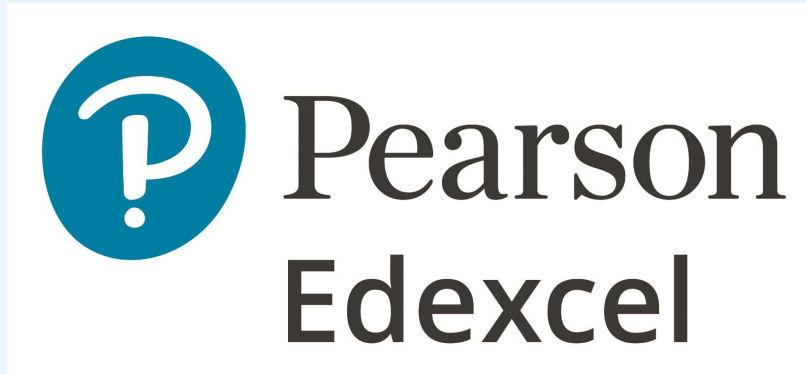


Pearson BTEC Level 3 National Extended Certificate in Applied Science

- Exam Board = Pearson/Edexcel



<https://qualifications.pearson.com/content/dam/pdf/BTEC-Nationals/Applied-Science/2016/specification-and-sample-assessments/BTEC-L3-Nat-ExtCert-in-Applied-Science-Spec.pdf>

Certificate (equivalent to AS level) – Year 12

50%– External exam – Unit 1

50% – Internal assessment Coursework– Unit 2

All units must be passed in order to progress into Year 13

Extended Certificate (equivalent to one A level) – Year 13

50%– Results from 1st year– Unit 1&2

33%– External exam – Unit 3

16.5%– Internal assessment – Unit 8 Physiology of Human Body Systems

Unit 1: Principles of Applied Science 1

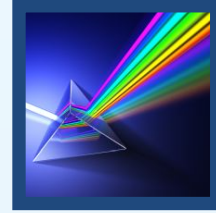
External exam: May/June



Chemistry



Biology



Physics

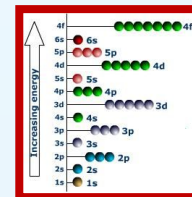
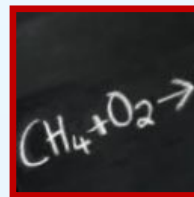
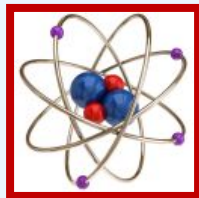
Some of the content of the Unit 1 (biology/chemistry/physics) is similar to your GCSE content - so do NOT get rid of your revision guides yet!

There are some crucial topic areas to make sure your GCSE understanding is solid:

- Cells
- Atomic structure
- Waves

Unit 1: Principles of Applied Science 1

External exam: May/June

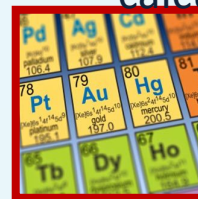
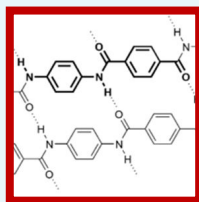
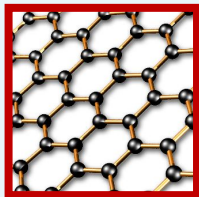


Chemistry

Atomic
structure

Chemical
equations and
calculations

Electronic
structure and
ionisation

A portion of the periodic table showing elements like Pd, Ag, Cu, Pt, Au, Hg, and others.

Bonding

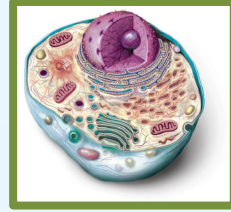
Intermolecular
bonding

Trends in the
periodic table

Reactions of
metals and
redox reactions

Unit 1: Principles of Applied Science 1

External exam: May/June



Biology

Cell
structure

Microscopy

Bacteria



Cell
specialisation

Tissue structure
and function in
the lungs

Muscular
tissues

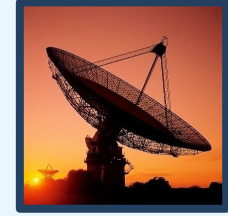
The nervous
system

Unit 1: Principles of Applied Science 1

External exam: May/June



$$v = f\lambda$$

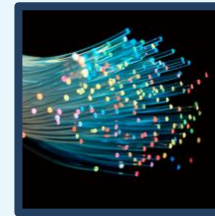
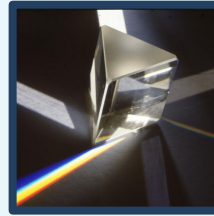
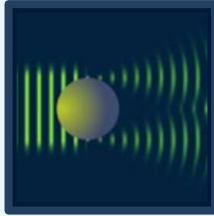


Physics

Properties of
waves

The wave
equation

Communications



Diffraction

Refraction

Fibre optics

Unit 1: Principles of Applied Science 1

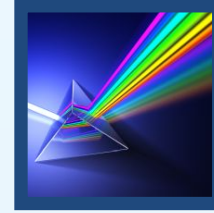
External exam: May/June



Chemistry



Biology



Physics

Written Exam
3 sections - separate
90 Marks total
Pass/Merit/Distinction

Unit 1: Principles of Applied Science 1

External exam: May/June

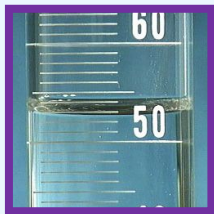
AO1 Demonstrate knowledge of scientific facts, terms, definitions and scientific formulae Command words: give, label, name, state Marks: ranges from 12 to 18 marks

