

Pearson BTEC International Level 3 Diploma (720 GLH) in Applied Science (Biomedical Science): Sample Delivery Plan

Audience

This document aims to support tutors and those delivering BTEC International Level 3 qualifications from April 2020.

Introduction

Clear unit planning and understanding of key deadlines are essential for a successful delivery programme. We have produced a sample delivery plan showing how the BTEC International Diploma in Biomedical Science could be delivered over one year, highlighting assessment milestones and indicating where you can teach units holistically.

Key sections

The document focuses on key activities to plan around and gives an example of how the Diploma can be structured. This is set out in the three sections below:

Section 1: Guide to key activities

Setting out the key activities and requirements for course delivery, alongside links to further information.

Section 2: Sample one-year plan – delivery chart

A chart setting out the key deliverables against chosen units.

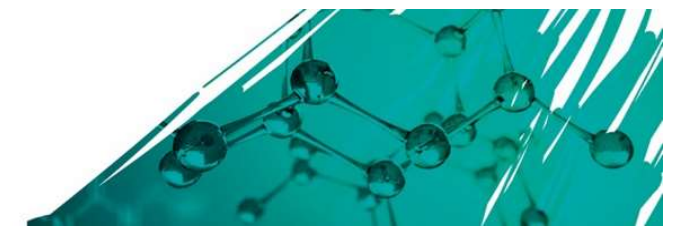
Section 3: Sample one-year plan – detailed rationale

An in-depth rationale and explanation of how the suggested plan was structured.

Further support can be found within the relevant specification on Pearson’s website (<https://qualifications.pearson.com/en/qualifications/btec-international-level-3/applied-science.html>).

Below is an overview of how wider support links with this document.

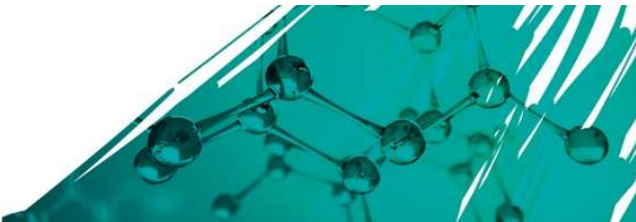
Support	Purpose
Delivery Guides	A companion to the BTEC International Level 3 specification, Authorised Assignment Briefs (AABs) and Sample Pearson Set Assignments. Delivery Guides contain ideas for teaching and learning, including practical activities, realistic scenarios, ways of involving employers in delivery, ways of managing independent learning and how to approach assessments. These guides aim to show how the specification content might work in practice and to inspire you to start thinking about different ways to deliver your course.
Authorised Assignment Briefs	Provide scenarios and teaching plans for each unit, to be used either as they are set out, or to inform your own planning.
Schemes of Work	Demonstrate how the unit content can be covered in the GLH, providing lesson ideas and highlighting links to other units to help you plan your teaching.



Section 1: Guide to key activities

Setting out the key activities and requirements for course delivery, alongside links to further information.

Action	Description	Resource/reference
Assessment plan(s)	An assessment plan(s) must be in place to show that sufficient time is available to deliver and assess all the required units in a timely manner. More than one plan may be required if there are different groups working at different speeds.	Assessment plan templates are available on the Pearson website. Please note that all units are internally assessed. For a small proportion of units, Pearson sets the assignment; these assignments are also internally assessed. Pearson Set Assignments will be available from October of the year of assessment and can be taken at any point in that year.
Assignment briefs	Assignment briefs should be internally verified to ensure they are fit for purpose and that the equipment, resources and staff expertise will be available. This is not required for Pearson Set Assignment units.	Authorised assignment briefs are available on the qualification page on Pearson's website.
Learner induction	A short period of induction is strongly recommended to ensure learners are familiar with the programme and its requirements. This induction should cover plagiarism, referencing, time management skills, the importance of meeting deadlines and centre policies.	
Register your learners	Learner registrations must be made by the deadlines on our website. This will trigger the allocation of a Standards Verifier and support for your centre.	Edexcel Online
Allocation of Standards Verifier	The Standards Verifier needs to see the assessment plan(s) and will agree a sampling schedule with the centre. Your allocated Standards Verifier will be available throughout course delivery to provide support and guidance.	The details of the Standards Verifier will be emailed to the Quality Nominee at the centre. Please ensure the Quality Nominee details registered with Pearson are accurate.
Internally assessed unit completed	The internally assessed unit(s) must be sampled and reported before the end of teaching for the year.	A guide to internal assessments is available on the qualification page on Pearson's website.
Second sampling completed	Second sampling of internally assessed units that were not released for certification must be complete by the end of teaching for the year.	



