Activate
Question • Progress • Succeed

Supporting your students on their journey through KS3 to KS4 success
Activate is a brand new Key Stage 3 science course designed to spark your students’ interest in science and support them on their journey through KS3 to KS4 success. It’s tailored to the 2014 curriculum, with a comprehensive and flexible solution for effective differentiation and assessment.

Engage your students
Engaging and inquisitive, packed full of fun activities, practicals, quizzes and questions to spark your students’ interest in science.

Choose your route through
Pick between separate or combined sciences, and two or three-year routes.

Build key skills
Maths, literacy and working scientifically skills are embedded throughout, with progression of skills carefully planned, and supported by tasks and assessments to help monitor progress.

Assessment you can trust
Activate’s assessment has been designed and quality assured for the new curriculum by our assessment expert, Dr Andrew Chandler-Grevatt.

Prepare for the new (9–1) GCSEs
Summary and exam-style questions with GCSE command words, as well as extended writing tasks and maths and practical skills are incorporated throughout, to help your students build confidence as they approach the new (9–1) GCSEs.

Support and extend
Support and extension is provided for every lesson, with differentiated questions, support sheets, and extension tasks. End-of-chapter checkpoints provide further support and extension.

Expertly written and clearly offers magnificent support for the new curriculum.

Teach Secondary magazine

Evaluate Activate free for 90 days
The Activate Evaluation Pack contains a copy of the Activate 1 Student Book, samples from the Activate 1 Teacher Handbook and Activate 3 Student Book, plus a guide to Kerboodle.

Activate Evaluation Pack
978 019 839254 5
Email schools.orders.uk@oup.com to request your pack.

Find more information and sample material from Activate at www.oxfordschools.co.uk/activate.
Choose your route

Activate provides **two flexible routes through KS3** so you can choose the best option for your school. Teach combined science with *Activate 1, 2 and 3*, or separate sciences with *Activate Biology, Chemistry and Physics*. Both routes work for a **two-year or a three-year KS3**.

**Combined Science Route**
- Activate 1
- Activate 2
- Activate 3

**Separate Sciences Route**
- Activate Biology
- Activate Chemistry
- Activate Physics

*Books 1 and 2 cover the new programme of study in full.* Book 3 takes a contextual approach, consolidating KS3 topics and providing further valuable preparation for KS4.

**Reliable five-year assessment for seamless transition and progress**

**KS3 and KS4 assessment**

Our expert Assessment Editor Dr Andrew Chandler-Grevatt has devised a **flexible five-year assessment** package you can use for the new KS3 curriculum and GCSE. Track your students’ progress seamlessly through KS3 and KS4 to ensure GCSE success.

TheActivate KS3 bands, **Developing, Secure and Extending**, allow you to monitor progress against what’s required by the KS3 programme of study. They’re matched to previous national curriculum levels and Bloom’s Taxonomy, so you can choose what works for you. They are also **matched to the new GCSE grading system (9-1)**, to ensure seamless transition to KS4.

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**Assessment for learning with our Checkpoint system**

The checkpoint assessment system assesses students at the end of each chapter, helping to ensure that all students achieve their full potential. **Follow-up lessons are provided, with support and extension tasks** designed to allow everyone to reach the required level of understanding. Use the checkpoint system to ensure all your students make progress and are ready for the challenges of the curriculum ahead.
Engaging and inclusive Student Books

Packed with fun activities and facts to spark a passion for science and inspire your students of all abilities to succeed.

Physics

It's hard to imagine a world without electricity. In this unit you will discover how energy is used, how the electricity in your home is generated. You will learn why it is important to insulate a house and what you can do when you play with electricity too. You will also find out how to use graphs to tell a story, and how forces explain gas and air pressure.

