

Reactivity

Lesson 8 - Acids and Metal Carbonates

Chemistry - Key Stage 3

Miss Fenner



What state are metal carbonates?

Solid



Which property of sodium carbonate makes it a good cleaning product?

It forms a strong alkali when dissolved in water.



Which two elements is a carbonate ion made of?

Carbon and oxygen



Independent Practice

How does a zinc carbonate (ZnCO_3) form?

A carbonate ion is made of...
A carbonate ion has a charge of...
A zinc ion has a charge of...
There is an attraction between...



Independent Practice

How does a zinc carbonate (ZnCO_3) form?

A carbonate ion is made of 1 atom of carbon and 3 atoms of oxygen.

A carbonate ion has a charge of -2.

A zinc ion has a charge of +2.

There is an attraction between the positive zinc ion and the negative carbonate ion.



Zinc carbonate + hydrochloric acid → zinc chloride + water + carbon dioxide



Sodium carbonate + sulfuric acid → sodium sulfate + water + carbon dioxide



Silver oxide + nitric acid → silver nitrate + water + carbon dioxide



Independent Practice

1. Magnesium carbonate + sulfuric acid → _____ + water + carbon dioxide
2. Iron carbonate + _____ → iron nitrate + water + carbon dioxide
3. _____ + hydrochloric acid → sodium chloride + water + carbon dioxide
4. Calcium carbonate + nitric acid → _____ + _____ + _____
5. _____ + _____ → lithium chloride + water + carbon dioxide



Independent Practice

1. Magnesium carbonate + sulfuric acid → **magnesium sulfate** + water + carbon dioxide
2. Iron carbonate + **nitric acid** → iron nitrate + water + carbon dioxide
3. **Sodium carbonate** + hydrochloric acid → sodium chloride + water + carbon dioxide
4. Calcium carbonate + nitric acid → **calcium nitrate** + **water + carbon dioxide**
5. **Lithium carbonate** + **hydrochloric acid** → lithium chloride + water + carbon dioxide



Which 2 products are common to all reactions between a metal carbonate and an acid?

Option 1

Metal carbonate

Option 3

Acid

Option 2

Carbon dioxide

Option 4

Water



Put these steps in the correct order.

Use a bung and delivery tube to bubble the gas into the limewater

Place some limewater in a test tube

Carbon dioxide turns lime water from clear to milky



Put these steps in the correct order.

Place some limewater in a test tube

Use a bung and delivery tube to bubble the gas into the limewater

Carbon dioxide turns lime water from clear to milky



Independent Practice

1. Draw and label a diagram to show the test for carbon dioxide.

Key labels:

Bung

Delivery tube

Test tube

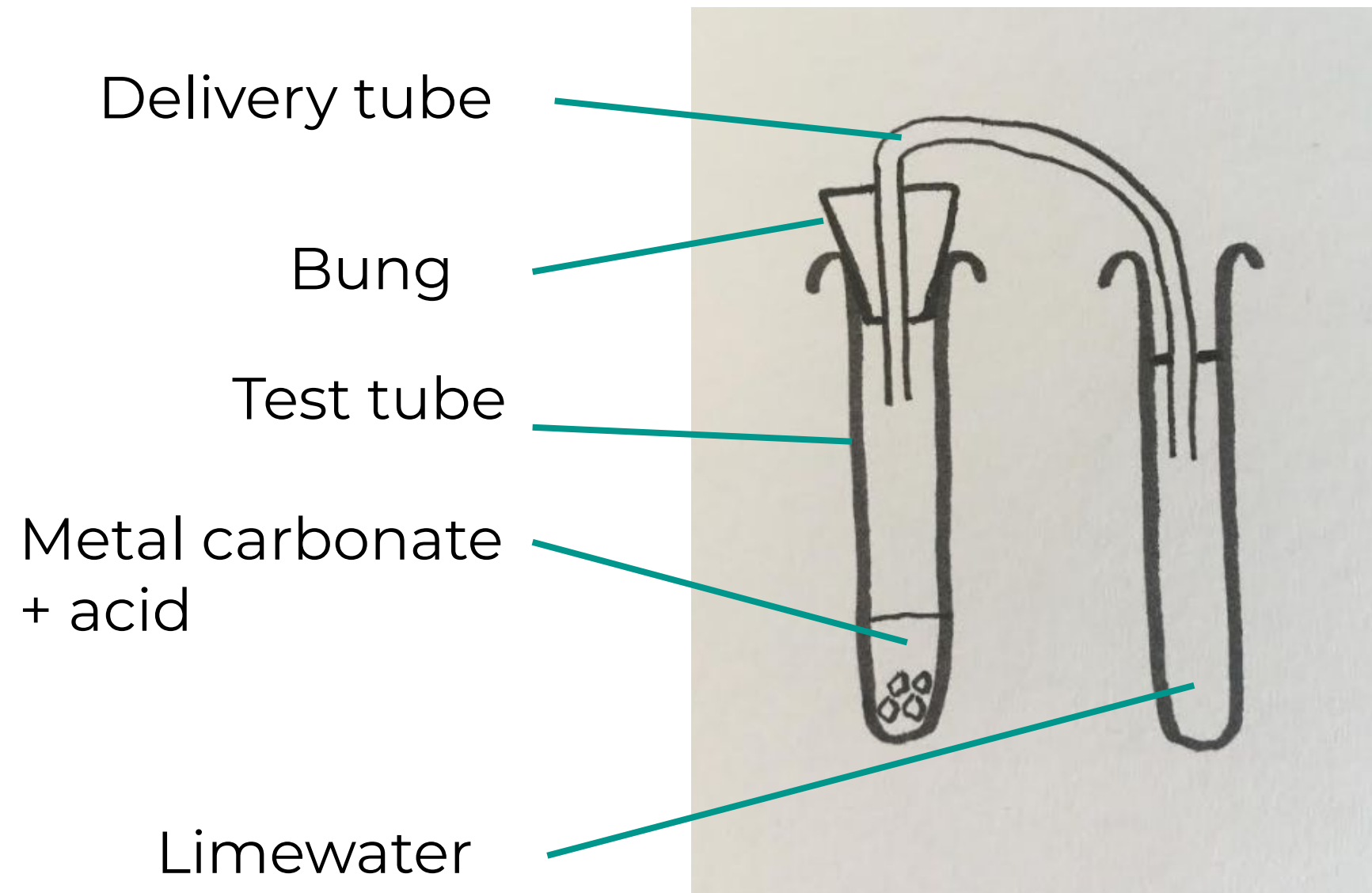
Limewater

Metal carbonate and acid reaction

2. What is the result seen if carbon dioxide is present?



Independent Practice



Source: Miss Fenner

2. The limewater turns milky if carbon dioxide is present.



Further Independent Practice

1. Beryllium carbonate + hydrochloric acid →
2. Magnesium carbonate + nitric acid →
3. Iron carbonate + sulfuric acid →
4. Potassium carbonate + nitric acid →
5. Sodium carbonate + nitric acid →
6. Rubidium carbonate + hydrochloric acid →



Further Independent Practice

1. Beryllium carbonate + hydrochloric acid → beryllium chloride + water + carbon dioxide
2. Magnesium carbonate + nitric acid → magnesium nitrate + water + carbon dioxide
3. Iron carbonate + sulfuric acid → iron sulfate + water + carbon dioxide
4. Potassium carbonate + nitric acid → potassium nitrate + water + carbon dioxide
5. Sodium carbonate + nitric acid → sodium nitrate + water + carbon dioxide
6. Rubidium carbonate + hydrochloric acid → rubidium chloride + water + carbon dioxide

