

Cambridge TECHNICALS LEVEL 3



# APPLIED SCIENCE

*Summary Brochure*  
2018/2019  
Version 4

PRACTICAL  
LEADERSHIP  
COLLABORATION  
ANALYSE  
RESEARCH  
MARKETING  
CUSTOMER  
FOCUS  
RESPONSIBLE  
INTERNATIONAL  
TECHNOLOGY  
ENTREPRENEUR

*OCR is a not-for-profit organisation. For us, success is measured through the impact and reach of our activities and the scale of our contribution in helping students realise their aspirations.*

Cambridge  
TECHNICALS  
2016

Our purpose is to work in partnership with others to provide general and vocational qualifications that support education in ways that enable students to reach their full potential, equip them with the knowledge and skills they need for their future, and to recognise and celebrate their achievements.

We develop our qualifications in close consultation with teachers, industry leaders and government to ensure they are relevant for today's students and meet requirements set by the Office of Qualifications and Examinations Regulation (Ofqual).

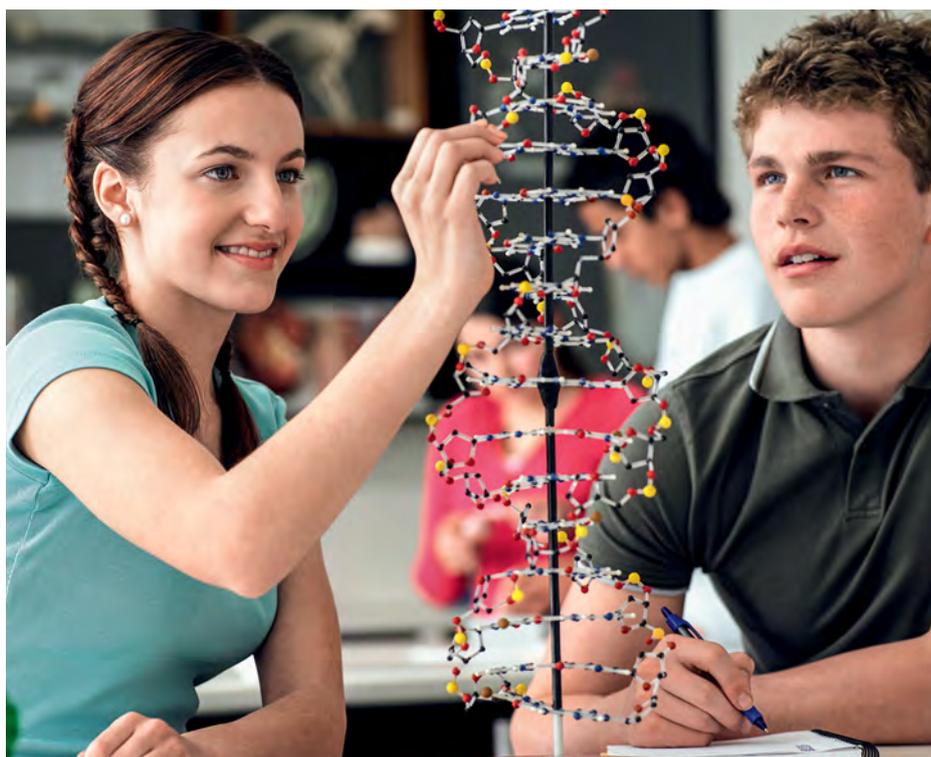
We are delighted to be working in partnership with Hodder Education to deliver you quality teaching resources.

[www.hoddereducation.co.uk](http://www.hoddereducation.co.uk)

Cambridge  
TECHNICALS  
2016

## 2016 Suite

- Suite for first teaching September 2016
- Externally assessed content
- Eligible for Key Stage 5 performance points from 2020 performance tables
- Designed to meet the DfE technical guidance
- Attracts UCAS points at Level 3



***Our Cambridge Technicals suite gives you the reassurance that you have the right qualifications to support your students' lifelong learning journey.***

Cambridge Technicals are vocational qualifications at Level 2 and Level 3 for students aged 16+. They're designed with the workplace in mind and provide a high-quality alternative to A Levels, with a great range of subjects to choose from.

