

Transition into L3 BTEC National Extended certificate into Applied Science



A guide to your new  
Pearson BTEC Nationals in  
**Applied  
Science**



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## Course Information

### Course being studied

BTEC National Extended Certificate in Applied Science

### Units studied

Unit 1: Principles and Applications of Science 1 (External assessment)

Unit 2: Practical Scientific Procedures and Techniques (Internal assessment)

Unit 3: Science Investigative Skills (external assessment)

Unit 8 Physiology of Human Body Systems (internal assessment))

### Grading criteria

The criteria for each unit varies between a pass to a distinction, a combination of grades can be achieved, and an example for a pass and Distinction is below.

Example 1: Achievement of an Extended Certificate with a P grade

	GLH	Type (Int/Ext)	Grade	Unit points
Unit 1	90	Int	Pass	9
Unit 2	90	Ext	Pass	9
Unit 3	120	Ext	Merit	20
Unit 8	60	Int	Unclassified	0
Totals	360		P	38

The learner has achieved a Pass or above in Units 1, 2 and 3.

The learner has sufficient points for a P grade

Example 2: Achievement of an Extended Certificate with a D grade

	GLH	Type (Int/Ext)	Grade	Unit points
Unit 1	90	Int	Merit	15
Unit 2	90	Ext	Merit	15
Unit 3	120	Ext	Distinction	32
Unit 8	60	Int	Distinction	16
Totals	360		D	78

The learner has sufficient points for a D grade

You ***Must*** achieve at least a Pass in unit 1 in order to complete the course

## Course Expectations

- 100% attendance to lessons
- Excellent behaviour towards the learning environment
- Positive contributions to class discussions
- Participate in presentations, work as a team when required and take part in all practical tasks.
- To complete all homework and assignments by deadline dates.
- A willingness to read around the subject.
- Attendance at support sessions when directed by teachers

## Assessment Expectations

All learner work must be submitted on the given deadline day. If not the grade will be capped at pass level regardless of criteria.

All learners work needs to have the name and assignment title in the header and page numbers in the footer.

All learners need to have a submitted their work with a signed declaration form, this form states that is your own work!



NOF Revised BTECs from 2013  
**LEARNER ASSESSMENT SUBMISSION AND DECLARATION**

When submitting evidence for assessment, each learner must sign a declaration confirming that the work is their own.

<small>Learner name:</small>	<small>Assessor name:</small>
<small>Date:</small>	<small>Submitted on:</small>
<small>Programme: BTEC Level 3 National Diploma in Social Care</small>	
<small>Assignment reference and title:</small>	

Please list the evidence submitted for each task. Indicate the page numbers where the evidence can be found or describe the nature of the evidence (e.g. video, illustration).

<small>Task ref.</small>	<small>Evidence submitted</small>	<small>Page numbers or description</small>

Additional comments to the assessor:

**Learner Declaration:**  
 I certify that the work submitted for the assignment is my own. I have clearly referenced any sources used in the work. I understand that false declaration is a form of malpractice.

<small>Learner signature:</small>	<small>Date:</small>
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*Key terms used to define the requirements in the units*

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<b>Command or term</b>	<b>Definition</b>
Add/label	Learners label or add to a stimulus material given in the question, for example labelling a diagram or adding units to a table.
Assess	Learners give careful consideration to all the factors or events that apply and identify which are the most important or relevant. Make a judgement on the importance of something, and come to a conclusion where needed.
Calculate	Learners obtain a numerical answer, showing relevant working. If the answer has a unit, this must be included.
Comment on	Learners synthesise a number of variables from data/information to form a judgement. More than two factors need to be synthesised.
Compare	Learners look for the similarities and differences of two (or more) things. Should not require the drawing of a conclusion. Answer must relate to both (or all) things mentioned in the question. The answer must include at least one similarity and one difference.
Complete	Learners complete a table/diagram.
Convert	Relates to unit conversion, for example g to kg.
Deduce	Learners draw/reach conclusion(s) from the information provided.

Explain	Learners' explanations require a justification/exemplification of a point. The answer must contain some element of reasoning/justification, this can include mathematical explanations.
Give/state/name	These generally require recall of one or more pieces of information.
Give a reason why	When a statement has been made and the requirement is only to give the reasons why.
Identify	Usually requires some key information to be selected from a given stimulus/resource.
Plot	Learners produce a graph by marking points accurately on a grid from data that is provided and then drawing a line of best fit through these points. A suitable scale and appropriately labelled axes must be included if these are not provided in the question.
Predict	Learners give an expected result.
Record	Specifically relates to devising a results table.
Show that	Learners prove that a numerical figure is as stated in the question. The answer must be to at least one more significant figure than the numerical figure in the question.
Sketch	Learners produce a freehand drawing. For a graph this would need a line and labelled axis with important features indicated. The axes are not scaled.
State and justify/identify and justify	When a selection is made and a justification has to be given for the selection.
State what is meant by	When the meaning of a term is expected but there are different ways in which this meaning can be described.
Write	When the question asks for an equation.

