

PHYSICAL SCIENCES

GR 10 RESOURCE

Practical activity that forms part of the Gr 10 Physical Sciences 3-in-1 Class text and Study Guide. See p. 122 MODULE 3 TOPIC 1 Unit 2 for the theory.

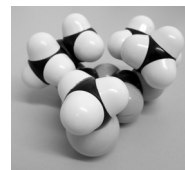


PRACTICAL ACTIVITY

The conservation of atoms and non-conservation of molecules

Materials

- atomic model kit / balls made from modelling clay
- toothpicks



Method

- Work in pairs. Use an atomic model kit / clay balls to represent atoms of different elements, e.g. hydrogen, oxygen, nitrogen, etc. (refer to p. xx)
- Connect the relevant 'atoms' to form the reactant and product molecules for the following reactions
 - The decomposition of hydrogen peroxide into water and oxygen gas.
 - The synthesis of water when hydrogen gas reacts with oxygen gas.
 - The synthesis of ammonia when nitrogen gas reacts with hydrogen gas.
- Write a balanced equation for each reaction.
- Draw ball-and-stick diagrams underneath each equation to represent the molecules at a sub-microscopic level, illustrating how particles rearrange during chemical reactions.
- Explain to another group how atoms are conserved in these reactions, while the molecules are not.

Discussion and Conclusion

- Refer to Experiment 1 on p. xx for reaction (a) and Experiment 2 on p. xx for reaction (b).
- The equation for reaction (c) below indicates that the mass and number of atoms are conserved, but the number of molecules is not.