Vocational education is not just about results, it's about educating people in the knowledge and skills required for employment and for the community as a whole. It's also about developing the behaviours and attributes needed to progress and succeed in education and in work.

***Our offer:***

Subject	Level 2	Level 3
<b>Art and Design</b>	✓ (2012 suite only)	✓ (2012 suite only)
<b>Business</b>	✓	✓
<b>Media/Digital Media</b>	✓	✓
<b>Engineering</b>	✓	✓
<b>Health and Social Care</b>	✓	✓
<b>IT</b>	✓	✓
<b>Science/Applied Science</b>	✓	✓
<b>Performing Arts</b>	✓	✓
<b>Sport and Physical Activity</b>	✓	✓

The qualifications allow for a high degree of flexibility with the choice of units that make up the qualifications, so your students can specialise in the specific areas of the subject that interest them most.

# LEVEL 3 CAMBRIDGE TECHNICALS IN APPLIED SCIENCE

*Launched for first teaching September 2016, our Level 3 Cambridge Technicals in Applied Science qualifications allow your students to achieve their potential and progress to the next stage of their lives, whether it be Higher Education, an apprenticeship, or employment.*



We've designed refreshing and exciting content, that's up to date, engaging, fit for purpose and suitable for the needs of your students. To do this we've consulted with universities, employers and industry specialist to make sure that your students will gain the right combination of knowledge, understanding and skills required for the 21st century.

The Level 3 Cambridge Technicals in Applied Science have been developed to meet the changing needs of the sector, and prepare your students for the challenges they'll face in Higher Education or employment. These qualifications have been designed in collaboration with experts spanning the breadth of the sector. They focus on the requirements that today's universities, professional vocational colleges and employers demand.

A wide range of centre assessed units with practical and wider project-based assessment opportunities, as well as examined units on Science Fundamentals, Laboratory Techniques and Scientific Analysis and Reporting, has resulted in focused qualifications which, dependent on the size chosen, either complement a Key Stage 5 study programme alongside other vocational qualifications, A Levels, or may constitute the bulk of a two-year study programme.

Your students will develop professional and practical skills through carrying out real experiments and research, working with local employers who can provide a workplace setting or national research projects that use volunteers to gather data, as well as theoretical knowledge and understanding to underpin these skills. This will allow them to practice lab techniques required in an industrial setting using equipment that may not be readily available in the classroom. Students will be made aware of safe working practices in a lab and the strict legal requirements they must adhere to.

Students will also gain an understanding of the different types of scientific industries and settings plus how laboratory design can vary across organisations and sectors. When it comes to progression or employment, your students will understand the variety of opportunities available to them, and the roles and responsibilities of businesses and organisations within the sector. This will make sure your students develop clear ideas about where they might like to take their career and what progression routes they'd like to follow.

## The Qualifications

All qualifications across the Cambridge Technicals in Applied Science suite, have the ability to be co-teachable; allowing for flexibility within the delivery of study programme.

## Level 3 Cambridge Technicals in Applied Science

Scheme code	Qualification title	Guided learning hours (GLH)
5879	Level 3 Cambridge Technical Certificate in Applied Science	180
5847	Level 3 Cambridge Technical Extended Certificate in Applied Science	360
5848	Level 3 Cambridge Technical Foundation Diploma in Applied Science	540
5849	Level 3 Cambridge Technical Diploma in Applied Science	720
5874	Level 3 Cambridge Technical Extended Diploma in Applied Science	1080

## Diploma Pathways

The Foundation Diploma and Diploma have three vocational pathways that can be followed. Your students will apply their skills, knowledge and understanding to tasks or activities that are relevant to how food, environmental and human sciences are used in the workplace. Having an appreciation of how these are used in work will also help to prepare students continuing their education in this sector.

