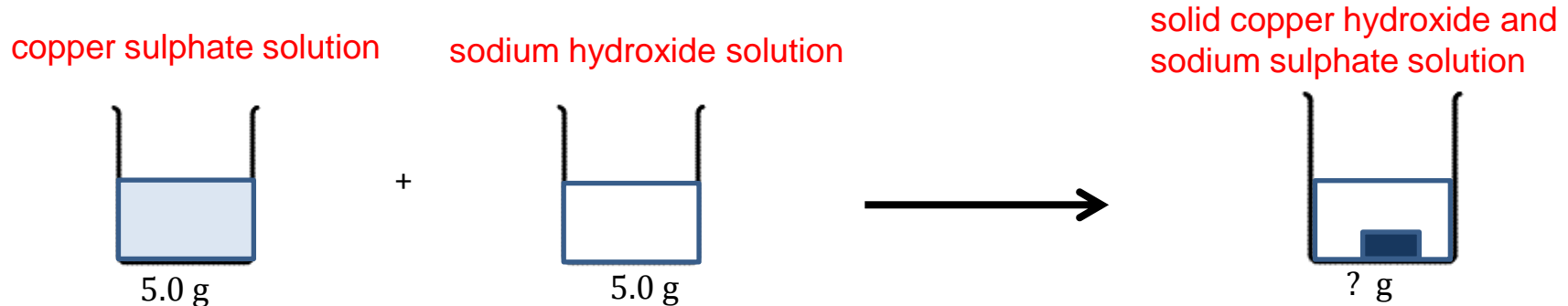


Topic	Conservation of mass	Level	Key Stage 3 (or any course for students aged 11-14)
Outcomes	<ol style="list-style-type: none">1. Students understand the concept of conservation of mass2. Students can explain why the mass of products and reactants may not always stay the same when chemical reactions involve gases		
Information for teachers	This activity has been designed to get students thinking about conservation of mass. It would be ideal for 11 year olds when they first study chemical reactions. The next step could be to write balanced equations. You will need to demonstrate the reactions in slides 2 and 3.		

Let's get thinking

When 5 grams of copper sulphate solution is added to 5 grams of sodium hydroxide solution, solid copper hydroxide and sodium sulphate solution are formed.



Which statement(s) are correct? Discuss in your pairs.

- The products will have a greater mass than the reactants because a solid is made.
- The products and the reactants will have the same mass as they contain the same number of atoms. The atoms are just arranged differently.
- The products will weigh less than the reactants because some of the reactants have been used up in the reaction.

Uh oh..... is the law wrong?

Reaction to demonstrate to the class	Word equation	Mass of reactants (g)	Mass of products (g)	Did the reactants and products have the same mass? If not, why not?!
Calcium carbonate with hydrochloric acid				
Burning magnesium in oxygen				

Dear Scientists,

I have made an Earth shattering discovery!! When I added hydrochloric acid to a beaker of calcium carbonate the mass decreased.

I have proved the law of conservation of mass wrong!!

Yours truly,

Dr Wrong Again.

Write a letter to Doctor Wrong explaining why he is wrong.

- I. Use your knowledge of chemical reactions to *persuade* him. Include chemical reactions and particle pictures.
- II. What changes could Dr Wrong Again make to his experiment to reach the right conclusion? How could you convince Dr Wrong Again that a gas has a mass?

