

Cambridge **TECHNICALS LEVEL 3**

APPLIED SCIENCE

Cambridge
TECHNICALS
2016

Unit 2 – Laboratory techniques

RESOURCE LINKS

Version 2

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INTRODUCTION

Resources Link is an e-resource, provided by OCR, for teachers of Cambridge Technicals. It provides descriptions of, and links to, a variety of teaching and learning resources that you may find helpful.

Where appropriate, we have mapped the resources to this OCR unit/learning outcomes (LOs) and provided information about their cost and format.

If you know of other resources you would like to see included here, or discover broken links, please let us know. We would also like to hear from you if have any feedback about your use of these, or other, OCR resources. Please contact us at resources.feedback@ocr.org.uk

To find out more about this qualification, go to: <http://www.ocr.org.uk/qualifications/vocational-education-and-skills/cambridge-technicals-applied-science-level-3-certificate-extended-certificate-foundation-diploma-diploma-extended-diploma-05847-05849-05879-05874-2016-suite/>



Cambridge
TECHNICALS
2016

2016 Suite

- New suite for first teaching September 2016
- Externally assessed content
- Eligible for Key Stage 5 performance points from 2018
- Designed to meet the DfE technical guidance

TYPES OF RESOURCE

OCR Produced Resources

These are resources devised and produced directly by the Resources Development Team at OCR.

Publisher Partner Resources

For many subjects OCR works with a publisher partner to ensure that good quality resources such as textbooks are available for first teaching.

Whilst the publisher partner has access to our subject experts and we quality check and endorse these resources they are produced by, and remain the property of, the publisher partner. There is no financial link between OCR and its publisher partners and we do not pay for the development of, or receive any royalties from, these resources.

Endorsed Resources

These resources were produced entirely independently of OCR, but we have quality checked them for their suitability as a resource to support our qualifications.

Other Resources

Unless specifically stated these resources are completely independently produced and are not endorsed by OCR. We have looked at them though, and we think they could be useful in supporting our specifications.

We leave it to you, as a professional educator, to decide if any of these resources are right for you and your students, and how best to use them.

LINKS

Health and Safety Executive: Frequently Asked Questions on Risk Management

Frequently asked questions relating to risk assessment including definitions of hazard and risk.

Supports: LO1

Cost: Free

Format: Web page

<http://www.hse.gov.uk/risk/faq.htm>

TUC workSMART: difference between hazard and risk

Definitions of hazard and risk which lead on to explanations of how risk assessment is carried out in the workplace.

Supports: LO1

Cost: Free

Format: Web page

<https://worksmart.org.uk/health-advice/health-and-safety/hazards-and-risks/what-difference-between-hazard-and-risk>

Association of the British Pharmaceutical Industry (ABPI) Resources for Schools: Laboratory and pilot plant tours

Virtual tours of laboratories – learners are able to navigate around laboratory areas in a pharmaceutical company and click on points of interest for more information.

Supports: LO1

Cost: Free

Format: Web page

<http://www.abpischools.org.uk/page/modules/labpilotplant/index.cfm>

Health and Safety Executive

Information and guidance on health and safety law and its implementation, including risk assessment and hazard pictograms. Documents may be downloaded.

Supports: LO1

Cost: Free

Format: Web page

<http://www.hse.gov.uk/>

World Health Organization Laboratory Quality Management System (LQMS) training toolkit

Description of documents that would be used as part of a laboratory quality system – useful for tutors' background reading.

Supports: LO1

Cost: Free

Format: Web page

http://www.who.int/ihr/training/laboratory_quality/documents/en/

Good Laboratory Practice Documentation

A presentation explaining documentation and why it is necessary, at a level accessible to learners.

Supports: LO1

Cost: Free

Format: Web page

<http://www.slideshare.net/sunandobasu10/good-laboratory-practice-documentation>

ASTM International, Standardization News: 10 Best Practices of Good Laboratories

A description of best practice in laboratories.