At least one pathway must be achieved.

## Environmental Science

For this pathway we have worked with Anglian Water and ADAS to ensure that we are offering the skills, knowledge and understanding that students need to succeed in the sector and are recognised by the best in the business.

For the Environmental Science pathway the key tasks are contained in Unit 14 'Environmental management'. If students take optional units in Sustainability and Renewable Energy, Waste Management, Microbiology, Crop Production and Soil Science the learner could survey and test the impact of a wind turbine placed close to crop fields and lead to being able to propose a management plan.

## Food Science

The food and drink sector is the UK's largest manufacturing sector. It accounts for 15% of the UK's total manufacturing sector by value. It's the fourth largest food and drink manufacturing industry in the world and it employs 440,000 people directly in the UK, and as many as 1.2 million in related food services.

We have worked with Tulip Ltd, one of Britain's leading food companies to ensure we are offering the skills, knowledge and understanding that are recognised by industry specialists.

In this pathway the key tasks are contained in Unit 10 'Testing Consumer Products'. If students take optional units in Human Physiology, Human Nutrition, Waste Management, and Microbiology the type of product they test could be ready made meals to assess nutritional benefits.

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## Human Science

This pathway builds on the fundamental science mandatory content to include in-depth examination of human physiology, cell structure and genetics. As the Human Genome Project, after years of work, is now being rolled out into the global scientific world and huge advances in the treatment of diseases are being made, it is essential that this qualification includes this exciting development in its content.

We have worked with the Sanger Institute to help ensure we have included the latest research and understanding of this exciting emerging sector.

For the Human Science pathway the key tasks are contained in Unit 10 'Testing Consumer Products'. If students take optional units in Human Physiology, Human Nutrition, Cell Biology, and Drug Development the type of product they test could be vitamin and mineral supplements and its benefit on the human system.

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## Progression

If your students leave your institution or change their mind on their final destination, they have the opportunity to move up/move down different qualification sizes.

Cambridge Technicals provide a strong base for progression to university, apprenticeships or work and are recognised for UCAS tariff points\*.



## DfE Key Stage 5 Performance Measures

We've made the decision to position the Cambridge Technicals in Applied Science in the 'Applied General' category outlined in the DfE's technical guidance.

## Applied General – Certificates

Cambridge Technical in Applied Science qualifications are designed to meet the DfE's Applied General Level characteristics and will provide your students with the underpinning knowledge and understanding of scientific principles and practical techniques to carry out experiments safely and accurately. Students will have the opportunity to collect, analyse, evaluate and present primary data and evaluate the analytical techniques to improve the quality and collection of data. This will better prepare students to progress to higher education or employment in areas related to food, human or environmental science.

## Collaborators

The Cambridge Technicals in Applied Science have had support from a range of employers and universities. These include:

Employers	HEIs	Institutes
MedImmune	Keele University	Royal Society for Chemistry
NHS	Northampton University	Sanger Institute
Compton Hospice	Roehampton University	Babraham Institute
ADAS	Bradford University	Cogent
Wellcome Trust	Brighton University	Ellen MacArthur Foundation
The Mallows Company	University of East Anglia	Institute of Chemical Engineers
Martec	University of South Wales	The Science Council
AMEC	Reading University	
ALS Environmental	University of the West of England	
Siemens		
Headway Cambridgeshire		
Huntingdon Life Sciences		
BAE Systems		
Kellogg's		
Veolia		
ABPI		
Dairy Crest		
Anglian Water		
Williams F1 Team		
LGC		



# UNITS – AIM AND PURPOSE

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## *Unit 1* *Science fundamentals*

A thorough understanding of scientific principles and practices is essential for science technicians. Knowledge learnt in this unit will create a solid foundation in the fundamentals of science that students will be able to build on in their further study through their choice of additional optional units, which will provide them with a greater depth of knowledge and practice in their chosen specialisms.

