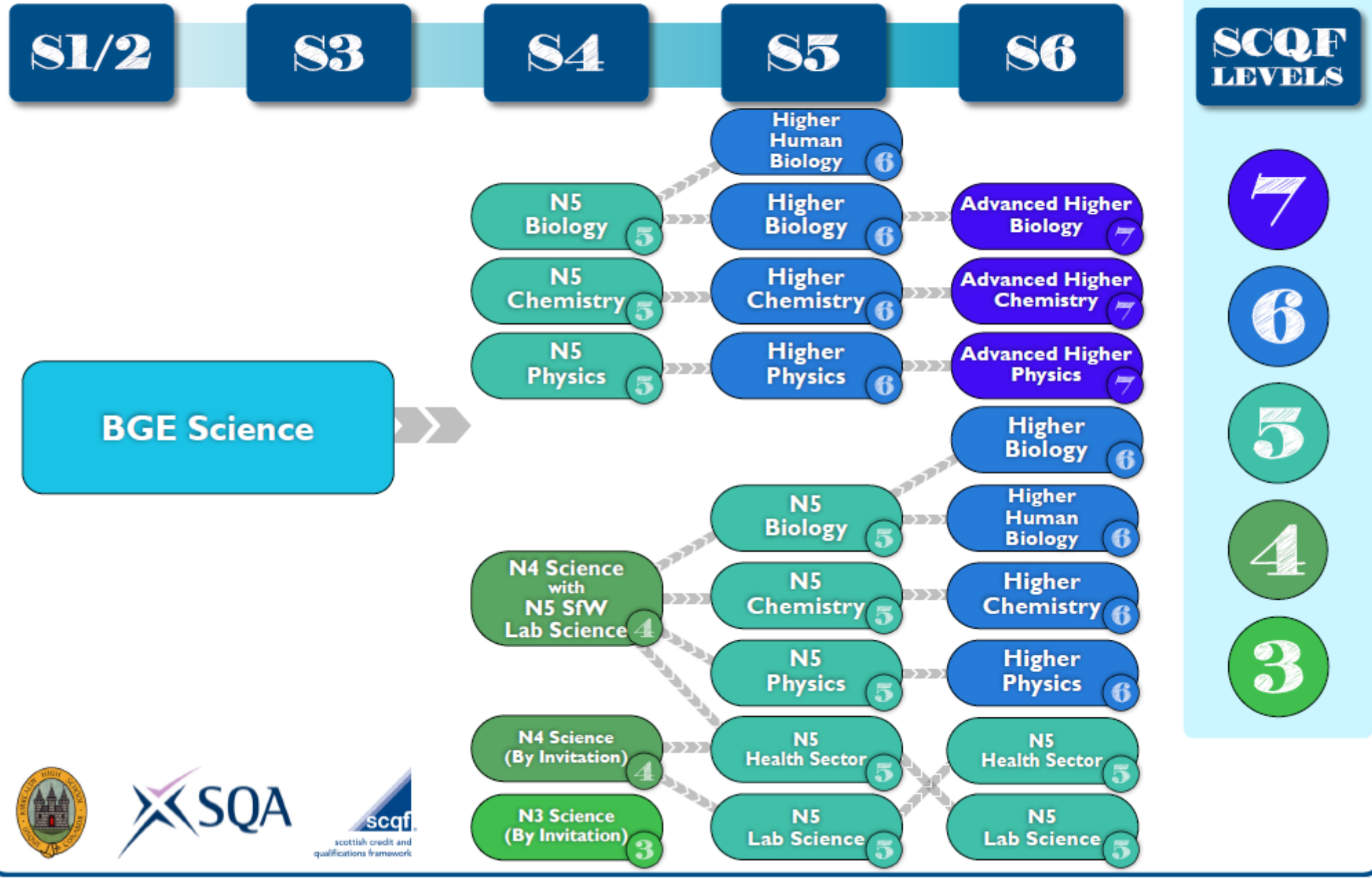
S4/5 Subject Choices

Science

Science


S1/2
S3
S4
S5
S6
SCQF LEVELS
7
6
5
4
3
BGE Science
N5 Biology 5
N5 Chemistry 5
N5 Physics 5
Higher Human Biology 6
Higher Biology 6
Higher Chemistry 6
Higher Physics 6
Advanced Higher Biology 7
Advanced Higher Chemistry 7
Advanced Higher Physics 7
N4 Science with N5 SfW Lab Science 4
N4 Science (By Invitation) 4
N3 Science (By Invitation) 3
N5 Biology 5
N5 Chemistry 5
N5 Physics 5
N5 Health Sector 5
N5 Lab Science 5
Higher Biology 6
Higher Human Biology 6
Higher Chemistry 6
Higher Physics 6
N5 Health Sector 5
N5 Lab Science 5
SQA
scqf
scottish credit and qualifications framework

Biology – National 5, Higher and Advanced Higher

Entry Requirements - Preferred Skills and Knowledge

You should have an interest in studying the sciences, in particular the study of living organisms, want to know how Biology affects everyone and be interested in finding solutions to many of the world's problems such as health and food supply.
To study Higher Biology, you should have achieved an "A" or "B" at National 5 level.
To study Advanced Higher Biology, you should have achieved an "A" or "B" at Higher level.

