Hello

A more reactive metal will displace a less reactive metal from an aqueous solution of one of its salts

potassium
sodium
calcium
magnesium
aluminium
(carbon)
zinc
iron
tin
lead
(hydrogen)
copper
silver
gold
platinum

Magnesium + Copper sulphate → magnesium sulphate + Copper

Magnesium + Copper chloride → magnesium chloride + Copper

Magnesium + Copper nitrate → magnesium nitrate + Copper

Magnesium + Copper oxide → magnesium oxide + Copper

Metal salts contain metal ions and non-metal ions
Common Examples:
Sulphates
Chlorides
Oxides
Nitrates
Phosphates

The two metals compete to win the non-metal ions.

In these cases magnesium always wins the non-metal ions as it is always more reactive than copper

A more reactive metal will **displace** a less reactive metal from an aqueous solution of one of its salts. This is called **DISPLACEMENT REACTION**

Oxidation & Reduction-HT

So far we have learnt the following definitions:

- Oxidation is gaining oxygen.
- Reduction is the loss of oxygen.

However, there are more accurate definitions that we need to know:

- **Oxidation is the loss of electrons   OIL**
- **Reduction is the gain of electrons   RIG**
- **OIL RIG**
- Oxidation and Reduction always happen in the same reaction. If one thing is oxidised, the other is reduced. The reaction is called a **redox** reaction.

Oxidation & Reduction-HT

$Mg(s) + ZnCl_2(aq) \rightarrow MgCl_2(aq) + Zn(s)$
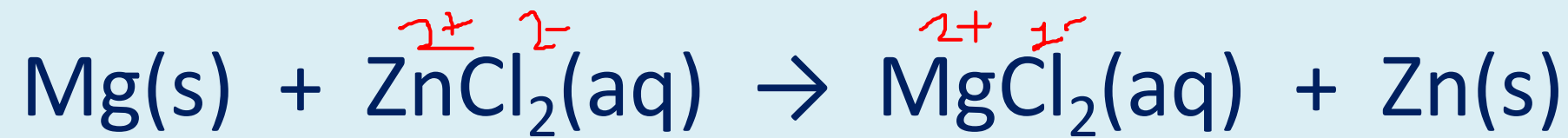
The reaction above can be written as the **ionic equation**:

$Mg(s) + Zn^{2+}(aq) + 2Cl^-_{(aq)} \rightarrow Mg^{2+}(aq) + 2Cl^-_{(aq)} + Zn(s)$

The chloride ions are **spectator ions** as they do not change.

The ionic equation can be split into two **half equations**:

$Mg(s) \rightarrow Mg^{2+}(aq) + 2e$

$Zn^{2+}(aq) + 2e \rightarrow Zn(s)$

OIL RIG

Topic and Lesson

Drawing and Interpreting graphs

1. Collect results

2. Plot a graph

3. Draw a line of __best__ fit (can be a curve)

4. Describe the trend

5. Interpret
At 16s how much mass is left?

variable	Variable
Time (s)	**Mass (g)**
0	3.2
10	2.5
20	1.9
30	1.4
40	1
50	0.8
60	0.7
70	0.65
80	0.6
90	0.55
100	0.5
110	0.5
120	0.5