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## *Unit 2* *Laboratory techniques*

The aim of this unit is to provide students with a good grounding in working in a laboratory. This is a general skills unit and covers generic skills required by technicians working in any kind of scientific laboratory, including working for an industrial company, the NHS, contract analysis of environmental samples and working in the education sector. Students will learn about the roles and duties of a scientific technician and the systems used to ensure the effective operation of a laboratory. Students will understand the importance of health and safety in the laboratory and know how to carry out and record the outcomes of standard laboratory procedures.

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## *Unit 3* *Scientific analysis and reporting*

The techniques presented in this unit underpin the work of scientists in the collection, analysis and presentation of data and information. The unit will develop the students knowledge and understanding of a range of useful analytical techniques that can be applied in experimental and investigative settings. Techniques used in scientific experimentation and analysis must be valid, require the accurate and careful gathering of sufficient data and ultimately its interpretation and reporting.

This unit will build on the laboratory techniques from Unit 2 by adapting and extending these according to requirements and applications.

Scientists must produce reports on their scientific investigations designed to meet the needs of specific audiences. Their findings may be further reported on in the public domain such as in the media.

This unit will develop a students reporting skills and evaluate those of others. They must report on the scientific techniques they have used, methods designed and selected to analyse the data they have collected and appropriate formats to present their findings.

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## Unit 4

### Human physiology

This unit aims to enable students to understand why the essential processes such as the digestive, musculoskeletal, cardiovascular and respiratory systems are so important in maintaining health. How organs and body systems have to interact to ensure that the body can provide the conditions necessary for movement and growth and protection.

Unfortunately things do go wrong and each system has well known associated malfunctions. This unit will target some of the more common ones that relate to each system allowing students to appreciate the effects on individuals and what has to be done, on possibly a daily basis, to enable them to lead as full and independent life as possible.

At the end of the unit, they will have knowledge and understanding of how body systems are structured, how they function and how they are inter-related. Students will also gain practical skills in measuring using cardiovascular and respiratory monitoring equipment on human volunteers.

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## Unit 5

### Genetics

Genetics is the study of inheritance. We now know that in all organisms, genes control the characteristics that are passed on from generation to generation.

Advances in DNA technologies have demonstrated the potential of this work in several areas of science, including our understanding of disease and screening for inherited conditions, epidemiology and disease control, forensic science, and historical and archaeological investigations.

By studying this unit, students will understand how geneticists are now able to produce detailed chromosome maps using the science of genomics.

This unit looks at how characteristics are inherited using the long-established techniques of crossing plants and animals, and in humans, by looking at the inheritance of certain characteristics and clinical conditions.

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## Unit 6

### Control of hazards in the laboratory

Running a research lab is a challenge. In all the hustle of loading the autosampler, pipetting, pouring, and mixing for research experiments, worker health and safety can be overlooked, inadvertently pushed aside or forgotten—sometimes with dire consequences. Understanding the legal requirements and recognizing hazards will help students to identify and minimize many of the common safety and health hazards associated with running a research laboratory.

This unit presents an overview of the most common hazards encountered in typical research labs and will help students maintain a safe work environment. It also links to many other units within the qualification and students can apply skills in the context of the practicals they will carry out elsewhere.

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**Unit 7**  
**Human nutrition**

The human body requires a range of nutrients to ensure sufficient bodily function and health. The aim of this unit is to provide students with knowledge of the nutrients needed and the way the body uses them.

Students will be able to calculate the energy content of food and compare with requirements. They will also understand the importance of hydration and supplements. Finally the unit links the development of deficiency and disease from a biological and psychological perspective.

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**Unit 8**  
**Cell biology**

Cell biology, or cytology, is the study of cells. As the cell is the basic unit of almost all living things, cytology is one of the most important areas of biological research.

This unit examines how these observations enable cytologists to reveal details of cell structure, their fine structure or ultrastructure, and how parts of the cell function and interact with each other. Students will use cell counting techniques, along with staining techniques to identify types of cells, components within them, and products they make.

