EXPLORING SCIENCE INTERNATIONAL 11–14

Course Guide

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

Full Pearson Edexcel iLowerSecondary coverage!
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.

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.

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

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.

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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

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

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

Progress & Assess
- End-of-unit tests
- Online Markbooks

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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 the 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. For example, earthworms breathe through their skin, which is moist and exposed to the air. This allows oxygen to diffuse directly across the skin. Earthworms respire (breathe) by moving their skin and they have a temperature rise of about 1°C when oxygen is introduced into their breathing area.

For photosynthesis, plants need carbon dioxide to make glucose. Plant cells then release energy from the glucose using aerobic respiration, which happens in all cells, all the time. To allow gases in and out, land plants have tiny holes in their leaves called stomata. They allow gases (such as oxygen, carbon dioxide and water vapour) to diffuse in and out of a leaf. Stomata allow gases to diffuse into a leaf and carbon dioxide diffuses out.

To test for carbon dioxide, plant cells release this gas into the air outside the leaf. The gas then diffuses into water in a second container. A solution of calcium hydroxide (the artificial gill for divers to use) is placed in the container. Carbon dioxide combines with the calcium hydroxide to make a white, milky, feathery substance called calcium carbonate. Stomata (the singular is stoma) on a leaf are pores that allow gases in and out of a plant cell. 

Gills

Mammals use lungs to get oxygen and so must breathe air. However, some animals never breathe air because they can extract oxygen from water, often using gills.

Water flows in through a fish’s mouth. In the gills, water flows over a fine network of feathery strands, where oxygen diffuses into the blood and carbon dioxide diffuses out.

HydroBOB underwater scooters

A glossary is provided at the end of the book. Clear illustrations to aid understanding.

Options for further reading are provided at the end of the book. Fascinating facts for students to think about.

Download your free samples at www.pearsonglobalschools.com/exploringsciencenationalinternational
In the experiment shown in the diagram, two variables are the volume of fuel burnt ... A burned for 7 minutes and the water reached 63 °C. Fuel B heated ...
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.*

Hundreds of videos, interactive activities and animations for use on the whiteboard.
A zoom feature helps you focus on individual artworks, photos or any piece of text.

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.

Students can work at the level best for them with differentiated activities for each topic.
Stuck or in need of inspiration? Learning aids contain extra information.

All activities are self-marked and results are tracked; students get instant feedback and you can see how they are progressing.

Learn more and request your free trial at www.pearsonglobalschools.com/exploringscienceinternational

*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.

ActiveLearn Planning and guidance

Complete support for planning and teaching, including:
- detailed teacher and technician notes
- lesson ideas to suit a range of teaching and learning styles
- answers to questions in the Student Books.

Interactive Scheme of Work

Take a closer look at our unique planning tool.

What is it?

Like a traditional scheme of work, our digital iSoW helps you cover the full curriculum and qualification requirements over 5 years. You can choose a 2 or 3-year Key Stage 3.

Teach the topics in the order you choose; the iSoW will automatically highlight any prerequisite topics first.

The iSoW works seamlessly with your ActiveLearn resources; they will be integrated into your personalised iSoW.

Learn more at www.pearsonglobalschools.com/exploringscienceinternational

*Formerly Pearson Progression services.
Exploring Science International is also part of the 11–14 suite of resources from the Pearson Edexcel iProgress family. From Primary through to Secondary, iProgress delivers a consistent and high-quality educational experience for students aged 5 to 19, by providing globally recognised qualifications and curriculum-matched resources at each school stage.

Based on the UK curriculum but designed with a global outlook, iProgress is a learning journey for your students from Pearson Edexcel, and includes iPrimary, iLowerSecondary, International GCSE (IG) and International A Level (IAL).

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.*

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.

* Paid for published resources. You do not need to purchase Pearson resources to deliver our qualifications.