AO2 Demonstrate understanding of scientific concepts, procedures, processes and techniques and their application Command words: calculate, compare, discuss, draw, explain, state, write Marks: ranges from 39 to 45 marks

AO3 Analyse, interpret and evaluate scientific information to make judgements and reach conclusions Command words: calculate, comment, compare, complete, describe, discuss, explain, state Marks: ranges from 18 to 24 marks

Unit 2: Practical Scientific Procedures and Techniques

Internal assessment Coursework



**Learning Aim A:
Titration and
colorimetry**



**Learning Aim B:
Calorimetry and cooling
curves**



**Learning Aim C:
Extraction and
chromatography**



**Learning Aim D:
Review of personal
skills & development**

**Will include various investigations and practical skills
with linked assignments.**

Useful Links

- Specification:

<https://qualifications.pearson.com/content/dam/pdf/BTEC-Nationals/Applied-Science/2016/specification-and-sample-assessments/BTEC-L3-Nat-ExtCert-in-Applied-Science-Spec.pdf>

- Assessments:

<https://qualifications.pearson.com/en/qualifications/btec-nationals/applied-science-2016/coursematerials.html#%2FfilterQuery=category:Pearson-UK:Category%2FExternal-assessments>

(you can view any assessments which don't have a padlock next to them)

Optional Books

- Student Book

<https://www.amazon.co.uk/National-Applied-Science-Student-Nationals/dp/1292134097>

- Work Book

https://www.amazon.co.uk/National-Applied-Science-Revision-Workbook/dp/1292258179/ref=pd_bxgy_img_3/260-4499373-0655021?encoding=UTF8&pd_rd_i=1292258179&pd_rd_r=3ead2f27-80e7-41f5-af38-dc8f2a3d80a6&pd_rd_w=ISRFI&pd_rd_wg=MCQuK&pf_rd_p=106f838b-b7d1-46e9-83e0-f70fac857bf&pf_rd_r=0QWDYR6QTGYVG7BKDJH2&psc=1&refRID=0QWDYR6QTGYVG7BKDJH2

- Revision Guide

https://www.amazon.co.uk/National-Applied-Science-Revision-Guide/dp/1292150041/ref=pd_bxgy_img_2/260-4499373-0655021?encoding=UTF8&pd_rd_i=1292150041&pd_rd_r=3ead2f27-80e7-41f5-af38-dc8f2a3d80a6&pd_rd_w=ISRFI&pd_rd_wg=MCQuK&pf_rd_p=106f838b-b7d1-46e9-83e0-f70facc857bf&pf_rd_r=0QWDYR6QTGYVG7BKDJH2&psc=1&refRID=0QWDYR6QTGYVG7BKDJH2

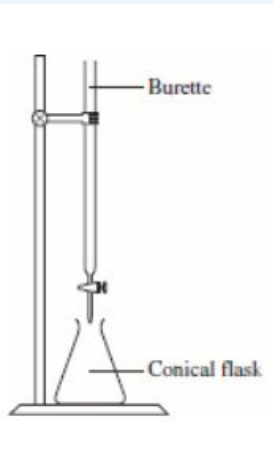
What do I need to get ready for September?

Folder - with dividers and lined paper

A4 Notebook - with pages you can take out and put into a folder

Pens/pencil/ruler/**scientific calculator**

Optional: textbooks and revision guides



Practical Activity

Titration

1. Set up the apparatus on your bench. Put approx 50ml of acid into the burette; fill the tap; record the start volume
2. Measure exactly 25ml of sodium hydroxide with a glass pipette and put into the conical flask
3. Add 10 drops of phenolphthalein indicator to the conical flask
4. Carefully add acid until the indicator changes
5. Repeat again - with a fresh 25ml of sodium hydroxide - adding acid very carefully
6. Can you get **three** concordant results?
7. How careful do you have to be?
How carefully do you have to measure?

Applied Science Summer Task

A detailed, in depth poster or presentation, your choice, on:-

1. Cell Theory – Include diagrams, structure and function. **OR**

2. Atomic Structure and The Periodic Table **OR**

3. Waves – Types of waves and their characteristics and applications

Bring your poster/presentation to your first timetabled lesson in September

B1 Cell structure and function

- Know that cell theory is a unifying concept stating that cells are a fundamental unit of structure, function and organisation in all living organisms.
- Understand the ultrastructure and function of organelles in the following cells:
 - prokaryote cells (bacterial cell) – nucleoid, plasmids, 70S ribosomes, capsule, cell wall
 - eukaryotic cells (plant and animal cells) – plasma membrane, cytoplasm, nucleus, nucleolus, endoplasmic reticulum (smooth and rough), Golgi apparatus, vesicles, lysosomes, 80S ribosomes, mitochondria, centriole
 - eukaryotic cells (plant-cell specific) – cell wall, chloroplasts, vacuole, tonoplast, amyloplasts, plasmodesmata, pits.
- Recognise cell organelles from electron micrographs and the use of light microscopes.

A2 Production and uses of substances in relation to properties

- Understand the periodic table:
 - Periods 1, 2, 3 and 4
 - groups – s block, p block, d block
 - layout of periodic table in relation to s, p, d notation
 - electronic arrangement of elements using s, p, d notation.

- Understand how the regions of the electromagnetic spectrum are grouped according to the frequency.
- Understand how the applications of electromagnetic waves in communications are related to frequency, including:
 - satellite communication
 - mobile phones
 - Bluetooth®
 - infrared
 - Wi-Fi.

Contact Details

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