Cytology is important to the developmental biologist. Through the study of this unit, they will develop an understanding of cell division and differentiation, where they become adapted to fulfil specific roles. The unit examines how these processes occur, with genes being expressed in some specialist cells, but not in others.

The cells involved in differentiation are called stem cells. Students will research the different types of stem cell and their potential to produce the different types of cells required. As part of this unit, they will have the opportunity to research and present a case study on the ground-breaking area of stem cell-based therapies. Some of the techniques are controversial, but they offer cell replacement therapies and regenerative medicine, and with this the possibility of the management or cure of diseases and conditions that are currently untreatable.

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## Unit 10

### Testing consumer products

This unit introduces students to regulations governing the nature of consumer products and testing methods used in commercial laboratories. The 'consumer' in this unit is defined as the next purchaser in the chain not necessarily a member of the public buying a product in a shop.

The 'product' can also apply to results gathered as part of a survey and therefore the results themselves are the product with recommendations made to the relevant audience for example an environmental audit carried out on behalf of a land owner, the product in this case are the findings and conclusions drawn from the audit presented to the land owner.

In this unit, students will have the opportunity of using the knowledge and skills they have gained in the mandatory units 1 'Science fundamentals', unit 2 'Laboratory techniques' and unit 3 'Scientific analysis and reporting'. They will use a range of laboratory techniques in their investigations from inception, through to testing products. Students will analyse both the results gathered from their testing and evaluate their experimental technique making adaptations where necessary to ensure quality of data.

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## Unit 11

### Drug development

Drug development describes the process whereby new medicines are discovered and developed, from basic research ('drug discovery') through the various pre-clinical and clinical phases of development and trialling before the drug can be approved for sale.

This is a truly multi-disciplinary endeavour involving a wide range of specialists including plant and animal biologists, synthetic organic chemists (medicinal chemistry), analytical chemists, biochemists, pharmacologists, pharmaceutical (formulation) chemists and many others in the pre-clinical stages as well as clinicians and statisticians in the clinical trials phase.

The aim of this unit is for students to develop some of the practical preparative and analytical skills used in the drug development process and to gain an appreciation of the wider context in which they work.

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### **Unit 13** **Environmental surveying**

Understanding environments is essential in many roles and industries, from conservation of vulnerable habitats or sites of special scientific interest, to built environment planning, industrial development and mining and oil and gas activities. In order for this to be done effectively, a sound, evidence-based, scientific approach is required so that meaningful outcomes of studies are obtained, and informed recommendations enacted.

In this unit, students will take a practice-based approach to understanding, evaluating, interpreting and reporting on environmental information and data, drawing on their learning in fundamental science, and their practical and analytical skills. Students will examine various types of environment and how they interact. They will then apply relevant scientific methods and analytical techniques in the field and the laboratory. They will survey different environments and information in the scientific literature to address scientific questions relevant to them, and report their findings and recommendations.

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### **Unit 14** **Environmental management**

In this unit, students will study the legal and regulatory frameworks underpinning environmental management practice and specific issues of importance. These will include water quality management, managing industrial and natural environments and environmental assessments and reporting.

Students will study environmental management, from small scale, local issues to larger, national and international infrastructure developments, analysing and proposing solutions to key environmental questions in a scientifically and logically sound manner.

They will carry out an environmental survey of a site or sites using environment testing techniques on water, air, soil, diversity of flora and fauna. They will report on their findings to relevant authorities such as land owners or local authorities.



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**Unit 15**  
**Sustainability and renewable energy**

Renewable energy is a key element in the energy mix of nations. It is a key government tool in tackling climate change but is not without controversy.

In this unit students will explore the different technologies that produce renewable energy. They will explore the drivers for change and the different arguments about renewable energy. They will determine the environmental impact of different forms of energy production and suggest suitable mitigation and energy production activities.

Students will learn how to measure energy transfer and calculate energy efficiencies of energy sources using real data sources and scientific equipment to take measurements such as voltage; current; mass; temperature; time.