You already know

- Lots of appliances run on electricity.
- You would procrastinate without your phone or computer work.
- Some materials, like metals, are good conductors of electricity.
- You can change the volume of a louder or the brightness of a lamp by changing the position of a switch.
- Switches can control lamps and buzzers.
- You can change the volume of a buzzer or the brightness of a light bulb.
- Some materials, like metals, are good conductors of electricity.
- Magnets have two poles and attract or repel, depending on which poles are being used.
- Green energy is magnets. The Earth is a giant magnet.

Big Questions

- What happens in an electric circuit?
- What happens in a chemical reaction?
- Why are aircraft cabins pressurised?
- How can we explain dissolving?

Activity 2

Auto-marked unit pre-tests are available on Kerboodle: Lessons, Resources and Assessment to check K2 knowledge.

Physics

2.2 Solutions

Learning objectives

After this topic you will be able to:

- Describe solutions using key words.
- Use the particle model to explain dissolving.

Do you like coffee? When you add water to coffee powder, you create a solution. A solution is a mixture of a liquid called the solvent and other substances called solutes.

What is a solution?

A solution is a mixture of two or more substances. The solution can be a gas, a liquid, or a solid.

The mass of a solution cannot change by the law of definite proportions.

Is water the only solvent?

No, water does not dissolve water. Some solvents dissolve in water. They are called hydrophilic solvents.

Can gases dissolve?

Many gases dissolve in water. Carbon dioxide is one example. As you open the bottle, you can feel the gas in the bottle. If you put your fingers in the bottle, you will feel the gas on your fingers.

Summary Questions

1. What is a solution?
2. How can we explain dissolving?
3. How can we explain dissolving?
4. How can we explain dissolving?
5. How can we explain dissolving?
6. What happens in an electric circuit?
7. What happens in a chemical reaction?
8. What happens in a chemical reaction?
9. What happens in a chemical reaction?
10. What happens in a chemical reaction?

Making connections

- Links to other units and across biology, chemistry and physics
- Differentiated summary questions include GCSE command words and 6 mark questions
- Maths, literacy and working scientifically activities help build the key skills
- Online versions of the Student Books are available as Kerboodle Books. You can display Kerboodle Books on your whiteboard, and purchase access for students at home.
Key points

- Blood is pumped by the heart through the veins and arteries.
- Oxygen is carried in the blood and carbon dioxide is given out.
- Blood vessels connect the heart to the circulatory system.

Key words

- Blood
- Heart
- Veins
- Arteries

End-of-chapter questions

1. Explain how the circulatory system is linked to the cell.
2. Describe the functions of the heart.
3. What is the role of the circulatory system in maintaining life?
4. How does the circulatory system work?
5. What are the main parts of the circulatory system?

Big Write

How do you toss a pancake?

Tips

- Antagonistic muscles are pairs of muscles that work together at a joint.
- When one muscle contracts, the other muscle relaxes.
- Bones are held together by ligaments.
- Muscles are attached to bones by tendons.

The skeleton is made up of bones. It has four important functions – support the body, movement, protection, and production of blood.

When you exhale, muscles between your ribs and the diaphragm relax. This decreases the volume inside your chest. The pressure decreases and air is drawn into the lungs.

Exhaled air is warmer and contains more carbon dioxide and water vapour.

Gas exchange takes place inside the lungs – oxygen is taken in and carbon dioxide is given out.

How do you toss a pancake?
Activate is accompanied by Kerboodle, an online bank of teaching material for running creative and effective lessons, with a flexible, fully integrated assessment model and solution for KS3 assessment without levels. It’s intuitive to use, customizable and can be accessed online anytime, anywhere. Kerboodle provides three purchasing options for each level in the course: Lessons, Resources and Assessment, Kerboodle Book and Kerboodle Teacher Handbook.

Assessment

Auto-marked assessment

Auto-marked assessments with confidence selectors and targeted feedback help assess:

- Content from the chapter
- Maths skills
- Literacy skills (including spelling)
- Working scientifically skills
- KS2 knowledge

You can assign assessments to students at home and track their progress in the Kerboodle markbook.

