Inspiring 11–14 science which provides the perfect transition into Pearson Edexcel International GCSE (9-1) Sciences
Build the foundation for International GCSEs

**Exploring Science International**: Our leading 11–14 course – loved by teachers for its exciting, real-life science – now also offers seamless progression to Pearson Edexcel International GCSE Sciences.

- Real-world science to spark your students’ curiosity and inspire the next generation of scientists.
- **FREE** interactive Scheme of Work: a flexible online 11–16 planning tool.
- Science your students can relate to with stunning facts, case studies and photographs.
- Provides content for a broad and balanced 11–14 international science curriculum.
- Authored by expert subject team Mark Levesley, Penny Johnson, Sue Kearsey, and Iain Brand.

**International focus**
- Topics developed with the international learner in mind and appropriate cultural sensitivity.
- The only course to offer full coverage of the Pearson Edexcel International iLowerSecondary Award.
- Content written to B1+ English standard.
- Also offers full coverage of the content from the UK National Curriculum and mapped to Cambridge IGCSE Science.

**Preparing your students**

- **STEM spreads** focus on key skills and potential STEM jobs for the future.
- **Working Scientifically spreads** develop the enquiry, practical and mathematical skills needed for future progression.

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**Knowledge retention**

- Summary sheets.
- Word sheets.
- Quick quizzes.

**Transition to International GCSE**

Exploring Science International has been developed specifically to build the skills and knowledge needed to progress to International GCSE.

- Content has been written specifically to support progression.
- Students benefit from a consistent and balanced science scheme from 11 through to 16.
- Students will quickly learn to recognise and respond to International GCSE-style command words.
What’s in Exploring Science International?

**Student Books**

Choose from student books arranged by subject (Biology, Chemistry, Physics) or by Year (7, 8, 9) to suit your school!

The Student Books present inspiring 11–14 science that is packed with fascinating real-world examples, photos and facts to encourage all students to connect what they’re learning to their world. Online versions of the Student Books - ActiveBooks - are also available.

More on pages 6–8

**Workbooks**

Our colourful Workbooks contain space to answer questions from the Student Books along with additional questions to consolidate and deepen learning. They also provide complete coverage of Pearson Edexcel’s iLowerSecondary statements.

More on page 9

Learn more and start your free trial: www.pearsonglobalschools.com/exploringscienceinternational

What’s in Exploring Science International ActiveLearn?

The digital subscriptions within this programme contain everything teachers and students need to create a personalised learning experience. With 1000s of teaching and learning resources to inspire and inform your students, front-of-class ActiveBook versions of the Student Books, comprehensive planning and assessment tools, you’ll be saving valuable time whilst bringing together your planning, teaching and assessment needs across one online service.

**Teaching resources**

- 6 front-of-class Student Books
- 200+ world-class videos and animations
- 300+ interactive activities
- 650+ PowerPoint presentations
- 1000+ activity worksheets

More on pages 10–11

**Planning**

- Interactive Scheme of Work
- Differentiated routes
- 150+ lesson plans
- 150+ technician notes

More on page 14

**Student resources**

- 6 Student Book ActiveBooks
- 800+ auto-marked homework activities
- Summary Sheets, Word Sheets and Quick Quizzes for every unit

More on page 12

**Progress & Assess**

- End-of-unit tests
- Online Markbooks

More on page 13
To spend long periods underwater, humans take oxygen with them to breathe. Water-living mammals, however, have adaptations so they can go for a long time without breathing. For example, elephant seals have an organ in their bodies that stores blood that is full of oxygen. Not all the oxygen in a breath of air goes into the blood, so exhaled air still contains a lot of oxygen (table C). This means that most of the oxygen in a diver’s air tank is lost in exhaled bubbles. Some divers, though, use rebreather apparatus. This contains calcium hydroxide, which removes carbon dioxide from their exhaled air and recirculates the remaining air for them to breathe.

A solution of calcium hydroxide is called limewater. It is a clear and colourless liquid that turns cloudy as it absorbs carbon dioxide, so is used to test for this gas. Carbon dioxide dissolves in water to form an acidic solution. This means that respiration can also be detected using an indicator. For example, hydrogen carbonate indicator is pink in water but turns yellow as carbon dioxide is added and the pH drops. Another way of detecting respiration is to look for a temperature rise, because some of the energy released by respiration warms up a cell’s surroundings.

### Table C

<table>
<thead>
<tr>
<th>Inhaled Air (%)</th>
<th>Exhaled Air (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitrogen</td>
<td>78</td>
</tr>
<tr>
<td>Oxygen</td>
<td>21</td>
</tr>
<tr>
<td>Carbon Dioxide</td>
<td>0.04</td>
</tr>
<tr>
<td>Water Vapour</td>
<td>Variable</td>
</tr>
<tr>
<td>Temperature</td>
<td>Warmer</td>
</tr>
</tbody>
</table>

### Questions

1. a) What adaptation do elephant seals have to help them go for a long time without breathing? b) Explain how this adaptation works. c) Allen is diving and uses a tank of air in 30 minutes. Will the same tank of air last for more or less time if Allen uses a HydroBOB? Explain your reasoning.

2. Explain why the quantities of each of the five items in table C are or are not different between inhaled and exhaled air.

3. a) What substances do plants need for aerobic respiration? b) How do they get these substances? c) Describe how gas exchange occurs in different organisms.

4. i) Inhaled breath bubbles through limewater in one tube and exhaled breath bubbles through limewater in the other. Explain why the quantities of each of the five items in table C are or are not different between inhaled and exhaled air.

5. Describe how gas exchange occurs in different organisms.
In the experiment shown in the diagram, two variables are the volume of fuel burnt...
ActiveLearn teaching resources

Interactive front-of-class teaching resources that boost engagement and inspire.

Access everything you need for a lesson by clicking the blue hotspots, including videos, interactive activities, and customisable PowerPoint presentations.*

ActiveLearn Student resources

Homework and Practice exercises

ActiveLearn includes hundreds of auto-marked activities for your students to use in lessons or at home, to cement their knowledge and skills.

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*Also accessible via the ActiveLearn resource library.
ActiveLearn Progress & Assess

ActiveLearn Progress & Assess* is a reliable, easy-to-use system to track students’ progress from KS3 to Pearson Edexcel International GCSE. It can work alongside your own system, will give you confidence in your data, helps you plan appropriate interventions, and saves you time.

It includes:
- 12-Step Progression Scale with mapping to indicative Pearson Edexcel International GCSE (9–1) grades
- Progression Map for 11–16
- Baseline, end-of-unit and end-of-year assessments for KS3 and KS4
- Mark schemes
- Online Markbooks that provide analysis of students’ results.

Online Markbooks

Online Markbooks are aligned with your ActiveLearn assessments. Use these to record your students’ results throughout the year, predict future performance, quickly identify problems, and take the most effective actions.

ActiveLearn Progress & Assess is included as part of the Exploring Science International ActiveLearn subscription.

Learn more at www.pearsonglobalschools.com/exploringscienceinternational

*Formerly Pearson Progression services.
Foundations for success

Exploring Science International will offer a seamless transition for progression into Pearson Edexcel International GCSE and beyond. We have a range of resources available to help you prepare your students for success in Pearson Edexcel’s world class qualifications.*

14–16 Pearson Edexcel resources for International GCSE (9–1)

For more information about resources from Pearson visit
pearsonglobalschools.com

For more information about iProgress with Pearson Edexcel visit
qualifications.pearson.com/iprogress

*Prices can be found online, but may vary across regions, therefore please contact your local Pearson consultant for local and up-to-date pricing.

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