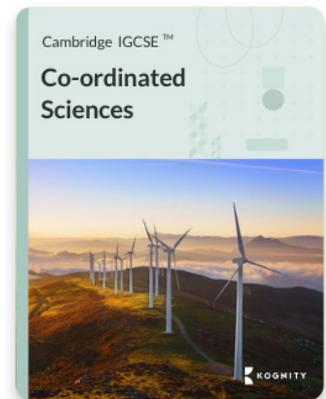


IGCSE Co-ordinated Sciences

Our IGCSE Co-ordinated Sciences subject supports the full Cambridge IGCSE™ Co-ordinated Sciences (Double Award) (0654) syllabus for the first examination from 2019.



Key Features

With Kognity Co-ordinated Sciences, you have everything you need in one place. The Core and Extended syllabus content are both comprehensively covered, and are supplemented by a deep question bank for issuing questions to students of all levels to prepare them for exams and to consolidate learning.

B1. Characteristics of living organisms

7 questions Add question

<input type="checkbox"/> Sent	Question	Topic	Type
<input type="checkbox"/>	Extended When animals eat plants or other animals, they use the energy gained to carry out essential activities. Which of the foll...	2 areas	☰
<input type="checkbox"/>	Which of these is not an example of excretion?	2 areas	☰
<input type="checkbox"/>	Which one of the following is not a characteristic of all living organisms?	2 areas	☰
<input type="checkbox"/>	Breathing out is an example of which life process?	B1.1	☰

Practical

Aim

To investigate the effect of temperature and pH on the enzyme-controlled breakdown of hydrogen peroxide. The enzyme used is catalase.

The chemical equation for the reaction is $2\text{H}_2\text{O}_2(\text{l}) \rightarrow 2\text{H}_2\text{O}(\text{l}) + \text{O}_2(\text{g})$.

Safety

Dilute hydrogen peroxide solution is an irritant.
Wear eye protection.
Do not get hydrogen peroxide solution on your skin.

Summary of method

- Place about 3 cm³ of hydrogen peroxide solution in a test tube.
- Add a few 2 cm strips of uncooked potato.
- Gently, place a bung on the test tube. Do not push it in tightly.
- After about 1 minute remove the bung.
Quickly, place a glowing splint just inside the top of the test tube.
- The splint should relight, showing that oxygen has been produced.
- Effect on temperature:** Repeat steps 1 to 5 using strips of boiled potato.
- Effect of pH:** Repeat steps 1 to 5, adding 2 cm³ of dilute hydrochloric acid in step 1, as well as the hydrogen peroxide solution.

Results

In step 6, the splint does not relight. This is because boiling the potato denatures the enzyme.

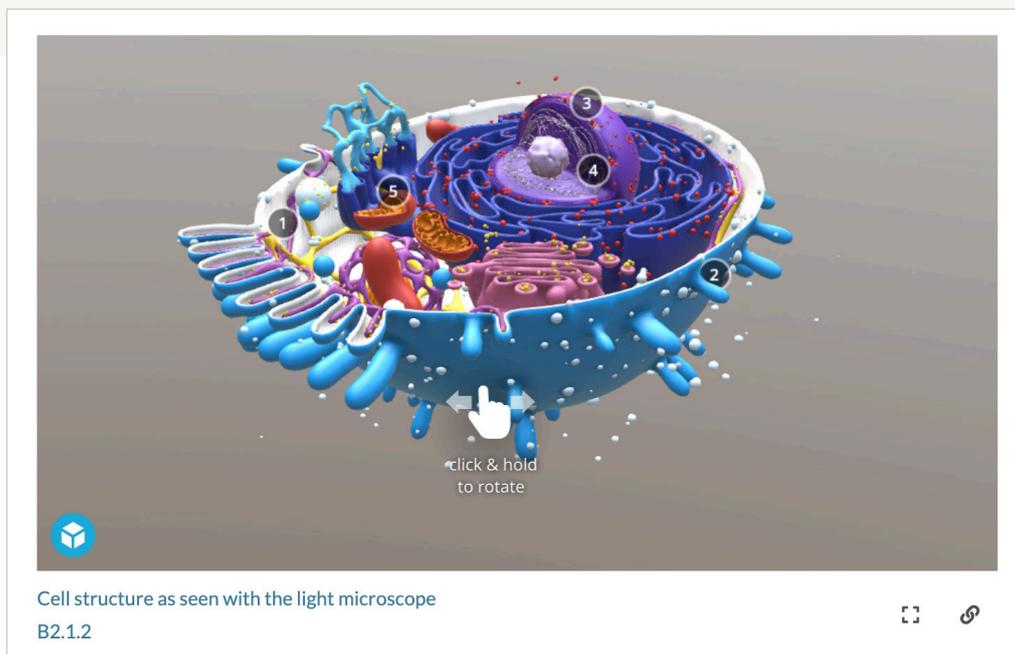
In step 7, the splint does not relight. This is because the enzyme is denatured at the low pH of this test.

The inclusion study skill boxes promote reflection and self-management, while practical boxes help develop key skills for examinations.

Study Skills

You may be asked to describe how enzymes work using a graph to show the rate of reaction. Try to explain the overall trend first; for example, 'the rate of reaction increases'. Use phrases such as 'increases', 'decreases', 'levels off', 'shows a positive correlation' or 'shows a negative correlation'. Then, describe and explain what is happening at different points on the graph. Make sure you include data from the graph to support your observations (for example, 'the rate of reaction is fastest at 37 °C').

Diagrams, illustrations, photos and videos add a visual perspective to key concepts of the syllabus. Kognity Co-ordinated Sciences also contains 3D models that are embedded directly into the text so that students can access them while they read. These clickable, interactive resources make learning fun and engaging.



Kognity's Co-ordinated Sciences is written in clear language for international learners. Furthermore, it comes complete with a glossary, which allows students to explore key terms via a designated section of the book.

background radiation

The average level of radiation detectable as part of everyday life, due to a combination of natural and man-made sources.

balance

A device for comparing (and measuring) masses and weights.

balanced diet

A balanced diet includes all the nutrients we need in the correct quantities that our bodies need to stay healthy.

