

Reactivity

Lesson 5 - Acids and Metals

Chemistry - Key Stage 3

Miss Fenner



Chemical reaction or physical change?

Baking a cake - chemical reaction



Chemical reaction or physical change?

Boiling water - physical change



Chemical reaction or physical change?

Magnesium burning - chemical reaction



Independent Practice

1. State the 4 observations you may have during a chemical reaction?
2. Is reshaping a piece of metal a chemical reaction or a physical change? Explain your answer.
3. Is a piece of wood burning a chemical reaction or a physical change? Explain your answer.



Independent Practice

1. A change in colour, a change in temperature, bubbles of gas being produced and a new substance forming.
2. Reshaping a piece of metal is a **physical change** because no new product has been formed.
3. A piece of wood burning is a **chemical reaction** because a new product has been formed, there was also a change of colour and a change in temperature.



Practical

Do not try this without a parent or carer's help. Make sure you clear space to work, pay close attention and be careful.

Equipment:

- A metal nail
- A cup
- A spoon
- Some vinegar
- Sandpaper/ a nail file



Do not try this without a parent or carer's help. Make sure you clear space to work, pay close attention and be careful.

1. Lightly sand/ file the metal nail
2. Place 5 tablespoons of vinegar into the cup
3. Place the filed nail into the vinegar. Wait 2 minutes.
4. Write down your observations. Is this a chemical reaction or physical change?



Fill in the blank

Sodium + hydrochloric acid → sodium chloride + hydrogen



Fill in the blank

Magnesium + nitric acid → magnesium nitrate + hydrogen



Fill in the blank

Zinc + sulfuric acid → zinc sulfate + hydrogen



Independent Practice

1. Iron + sulfuric acid → _____ sulfate + hydrogen
2. Zinc + sulfuric acid → _____ + _____
3. Calcium + hydrochloric acid → _____ + _____
4. Potassium + _____ → potassium nitrate + hydrogen



Independent Practice

1. Iron + sulfuric acid → **iron** sulfate + hydrogen
2. Zinc + sulfuric acid → **zinc sulfate + hydrogen**
3. Calcium + hydrochloric acid → **calcium chloride + hydrogen**
4. Potassium + **nitric acid** → potassium nitrate + hydrogen



Which PRODUCT is common to all reactions between a metal and an acid?

Option 1

Metal

Option 2

Hydrogen

Option 3

Acid

Option 4

Copper sulfate



Put these steps in the correct order.

Put a lit splint
into the gas

Hydrogen burns
with a squeaky pop

Collect the
hydrogen gas



Put these steps in the correct order.

Collect the hydrogen gas

Put a lit splint into the gas

Hydrogen burns with a squeaky pop





Write the 3 steps performed to test for the presence of hydrogen gas.

Key words:

Collect

Test tube

Splint

Squeaky





Write the 3 steps performed to test for the presence of hydrogen gas.

1. Collect the gas produced in a test tube.
2. Place a lit splint into the gas
3. If hydrogen is present it will burn with a squeaky pop.



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