19.1 Acids, Bases, and Salts

Physical Science

Summarize main points from each video.

Video Title / topic _____

Video Title / topic _____

Video Title / topic _____

Topic Introduction

Summarize your understanding of each paragraph.

A neutralization reaction is the reaction between an acid and a base. For example, some people take an “antacid” (an over-the-counter medicine) when they are experiencing a condition commonly called “heartburn.”

People experience heartburn with their stomach’s solution of hydrochloric acid irritates the linking of their esophagus. Hydrochloric acid has the chemical formula of HCl. HCl reacts with antacids to reduce the acidity of the solution in their stomach.

When an acid reacts with a base, hydronium ions react with hydroxide ions to form water. The other ions form an ionic compound called a salt. The other ions are the positive ions from the base and the negative ions from the acid.

Reactions between acids and bases do not always produce neutral solutions. The pH of the final solution depends on the amounts of acid and base that are combined and on the strength of the acid and base.

Text adapted from Holt Science Spectrum Physical Science page 302.

Read/Summarize Text

1. **Read the passage.**
2. **Underline key expressions in each sentence.**
3. **Re-write each word (or expression) you underlined.**
4. **Summarize the passage.**

chemical definition of salt

1

2

In chemistry, a salt is an ionic compound that can be formed by the neutralization reaction of an acid and a base. Salts are composed of related numbers of cations (positively charged ions) and anions (negative ions) so that the product is electrically neutral (without a net charge).

There are several varieties of salts. Salts that hydrolyze to produce hydroxide ions when dissolved in water are alkali salts; those that hydrolyze to produce hydronium ions in water are acidic salts. Neutral salts are those salts that are neither acidic nor basic.

https://en.wikipedia.org/wiki/Salt_(chemistry)

Re-write words you underlined

3

_____ _____ _____

_____ _____ _____

Using a complete sentence, summarize or rephrase the passage

4

Read Text for Comprehension

Read this article for deeper understanding. No summary is required, although you may want to circle, underline, or mark key ideas and words.

How Much Salt is in the Oceans?

The amount of salt in the ocean, known as ‘salinity’, is a measure of the of the amount of salt dissolved in 1000 grams of water. The amount is expressed as parts per thousands (ppt).

Refractometers are a tool used to measure the amount of salinity in the ocean. The salinity in the ocean is approximately 32 to 35 ppt. Freshwater has a salinity of zero. The estuaries fluctuate their salinity level depending upon the tides. But, it’s always below the open ocean. The poles have a lower salinity because the cold water does not evaporate as fast.

Answer on Reddit.com

By some estimates, if the salt in the ocean could be removed and spread evenly over the Earth’s land surface it would form a layer more than 166 meters (500 feet) thick, about the height of a 40-story office building.