Course Content

The courses cover the following main areas of Biology:

National 5	Higher	Advanced Higher
Cell biology	**DNA and genome**	**Cells and proteins**
Multicellular organisms	**Metabolism and survival**	**Organisms and evolution**
Life on Earth	**Sustainability and interdependence**	**Investigative biology**

Biology – National 5, Higher and Advanced Higher

Wider Skills Development

Experimental, inquiry and investigative skills
Group work
Research skills
Problem solving

Progression & Career Opportunities

- Further study: Biology at the next level or study in a related science subject
- Further education: HNC/D: Community, Food Science and Technology, Health & Social Care, Medical Technology/Pharmacology, Life Sciences. Degree Level: Medicine based degree courses, Ecology, Anthropology, Environmental Science.
- Career Opportunities: Modern Apprenticeships, Medicine, Nursing, Pharmaceuticals, Physiotherapy etc

Human Biology – Higher

Entry Requirements - Preferred Skills and Knowledge

You should have an interest in studying the sciences, in particular the study of living organisms, be willing to ask deeper questions about cellular processes, physiological mechanisms, communication between organisms and the biology of populations.
To study Higher Human Biology, you should have achieved an “A” or “B” at National 5 level Biology.

Course Content

The course covers three main areas of Human Biology:

Human cells: including cell structure, DNA, mutations, genetics, respiration.
Physiology and Health: including fertilisation, reproduction, fertility, cardiovascular system, obesity.
Neurobiology and immunology: including nervous system, memory, body defences, immunisation, vaccination.

Human Biology – Higher

Course Assessments

Higher
2½ hour prelim in January
Practical Assignment in February
3 hour examination in May

Learning Activities & Homework

You will be finding out about cellular processes, physiological mechanisms and their impact on health, aspects of the nervous system and defence systems of the human species.
You will be asked to look at the biological issues and make informed judgements.
You will carry out experimental work to test ideas as well as developing your scientific and problem solving skills.

Homework is issued regularly throughout the session.

Human Biology – Higher

Wider Skills Development

Experimental, inquiry and investigative skills
Group work
Research skills
Problem solving

Progression & Career Opportunities

- Further education:
  - HNC/D: Biomedical, Biological & Life Sciences
  - Degree Level: Medical based courses, Ecology, Anthropology, Environmental Science.
- Career Opportunities: Modern Apprenticeships, Medicine, Nursing, Pharmaceuticals, Physiotherapy etc.

Chemistry – National 5, Higher and Advanced Higher

Entry Requirements - Preferred Skills and Knowledge

You should have an interest in studying the sciences, in particular the application of Chemistry in everyday contexts, be interested in the role chemists have in the production of everyday materials and be keen to take part in practical work to help explain the theory behind the work.
To study Higher Chemistry, you should have achieved an "A" or "B" at National 5 level.
To study Advanced Higher Chemistry, you should have achieved an "A" or "B" at Higher level.

Course Content

The course covers the following main areas of Chemistry:

National 5	Higher	Advanced Higher
Chemical changes and structure	**Chemical changes and structure**	**Inorganic chemistry**
Nature's Chemistry	**Nature's Chemistry**	**Physical chemistry**
Chemistry in society	**Chemistry in society**	**Organic chemistry and instrumental analysis**

Chemistry – National 5, Higher and Advanced Higher

Course Assessments

National 5	Higher	Advanced Higher
2 hour prelim in January	2½ hour prelim in January	Prelim at an appropriate point
Practical Assignment in February	Practical Assignment in February	Practical Project in February
2½ hour examination in May	3 hour examination in May	3 hour examination in May

Learning Activities & Homework

You will study atoms, molecules, ions and compounds and how they relate to areas of Chemistry such as chemical reactions, atomic structure, chemistry of fuels and material chemistry such as metals and plastics. You will carry out experimental work to test ideas, as well as developing your scientific and problem solving skills. You will understand that the advances in Chemistry are constantly affecting our everyday lives.

Homework is issued regularly throughout the session.