Section 2: Sample one-year plan – delivery chart

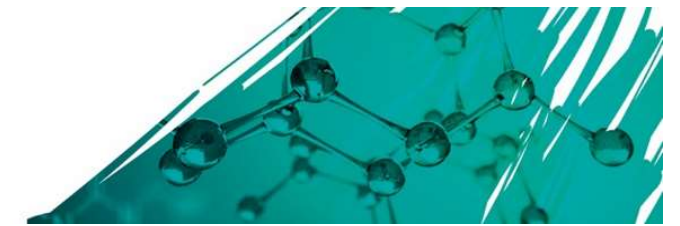
This plan is intended to be used as guidance.

- Key**
LA = Learning aim
PSA = Pearson Set Assignment
INT = Internal assessment
RS = Revision session

				YEAR 1 TERM 1												
Unit	Unit title	GLH	Assessment method	1	2	3	4	5	6	7	8	9	10	11	12	13
1	Principles and Applications of Biology I	60	Pearson Set Assignment	LA A	LA B	LA C	RS/PSA	PSA								
		12 hours per week (weeks 1–5), including 15 hours required for Assessment														
2	Principles and Applications of Chemistry I	60	Pearson Set Assignment						LA A/B	LA B/C	LA C/D	RS/PSA	PSA			
		12 hours per week (weeks 6–10), including 22 hours required for Assessment														
3	Principles and Applications of Physics I	60	Pearson Set Assignment											LA A	LA A/B	LA B/C
		12 hours per week (weeks 11–15), including 16 hours required for Assessment														
4	Investigative Project Skills	120	Internal Assessment	LA A	LA A	LA A	INT	LA B	LA B	LA B	LA B	INT	INT	LA C/D	LA C/D	LA C/D
		6 hours per week (weeks 1–20)														



				YEAR 1 TERM 2												
Unit	Unit title	GLH	Assessment method	14	15	16	17	18	19	20	21	22	23	24	25	26
3	Principles and Applications of Physics I	60	Pearson Set Assignment	RS/PSA	PSA											
				12 hours per week (weeks 11–15), including 16 hours for Assessment												
4	Investigative Project Skills	120	Internal Assessment	LA C/D	LA C/D	LA C/D	INT	INT	INT	INT						
				6 hours per week (weeks 1–20)												
5	Principles and Applications of Biology II	60	Internal Assessment			LA A	LA A	INT	LA B	LA B	INT	LA C	LA C	INT	INT	
				6 hours per week (weeks 16–25)												
6	Principles and Applications of Chemistry II	60	Internal Assessment			LA A	LA A/INT	INT/LA B	LA B	INT	INT/LA C	LA C	INT	LA D	INT	
				6 hours per week (weeks 16–25)												
7	Principles and Applications of Physics II	60	Internal Assessment													LA A
				12 hours per week (weeks 26–30)												
9	Biomedical Science	60	Internal Assessment								LA A	LA A	LA A/INT	INT	LA B	LA B
				6 hours per week (weeks 21–30)												



				YEAR 1 TERM 3												
Unit	Unit title	GLH	Assessment method	27	28	29	30	31	32	33	34	35	36	37	38	39
7	Principles and Applications of Physics II	60	Internal Assessment	LA A/INT	INT/LA B	LA B	INT									
		12 hours per week (weeks 26–30)														
9	Biomedical Science	60	Internal Assessment	INT	LA C	LA C	INT									
		6 hours per week (weeks 21–30)														
14	Genetics and Genetic Engineering	60	Internal Assessment									LA A	INT / LA A	LA B	B	INT
		12 hours per week (weeks 35–39)														
15	Diseases and Infections	60	Internal Assessment					LA A	INT/LA B	INT/LA C	INT/LA C	LA D/INT				
		12 hours per week (weeks 31–35)														
19	Microbiology and Microbiological Techniques	60	Internal Assessment				LA A/B	LA A/B	LA A/B	LA A/B	INT	INT	LA C	LA C/D	LAC/D	INT
		6 hours per week (weeks 30–39)														