Supports: LO1

Cost: Free

Format: Web page

http://www.astm.org/SNEWS/ND_2010/zimmerman_nd10.html

CLEAPSS: Supporting practical science and technology in schools and colleges

Access to practical resources and safety information and guidance.

Supports: LO1

Cost: Cost depends on the organisation

Format: Web page accessed with a user name and password

www.cleapss.org.uk

Calibrating a Thermometer

Video illustrating how a food thermometer may be calibrated.

Supports: LO1

Cost: Free

Format: Video

<https://www.youtube.com/watch?v=VpJULOiCiGM>

LearnChemistry: Interactive Lab Primer – Thin Layer Chromatography

Video on how to spot a plate and run a TLC chromatogram.

Supports: LO2

Cost: Free

Format: Video

<http://www.rsc.org/learn-chemistry/resource/res00001074/thin-layer-chromatography>

Thin Layer Chromatography

Text-based resource which explains how thin layer chromatography works.

Supports: LO2

Cost: Free

Format: Web page

<http://infohost.nmt.edu/~jaltig/TLC.pdf>

Thin Layer Chromatography

Text-based resource which explains how thin layer chromatography works.

Supports: LO2

Cost: Free

Format: Web page

http://courses.chem.psu.edu/chem36/Experiments/PDF's_for_techniques/TLC.pdf

Basic Bioscience Laboratory Techniques: A Pocket Guide

Textbook providing information on cell culture, chromatography, microscopy, weighing and making up solutions. Has links to other sources of information.

Supports: LO2, LO3, LO4, LO6

Cost: £18.99

Format: Book

<http://www.amazon.co.uk/Basic-Bioscience-Laboratory-Techniques-Pocket/dp/0470743093>

Essential Laboratory Skills for Biosciences

Textbook providing information on aseptic technique, microscopes, titration, making up solutions and chromatography.

Supports: LO2, LO3, LO4, LO6

Cost: £18.99

Format: Book

http://www.amazon.co.uk/Essential-Laboratory-Skills-Biosciences-Wiley/dp/0470686472/ref=sr_1_1?s=books&ie=UTF8&qid=1440342079&sr=1-1&keywords=essential+laboratory+skills+for+the+biosciences

Chromatography: Basic Principles, Sample Preparations and Related Methods

Has chapters on HPLC, GC and electrophoresis.

Supports: LO2

Cost: £29.95

Format: Book

http://www.amazon.co.uk/Chromatography-Principles-Preparations-Related-Methods/dp/3527336206/ref=sr_1_1?s=books&ie=UTF8&qid=1440342207&sr=1-1&keywords=chromatography

Bio-Rad: Life Science Education Tutorials

Videos showing aspects of technique relating to making solutions, pipettes, pH materials, electrophoresis of DNA, microbiology and cell culture.

Supports: LO2, LO3, LO6

Cost: Free

Format: Web page

<http://www.bio-rad.com/en-uk/education/support/tutorials>

Chemguide: Understanding Chemistry: Acid-base equilibria menu

Description of the theory behind acid-base titration, how indicators work and how to select a suitable indicator and pH curves.

Supports: LO3

Cost: Free

Format: Web page

<http://www.chemguide.co.uk/physical/acideqiamenu.html#top>

Titration with Mettler Toledo Automatic Titrators

Short video of a laboratory where technicians are using autotitrators.

Supports: LO3

Cost: Free

Format: Video

https://www.youtube.com/watch?v=OcvZ_2kFkGM

Basics of Titration

A handbook of titration which introduces use of autotitrators. Handbook is produced by Mettler Toledo (a manufacturer of autotitration equipment). Useful for tutors.

Supports: LO3

Cost: Free – after a few questions are answered

Format: PDF

http://uk.mt.com/gb/en/home/supportive_content/know_how/Dummy_Basics_of_Titration_Handbook.html

H1902c TA titration

Short video of use of a pre-programmed autotitrator to test the acidity of wine.