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**Unit 16**  
**Waste management**

Waste management is the collection, transport, processing or disposal of waste materials, usually ones produced by human activity, in an effort to reduce their effect on human health or local aesthetics or amenities.

The aim of this unit is for students to develop knowledge and understanding of management of solid waste, air emissions and water discharges and to gain an understanding of the processes used by people in industry to minimise waste.

Students will carry out air and water tests safely using industry scientific techniques. They will collect and analyse their own data.

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**Unit 17**  
**Food technology**

Food technology is an important branch of food science that deals with the production processes that make foods. This unit will allow students to investigate a selected range of food manufacturing sectors appropriate to their needs and resources available within their educational establishments.

The aim of this unit is to allow students the opportunity to investigate the fundamental and generic aspects of food manufacture and the links between sectors.

To underpin this, they will develop knowledge of food manufacturing operations, generic stages of food production and quality including food safety whilst further investigation will allow a greater knowledge base of one of the food manufacturing sectors.

Students will prepare and test real product samples in the laboratory following correct health and safety procedures and using appropriate sampling techniques. They will report their findings as if to a relevant authority such as the manufacturer or regulatory agency.

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## **Unit 18** **Microbiology**

Microbiology is the study of microorganisms. Microorganisms affect every aspect of life on Earth. Some microorganisms cause disease but the vast majority are completely harmless.

The beneficial uses of microorganisms have been recognised and exploited for thousands of years in brewing, bread making and yogurt production. Bacteria occupy every habitat on Earth and form a biomass that exceeds that of all plants and animals. We now make use of bacterial ecology and metabolism in the production of natural fertilizers, pesticides and herbicides. Recent developments also include industrial applications such as cleaning up pollution and mining, and the production of important chemical and pharmaceutical products using genetically-engineered microorganisms.

Microorganisms are also responsible for various diseases, however, which affect millions of people worldwide every year. As new antimicrobial therapies have been developed, microorganisms have developed resistance to them, and without the development of new drugs and other therapies, we face the possibility of unstoppable infectious diseases, as in the pre-antibiotic era.

In this unit students will learn about the commercial use of microorganisms in food production and in medical microbiology. They will also develop a range of practical manipulative skills, including aseptic technique and those used in bacterial identification, which will enable them to work safely and competently in a microbiology laboratory.

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## **Unit 19** **Crop production and soil science**

The development of human society has been dependent on growing crops. With agriculture, enough food could be produced to sustain an urban society. The first city, Ur, was dependent on the mutation of grass into wheat.

In the past 6,000 years, agriculture has contributed to how our society has been able to develop. So it is of fundamental importance that as a society we understand both crop production and how to maintain healthy soil by protecting it from possible threats such as erosion, organic matter decline, compaction and contamination.

This unit will develop your students' knowledge and understanding of the biological concepts of plant growth as well as the maintenance of soil content, structure and methods to prevent erosion.

They will also gain laboratory practical skills investigating the structure of plants, the factors that affect plant growth and soil quality that supports crop production.

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**Unit 20**  
**Conservation of biodiversity**

This unit will provide you with an understanding of biodiversity on a local and global scale, the threats to biodiversity and the importance of maintaining a sustainable global environment.

You will examine real examples of conservation taking place on a local and global scale and decide whether the measures taken are effective or not.

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**Unit 21**  
**Product testing techniques**

Consumer products are rigorously tested and regulated both before being allowed to be sold and after sale. Many cleaning, medical, hygiene and food products are bought directly “off the shelf”.

The ‘consumer’ in this unit is defined as the next purchaser in the chain not necessarily a member of the public buying a product in a shop.

In this unit students will have the opportunity of using the knowledge and skills they have gained in the mandatory units 1 ‘Science fundamentals’ and unit 2 ‘Laboratory techniques’. Students will use a range of laboratory techniques in their investigations from inception, through to testing products.

