

NATURAL SCIENCES GRADE 7

WEEK 7 OF LOCKDOWN PROGRAMME

MATTER AND MATERIALS

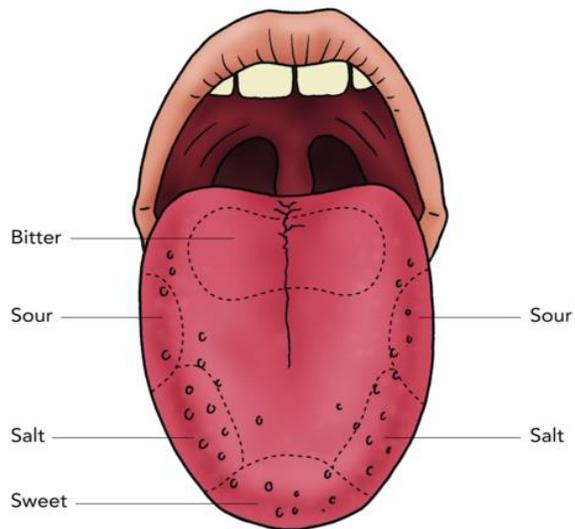
TOPIC 7: ACIDS, BASES AND NEUTRALS...Page 95

Acids, Bases and Neutrals

Unit 1 – Tastes of substances

1. We taste food with tiny structures on our tongues!
2. Look in the mirror, and stick out your tongue. Look for **small, round bumps**. These are called **papillae**. Most of them contain taste buds. The **taste buds are very small structures which have sensitive hairs**.
3. The chemicals in the food that you eat dissolve into your saliva in solution. The chemicals then stimulate the tiny hairs within the taste buds and turn these signals into impulses. These impulses travel to the **brain** allowing us to experience the **sensation of taste**.

Have a look at your own tongue



4. We have more than 10 000 taste buds in our mouth. You even have taste buds on the roof of your mouth.
5. You can only sense four different tastes with your tongue. They are **sweet, sour, bitter and salty**.
6. These tastes combine to make up the different **flavours** of our foods.
A flavour is a **combination of tastes and smells**.

7. Citrus fruits like oranges and lemons contain **citric acid**.



8. One very well-known household acid is **acetic acid, also known as ethanoic acid**. Vinegar is a mixture of a small amount of acetic acid dissolved in water. So vinegar is a solution of acetic acid in water.



Spirit vinegar and balsamic vinegar.

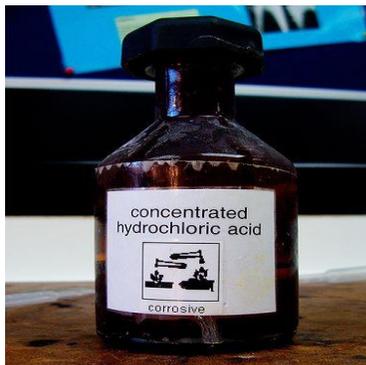
9. The taste of sour milk is caused by **lactic acid**.
10. Acids taste sour. Does this mean that all substances, especially acids, are safe to taste? Definitely NOT!

Properties of acids, bases and neutrals

Acids

1. Acids have a **sour taste**, e.g. lemon juice and vinegar.
2. Your **stomach contains hydrochloric acid (HCl)**. HCl **helps break down the food for digestion**. Your stomach has a **very mucous lining which helps protect it from the strong acid**.
3. Other natural acids are:
 - **Citric acid** found in lemon and orange juice
 - **Ethanoic(acetic) acid** found in vinegar
 - **Lactic acid** found in sour milk
 - **Carbonic acid** found in fizzy drinks

- Some acids are very **dangerous** and must be handled carefully. **Strong acids** are much more dangerous than weak acids. These acids are **corrosive**. This means that they **cause damage to clothing, stonework, metals, and especially harmful to your skin**. They can cause serious burns on your skin. Scientists always wear protective clothing when handling these acids.



Look out for this label on bottles which contain corrosive substances, such as strong acids.

- You should **never smell strong acids**, because they can **damage** the **inner membranes of your nose**. Always wear safety glasses when you work with strong acids.
- If you spill acid on your skin, **rinse** it immediately with **water**.

Bases

- Bases and acids have chemical properties that are the opposite of each other. We can think of **bases as the chemical opposite of acids**.
- When an acid and a base are mixed together in the correct ratio, they will **neutralise** each other.
- Soaps, baking soda and antacids like Eno are common bases.
- Bases generally **taste bitter** and have a **soft soapy feel**.
- Not all **bases dissolve in water**, but those that do are called **alkalis**.
- As with acids, there are some bases that are extremely dangerous. We say that there are **caustic**.
- The same hazard symbol that is used to warn people of the dangers of acids, is also used for these bases. **Strong bases react corrosively with other materials and can burn your skin**. They must be handled carefully and always while wearing appropriate protective clothing, such as lab coats, gloves and safety glasses.

8. **Sodium hydroxide** is a **strong base** used in laboratories. Do you see the yellow corrosive warning symbol?



Sodium hydroxide is a **strong base**

9. Many household products (such as certain apple-scented shampoos and dishwashing liquids) contain apple or lemon scents or essences as additives.
10. **Many cleaning agents**, such as all purpose cleaners, like Handy Andy, drain cleaners, oven cleaners contain **alkalis**.



Some household products which **are bases**

TASKS TO BE COMPLETED

1. Write down **keywords for Matter and Materials, (continued)**, starting with

32. acids, page 98, and continue to

44. malleable, page 114.

Don't forget to number your words, underline your keyword, and skip a line between each meaning.

2. Activity 1, Page 95.

3. Activity 2, Page 96.

4. Activity 3, Page 98.

5. Activity 5, Page 101.

6. Activity 6, Page 102.

7. Do your keyword test on **Thursday 21 May**. Use a page of lined paper. Write your name, the date, the heading, (Natural Sciences Keyword Test). Close your textbook and workbook. Write down the following 10 words on your page. Leave 2 lines after each word. This is the space for your answers. Once you have written all the words down, you may begin. **No Cheating!**

1. **tensile strength**

2. **flexibility**

3. **boiling point**

4. **heat conductivity**

5. **pure substance**

6. **mixture**

7. **filtration**

8. **solute**

9. **evaporation**

10. **pigments**

Once you have completed, ask an adult at home to mark it, or mark it yourself, using your workbook or textbook. You may award each answer 2 marks, if you have part of the answer award yourself 1 mark. The Total is 20. Good Luck!