**LPGS Science Department**

**Class of 2021-2023**

**A Student Guide Booklet to the
Pearson BTEC Level 3 National Diploma & Extended Certificate in Applied Science**



Contents

[Introduction 3](#_Toc60928284)

[What makes the BTEC Applied Science qualification different to Science A-Levels? 4](#_Toc60928285)

[Expectations of Students Studying BTEC Qualifications 4](#_Toc60928286)

[Type of learning in the classroom 4](#_Toc60928287)

[Teacher-Led 4](#_Toc60928288)

[Student Investigation 5](#_Toc60928289)

[Group Work 5](#_Toc60928290)

[Practical Work 5](#_Toc60928291)

[Which BTEC qualifications do we offer? 6](#_Toc60928292)

[Learners will study the following units for each course: 6](#_Toc60928293)

[External Assessments 7](#_Toc60928294)

[Assessment Criteria and Unit Grading 7](#_Toc60928295)

[The Importance of Deadlines 7](#_Toc60928296)

[Plagiarism and Malpractice 8](#_Toc60928297)

[Grading 8](#_Toc60928298)

[Points Available for Internal Units 8](#_Toc60928299)

[Points Available for External Units 9](#_Toc60928300)

[Calculation of Final Qualification Grade 9](#_Toc60928301)

[High Education & Careers 10](#_Toc60928302)

[Staff list and contact 10](#_Toc60928303)

[Further reading 11](#_Toc60928304)

## Introduction

Welcome to the Sixth Form at Langley Park School for Girls.

Congratulations on making the choice to study BTEC Level 3 Applied Science. This handbook contains lots of information about the courses we run here at LPGS. Please take the time to read through it carefully to ensure you are aware of our expectations, course requirements, methods of assessment and staff contacts. This document may be updated throughout the year with the most recent version available on firefly at the link below:

<https://lpgs.fireflycloud.net/science/ks5-1/btec-applied-science/course-handbook>

Alongside A levels, BTEC Nationals are the most widely-recognised qualification for admission to higher education. BTEC Nationals are career-based qualifications designed to give students the skills they need to move on to higher education or go straight into employment and offer a more practical way of learning.

Here at LPGS we offer two courses within BTEC Applied Science.

The first is an Extended Certificate which is equivalent in size to completing 1 A Level subject and consists of 4 units. The Extended Certificate is designed for learners who are interested in learning about the Science sector alongside other fields of study, with a view to progressing to a wide range of higher education courses, although not necessarily in Applied Science. Learners completing the Extended Certificate will do so as part of a programme of study at LPGS that includes other appropriate BTEC Nationals or A Levels.

The Diploma Award is equivalent to 2 A levels and consists of completing 8 units so is more demanding in terms of time and coursework load. The Diploma is designed to be the substantive part of the learners study programme at LPGS for those who want a stronger understanding of Applied Science. The Diploma course may be complemented with other BTEC Nationals or A Level subject to support progression to higher education in Science based courses.

Both courses will enable learners to acquire substantial cross-sector scientific knowledge and practical skills including carrying out practical laboratory tasks, planning investigations, collecting and analysing data and presenting your findings. The courses cover a wide range of topics across Biology, Chemistry and Physics.

A word to learners from Pearson’s (BTEC awarding body):

*Today’s BTEC Nationals are demanding, as you would expect of the most respected applied learning qualification in the UK. You will have to choose and complete a range of units, be organised, take some assessments that we will set and mark, and keep a portfolio of your assignments. But you can feel proud to achieve a BTEC because, whatever your plans in life – whether you decide to study further, go on to work or an apprenticeship, or set up your own business – your BTEC National will be your passport to success in the next stage of your life.*

