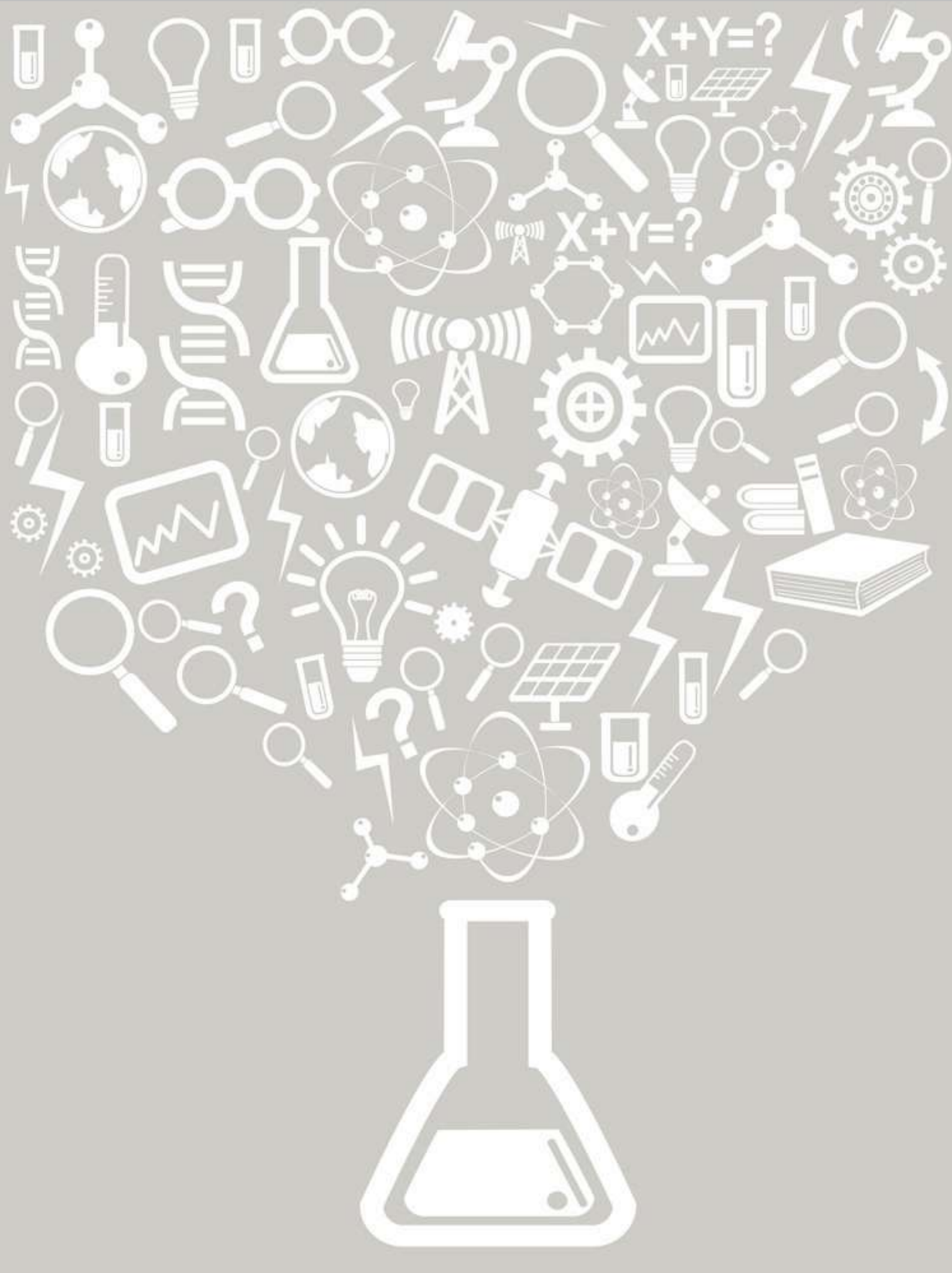
BTEC Applied Science Course Handbook



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During GCSE you have studied many different topics that have given you broad knowledge of science. During this time, you have developed a great number of different laboratory skills.