Reaction is fast

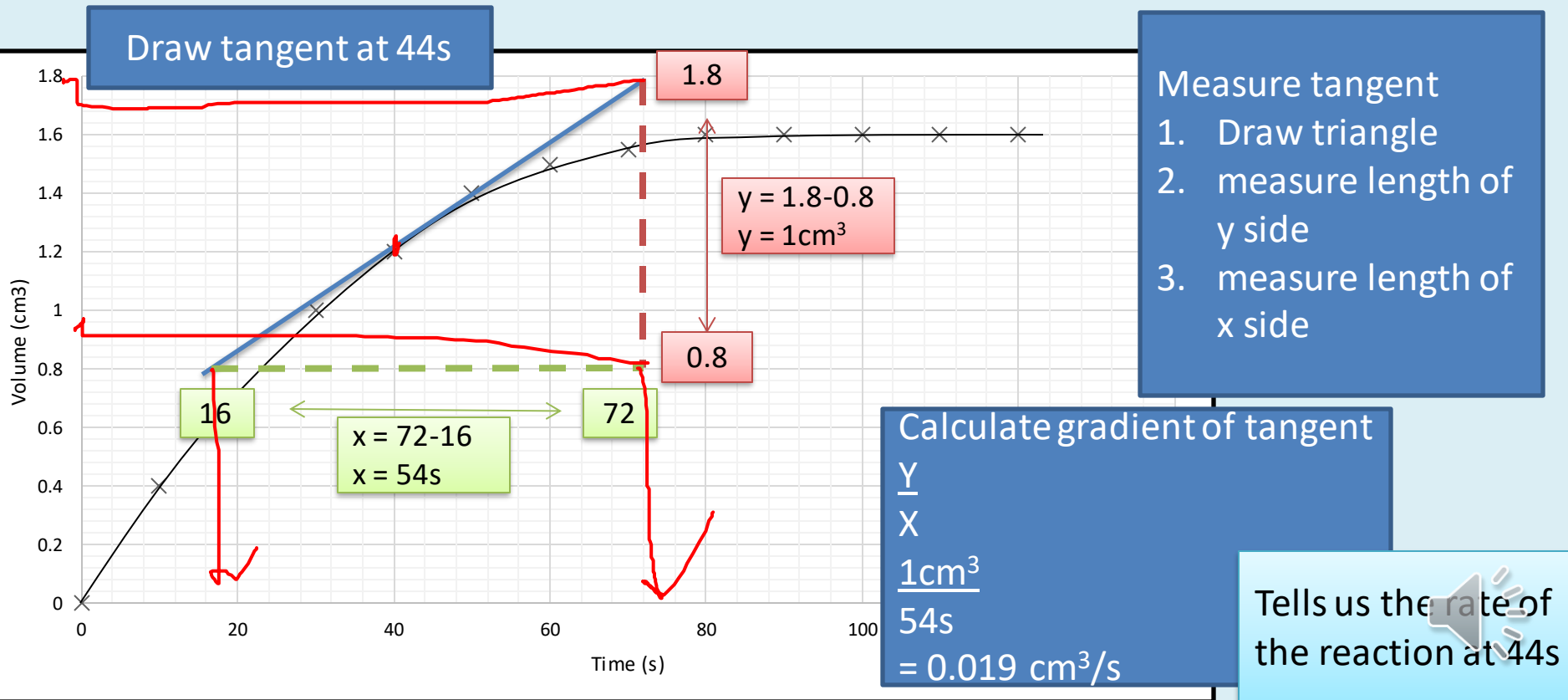Reaction slows down

Reaction stops

2.2g

https://www.youtube.com/watch?v=GCR5xeduq2o
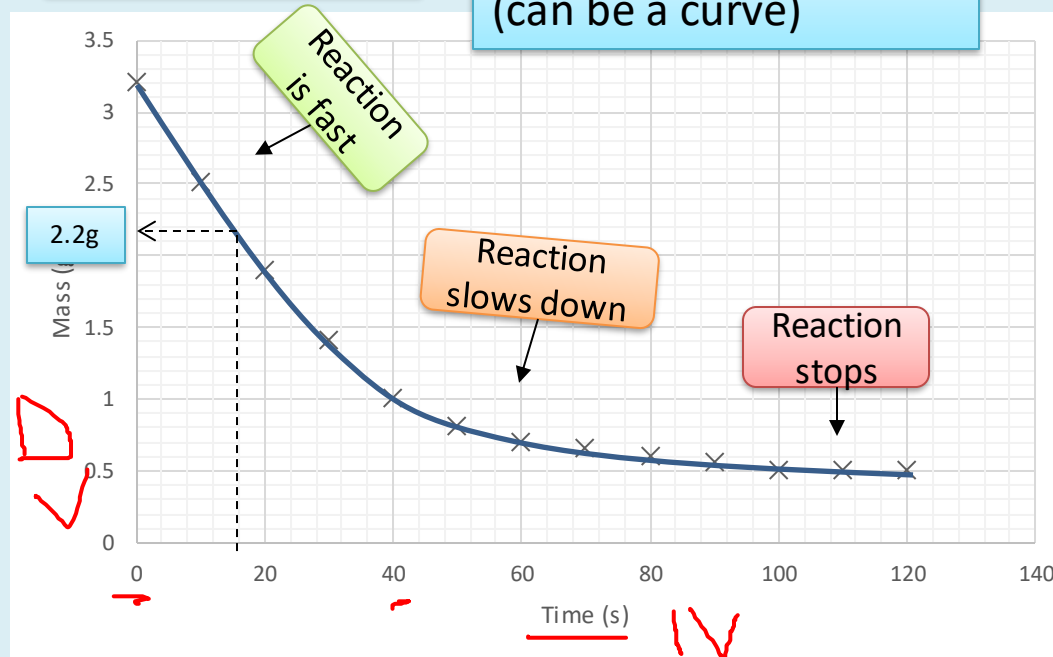
Drawing tangents and Calculating gradient of tangents

- https://www.youtube.com/watch?v=6LV63WtuvJg

Draw tangent at 44s

Measure tangent
1. Draw triangle
2. measure length of y side
3. measure length of x side

1.8

0.8

y = 1.8-0.8
y = 1cm³

16

72

x = 72-16
x = 54s

Calculate gradient of tangent
$$\frac{Y}{X}$$
$$\frac{1cm^3}{54s}$$
= 0.019 cm³/s

Tells us the rate of the reaction at 44s

Thank you!