Section 3: Sample one-year plan – detailed rationale

Overview

The BTEC International Level 3 Diploma in Biomedical Science is 720 guided learning hours (GLH) and comprises eight mandatory units plus optional units up to a minimum value of 180 GLH. Three of the mandatory units are internally assessed using a Pearson Set Assignment, while the others are assessed using a centre-devised assignment or the Authorised Assignment Brief for the unit. The optional units are internally assessed using centre-devised assignments or the Authorised Assignment Briefs.

The qualification structure identifies the mandatory and optional units and this information is also listed in the qualification specification. To achieve any qualification grade, learners must complete and have an outcome (D, M, P or U) for all units within a valid combination for the size of the award. For the Diploma in Biomedical Science, learners must pass all mandatory units. This means learners could attain a U grade in the three optional units and still achieve a passing grade overall, depending on their other results. Please see pages 395–412 of the specification for more details about compensation and grading.

The sample delivery plan is based on the qualification being delivered over one 39-week teaching year, with lesson times averaging 18 hours per week (with the exceptions of weeks 30 and 35).

If your centre is subject to Standards Verification, your Standards Verifier will confirm sampling arrangements with you in order to meet the first sampling deadline. The sample delivery plan ensures that all eleven units will be available for first sampling in the year time available before the end of the academic year for second sampling and/or a resit for the set assignments, should this be required. The sample delivery plan ensures that four units will be completed in the first half of the course, so they will be available for sampling. All other units will be completed in time for the second sampling deadline, in case this is required.

Involving employers in assessment/delivery

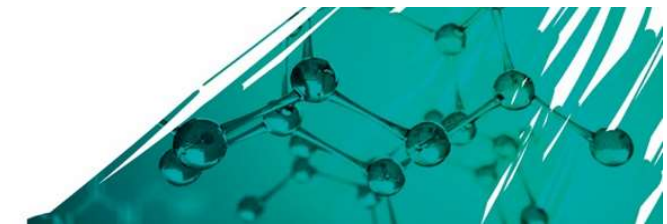
There is no compulsory requirement for a work experience placement within the qualification. However, there are many opportunities to involve employers in the planning, delivery and assessment of the course, through visits, guest speakers and placements where possible/desired.

Which units are assessed by Pearson Set Assignments?

Units 1, 2 and 3 will be assessed by Pearson Set Assignments. The set assignments will be available from October and can be taken at any time in the year. There is no opportunity for resubmission of evidence. If any student needs to improve their grade, they must take a new Pearson Set Assignment. Two set assignments are available during each one-year period, one for the first attempt and one for a re-sit, if required.

Mandatory units

- *Unit 1: Principles and Applications of Biology I* – This unit covers key concepts in cellular biology, human anatomy and physiology. The Pearson Set Assignment for this 60 GLH unit requires a supervised assessment period of 15 hours.
- *Unit 2: Principles and Applications of Chemistry I* – This unit covers some of the key concepts of chemistry: atomic structure, bonding, the Periodic Table and reacting quantities. The Pearson Set Assignment for this 60 GLH unit requires a supervised assessment period of 22 hours.
- *Unit 3: Principles and Applications of Physics I* – This unit covers some of the key concepts in physics, including electromagnetic waves in communication and fundamental aspects of forces and motion in transportation. The Pearson Set Assignment for this 60 GLH unit requires a supervised assessment period of 16 hours.
- *Unit 4: Investigative Project Skills* – This unit will enable learners to gain and demonstrate the skills required to research, plan, carry out, communicate and evaluate the findings of an investigative project. This 120 GLH unit involves an in-depth investigation, designed by each learner individually, in collaboration with the tutor. The unit is internally assessed via a centre-devised assignment or the Authorised Assignment Brief for the unit.
- *Unit 5: Principles and Applications of Biology II* – This unit explores biological molecules and pathways, and their relevance to diseases, disorders, treatments and therapies. Learners will study physiological and psychological disorders and examine the development of treatments and associated ethical, moral and legal issues. This 60 GLH unit is internally assessed via a centre-devised assignment or the Authorised Assignment Brief for the unit.
- *Unit 6: Principles and Applications of Chemistry II* – This unit builds on and extends the range of key chemistry concepts covered in *Unit 2: Principles and Applications of Chemistry I*. Topics include energetics, rate of reaction and equilibrium, and structures, names, reactions and properties of commercially-important organic compounds. Learners will need to complete a lot of practical work for assessment. This 60 GLH unit is internally assessed via a centre-devised assignment or the Authorised Assignment Brief for the unit.



