**Understanding the Importance of pH**

Intro:

* What is pH? You probably have heard of it but how well do you understand it?
* pH is a *chemical* property of matter and plays a role in everyday life.
* <https://www.youtube.com/watch?v=V5Mq_cL9Bck>
* What questions do you still have?

**What to do:**

Use a device to research pH to answer the questions on your planning sheet. Then use the information from your planning sheet and drawing to create a booklet demonstrating your understanding of pH. Start booklet. The booklet can use regular sized pages cut in half and stapled together. Each page should be: half written, half diagrams.

Use as many pages as necessary.

Rubric:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Emerging | Developing | Proficient | Extending |
| Content | Some content discussed  (Question 1-3 completed) | Questions 1-7 are discussed with some details and some images | Questions 1-7 discussed with good amount of detail and images that support the text.  Relevant  Hand written  Images have good use of colour of space |  |
| Appearance |  |  |  |  |

Planning Sheet

1. What is pH? Discuss what it means to be an acid or base.
2. Discuss what the pH scale is and what it is used for.
3. List 5 common acidic substances in our home (some foods, some chemicals). List 5 common basic items found in the home (some foods, some chemicals).
4. What is the role of pH in digestion? What is an antacid and how does it work?
5. How does pH affect our teeth? What part of the teeth are affected?
6. What is lactic acid? How does it form? …
7. Our body has systems in place to regulate pH in our blood.
8. What is acidosis? List 3 possible causes. List 3 symptoms.
9. What is alkalosis? List 3 possible causes. List 3 symptoms.

Planning Sheet:

Minimum, Proficient, Extending Question

**Introduction:** (2-4 half pages)

* What is pH? Discuss what it means to be an acid or base.
* Briefly discuss what the pH scale is and what it is used for.
* pH is in our home - List 5 common acidic substances at home (some foods, some chemicals). List 5 common basic items found in the home (foods, chemicals).

**pH in our bodies**

* What is the role of pH in digestion? What is an antacid and how does it work?
* How does pH affect our teeth? What part of teeth are affected?
* How does our body regulate pH in our blood? What is acidosis? List 3 possible causes. List three symptoms. What is Alkalosis? List 3 possible causes. List 3 symptoms of alkalosis.
* Enzymes in our bodies only function effectively in a specific range of pH. What are enzymes? Why do our bodies need them? Give at least 2 examples.

**In our environment**

* What is acid rain? How does it form? How do these chemicals get into the atmosphere? Acid rain collects into our rivers and lakes. List 5 consequences of overly acidic aquatic ecosystems. Where in Canada is acid rain a big problem?
* Ocean Acidification – explain how this happens and the affect on marine life and coral reefs.

Extra:

**pH in our soil**

* How does pH in the soil affect plants? How do gardeners and farmers alter soil to raise the ph? Lower the pH? List some foods that are particularly acidic

**In animals** – discuss the role of pH in self-defense used by insects like bees and ants.

**Industry** – how is pH used in water treatment, swimming pool maintenance. What are some risks of having a swimming pool too acidic? Too basic?, and household cleaners. Explain how it works.

Enzymes