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**Unit 22**  
**Global scientific information**

The purpose of this unit is to enable students to understand that scientific research and scientific knowledge is rarely the work of one individual or team working in isolation. Most of it includes collaborative working across disciplines, countries and continents. Scientific research relies heavily on the work of others. The great British physicist and mathematician Sir Isaac Newton stated that, “If I have seen further it is by standing on the shoulders of Giants<sup>1</sup>.”. In other words, his contribution to knowledge was achieved by building upon the work already carried out and recorded by other great scientists. He could not have imagined the amount of information available to modern day scientists nor the speed at which information can cross the globe.

Students will understand how organisations share and use information to further our understanding of physical, chemical and biological phenomena and how this shared knowledge aids the technicians who work in these areas.

Data is power and there are concerns about how the information gathered or developed around the World is stored, shared and protected and this unit will also help you to understand the implications of the various regulations and laws which cover data and information.

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## Unit 23

### Scientific research techniques

Research is fundamental to science and involves identifying key issues and questions and then designing investigations to explore them more deeply. It is through research that we decide the key topics to research further. It is how we improve our understanding of what is already known and where the new questions exist.

Science research begins with research questions based on scientific theories to provide improved understanding or prediction of natural or other phenomena. Applied research, in turn, uses scientific theories to develop technology or techniques to intervene and alter natural or other phenomena. Though often driven by curiosity, basic research fuels applied science's innovations.

Students will find out about different research approaches and methods and their strengths and limitations.

In this unit, students will be required to carry out research by using primary and secondary sources around a particular focus in the sciences.

This unit is particularly relevant if your students plan to continue studying at a higher level.

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# YOUR JOURNEY WITH US...

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Our aim is to support you on your journey with us – from initial enquiry right through to results day.

To get you off on the right foot you might want to take advantage of the customer support we provide for Cambridge Technicals.

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## **Welcome process**

All brand new Cambridge Technical centres will receive a welcome email to get you off on the right foot.

This will support you with locating on-line resources and training that's right for you, and make sure you have everything you need to start your journey with us.

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## **Cambridge Technical introductory welcome videos**

We have a number of support videos you can watch at your leisure. The 2016 Cambridge Technical introductory video provides you with an overarching guide to the suite and our wrap-around resources and customer support offer.

Each of the 2016 Level 3 Cambridge Technicals has a subject introductory video that guides you through each qualification size; including the structure, information on the externally assessed units, and our flexible internal assessment that puts your student at the heart of the process.

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## **Advisory support**

If your centre is intending to deliver or has already started delivering Cambridge Technicals, but would like some additional support, you can take advantage of our Advisory Support services.

Advisory Support covers a variety of topics such as: entry and assessment administration, qualification structure, \*assessment methods, teaching and learning materials, and delivery ideas.

We provide our support in a range of different ways. This includes downloadable teaching and assessment materials, support videos, live online Q&A sessions, and face to face CPD.

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## CPD Training Events

We also provide INSET events; these are offered on various dates and locations throughout the UK. On our CPD Hub [www.cpdhub.ocr.org.uk](http://www.cpdhub.ocr.org.uk) you can take a look at the courses, find out what the aims and objectives of the course are, and book your place. For those of you who are new to the qualification we'd suggest attending 'getting to know the specification'. This will provide an introduction to the qualification structure, assessment model, resources, support and guidance on delivery, and assessment requirements for the mandatory units.

On the CPD Hub you can also find all the materials that are provided to delegates on the day. So, if you can't attend a face-to-face event... don't worry, you can still download the materials free of charge.

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## Assignment Checking Service

To support your internal assessment we'll provide a model assignment for every mandatory unit in the specification. You can use these with your students, adapt it to meet your local environment, or use it as a basis to create your own assignment.

Because of the vocational nature of Cambridge Technicals, we believe that allowing you to create assignments that meet your students' needs and interests will benefit them more and give them greater success. Your assessment assignments should reflect the practical nature of the units, and your students should really feel what it's like to work in the sector.

But... if you're unsure, an Assignment Checking Service is available, and can be accessed through the CPD hub on our website; however it's not mandatory for assignments to be endorsed by OCR. We'll check your centre set assignment for you and provide feedback before you use it with your students.