Explanation from USGS

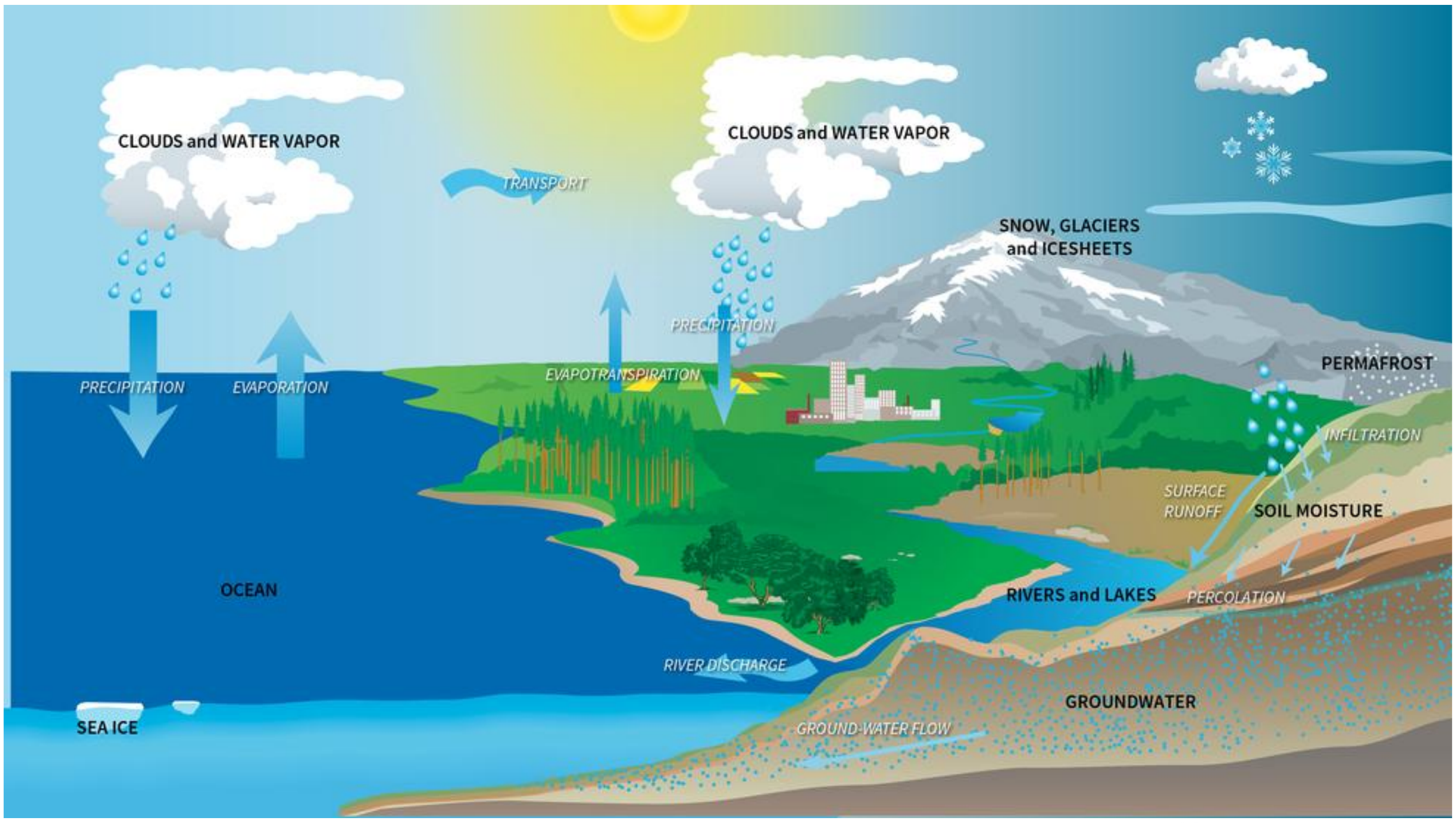
You may know that the oceans cover about 70 percent of the Earth's surface, and that about 97 percent of all water on and in the Earth is saline—there's a lot of salty water on our planet. By some estimates, if the salt in the ocean could be removed and spread evenly over the Earth's land surface it would form a layer more than 500 feet (166 meters) thick, about the height of a 40-story office building (NOAA). But, where did all this salt come from? If you get into folk stories and mythology you will see that almost every culture has a story explaining how the oceans became salty. The answer is really very simple. Salt in the ocean comes from rocks on land.

Rivers and surface runoff are not the only source of dissolved salts. Hydrothermal vents are recently-discovered features on the crest of oceanic ridges that contribute dissolved minerals to the oceans. These vents are the exit point on the ocean floor from which sea water that has seeped into the rocks of the oceanic crust has become hotter, has dissolved some of the minerals from the crust, and then flows back into the ocean. With the hot water comes large amounts of dissolved minerals. Estimates of the amount of hydrothermal fluids now flowing from these vents indicate that the entire volume of the oceans could seep through the oceanic crust in about 10 million years.

