



## ACLE ACADEMY CURRICULUM OFFER – KS3 & KS4

### SUBJECT

#### SUBJECT SUMMARY: Aims and Objectives for...**SCIENCE**

At Acle Academy, a team of enthusiastic and dedicated science teachers aim to bring science to life using practical, hands-on teaching, as well as encouraging students to find the science in their everyday lives. The Acle Science Department insists upon the highest standards of literacy, effort and behaviour and all students are encouraged to make progress in every lesson and reach their full potential throughout their time here.

We believe that science has something to offer every student, whatever their aspirations. From trainee chef to nuclear physicist, construction apprentice to cancer researcher, everyone needs some level of relevant science understanding.

#### KEY STAGE 3:

Since the new national curriculum, we have been redesigning the Year 7, 8 & 9 schemes to incorporate the exciting changes. The latest content will hopefully prove more interesting to all students and more challenging to our most gifted. The range of topics is as diverse as always and will allow everyone to find their favourite:

<b>Biology</b>	<b>Chemistry</b>	<b>Physics</b>
1 Cells and tissues	1 Particles	1 Energy transfers
2 Reproduction	2 Atoms and elements	2 Forces and effects
3 Environment and adaptation	3 Acids and alkalis	3 Electricity
4 Variation and classification	4 Pure and impure substances	4 Energy resources
5 Photosynthesis	5 Simple chemical reactions	5 Magnets and electromagnets
6 Food and digestion	6 Compounds	6 Motion
7 Lungs and gas exchange	7 Periodic Table	7 Domestic and static electricity
8 Respiration	8 Extracting metals	8 Waves and sound
9 Muscles and bones	9 Reactions of acids	9 Light
10 Inheritance and evolution	10 Describing chemical reactions	10 Application of forces
11 Drugs and health	11 Earth and atmosphere	11 Heat transfer
12 Microbes	12 Innovative materials	12 Exploring space

#### KEY STAGE 4:

##### Subject Available Summary:

All students will begin their GCSE studies during Y9. This will give enough time to cover the whole syllabus in detail.

Our expectation is that students in top sets will take separate Biology, Chemistry and Physics GCSEs. This will make the transition to Science A Levels much easier. Everyone else will take Double Award GCSE (which covers all 3 sciences and is worth 2 GCSEs). This will give the students the grounding required to take A Level sciences if they choose.

Both the separate science and the double award science GCSEs give the students a chance to extend their thinking about science in the world around us and prepare them for the technologically and scientifically advanced future they will have to face.

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### GCSE Double Award

#### Summary of content

##### **Biology**

- Cell biology
- Organisation
- Infection and response
- Bioenergetics
- Homeostasis and response
- Inheritance, variation and evolution
- Ecology

##### **Chemistry**

- Atomic structure and the periodic table
- Bonding, structure, and the properties of matter
- Quantitative chemistry
- Quantitative chemistry
- Chemical changes
- Energy changes
- The rate and extent of chemical change
- Organic chemistry
- Chemical analysis
- Chemistry of the atmosphere
- Using resources

##### **Physics**

- Forces
- Energy
- Waves
- Electricity
- Magnetism and electromagnetism
- Particle model of matter
- Atomic structure

##### Exams

**Six papers:** two biology, two chemistry and two physics. Each will assess different topics.

**Duration:** all the papers are 1 hour 15 minutes.

**Tiers:** Foundation and Higher.

**Weighting:** the papers are equally weighted. Each is worth 16.7% of the grade and has 70 marks.

**Question types:** multiple choice, structured, closed, short answer and open response.

## Biology

### Summary of content

1. Cell biology
2. Organisation
3. Infection and response
4. Bioenergetics
5. Homeostasis and response
6. Inheritance, variation and evolution
7. Ecology

## Chemistry

### Summary of content

1. Atomic structure and the periodic table
2. Bonding, structure and the properties of matter
3. Quantitative chemistry
4. Chemical changes
5. Energy changes
6. The rate and extent of chemical change
7. Organic chemistry
8. Chemical analysis
9. Chemistry of the atmosphere
10. Using resources

## Physics

### Summary of content

1. Forces
2. Energy
3. Waves
4. Electricity
5. Magnetism and electromagnetism
6. Particle model of matter
7. Atomic structure
8. Space physics

Exams For Each Subject:

**Two papers:** each paper will assess different topics.

**Duration:** both papers are 1 hour 45 minutes.

**Tiers:** Foundation and Higher.

**Weighting:** the papers are equally weighted. Each is worth 50% of the grade and has 100 marks available.

**Question types:** multiple choice, structured, closed short answer and open response.

Links:

KS3 Science Curriculum:

<https://www.gov.uk/government/publications/national-curriculum-in-england-science-programmes-of-study>

KS4 Science Curriculum

<http://www.aqa.org.uk/subjects/science/gcse>