*Good luck, and we hope you enjoy your course.*

### What makes the BTEC Applied Science qualification different to Science A-Levels?

* Students develop skills, knowledge and understanding in the vocational area they are studying
* Each vocational course is made up of a number of units, allowing students to build up their qualification in stages
* Students are assessed through coursework, exams and a controlled practical with an exam
* Students take responsibility for their own learning by planning their work, doing research and regularly reviewing progress
* They effectively prepare students for the world of work as employers’ value the qualities that vocational students bring to the workplace, e.g. organisation, time management, communication and research skills
* Universities and other Higher Education institutions value the independent study skills that vocational students bring to their courses
* The courses meet the needs of a wide range of students, as they are flexible and can be assessed in a variety of ways. They can also be studied alongside other qualifications, such as A Levels.
* They give students the opportunity to try a range of activities, such as work experience placements, designing products, organising events, investigating professionals and businesses and working in teams.

## Expectations of Students Studying BTEC Qualifications

* **Attendance is vital**. The course builds on knowledge over time so you need to be in all lessons so as not to miss critical information that could be the 1 mark difference between grades at the end of the course. Students who arrive late to lessons will receive afterschool detentions in line with the whole school behaviour policies.
* **Punctuality is key.** Punctuality is an important quality and is highly desirable by potential employers we want to include this information when we come to writing your references. Lessons are designed around you all being ready to work for the full lesson and your lateness may impact the learning of fellow students.
* **Be prepared.** Every lesson you should arrive to your class with a pen, a pencil, a ruler, a scientific calculator, a protractor and your notebook.
* Follow the **core beliefs** of LPGS 6th Form:
	1. Respect for the individual
	2. Pursuit of excellence
	3. Equality of opportunity
	4. Contributing to the community

## Type of learning in the classroom

During your BTEC studies you will be taught in a number of ways depending on the unit being delivered, the stage of delivery and the type of assessment.

### Teacher-Led

During each unit there will be a degree of teacher input which might involve PowerPoint presentations, question and answer sessions, discussions and note taking. It is important to record any information you are taught in your notebook. You must take responsibility to ensure that your notes are up-to-date, organised and that you catch up on any work missed.

### Student Investigation

Part of your BTEC studies will require you to work on your own to find out the required information for your assessments. You may need to research different scientific topics. This may be carried out by using the internet or talking to experienced professionals in relevant sectors. You are expected to manage your time effectively and any work that you produce for your assessments must be your own work

### Group Work

For certain tasks and assessments, you may be required to work in a group with your fellow-students. Although you are working in a group you will be assessed on your individual contribution so you need to be able to work well with different people and take an equal share of the workload.

### Practical Work

During lessons or assessments you will be required to undertake practical activities. This might involve doing a presentation or carrying out a practical investigation. Again, you will be assessed on your individual contribution so must ensure you share the workload.

To achieve your full potential in this qualification it is important that you keep organised, reflective and flexible. In summary, you will need to make sure that you:

* Stay up-to-date with classwork and homework
* Undertake wider reading and research to help inform your assessments (see the further reading section at the end of this booklet)
* Keep a record of the information you find and the sources used, including referencing them in your work where relevant
* Plan and present your work in a logical and appropriate format
* Meet deadlines and produce good work with high standards of grammar and spelling
* Keep a record of the work you have completed, including the grades and points you have been awarded
* Self-evaluate your work and make suggestions for improvement

# Methods of Assessment

During your BTEC course, you will be assessed in a number of different ways depending on the unit. For each BTEC programme on offer at Langley Park School for Girls, you will complete:

* Internal assessment (coursework units), which are marked by your teachers and then moderated by Pearson
* External assessments, two of which are formal exams and one of which is written task. These assessments are undertaken in controlled exam conditions and marked externally by Pearson.

