

The Science Department

Students will build upon a bank of scientific knowledge, much of which they will produce themselves through experiment. They will be encouraged to form ideas relating to natural phenomena, and where possible, given the opportunity to investigate them. Their conclusions may confirm initial ideas or allow them to modify initial thoughts, possibly leading to further investigation.

The Content of the Key Stages

Key Stage 3

The Science course at Caerleon in years 7 to 9 is designed to build on the skills, knowledge and understanding from Primary school. The students are given the opportunity to develop their skills of "Interdependence of Organisms" (Biology), "The Sustainable Earth" (Chemistry) and "How Things Work" (Physics). Students are taught to apply their scientific skills, knowledge and understanding to design strategies, solve problems and offer explanations, relating scientific ideas to the information about them, including current issues. They are given opportunities to study the work of Scientists and to recognise the role of experimental data, creative thinking and values in their work and develop scientific ideas.

At Caerleon the students are encouraged to manage their own learning and further develop learning and thinking skills. They are also taught to take different perspectives, value others' opinions and be responsible global citizens.

Key Stage 4 (GCSE)

Students are offered an extensive choice of science combinations at KS4.

Option 1 (5 hrs fortnight)	Option 2 (10 hrs fortnight)	Option 3 (15 hrs fortnight)
BTec Introductory Applied Science	Chemistry GCSE + Biology GCSE	Chemistry GCSE +
BTec First Certificate Applied Science	Biology GCSE + Physics GCSE	Physics GCSE +
Science GCSE	Physics GCSE + Biology GCSE	Biology GCSE
	Science GCSE + Additional Science GCSE	

Option 1

BTEC courses are vocational, of 5 hours a fortnight, leading to the equivalent of 2 GCSEs. This is a continuously assessed course offered by Edexcel, with no final examination. None of these courses lead to further study of science subjects at AS/A2 level at Caerleon School.

Option 2

This allows GCSEs to be gained in two sciences only. Suitable grades in Chemistry and Physics at this level allow for further study at AS/A2 level in these subjects. For Biology at AS/A2 level, it is essential that Chemistry also needs to be studied at GCSE. Thus, the combination of Biology + Physics is not suitable as a preparation for Biology at AS/A2 level.

Option 3

This allows for three science GCSEs to be gained and provides an excellent foundation for study of one or more of these science subjects at AS/A2 level.

All courses in options 2 and 3 follow the WJEC specification. For further details of any of these courses follow the links at the end of this page.

Key Stage 5 (AS/A Level)

Physics

The new Edexcel Physics specification is based on up-to-date, contemporary contexts. You will explore how scientific knowledge is developed, validated and communicated by the scientific community. You will also consider the risks, benefits, ethical and environmental implications of science and appreciate ways in which society uses science to inform decision making.

Physics is recognized as an entry qualification for a wide range of Higher Education courses and employment opportunities. You could use Physics to support other qualifications or move on to further studies or employment, including: a BTEC Higher National (HNC and HND) or a degree course such as Physics, the Sciences, Medicine, Metrology, Engineering and related programmes: employment in the area of, for example, radiography or biotechnology.

Chemistry

Advanced level Chemistry provides an essential foundation for the further study of chemistry and other related Higher Education courses such as Medicine, Biochemistry, Molecular Biology, Chemical Engineering etc. It is a very useful supporting subject for a range of science courses. (See WJEC specification)

Success in chemistry indicates achievement in a variety of skill areas and consequently, the subject is held in high regard when applying for future studies or work. Students often find that the skills acquired are sought after in careers that are not necessarily science related.

Biology

The AS and A2 Biology courses follow the WJEC specifications. These courses aim to encourage students to:

- ✚ Develop their interest in, and enthusiasm for Biology
- ✚ Appreciate how society makes decisions about scientific issues and how the sciences contribute to the success of the economy and society
- ✚ Develop and demonstrate a deeper appreciation of the skills, knowledge and understanding of How Science Works.
- ✚ Develop essential knowledge and understanding of different areas of Biology

There is a strong emphasis on the development of practical skills with students investigating biological principles and developing their skills of observation, recording and evaluation. This course provides suitable foundation for the study of Biology or a related course in higher education, for progression to the next level of vocational qualifications, or for direct entry into employment.

Link to WJEC - <http://www.wjec.co.uk/>

Link to Edexcel - <http://www.edexcel.com/QUALS/Pages/qual-home.aspx>