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## Online Community

If you want to interact with other tutors you could try our online community.

Of course, online communities are only as good as the members who contribute to them. Within a virtual professional development community you can share and swap ideas for delivery, post questions, support others, suggest ideas for employer engagement, and share links to other teaching and learning resources.

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# ***TEACHING, LEARNING AND ASSESSMENT SUPPORT***

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**Teaching and Learning Materials**

In addition to our face-to-face support, we also provide a range of materials to assist you in your teaching and assessment. This will include:

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**Rule of Combination Calculator**

An Excel based tool to help you make sure students select the right number and combination of units for their chosen qualification.

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**Progress Tracker**

An Excel based tracking tool to help you monitor students' progress throughout the qualification.

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**Delivery Guide**

A range of lesson ideas with associated activities you can use with students to deliver the content of the unit.

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**Lesson Elements**

Task sheets and accompanying instructions for some of the activities within the unit Delivery Guide.

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**Resource Link**

An e-resource providing you with a range of links to teaching and learning websites and materials.

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**Project Delivery Resources**

Whole projects designed to ensure holistic teaching coverage of the content of each vocational pathway.

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**Skills Guide**

A range of generic skills guides covering topics such as Communication, Research Skills, and Exam Techniques.

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### **Internal Assessment**

The majority of the qualification content will be internally assessed through centre-set assignments created by you. We'll provide you with a range of model assignments across the qualification for you to use or adapt where necessary. Alternatively, you can create your own assignment to reflect your local area and needs that are relevant to your centre; plus you can use our Assignment Checking Service to make sure you're on the right lines.

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### **Visiting Moderation**

For the internally assessed units, we provide two free visiting moderation visits per academic year. At these visits we will be able to provide you with supportive feedback, advice and guidance.

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### **Sample Learner Work**

We know that you like to make sure your students are on the right track and working towards gaining the best possible outcome they can.

We can't look at your students' live work, but the CPD Hub has a range of sample learner work for Cambridge Technicals.

Sample learner work is just that... a sample – it's not exemplary or a 'gold standard'. The work has been looked at by our Lead Moderator and in many cases they've provided a commentary on how the work stacks up against the assessment criteria, or have annotated the script to show which assessment criteria have been met. This should help you get a feeling for what is expected, and how your students are getting on – you may also find the command verb resource useful too, this can be found on the qualification page of the OCR website.

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### **External Assessment**

We're working with subject experts to make sure that for externally assessed units we create assessment solutions that retain the vocational nature of the qualification and be relevant for the sector. External assessment in this qualification will involve written examinations including case studies related to the science sector which students will need to apply their knowledge and understanding to.

External assessment will be set and marked by us; there will be two opportunities for your students to take them, in January and June, so you can decide when they are ready to take their assessment.

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### Sample Assessment Materials

We have produced Sample Assessment Materials for each externally assessed unit. This will provide you with an idea of the type of assessment for each unit and give the opportunity for your students to practice.

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### Combined Past Paper

This resource is a combination of:

- Past Paper
- Mark Scheme
- Examiner Comments

Following each exam series, we'll produce a Combined Past Paper so you can see the paper, alongside the mark scheme and examiner comments to demonstrate how students responded and where improvements could have been made.

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### Student Textbooks

Support your teaching of the new Cambridge Technicals 2016 suite with textbooks, developed in partnership between OCR and Hodder Education; the resources cover each specialist pathway for every subject and ensure your ability to deliver a flexible course that is both vocationally focused and academically thorough.



Working in partnership to deliver quality resources



To find out more  
**[ocr.org.uk/science](https://ocr.org.uk/science)**

or call our Customer Contact Centre on **02476 851509**

Alternatively, you can email us on **[vocational.qualifications@ocr.org.uk](mailto:vocational.qualifications@ocr.org.uk)**



**Cambridge  
Assessment**

**OCR**  
Oxford Cambridge and RSA

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