After having looked at all the schemes available for the new KS3 National Curriculum, Activate has by far the best thought out assessment package.

Mat Power, Head of Science, Holy Cross Catholic High School

Andy Chandler-Grevatt explains the assessment model in detail at www.oxfordsecondary.co.uk/activate.
Check your students’ knowledge of KS2

- Downloadable paper-based tests to assess your Year 7 students’ knowledge and understanding of KS2

Make progress with key skills

- Progress tasks for the end of each chapter help monitor progress and set targets in key skill areas
- Progress trackers help students track progress and record areas for improvement
- Interactive investigations and progress quizzes provide auto-marked assessment of skills for each chapter
- Paper-based end-of-chapter tests are easily downloadable to help assess students’ progress at the end of every chapter

Prepare for the new Science GCSEs

- Maths and practical skills are embedded throughout to help prepare students for GCSE
- Exam-style question papers build confidence in GCSE-style questions and provide accurate summative marks for the end of each unit and year

Follow assessment with learning

Activate includes a Checkpoint assessment system.

1. Use the auto-marked Checkpoint assessment at the end of each chapter to determine next steps
2. Use the Checkpoint lesson and resources to support and extend your students as needed

Which feature of a swan means that it is well suited to getting its food?

Swans are water birds. They eat plants that grow at the bottom of lakes and rivers.

To remove waste, to sense danger, to help you to move

To support your body, to sense danger, to help you to move

To support your body, to protect your organs, to help you to move

Which properties must a material for a saucepan have?

- Poor conductor of heat, melts at a high temperature, not soluble in water
- Good conductor of heat, melts at a low temperature, soluble in water

What happens to the sound from the bell as Ben gets further away?

It sounds quieter

It sounds louder

Its vibrations get bigger

Its vibrations get smaller

Which of these changes is the easiest to reverse?

- Dissolving sugar in water
- Rusting metal
- Freezing water
- The action of acid on bicarbonate of soda

Which of these changes results in the formation of one or more new substances?

- Burning wax
- Melting wax
- The Sun orbits the Earth and the Moon orbits the Sun
- The Earth orbits the Sun and the Moon orbits the Earth

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The magnets repel each other

The magnet on the right moves in a circle

The magnet on the left moves in a circle

The magnets attract each other

With the auto-marked Checkpoint assessment, you can...
Kerboodle

Lessons

Ready-to-play lesson presentations are provided to complement every double page spread in the Student Book. Each lesson presentation is fully customizable, meaning you can edit, add, or delete screens to suit your needs.

Resources

Interactive screens are provided for every lesson for use on your whiteboard.

WebQuests build literacy and research skills, and can be used as homework tasks.

Lots of flexibility and complete support for KS3. I can see that teachers and students will really enjoy using it in class!

Guy Winters, Head of Science, Cardinal Newman Catholic School

To find out more about Activate Kerboodle, visit www.oxfordschools.co.uk/activatekerboodle
Kerboodle Books are digital versions of the Activate Student Books, which can be accessed on a range of devices and tablets including iPad. Teacher access to each Kerboodle Book is automatically included in the relevant Lessons, Resources and Assessment package, and you can also choose to buy access for all your students so they can log on and use a digital version of their Student Book from home.
About the authors

**Philippa Gardom Hulme**

Philippa Gardom Hulme has 15 years’ experience teaching secondary science and is now a science tutor on the PGCE course at Oxford University. Philippa also has experience examining for OCR and KS3 SATs, and is an experienced science textbook author for KS3, GCSE and IGCSE. Philippa has an honours degree in Chemistry, Resources and the Environment from York University, an MEd degree from Bristol University and a PGCE from the University of Oxford.

**Jo Locke**

Jo Locke has many years’ experience teaching secondary science, working on KS3 through to A-level and with experience as a Head of Science. She is an experienced examiner, and currently examines for International Baccalaureate and Edexcel A-levels. Jo is an author, and has written material for KS3, GCSE, BTEC, Entry Level Certificate and A-levels. Jo has a first class honours degree in Biology and a Science PGCE from the University of Bath.