In BTEC Applied Science, you are going to build upon these fundamental skills to develop your laboratory skills even further and look deeper into some of the core concepts within science.

This course has been developed to ensure that you are not judged purely on the outcome of 3 exams at the end of a two year course. You will be examined on the core concepts of science but you will have the opportunity to demonstrate your writing and study skills, giving you a grade that is equal measures examination and coursework.

Classroom expectations

What you will need

Every lesson you should arrive with a pen, a pencil, a ruler, a scientific calculator, a protractor and your notebook.

What you need to do

Work hard. BTECs are difficult for many reasons; the content is advanced, the skills are technical, the level of precision is high and the ability to process all the information whilst making links between topics is essential.

Where you need to be

In the classroom during lessons. 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.

When you need to be there

On time. Punctuality is a very important quality and highly desirable by potential employers. When we come to writing your references this is the type of information that we would like to include. Lessons are designed around you all being ready to work for the full hour and your absence could make things difficult for not only the teacher but the other students.

How you need to conduct yourself

*With respect; n*ot only for the teacher but for your peers and yourself. In the classroom you should be attempting all work given and acting on feedback, outside of the classroom you need to be going over notes and reading around each topic to increase your familiarity.

What we will do for you

Lessons will be well planned and structured in a manner than allows all learners to access the content. All specification points will be covered through the course and a range of in class assessments will allow us to track your progress over time. If you are struggling with any concept or have any questions your teachers will be more than happy to help when asked. If we cannot make time immediately we will organise a more convenient opportunity to go through your queries.

Specification Overview

Qualifications, sizes and purposes at a glance

Title	Size and structure	Summary purpose
Pearson BTEC Level 3 National Certificate in Applied Science	180 GLH (235 TQT) Equivalent in size to 0.5 of an A Level. 2 units of which both are mandatory and 1 is external. Mandatory content (100%). External assessment (50%).	An introduction to a vocational sector through applied learning. For learners for whom an element of science would be complementary, the qualification supports progression to higher education when taken as part of a programme of study that includes other vocational or general qualifications.
Pearson BTEC Level 3 National Extended Certificate in Applied Science	360 GLH (455 TQT) Equivalent in size to one A Level. 4 units of which 3 are mandatory and 2 are external. Mandatory content (83%). External assessment (58%).	Designed for learners who are interested in learning about the sector alongside other fields of study, with a view to progressing to a wide range of higher education courses, not necessarily in applied science. To be taken as part of a programme of study that includes other appropriate BTEC Nationals or A Levels.
Pearson BTEC Level 3 National Foundation Diploma in Applied Science	510 GLH (640 TQT) Equivalent in size to 1.5 A Levels. 6 units of which 4 are mandatory and 2 are external. Mandatory content (76%). External assessment (41%).	Designed as a one-year, full-time course of study, or as part of a two-year, full-time study programme for learners who wish to study another area alongside it, which may contrast or complement the Applied Science Foundation Diploma. If taken as part of a programme of study that includes other BTEC Nationals or A Levels, it supports progression to higher education.

(Full specification link)
https://qualifications.pearson.com/content/dam/pdf/BTEC-Nationals/Applied-Science/2016/specification-and-sample-assessments/9781446938157_BTECNat_AppSci_Cert_Spec.pdf

Unit Breakdown

Unit 1 – Principles and Applications of Science 1

1A – Periodicity and Properties of Elements

1B – Structure and Functions of Cells and Tissues

1C – Waves in Communication

Unit 2 – Practical Scientific Procedures and Techniques

2A – Titration and Colorimetry

2B – Calorimetry

2C – Chromatography

2D Review of Personal Development

Unit 3 – Science Investigation Skills

3A – Planning a Scientific Investigation

3B – Processing Data

3C – Drawing Conclusions and Evaluation

3D – Enzymes in Action

3E – Diffusion of Molecules

3F – Plants and Their Environment

3G – Energy Content of Fuels

3H – Electrical Circuits

Unit 8 – Physiology of Human Body Systems

8A – Impact of disorders on the musculoskeletal system

8B – Understand impact of lymphatic system disorders

8C – Physiology of the digestive system

Homework

Formal Assignments

Students will need to complete the bulk of their assignments outside of lesson time. Content will be taught in lesson that will need to be written up in neat for the formal assignments as well as extended research that will need to be included. This will be ongoing throughout the course

Work submitted must be original and correct referencing included throughout every piece. Software is used to check for plagiarism post submission and can result in work being disqualified in its entirety.

