

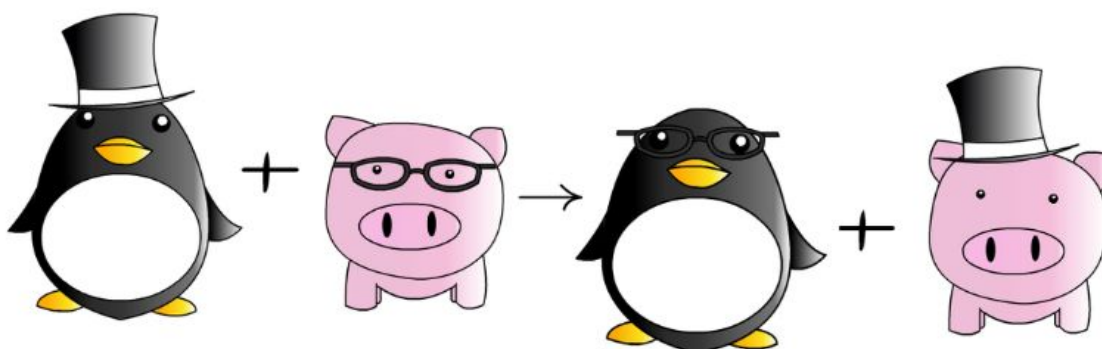
WorksheetCloud: MEMORANDUM

Grade 9

Subject: Natural Sciences

Topic: Acids and metal hydroxide

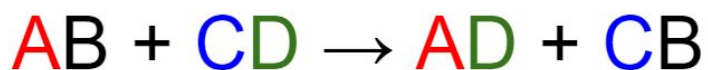
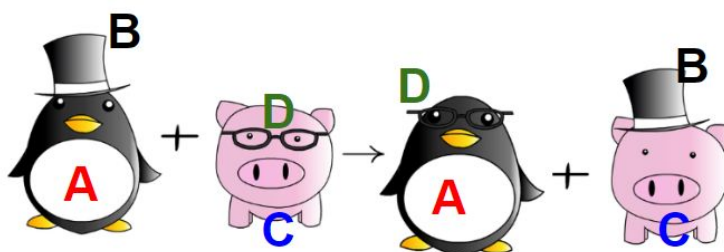
### Activity 1



1. Using the penguin and pig chemical reaction explain how an exchange reaction works.

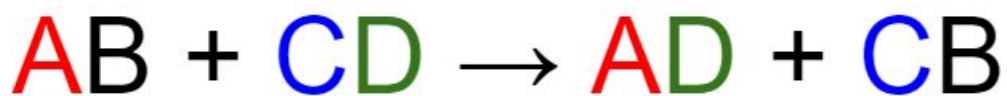
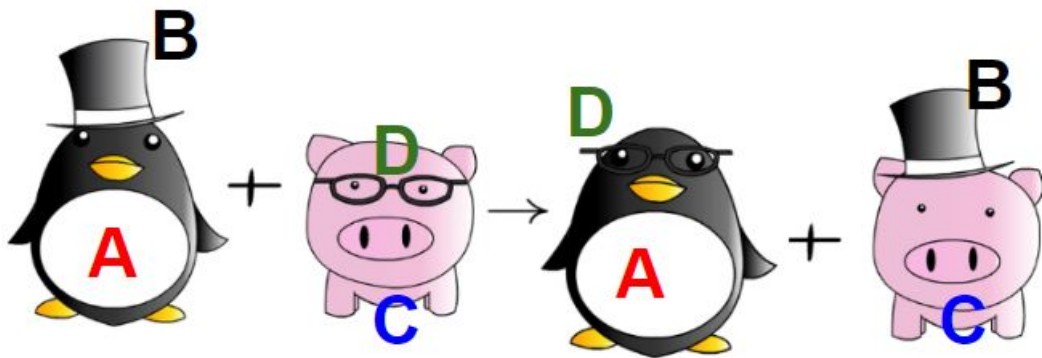
**Mention penguin, pig, hat and spectacles are elements or compounds in a chemical reaction**