### Which BTEC qualifications do we offer?

## Course units:

Learners will study the following units for each course:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Unit Number** | **Unit Title** | **Extended Certificate** | **Diploma** | **Method of Assessment** |
| 1 | Principles and Applications of Science I | ✓ | ✓ | Exam (June) |
| 2 | Practical Scientific Procedures and Techniques | ✓ | ✓ | Teacher assessed Coursework |
| 3 | Science Investigation Skills | ✓ | ✓ | Practical Exam (May/June) |
| 4 | Laboratory Techniques and their Application |  | ✓ | Teacher assessed Coursework |
| 5 | Principles and Applications of Science II |  | ✓ | Exam (June) |
| 6 | Investigative Project |  | ✓ | Teacher assessed Coursework |
| 12 | Diseases and Infection | TBC | ✓ | Teacher assessed Coursework |
| 21 | Medical Physics Applications |  | ✓ | Teacher assessed Coursework |

This qualification enables learners to acquire substantial cross-sector scientific knowledge and practical scientific skills, including carrying out practical laboratory tasks, planning investigations, collecting, analysing and presenting data, and reviewing and refining the methodology of practical and laboratory-based work.

## External Assessments

During your 2 year BTEC course, you will complete the following external examinations.

|  |  |  |
| --- | --- | --- |
| **Unit** | **Type of Assessment** | **Date of Assessment** |
| **Unit 1: Principles and****Applications of Science I** | **• Written examination set and marked by Pearsons****• 2 hours****• 90 marks** | **May/June** |
| **Unit 3: Science Investigation Skills** | **• A task set and marked by Pearsons and completed under supervised conditions in the classroom****• 60 marks** | **May/June** |
| **Unit 5: Principles and****Applications of Science II***(Diploma students only)* | **Written examination set and marked by Pearson****• 2.5 hours****• 120 marks** | **May/June** |

### Assessment Criteria and Unit Grading

For each unit you will be given an assessment grid which will identify what you have to do to achieve a particular grade. Grades awarded for each unit are a Pass, Merit or Distinction. In order to achieve a particular grade you must have met all of the assessment criteria at that level and any preceding levels.

# Internal Assessments

## Assignment Briefs

For internally-assessed units, the format of assessment is an assignment taken after the content of the unit, or part of the unit if several assignments are used, has been delivered. An assignment may take a variety of forms, including practical and written types. An assignment is a distinct activity completed independently by learners that is separate from teaching, practice, exploration and other activities that learners complete with direction from, and formative assessment by, teachers.

An assignment is issued to learners as an **Assignment Brief.** Assignment briefs are used to formally record what work you are required to complete and submit for your coursework units. Assignment briefs will be issued by your teacher at the point in the unit when you have been taught all of the relevant information, and they feel you are ready to formally start producing your assessment evidence independently.

An assignment brief will contain important information about what you must achieve and by when. It is vital that you keep this handy and refer to it regularly when producing your evidence.

Each assignment brief will contain the following information:

* Qualification, unit and assignment titles;
* The learning aims being assessed;
* A vocational context or scenario, which helps to inform how you should set our your work;
* The specific assignment tasks to be completed;
* A checklist of evidence that you need to produce and the assessment criteria that you must meet;
* Suggested sources of information that you might want to refer to;
* Details of who will be assessing the work;
* The start date for the assignment;
* The submission deadline for the assignment.

There may be specific observed practical components during the assignment period. Assignments can be divided into tasks and may require several forms of evidence. A valid assignment will enable a clear and formal assessment outcome based on the assessment criteria.

## Coursework Assessment decisions

Assessment decisions for BTEC Nationals are based on the specific criteria given in each unit and set at each grade level. The way in which individual units are written provides a balance of assessment of understanding, practical skills and vocational attributes appropriate to the purpose of qualifications. The assessment criteria for a unit are hierarchical and holistic. The unit assessment grid shows the relationships among the criteria so that assessors can apply all the criteria to the learner’s evidence at the same time. When a learner has completed all the assessment for a unit then the teacher will give a grade for the unit. This is given simply according to the highest level for which the learner is judged to have met all the criteria. Therefore:

• to achieve a ***Distinction***, a learner must have satisfied all the Distinction criteria (and therefore the Pass and Merit criteria); these define outstanding performance across the unit as a whole

• to achieve a ***Merit***, a learner must have satisfied all the Merit criteria (and therefore the Pass criteria) through high performance in each learning aim

• to achieve a ***Pass***, a learner must have satisfied all the Pass criteria for the learning aims, showing coverage of the unit content and therefore attainment at Level 3 of the national framework.

