* 14 minute video from NOAA giving the basics of ocean acidification. <http://www.youtube.com/watch?feature=endscreen&v=xuttOKcTPQs&NR=1>
* Animation with sliding scale showing various substances (ie. foods), from John Kyrk. <http://www.johnkyrk.com/pH.html> (If it doesn’t seem to work, click on the > at the bottom of the screen.)
* A compendium of good chemistry resources. <http://www.bio-alive.com/animations/chemistry.htm>
* This has some good ideas for detecting lemon juice and parts per million in solution through our senses. <http://www.pcds.org/share/arctic/arctic_lessons/toxicity.htm>
* The Flinn demonstration, ‘Dry Ice Color Show’, (find directions in this folder) is another possible activity for the exploration of pH, indicators, and the reactions with CO2 in water. There is an online training video to model the demo also: <http://www.flinnsci.com/colorshow>. However for the purpose of this module, the visual pH scale demonstration in the Lesson 2 Plan prepares students more for subsequent lessons by introducing them to how colors change from base to acid as CO2(s) sublimes. Having students match these chemical changes to a color spectrum of beakers pre-set to a different pH continuum sets students up well to understand needed content and to design their own experiment.
* This MIT resource has a great deal of short videos and information on real-world chemistry applications and careers. <http://chemvideos.mit.edu/> Specifically, this video connects to the integration of STEM and to using microbes for biofuel and sequestration of carbon dioxide: <http://techtv.mit.edu/collections/chemvideos/videos/24158>