- *Unit 7: Principles and Applications of Physics II* – This unit covers two important areas of physics: thermal physics, materials and fluids; and the essential aspects of radioactivity. This 60 GLH unit is internally assessed via a centre-devised assignment or the Authorised Assignment Brief for the unit.
- *Unit 9: Biomedical Science* – This is an additional mandatory unit for the Biomedical Science programme, designed to help learners understand the role of biomedical scientists in identifying the causes of disease and in helping medical personnel to offer suitable treatments. It covers three key areas of biomedical science: haematology, histology/cytology and biochemical balance. The analytical and diagnostic testing carried out in these three areas supports other health professionals in screening, diagnosing, monitoring disease progression and treatment. Learners will need to analyse blood and urine samples or synthesised samples. This 60 GLH unit is internally assessed via a centre-devised assignment or the Authorised Assignment Brief for the unit.

Suggested units to teach in the one-year programme

Units 1, 2 and 3 are mandatory units assessed internally via a Pearson Set Assignment. Learners must achieve a pass in these units to achieve an overall grade for the BTEC Level 3 Biomedical Science Diploma (or as a 'fall back' for the smaller Science programmes). Five other internally-assessed mandatory units (Units 4–7 and Unit 9) are required, along with three optional, internally-assessed units, to meet the 720 GLH for the programme.

The delivery chart above suggests Units 1–3 should be taught as early as possible in the programme, as they cover fundamental principles of the three main science disciplines. These principles are built on and extended in other units. This approach will also allow time for re-sits of the mandatory assessments, if required.

Staff availability, expertise and resources will influence how units are delivered. Delivery can be 'long and thin' or 'short and fat' as determined by the centre. Both approaches have advantages and disadvantages.

- 'Short and fat' delivery and assessment means units are completed in a short timeframe. This approach will allow learners to monitor their actual achievements unit by unit during the year. However, if there are two or more staff delivering the programme, this methodology may mean staff have to deliver units which fall outside their 'comfort zone'. Where possible, select optional units to complement staff expertise and which can be delivered once the mandatory units have been completed. For example, an optional biology unit could be selected to follow delivery of Unit 1; an optional chemistry unit could be delivered after Unit 2; or an optional physics unit could follow unit 3.
- 'Long and thin' delivery usually allows a 'specialist' to deliver the unit over a longer period of time. This approach will mean learners have to wait a long time before they have completed an assignment and can receive feedback on their actual achievement. It also means that assessment is likely to be concentrated at the end of the academic year. Unit 4 requires 120 GLH and is delivered 'long and thin' across 20 weeks. Learners will be introduced to the principles of carrying out a literature search so they can choose and plan a realistic investigation. This mode of delivery will allow plenty of time for trials, carrying out and repeating practical work as required to ensure accurate and reliable results for evaluation.

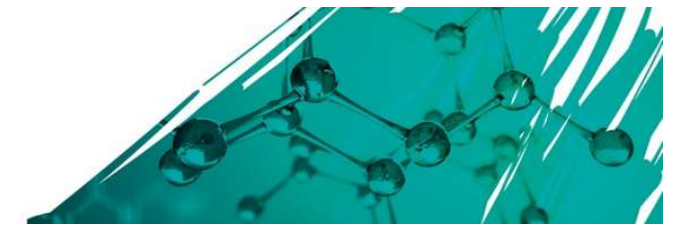
The delivery chart above includes optional units that are available for all pathways for the Diploma and Extended Diploma programmes (Units 14, 15 and 19). Learners' interests and future intentions (in terms of progression to employment/Higher Education/Further Education) will obviously influence the units selected for delivery and you may substitute other units as required. The number of assignments (and Authorised Assignment Briefs) per unit varies between two and four. It is, therefore, important to check the number of assignments per unit when planning delivery and assessment, and to make appropriate adjustments to the timescale for teaching, learning and assessment.