The award of a Pass is a defined level of performance and cannot be given solely on the basis of a learner completing assignments. Learners who do not satisfy the Pass criteria should be reported as Unclassified.

### The Importance of Deadlines

The ability to meet deadlines is a highly valuable skill particularly throughout your professional life. As BTEC qualifications are designed to reflect real-world employment it is expected that students effectively meet deadlines. **If a student does not meet an assignment deadline they risk failing the unit and the course.** Learners may be given authorised extensions for legitimate reasons, such as illness at the time of submission but this must be supported with a Doctors Certificate.

With BTEC qualifications, you are allowed one submission of your evidence. Once submitted your work is graded. If you have failed to meet any of the assessment criteria there may be an opportunity for you to improve and resubmit the work. However, this decision will be made by your teacher and Lead IV (Mrs Gouldsmith) and you will only have an additional 15 working days to complete and submit the work. Therefore, it is certainly in your best interest to fulfil the criteria in your first submission. Please remember that if your work was handed in late, then **no** resubmission will be awarded.

**It is essential that you treat all deadlines as concrete and final. The deadlines for all assignments will be on the front of your assignment brief. It is your responsibility to check and keep track of your deadlines.**

### Plagiarism and Malpractice

In order to achieve a BTEC qualification, you must produce your own work. Plagiarising the work of others **will not be** accepted and will mean that you fail the unit and/or course.

Plagiarism is the practice of taking someone else’s work or ideas and passing them off as your own, with or without their consent. Plagiarism goes beyond just copying someone else’s work word-for-word. It can involve taking their ideas, paraphrasing or receiving assistance from a third party, which you do not acknowledge.

The following list is not exhaustive, but it gives you a good guide as to what might be considered plagiarism or malpractice. Other instance of malpractice may be considered by The School at its discretion.

* Copying (including the use of ICT to aid copying) without proper referencing of where you got the information.
* Paraphrasing another’s work by altering a few words and changing their order or by closely following the structure of someone else’s idea or argument.
* Collaborating with/receiving help from another person on an assignment to produce work together that is submitted as individual learner work.
* Impersonation by pretending to be someone else in order to produce work for another or arranging for another to take one’s place in an assessment/examination.
* Deliberate destruction of another’s work.
* Fabrication of results or evidence.
* False declaration of authenticity in relation to the contents of your portfolio or coursework.

### Grading

The final grade that you are awarded for your BTEC Applied Science Qualification will be based on your performance across all of the units you have completed. You will be awarded a set number of points for each unit grade which is based on the guided learning hours (GLH) for that unit.

### Points Available for Internal Units

The table below shows the number of points available for internally assessed units. For each internal unit, points are allocated depending on the grade awarded.

\*GLH stands for Guided Learning Hours and determines how many lessons are allocated to cover that unit as some are shorter than others.

|  |  |
| --- | --- |
|  | Unit size |
|  | 60 GLH\* | 90 GLH\* |
| U | 0 | 0 |
| Pass | 6 | 9 |
| Merit | 10 | 15 |
| Distinction | 16 | 24 |

### Points Available for External Units

Raw marks from the external units will be awarded points based on performance in the assessment. The table below shows the minimum number of points available for each grade in the external units.

|  |  |
| --- | --- |
|  | Unit size |
|  | 90 GLH\* | 120 GLH\* |
| U | 0 | 0 |
| Near Pass | 6 | 8 |
| Pass | 9 | 12 |
| Merit | 15 | 20 |
| Distinction | 24 | 32 |

