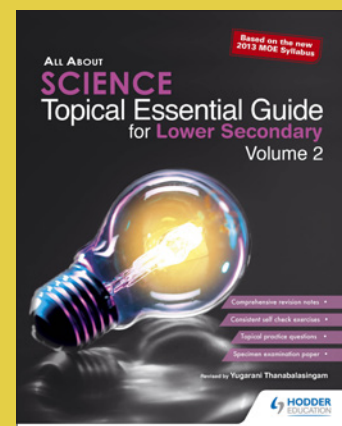
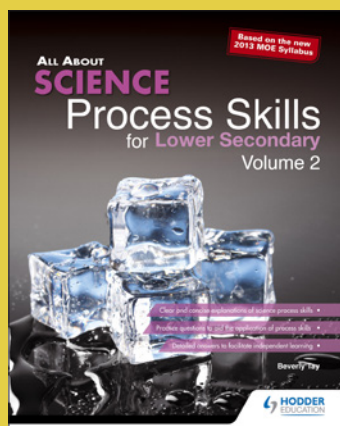
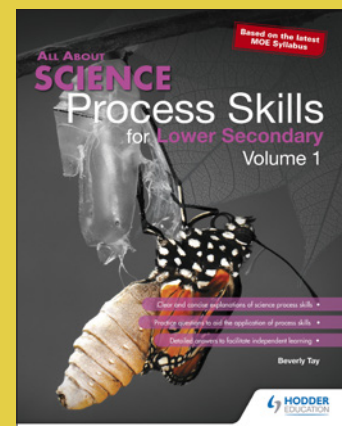
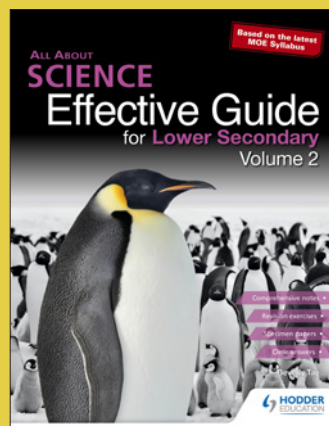
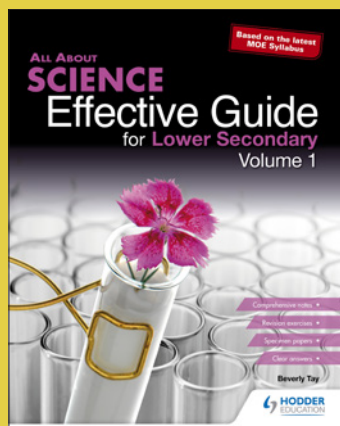


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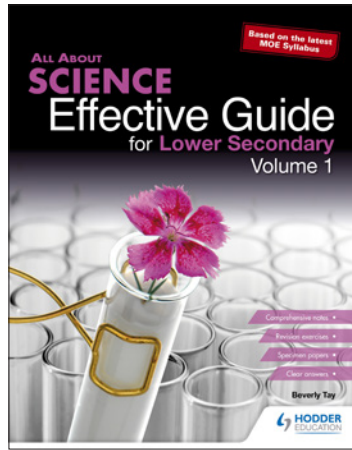
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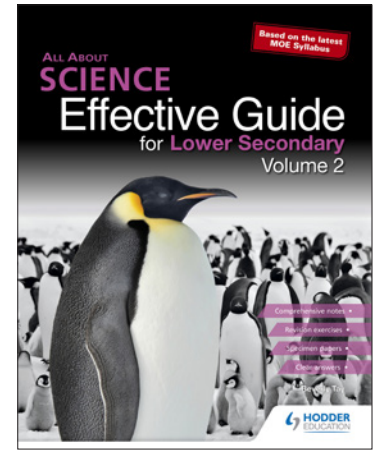
# All About Science: Effective Guide

Enhance students' understanding of the processes involved in learning science with clear and concise explanations and practice questions written according to the latest Lower Secondary Science Syllabus issued by the Ministry of Education, Singapore.

- Facilitate independent learning with clear and concise explanations of science process skills.
- Aid the application of process skills with stimulating MCQs, structured questions and free-response questions.
- Enable students to take charge of their own progress with detailed answers provided.



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### Test Paper 1: Diversity

**Section A: Multiple Choice Questions (30 marks)**  
Select the most appropriate answer and write its letter in the bracket provided.

- Parallax error does not occur when \_\_\_\_\_  
(A) the eye is at an angle to the mark to be read  
(B) the metre rule is thick  
(C) the eye is directly over the mark  
(D) the metre rule is placed parallel to the edge to be measured
- A pair of vernier calipers shows the following readings:  
With the jaws closed  
  
