



Acid and Alkali Remedies



Remember: the salts made from acids and alkalis are often soluble.



1. Alfie has a new white T-shirt. He is fixing the chain on his bike and gets a rust (iron(III) oxide) stain on it. He searches 'how to clean rust stains off clothes' on the internet and the most popular answer is to soak the stain in white vinegar.

a. Write the chemical formula for rust:

b. The acid is and the base is .

c. Explain how the white vinegar would work to remove the stain.

2. The sink in the kitchen is blocked because someone tipped the fat from last night's roast pork down it. No amount of water is able to shift it. Jordan rings his nana to ask her for a homemade remedy. She suggests that he puts the plug in and fills the sink with hot water then adds two cups of baking soda (NaHCO_3), stirs and pulls the plug. He does as she says and within seconds the sink is unblocked.

a. What is the scientific name for baking soda?

b. Baking soda mixed in water would be: (*Circle your answer.*)

ALKALINE ACIDIC NEUTRAL

c. Jordan decides to ask his science teacher how the baking soda works and he replies by saying "the alkaline solution reacts with the fat to produce soluble salts". Explain what this means.



3. When working in the garden Valcia notices that on the bag of lime, it suggests washing your hands in white vinegar (water and acetic acid) after use to prevent damage to the skin like drying and splitting.

a. Based on this information, we can assume that lime is: **BASIC ACIDIC NEUTRAL** (*Circle your answer.*)

b. Explain what happens to the lime when the vinegar is washed onto it.

4. When wet, human hair has a pH of around 4.5 to 5.5. Each strand of hair has an outer cuticle full of tiny pores that open at higher pH and close at lower pH. When open, the moisture in the hair escapes and the hair can become dry, brittle and damaged. Many websites and videos on the internet are suggesting that a natural way to clean your hair is by using baking soda (pH 9).

a. Explain why this is not a good idea.

b. Shampoo is slightly alkaline and conditioner is slightly acidic. Why do you think this is?