**Elements/compounds/atoms recombine in a chemical reaction**

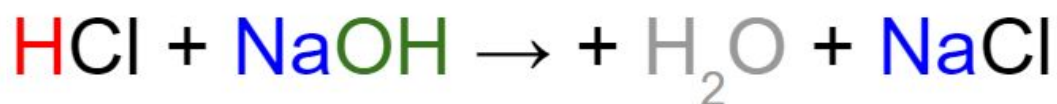
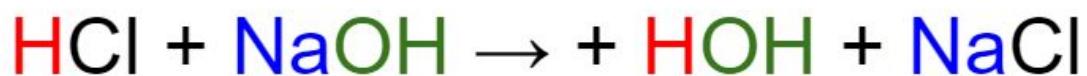
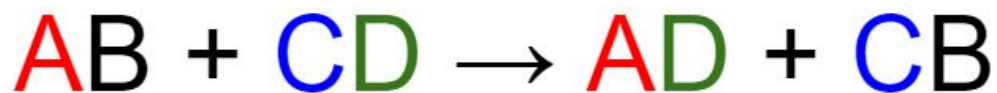
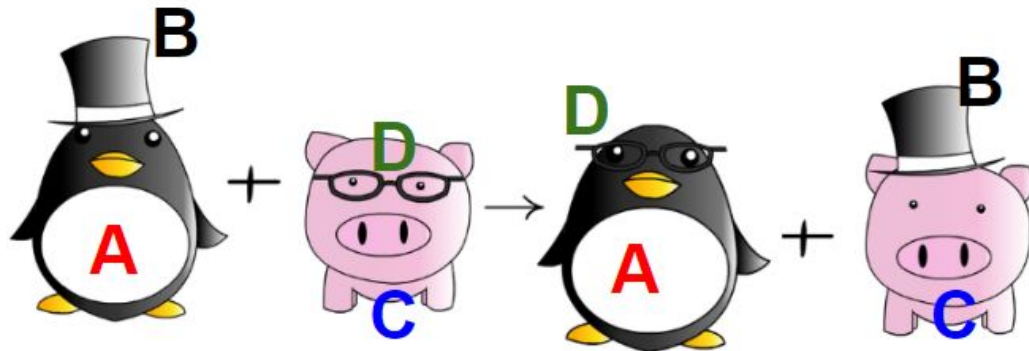


AB and CD are undergoing an exchange reaction

2. Using the penguin and pig chemical reaction explain how it links with a neutralization reaction.



acid + base  $\rightarrow$  salt + water



## Activity 2

The reaction between hydrochloric acid and magnesium oxide [4 marks]

Word equation	hydrochloric acid + sodium hydroxide → sodium chloride + water
Chemical equation	$\text{HCl} + \text{NaOH} \rightarrow \text{NaCl} + \text{H}_2\text{O}$
General equation	acid + metal hydroxide → salt + water

## Activity 3

Define neutralization

- When an acid and a base are mixed, the acid will lose some of its 'acidity' and the base will lose some of its 'basicity'.
- If they are mixed in the right amounts, they will neutralise each other.
- The products of the reaction will be a salt and water.

## Activity 4

### Equations for the reaction between sodium hydroxide and hydrochloric acid

The acid of our reaction was hydrochloric acid. Write its chemical formula.

HCl

What is the name and formula of the metal hydroxide we used?

Sodium hydroxide (NaOH)

Write what remains of the base after we have taken away the OH to make water.

Na

Write what remains of the acid after we have taken away the H to make water. Remember we need two H to make one H<sub>2</sub>O, but NaOH has already contributed one O and one H. Now

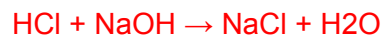
put the two fragments together. Place the metal from the base first and the non-metal from the acid. One Na and one Cl makes...

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NaCl

Write the chemical reaction: Acid + metal hydroxide → salt + water

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Is the reaction is balanced?

1. How many H atoms on the left and on the right? Are they balanced?

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2. How many Cl atoms on the left and on the right? Are they balanced?

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3. How many O atoms on the left and on the right? Are they balanced?

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1. 2 H atoms on the left and 2 H atoms on the right. The H's are balanced.

2. 1 Cl atoms on the left and 1 Cl atoms on the right. The Cl's are balanced.

3. 1 O atoms on the left and 1 O atoms on the right. The O's are balanced.

Use the chemical equation to write a word equation for the reaction:

hydrochloric acid + sodium hydroxide → sodium chloride + water