The first three mandatory units (Units 1–3) are assessed by Pearson Set Assignments and have each been allocated twelve hours per week for five weeks; delivery has been staggered to spread out the assessments. The timescale suggested above will mean the first two Pearson Set Assignment can be assessed towards the end of the first term. This will allow all stakeholders to ensure standards are being met. (In the unlikely event that this is not the case, there is also plenty of time for re-sits or second sampling.) The delivery plan shows Unit 1 being delivered first, followed by Unit 2 and then Unit 3; however, the units can, of course, be delivered in any order to suit the needs of the centre. There are no authorised assignment briefs for Units 1–3. Learners must be aware of the assessment criteria and understand how they can be met. The Pearson Set Assignments will then be used for formal assessment.

The internally-assessed mandatory units (Units 4–7 and Unit 9) have been scheduled for delivery and assessment to be completed by the middle of term 3, allowing time for re-sits if required. (Learners must achieve at least a pass grade in each of these units.)

Two of the three optional units, Unit 15 and Unit 14, have also been allocated 12 hours per week over five weeks, while Unit 19 has been allocated six hours a week over 10 weeks. This will ensure that Internal assessment opportunities have been spread out to avoid overloading learners. Encourage learners to 'get it right' first time. Internally-assessed units can have a Lead Internal Verified resubmission opportunity, providing the resubmission rules have been met; however, no formal lesson time has been built into the delivery plan for resubmissions.

- *Unit 14: Genetics and Genetic Engineering* – Learning aims A and B require learners to understand the structure and function of nucleic acids, the process of cell division and its role in genetic variation. Practical work is required for assessment for learning aim B, so learners will need guidance and opportunities to practise during teaching and learning, to develop the necessary microscopy skills. There is an opportunity to link with Unit 19, which also requires microscopy skills. Learning aim C requires practical work, as learners will need to carry out investigations to collect and record data for mono- and dihybrid ratios. While the delivery plan shows a linear progression through the learning aims, it may be necessary to allow time during delivery of learning aims A or B for learners to begin breeding programmes using, for example, *Drosophila*. You could consider running learning aim C 'long and thin' alongside learning aims A and B, to facilitate this. Consider whether you need to order equipment and/or livestock.



- *Unit 15: Diseases and Infections* – Learning aims A and B require learners to investigate infectious and non-infectious diseases, their causes, effects on the body and methods of preventing transmission of infectious diseases. Learning aim C concentrates on environmental pollution, its causes, effects on human health and methods of reducing pollution. Learning aim D requires an understanding of the defence mechanisms of the human body. There is no requirement for assessment of practical work for this unit, but learners will benefit from opportunities to carry out practical work, for example, modelling the transmission of disease. Links can be made with Unit 19.
- *Unit 19: Microbiology and Microbiological Techniques* – There is a maximum of two assessment opportunities for this unit: learning aims A and B are assessed together, as are learning aims C and D. Practical work on microscopy is required for learning aim B, which must be assessed with learning aim A (covering the importance of microbial structure and classification). There are opportunities to link the microscopy work for this unit with Unit 15. Learning aim C requires learners to use aseptic techniques to culture microorganisms. For learning aim D, learners must carry out investigations to explore factors controlling microbial growth. You must allow laboratory time and access to practical equipment for assessment, as well as teaching and learning time, and it is important to consider holiday time when the unit is being timetabled.

All unit content as listed in the unit specification must be delivered and assessment must not begin until the tutor is satisfied that learners have acquired all the skills, knowledge and understanding they will need for assessment. Learners must understand their responsibilities for assessment and the centre's arrangements. They must also understand how assignments are used, the importance of meeting assignment deadlines and that all work submitted for assessment must be their own.

NB: Internally assessed units can only be sampled when all learners have completed the unit, and resubmissions have occurred and been assessed and internally verified. All units must be available for first sampling and reporting to have occurred **by the appropriate deadline** in the year of certification.