Outside jaws used to measure the diameter of a ball  
  
What is the diameter of the ball?  
(A) 7.14 cm  
(B) 7.18 cm  
(C) 7.24 cm  
(D) 7.28 cm
- The diagram below shows the reading taken from a measuring cylinder filled with water, after 25 wall bearings were added to it. What is the volume of one ball bearing if the volume of water was 30 cm<sup>3</sup> before the ball bearings were added?
- A copper chain (density = 8.9 g/cm<sup>3</sup>) weighing 15 g was dropped into a 25 cm<sup>3</sup> glass filled with water. How much water was spilled? (Give your answer to 2 decimal places.)  
(A) 1.69 cm<sup>3</sup>  
(B) 20.69 cm<sup>3</sup>  
(C) 0.99 cm<sup>3</sup>  
(D) 1.6 cm<sup>3</sup>
- Which of the following statements about matter is true?  
(A) Solids are always denser than liquids.  
(B) All non-metals are non-conductors of electricity.  
(C) Hardness refers to the ability to withstand scratches.  
(D) Elastic objects will not change their shapes.
- Tomato ketchup is commonly sold in glass bottles because \_\_\_\_\_  
(A) glass is transparent and will show the red colour of tomatoes better  
(B) glass does not react with the acid in the ketchup  
(C) glass is easily moulded into the shape of the bottle  
(D) glass can be recycled for future use
- Ancient shields made of bronze or copper often had decorative reliefs carved or etched on them. This shows that metals are \_\_\_\_\_  
(A) soft  
(B) good conductors of heat  
(C) malleable  
(D) attractive
- Ceramic crucibles are used in industry to hold molten metals because \_\_\_\_\_  
(A) ceramics can be easily moulded into the required shape  
(B) the raw material for making ceramic is easily obtainable  
(C) ceramics are good conductors of heat  
(D) ceramics are good insulators

Refer to the Periodic Table below to answer questions 9 to 11.

- Which three elements listed below have similar properties?  
(A) Fe, Co, Ni  
(B) Ni, Cu, V  
(C) Ca, Mg, Au  
(D) Mo, Cr, Mn
- Which three elements listed below are non-metals?  
(A) Al, Si, P  
(C) Po, I, K  
(B) As, Sb, Br  
(D) C, N, O
- Which of the following pairs of elements have very different physical properties?  
(A) O and Xe  
(C) Mg and Mo  
(B) O and Pb  
(D) Mg and Xe
- A compound can be broken down into simpler substances by \_\_\_\_\_  
I: distillation  
II: electrolysis  
III: sublimation  
IV: heating  
(A) I and II  
(C) II and IV  
(B) I and IV  
(D) III and V
- Which of the following does not involve the formation of a compound?  
(A) In the test for hydrogen, a burning splinter goes off with a 'pop' sound when placed at the mouth of a tube of hydrogen.  
(B) During respiration, cells burn food to provide energy for the life processes of the cell.  
(C) Water droplets appear on the outside of a cold glass of lemonade.  
(D) When plants photosynthesise, they convert carbon dioxide into oxygen.
- Which of the following is not an example of a solution?  
(A) Amalgam made of mercury and silver  
(B) Carbonated mineral water  
(C) Zinc and copper alloy  
(D) Fresh orange juice
- The diagrams below show four different experimental set-ups. In which of the beakers would the solute take the longest to dissolve completely?  
(A)   
(B)   
(C)   
(D)

Pages from Volume 1

## 1 Transport System in Living Things

### 1.1 Importance Of Transport Systems

- The needs of simple unicellular organisms can be met by substances diffusing across the whole surface of their bodies.
- Bigger and more complex organisms need greater amounts of substances to meet their needs. It would take too long for the substances to diffuse and reach all the cells of the complex organisms. Hence a transport system is needed to move substances around their bodies.

**Unicellular organism (represented by 1-cm cube)**

**Multicellular organism (represented by 5-cm cube)**

### 1.2 The Human Transport System (Human Circulatory System)

- A closed system — Blood stays inside the blood vessels and does not come into direct contact with the cells. Substances enter or leave the system through the walls of the blood vessels.
- Blood is moved round the body by a pump (heart).

**Heart**

- It has muscular walls.
- It is made of two separate pumps joined together by a wall.
- Valves between the atria and ventricles, and between the ventricles and arteries leading out of the heart, open and close to let the blood flow in one direction only.

1: Transport System in Living Things 1

2: Theme Systems

Pages from Volume 2

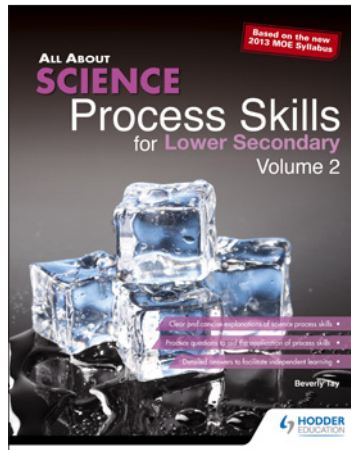
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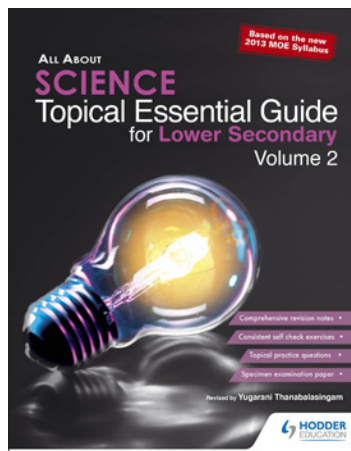
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- Aid the application of process skills with stimulating MCQs, structured questions and free-response questions.
- Facilitate independent learning with detailed answers.



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