**Helen Reynolds**

Helen Reynolds is an Institute of Physics Teaching and Learning Coach, and a former Head of Science. She is an experienced secondary science teacher, and has a MA in Physics and a PGCE from the University of Oxford. Helen’s authoring experience includes recent student and teacher materials for the Cambridge International KS3 equivalent (Secondary 1).

**Simon Broadley**

Simon Broadley has been teaching secondary science for 18 years, specialising in biology and applied science, and with responsibility for leading Biology and BTEC courses. Simon has a PhD and BSc in microbiology. Simon has been an OUP author for seven years, writing student and teacher resources for KS3 and GCSE.

**Mark Matthews**

Mark Matthews has been teaching secondary science for over 20 years, specialising in Biology and Applied Science, and with responsibility for leading biology and BTEC courses. Mark has a PhD in Developmental Biology and a BSc in Zoology. An experienced author, Mark has been writing for OUP for seven years, with published student and teacher materials for KS3 and GCSE.

**Victoria Stutt**

Victoria Stutt has been teaching since 2004, working across key stages and with experience of coordinating KS3. She is an experienced GCSE and A-Level author, and has written successful assessment titles for KS3. Victoria has an honours degree in Chemistry and a PGCE from the University of Sussex.

**Nicky Thomas**

Nicky Thomas is an experienced teacher of Physics and Science, as well as Institute of Physics Network Coordinator. As part of her work with the IoP, Nicky provides training and support for physics teachers, and mentors early career physics teachers. Nicky has a Physics degree from the University of Oxford, and is an experienced author, writing teacher and student materials across all secondary key stages.

Dr Andrew Chandler-Grevatt
Assessment Editor

Dr Andrew Chandler-Grevatt has a PhD in school assessment, and a real passion for science teaching and learning. Having worked as a science teacher for ten years, of which five were spent as an AST, Andy has a real understanding of the pressures and joys of teaching in the classroom. Alongside his national and international research in school assessment, Andy is a teaching fellow on the PGCE course at the University of Sussex, and is a successful published assessment author.

Find out more about Andy and the Activate assessment model at www.oxfordsecondary.co.uk/activate.
What's changing in the curriculum?

**NEW CONTENT**
- New areas of content have been brought into KS3 from KS4, as well as changes in approach to some subject content

**NO LEVELS**
- Levels have been removed from the national curriculum
- Schools must devise their own assessment systems

**MATHS**
- KS3 and KS4 both contain more maths
- Students are expected to use equations and statistical techniques

**WORKING SCIENTIFICALLY**
- ‘How Science Works’ has been replaced with ‘Working Scientifically’
- Working Scientifically is more demanding, with inclusion of terms and techniques previously introduced at KS4

**TOUGHER GCSEs**
- GCSEs will be tougher in terms of both content and skills
- Students will need to be prepared leaving KS3
- Students will be assessed on their extended writing and mathematical skills
- Single science will no longer be available. Double and Triple science will be linear with terminal assessment

How does Activate deliver?

**NEW CONTENT**
- Activate has been written specifically for the new curriculum, meaning you can be confident you are covering what you need to

**NO LEVELS**
- The Activate assessment model has been designed for the new curriculum
- It uses a new banded system to assess each block of knowledge
- Level references are still provided if you wish to use them

**MATHS**
- Mathematical progression is fully supported across all components
- Support activities and assessments are provided

**WORKING SCIENTIFICALLY**
- Working scientifically is integrated throughout
- First chapter in Y7 focusses on working scientifically skills
- Support activities and assessments are provided

**TOUGHER GCSEs**
- Maths and literacy skills are built from Y7
- Extended writing skills are built from Y7, with questions and support provided for each chapter
- GCSE-style assessments and command words are included from Y7 to help build confidence
# Course structure

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