Supports: LO3

Cost: Free

Format: Video

<https://www.youtube.com/watch?v=sdqAzFTGuFY>

UCDavis Chemwiki: Instrument Calibration

Explanation of the need for calibration.

Supports: LO3

Cost: Free

Format: Web page

http://chemwiki.ucdavis.edu/Analytical_Chemistry/Data_Analysis/Instrument_Calibration_over_a_regime

Arkansas Tech University

Introduction to analytical chemistry.

Supports: LO3

Cost: Free

Format: PowerPoint presentation

<http://faculty.atu.edu/abhuiyan/Course/Chem%204414/Chapter%201.ppt>

IvyRose Holistic

Contains information on a range of biology topics, including microscopy.

Supports: LO4

Cost: Free

Format: Web page

<http://www.ivyroses.com/>

John Innes Centre: Microscopy

Descriptions of light microscopy, transmission and scanning electron microscopy with links to other websites.

Supports: LO4

Cost: Free

Format: Web page

https://www.jic.ac.uk/microscopy/intro_EM.html

Microscopes for Schools: How to Use a Microscope

One-page guide to setting up a microscope.

Supports: LO4

Cost: Free

Format: Web page

<http://www2.mrc-lmb.cam.ac.uk/microscopes4schools/microscopes2.php>

Medical Physics

Simple descriptions of medical physics techniques using x-rays and ultrasound.

Supports: LO4

Cost: Free

Format: Web page

http://www.genesis.net.au/~ajs/projects/medical_physics/index.html

Institute of Physics: Teaching Medical Physics

Teaching resources for teaching about the uses of X-rays and ultrasound in diagnostic medicine.

Supports: LO4

Cost: Free

Format: Web page

http://www.iop.org/education/teacher/resources/teaching-medical-physics/page_54690.html

Microbial Life Education Resources: Ion Chromatography

A description of ion chromatography.

Supports: LO5

Cost: Free

Format: Web page

http://serc.carleton.edu/microbelife/research_methods/biogeochemical/ic.html

Classic chemistry experiments: Testing salts for anions and cations

Experimental sheets for testing for anions and cations.

Supports: LO5

Cost: Free

Format: PDF

<http://www.rsc.org/learn-chemistry/content/filerepository/CMP/00/000/534/cce-80.pdf>

Science & Plants for Schools: Cauliflower Cloning – Tissue Culture and Micropropagation

Web page showing cauliflower cloning.

Supports: LO6

Cost: Free

Format: Web page

<http://www.saps.org.uk/secondary/teaching-resources/706-cauliflower-cloning-tissue-culture-and-micropropagation>

Nuffield Foundation, Practical Biology: Standard techniques

Prepared by the Nuffield Foundation and the Royal Society of Biology. Includes notes on aseptic technique and preparing a streak plate.

Supports: LO6

Cost: Free

Format: Web page

<http://www.nuffieldfoundation.org/practical-biology/standard-techniques>

Microbiology online: Teachers

Resources on microbiology experiments and activities, prepared by the Microbiology Society.

Supports: LO6

Cost: Free

Format: Web page

<http://www.microbiologyonline.org.uk/teachers>

Basis Practical Microbiology: A Manual

Step-by-step instructions about how to carry out microbiological practical activities using aseptic technique.

Supports: LO6

Cost: Free

Format: PDF

http://www.microbiologyonline.org.uk/media/transfer/doc/sgm_basic_practical_microbiology_2.pdf



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Looking for a resource?

There is now a quick and easy search tool to help find **free** resources for your qualification:

www.ocr.org.uk/i-want-to/find-resources/

Cambridge Technicals Level 3

Applied Science

textbook

Developed in partnership with Hodder Education this book covers a range of units within this qualification. <http://www.hoddereducation.co.uk/Product/9781471874826.aspx>

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Working in partnership to deliver quality resources

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Vocational qualifications

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