Units with 90 GLH: Unit 1

Units with 120 GLH: Unit 3 and 5

### Calculation of Final Qualification Grade

Pearson will combine these unit points to calculate your final grade. The table below shows the UCAS points available for each grade achieved.

|  |  |  |
| --- | --- | --- |
|  | **Extended Certificate** | **Diploma** |
| 360 GLH | 720 GLH |
| Grade | UCAS Points | Grade | UCAS Points |
| Pass | P | 16 | PP | 32 |
| MP | 48 |
| Merit | M | 32 | MM | 64 |
| DM | 80 |
| Distinction | D | 48 | DD | 96 |
| D\*D | 104 |
| Distinction\* | D\* | 56 | D\*D\* | 112 |

Here is an example of how grades can be calculated to receive a Distinction in the Diploma course:



# High Education & Careers

BTEC National courses have earned a worldwide reputation as a premier applied learning qualification because it provides learners with a clear route into their career

This qualification is primarily designed to support progression to Applied Science and related employment after further study at university. However, it also supports learners progressing directly to employment, as the transferable knowledge, understanding and skills will give learners an advantage when applying for a range of entry-level industry training programmes and/or Higher Apprenticeships in areas such as Laboratory Technician or Medical Technician.

Here are just a few examples of possible career options and routes to higher education for students taking BTEC Applied Science.

* **BSc in Nursing or Midwifery -** if taken alongside a Pearson BTEC Level 3 Extended Certificate in Health and Social Care
* **BSc in Psychology** - if taken alongside an A Level in Psychology
* **BSc in Environmental Science** - if taken alongside an A Level in Geography

Speak to your teachers or the school’s Career Advisor (Ms Hayley Hayden) if you would like to discuss higher education opportunities with your BTEC Applied Science qualification.

# Staff list and contact

|  |  |
| --- | --- |
| Staff Member | Email Address |
| Mrs A Gouldsmith (Course Leader) | ag@lpgs.bromley.sch.uk  |
| Mr Cardew | hca@lpgs.bromley.sch.uk  |
| Mr Desai | ad@lpgs.bromley.sch.uk  |
| Mr Wright | gw@lpgs.bromley.sch.uk  |
| Ms Ximines | cx@lpgs.bromley.sch.uk  |

# Further reading

• <https://www.alevelphysicsonline.com/>

• <https://isaacphysics.org/alevel>

• <https://www.physicsandmathstutor.com/past-papers/a-levelphysics/>

• <https://www.s-cool.co.uk/a-level/physics>

• <https://www.ocr.org.uk/qualifications/as-and-a-level/physicsa-h156-h556-from-2015/>

• <http://physicsnet.co.uk/a-level-physics-as-a2/>

• <http://alevelphysics.org.uk/>

• <https://en.wikibooks.org/wiki/OCR_A-Level_Physics>

• <https://www.s-cool.co.uk/a-level/chemistry>

• <https://www.rsc.org>

• <http://chemguide.co.uk>

• <https://www.youtube.com>

• <https://ocr.org.uk/qualifications/as-and-a-level/chemistry-ah032-h432-from-2015/>

• <https://studywise.co.uk/a-level-revision/>

 • <http://www.ibiblio.org/virtualcell/index.htm> – An interactive cell biology site

• <http://www.accessexcellence.org/RC/VL/GG> – A web site showing illustrations of many processes of biotechnology

• <http://www.uq.oz.au/nanoworld> – Visit the world of electron microscopy

• <http://www.dnai.org/a/index.htm> l – Explore the genetic code

• <http://nobelprize.org> – Details of the history of the best scientific discoveries

• <http://nature.com> – The site of the scientific journal

• <http://royalsociety.org> – Podcasts, news and interviews with scientists about recent scientific developments

• <http://www.nhm.ac.uk> – The London Natural History Museum’s website with lots of interesting educational material

• <http://www.bmj.com> – The website of the British Medical Journal

• <http://www.bbc.co.uk/news/science_and_environment> - The BBC news page for Science and the Environment