Wikpedia.com
usgs.gov

Draw Illustration

Copy and Label the Illustration in the Space Provided



https://www.nasa.gov

Draw (Copy) the Illustration Here

Interpret a Graph

Write the title of the graph _____

Circle the type of chart this represents

Bar Chart *Line Chart* *Pie Chart* *Other*

If applicable,

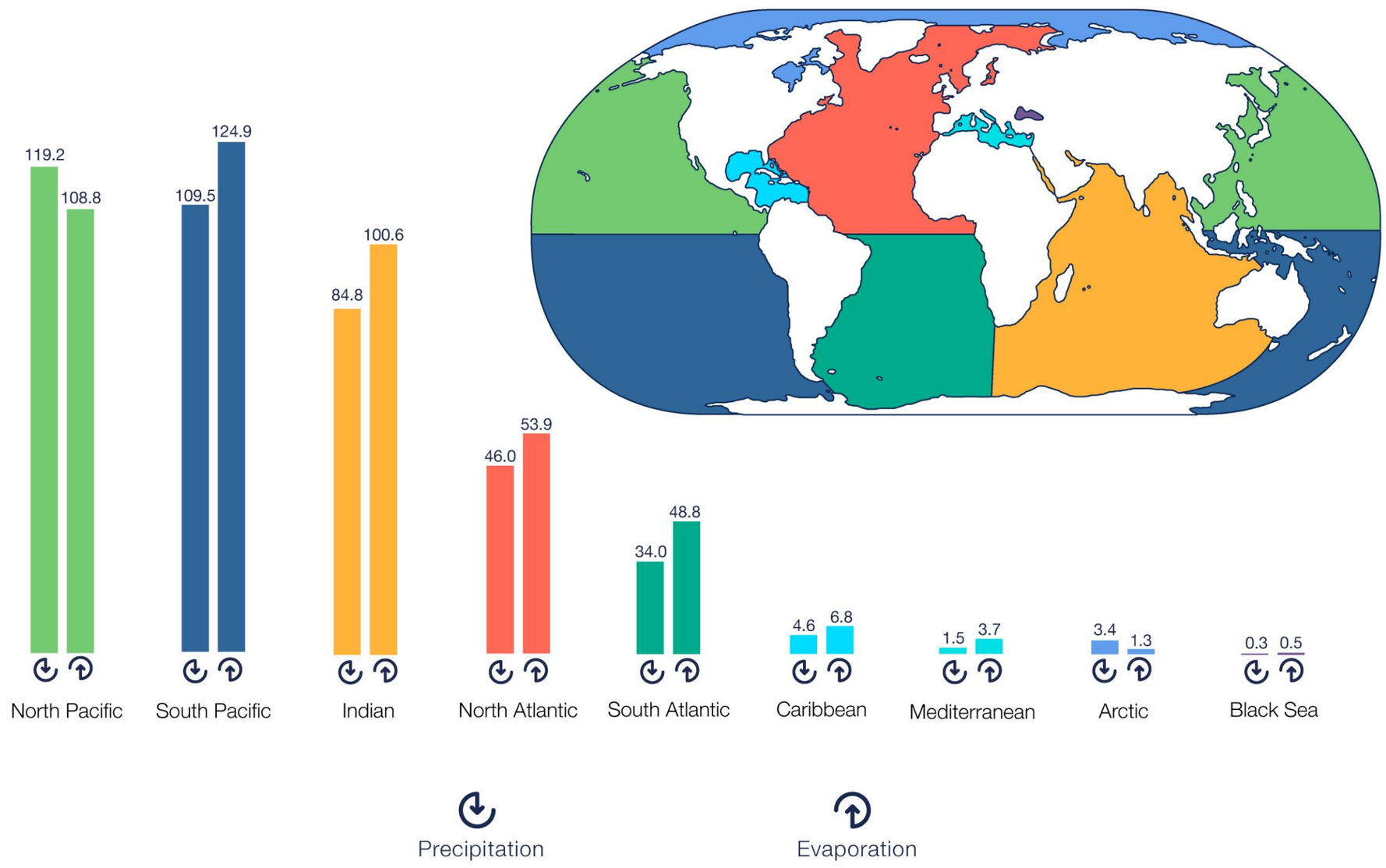
What does the X-axis represent _____

What does the Y-axis imply _____

Summarize what this graph represents or conveys

_____

https://www.nasa.gov



Show-Off Your Smarts!

Instructions

- Complete as an individual or small group.
- Discuss your ideas/answers/responses in a small group.
- Select one person to present your responses to the class.

Q1. How can this information be applied to a young-person's life?

Q2. How does this information apply to (or impact) communities?

Q3. When do scientists need to apply this information? How?

Q4. How would a person from 100 years ago view this information?

Q5. How does this topic connect to other science topics or math?

Write down at least three words introduced or covered by this topic.

1.
2.
3.
4.
5.
6.

Make a Poster

In the space provided here, create/draw a poster which conveys the concepts you have learned on this topic.