

ACE SCIENCE CURRICULUM INTENT

INTENT:

What is the curriculum aim / vision for this subject?

- To guide students to become scientifically knowledgeable, scientifically literate and methodical problem solvers, by fostering a spirit of independent inquiry, nurturing curiosity and bringing current, relevant, real world science into the classroom.
- We are committed to raising standards of achievement and promoting a lifelong culture of learning through an education in science.

We aim to do this by:

- Stimulating an interest in, and enjoyment of, science.
- Providing the opportunities and challenge for all to achieve their full potential.
- Providing a relevant science curriculum.
- Encouraging a culture of questioning and feeding the natural inquisitiveness of students.
- Developing an awareness of the social, economic and environmental implications of science that will enable pupils to contribute positively to society.
- Providing the best possible standard of teaching and opportunities for learning.

What do we expect students to get from this subject?

- Students become increasingly independent, building confidence in practical and data handling skills and greater depth of understanding in each topic.
- Students develop an understanding of the relevance of STEM in the wider world and the associated career opportunities regardless of background.
- Students develop an understanding of and their responsibility for their health and also risk factors associated with unhealthy choices, drink and drugs.
- Students achieve economic wellbeing through academic success and the associated opportunities in STEM careers and further study.
- Students make a positive contribution to the learning of others through the development of their team-working and practical skills when appropriate.
- Engaging and stimulating lessons lead to students enjoying lessons and making accelerated progress taking into account their medical condition and attendance.

How have we planned this?

- Guided by the national curriculum and focused on key knowledge and skills to allow for deeper learning on a part time timetable.
- We plan to deliver a 3 year KS3 and 2 year KS4 to ensure a wide variety of national curriculum content coverage.
- Cross curricular links are made when possible throughout all curriculum content. Maths skills are taught when possible to meet the demands of the science national

curriculum and support the maths curriculum. Clear links with PSHE, Geography, English and History are threaded throughout the Science curriculum at ACE.

Cultural capital is an integral part of Science at ACE. We intend to increase the amount of educational visits to enhance pupils' cultural capital over time.

Sequencing- The science curriculum objectives are sequenced in order to build on prior knowledge from KS2 with clear progression to KS3 and KS4. This is supported by expert knowledge on objective sequencing from qualification providers. However, due to the nature of our service lesson objective sequencing can be flexible and adapted to meet the learning needs and support learning gaps.

We aim to build on KS2 prior knowledge and skills and provide building blocks to access the KS4 national curriculum, allowing students to achieve their potential and move on successfully to post-16 provision.

- Planning takes into account lack of attendance at school prior to referral. In addition, consideration is given to their individual medical conditions and ability to attend all lessons at ACE.
- Every attempt is made to provide a breadth of curriculum coverage whilst still providing opportunities for in-depth learning.

Integration and transition post 16

Before students arrive for their 1st lesson teachers will access any available school data to gauge the ability of the student. Teachers will spend time reading pupil passports, seeking pupils' interests and struggles from their previous setting. This helps to slowly integrate the student into their science lessons making them feel as welcome as possible. This may result in an extended settling in period where pupils will not be expected to engage in the classwork until they feel ready. Once they have settled in they will be asked to complete their 1st assessment which will highlight strengths and areas for development which is fundamental for the teachers planning. High expectations will be discussed and pupils will receive regular constructive feedback verbally or written in which they are expected to act upon in line with our marking policy.

Throughout their time at ACE all opportunities are used to help pupils develop the relevant and necessary skills required to transition onto a range of post -16 opportunities. These real life skills are constantly being developed through the ACE science curriculum when relevant. This is also supported by weekly post-16 preparation lessons which year 11 pupils develop essential skills required to apply for college, employability and other post 16 and successful transition.

IMPLEMENTATION:

How does learning develop over the five years?

In Years 7/8/9 students follow the national science curriculum. Topics are chosen to cover a wide range of essential skills and knowledge required to support progress into KS4. This covers, Biology, Physics and Chemistry.