Command or term	Definition
Derive	Learners combine two or more equations or principles to develop a new equation.
Describe	Learners give an account of something. Statements in the response need to be developed as they are often linked but do not need to include a justification or reason.
Determine	Learners' answers must have an element which is quantitative from the stimulus provided, or must show how the answer can be reached quantitatively. To gain maximum marks there must be a quantitative element to the answer.
Discuss	Learners identify the issue/situation/problem/argument that is being assessed in the question. Explore all aspects of an issue/situation/problem argument. Investigate the issue/situation etc. by reasoning or argument.
Draw	Learners produce a diagram, either using a ruler or using freehand.
Estimate	Learners give a numerical value expected based on data given.
Evaluate	Learners review information then bring it together to form a conclusion, drawing on evidence including strengths, weaknesses, alternative actions, relevant data or information. Come to a supported judgement of a subject's qualities and relation to its context.

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*Recommended reading list*

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Physics for you by Keith Johnson

Chemistry for you by Lawrie Ryan

Biology for you by Gareth Williams

BTEC Nationals Applied Science: Student Book Level 3 (BTEC Nationals Applied Science 2016) by Joanne Hartley

### Websites

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

[www.sparknotes.com](http://www.sparknotes.com)

[www.s-cool.co.uk](http://www.s-cool.co.uk)

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*Movie/ Video Clip recommendations*

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Atomic and electronic structure

<https://www.youtube.com/watch?v=H0rFDakTI-0>

ionic and covalent bonds

<https://www.youtube.com/watch?v=wQ3NJUKKcTU>

History of the microscope

<https://www.youtube.com/watch?v=Ue-86MDmjns>

cell structure

<https://www.youtube.com/watch?v=URUJD5NEXC8>

specialised cells

<https://www.youtube.com/watch?v=RqbkTT63yeE>

Structure and function of the blood

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

Longitudinal and transverse waves

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

electromagnetic spectrum

<https://www.youtube.com/watch?v=HPcAWNIVI-8>

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*Subject content*

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**History of the microscope**

Draw and label a diagram of a microscope

Describe what microscopes are used for

**Research the history of the microscope**

- Produce a timeline showing the main developments in the microscope
- Identify the scientists involved in the development of the microscope
- Describe how the microscope has changed over the years

A large, empty rectangular box with a thin black border, intended for students to complete their research assignment. It occupies the central portion of the page.

Using the website <http://www.cellsalive.com/> Produce a diagram of an animal and a plant cell including all of the subcellular structures.

Draw a diagram of an atom

Describe the structure of an atom

Complete the table below

Particle	Relative mass	Charge
Proton		
Neutron		
Electron		

**Research the meaning of stoichiometry and produce an A4 sheet that summarises what you have already used in this branch of chemistry**

Draw a diagram and annotate to describe the separation technique: paper chromatography

Research a 2<sup>nd</sup> method of chromatography called thin layer chromatography (TLC) and explain how it is different to paper chromatography

Explain what R<sub>f</sub> values are and how they can be calculated

Produce a poster on the periodic table, include descriptions of

- The groups
- The development of the periodic table
- Atomic mass
- Transition elements
- rows

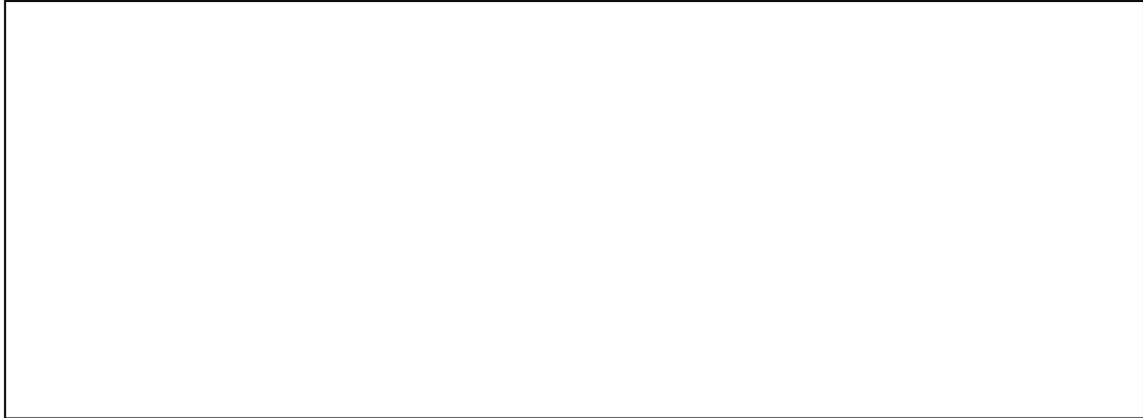
Research and compare longitudinal and transverse waves. Include:

- A labelled diagram
- A description
- examples

<u>longitudinal</u>	<u>Transverse</u>

**Draw a diagram of a wave**

On the diagram label the amplitude and wavelength



In musical instruments, how does changing the frequency effect the sound of the wave?

How does changing the amplitude effect the sound of the wave?

Research the electromagnetic spectrum and produce a leaflet on its properties.

Include,

- All of the waves
- The frequency and wavelength of each wave
- Uses of each type of wave
- What all the waves have in common.

What is an endoscope?

Explain the use of an endoscope in medicine

Research what Bluetooth is, and how is it used in communication.

What is broadband? How does it work?