Strict deadlines must be adhered to by all students to allow for work to be marked within the 2 week deadline and given back for improvements. Students will then be given a second opportunity, using the feedback from the teacher, to complete the assignment to improve their original grade. The second submission in final and work cannot be changed after this point. Distinction, Merit and Pass grades are available for individual pieces of work, a Distinction* may be awarded to a student that produces high quality work throughout the course and gains high scores on the exams. Any student failing an assignment will be asked to complete a brand new piece of work that will be limited to a pass level.

External Exams

Units 1 and 3 are both externally assessed exams.

Unit 1 is based on the fundamentals of science across the three subjects. You will be taught the content in lesson and will sit past papers to prepare for the exam questions.

Unit 3 is a report and write up style exam. This comes in 2 sections, with the first part being results from an experiment that you will be familiar with from lesson time, the second section asks you to complete the write up and evaluation from these results. There will also be subsequent questions on the data given and how this could be interpreted.

Further reading

- https://www.alevelphysicsonline.com/
- https://isaacphysics.org/alevel
- https://www.physicsandmathstutor.com/past-papers/a-level-physics/
- https://www.s-cool.co.uk/a-level/physics
- https://www.ocr.org.uk/qualifications/as-and-a-level/physics-a-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-a-h032-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

Student Agreement

Attendance

Science staff will plan all lessons expecting a full class; therefore you should attend all lessons promptly and ready to learn. Poor attendance to lessons has the greatest detrimental impact on A-Level grades.

Planned absence

If you know you will not be able to attend a lesson it is your responsibility to ensure you do not miss out on your learning. Teachers will not chase you to get caught up. You must make the teacher aware prior to the lesson (not on the day) that you will not be able to make it and ask for appropriate catch up work.

If the teacher is not able or does not provide you with work you must speak to your course colleagues for the notes/work missed. If you are still concerned speak to the course teacher again directly (not email).

Teaching staff will need at least a week's notice of a planned absence, in order to plan their lesson accordingly.

Unplanned absence

If you are unable to attend a lesson for an unplanned reason you must;

- Email the teacher at the first opportunity to make them aware you are unable to attend the lesson
- Ask the teacher for appropriate catch up work.
- If the teacher is not able or does not provide you with work you must speak to your course colleagues for the notes/work missed. If you are still concerned speak to the course teacher again directly when you are back in school
- **Do not wait until your next lesson with that member of staff**.

Valid reasons for absence.

- Lesson clash - course teachers need to be made aware of this asap
- Educational visit
- University interview/ open day
- Illness, that prevents you from actively partake in the lesson.

Teaching staff will need at least a week's notice of a planned absence, in order to plan their lesson accordingly.

Organisation:

You must bring the following to all sessions:

- Homework
- Notebook
- Pen
- Pencil
- Ruler
- Scientific Calculator
- Protractor

Conduct and Appearance:

The Academy and the Science Department expect the highest standards of professionalism from our 6th Form students. Inappropriate behaviour in the science rooms endangers people and will not be tolerated. Workplace dress is expected at all times. Goggles and relevant protective equipment must be worn when conducting any practical activity.

Study Periods

Science students should be conducting at least 5 hours of independent work outside of lessons consisting of either further reading, writing up class notes or exam questions

Deadlines

All classwork and homework needs to be completed on time. Failure to do this will lead to 6th Form referral catch up sessions.

"I agree to meet the expectations of the Science Department as outlined above and will seek to at all times to do my best to further develop myself and my knowledge of my chosen subject."

SIGNED: DATE:

_____ _____

Failure to meet the professional standard may result in you being removed from the course.