These are taught in a rotation to develop a deeper understanding of the key concepts and ideas required at KS4 level. This is really helpful as it support pupils who have the aim to return to school and complete all 3 sciences at KS4 Level.

Due to pupils having a reduced timetable students will begin GCSE Biology (Single award AQA) in the last term of year 9. This helps to identify those students who are GCSE ready and those who are better suited to the further entry level qualification which we offer at ACE.

The structure of the curriculum ensures that knowledge, application, understanding and evaluation are developed and that these skills are transferable and that students develop their problem-solving, metacognition and critical thinking.

What principles have guided our decision making in developing this curriculum? What is distinctive about our curriculum?

Deep questioning, magenta principles, planned repetition, high challenge/low threat activities, innovative teaching and the use of different learning theories are used to make our curriculum distinctive for our pupils.

We set high expectations of all students regardless of their medical background (physical or mental health). Students are challenged to attain GCSE knowledge and skills from the moment they join ACE.

Key concepts, knowledge and skills are scaffolded to lead students towards greater depth of understanding. Also, as AQA is the most widely taken exam board, it facilitates opportunities for data analysis and collaboration that we would not have otherwise. In Years 7, 8 and 9 the National curriculum is delivered through a programme of study which empowers the teacher to adapt their teaching to the individual strengths and weaknesses of the students. In this way, bespoke delivery ensures that all Students are supported and stretched according to their needs.

In what ways does your curriculum help to develop...?

- Cultural diversity and identity: Ethical debates cover a range of issues
- Physically and mentally healthy lifestyles: Healthy eating, drugs, diet and sexual health all feature in the curriculum.
- Careers and enterprise: These are promoted through STEM activities, interaction with professionals from a range of scientific backgrounds.
- Technology and the media: 'science in the news' starter activities used as part of literacy drive highlight current issues.
- Creativity and critical thinking: The use of the Magenta Principles are used to develop a deeper understanding of key concepts when possible through a range of activities.
- Critical thinking is developed through questioning and the scientific method. The key skills of analysis, communication, enquiry and problem solving are embedded in the ACE Science curriculum.

IMPACT:

What forms do assessments take? What is the purpose of assessment?

Assessment is used as a diagnostic tool to inform future planning an intervention. Assessment takes many forms to cover the assessment objectives of the followed syllabi. Peer and self-assessment is embedded and is a feature when its suits the medical needs of the students.

Years 7 to 9: 'Regular progress tasks' involve the formative assessment of scientific skills and required subject knowledge at the end of each topic. Weekly homework tasks assess all assessment objectives and promote independent study. Three summative assessments are made each year to identify pupil progress using realistic exam style questions and grade boundaries. This helps us to identify areas of weakness and act on with our in school intervention staff.

Years 10 to 11: End of topic or half term tests which will not only test recent learning but will check on prior learning from a previous topics. The amount of prior learning assessed will increase as the course progresses. Past paper questions are used extensively to address all specification AOs.

How do we know if we have a successful curriculum?

Success is measured by improvement in student outcomes in science. Scrutiny of pupils' work, teacher observations, learning walks, pupil voice and regular review meetings to access individual pupil progress.

Increased participation in STEM based activities, enrichment opportunities outside of the classroom and also increasing post-16 engagement with other service providers.

Covid 19- Science Recovery Curriculum

In order to support the return of pupils and address the significant gap in learning, we will be reviewing all curriculum plans and adapting them accordingly to meet the needs of the Science National curriculum and to enable vital student progression.

Curriculum Plans will organised into

1. Essential key concepts, skills and objectives that must be taught in depth.
2. Non-essential concepts that will be taught in a much shorter time scale than normal with less focus on in depth learning.
3. Content that has been taught in previous years and only needs to be recapped using a range of recall activities.
4. Remote Learning - Google classroom activities that can be completed by the student independently from home with regular feedback and support from the teacher on a weekly basis.
5. More emphasis on the use of exam questions and assessment activities to increase pupil exposure and develop vital examination skills.