Chemistry – National 5, Higher and Advanced Higher

Wider Skills Development

Experimental, inquiry and investigative skills
Group work
Research skills
Problem solving

Progression & Career Opportunities

- Further study: Chemistry at the next level or study in a related science subject
- Further education:
  - HNC/D: Chemical and Petroleum Engineering, Energy and Utilities etc.
  - Degree Level: Medicine based degree courses, Biochemistry, Chemical Engineering, Materials Science etc.
- Career Opportunities: Modern Apprenticeships, Medicine, Brewing, Chemical Engineering, Forensic Science, Environmental Health, Materials Science, Oil & Gas Production, Laboratory Tech etc.

Physics – National 5, Higher

Entry Requirements - Preferred Skills and Knowledge

You should have an interest in studying the sciences, in particular the study of applications of Physics in everyday contexts and be inquisitive and be willing to ask questions to explain the world around you, from the "very big" to the "very small".
To study Higher Chemistry, you should have achieved an "A" or "B" at National 5 level.

Course Content

The course covers the following main areas of Physics:

National 5	Higher
Dynamics and Space	**Our Dynamic Universe**
Electricity and Matter	**Particles and Waves**
Waves and Radiation	**Electricity**

Physics – National 5, Higher

Course Assessments

National 5	Higher
2 hour prelim in January	2½ hour prelim in January
Practical Assignment in February	Practical Assignment in February
2½ hour examination in May	3 hour examination in May

Learning Activities & Homework

You will carry out experimental work to test a given idea, to illustrate particular effects, and to develop collection and analysis of data and problem solving skills.
You will develop logical thinking skills to solve problems in unfamiliar contexts.
Understand that the advances in Physics mean that our view of what is possible is continually being updated.

Homework is issued regularly throughout the session.

Physics – National 5, Higher

Wider Skills Development

Experimental, inquiry and investigative skills
Group work
Research skills
Problem solving

Progression & Career Opportunities

- Further study: Physics at the next level or study in a related science subject
- Further education:
  - HNC/D: Construction, Energy & Utilities, Engineering, Medical Etc.
  - Degree Level: Medicine based degree courses, Astrophysics, Laser Physics, Engineering Based Courses, Environmental Science.
- Career Opportunities: Modern Apprenticeships, Medicine, Medical Physics, Electronics, Renewable Energies, etc.

Laboratory Science – National 5 (SfW)

Entry Requirements - Preferred Skills and Knowledge

You should have an interest in practical science and be curious about exploring science careers and industries. You should be willing to develop practical and investigation skills, working in groups or working independently where required.

Course Content

The course covers four main areas of **Laboratory Science**:

Careers Using Laboratory Science including investigating a range of career opportunities in industries and services that use laboratory science.

Working in a Laboratory including the opportunity to learn basic laboratory skills such as handling chemicals and preparing solutions; following safety procedures; carrying out risk assessments.

Practical Skills including working safely with microorganisms; measuring radioactivity; performing a titration, chromatography and distillation.

Practical Investigation including producing a plan, including practical procedures, to investigate a scientific topic.

Laboratory Science – National 5 (SfW)

Course Assessments

- This course is practical based and is assessed throughout the course – there is no final examination.

Learning Activities & Homework

You will develop knowledge, problem solving skills and investigation skills in a science context and also develop the use of technology, equipment and materials safely in practical scientific activities.

Homework is issued regularly throughout the session.

Laboratory Science – National 5 (SfW)

Wider Skills Development

Experimental, inquiry and investigative skills
Group work
Research skills
Problem solving

Progression & Career Opportunities

As this is a vocational course, this specifically leads to:

- Further study: Other qualifications in sciences, or related areas, at Level 5.
- Further education: level 6 Foundation Apprenticeship in Scientific Technologies, HND: Applied Sciences, HND: Applied Biological Sciences
- Career Opportunities: modern apprenticeships or direct employment in areas such as sciences, hospital laboratories, forensics, water purification, land and environment, schools, food and drink production, manufacturing and production, engineering.

Health Sector – National 5 (SfW)

Entry Requirements - Preferred Skills and Knowledge

You should have an interest in science and be curious about exploring careers and industries in the Health Sector. You should be willing to develop practical and investigation skills, working in groups or working independently where required.

Course Content

The course covers the following main areas of the **Health Sector**:
Working in Health Sector settings including investigating a range of career opportunities in this Sector.
Employability skills in the Health Sector including the opportunity to produce their own CV, participate in a mock interview, develop knowledge and understanding of the world of work.
Medical Devices and Pharmaceuticals including how devices and technology contribute to diagnosis and treatment, investigate uses of pharmaceutical products.
Improving Health and Wellbeing including tackling current health and lifestyle issues that affect health sector workers, impact of workplace stress, need for a healthy lifestyle.
Physiology of the Cardiovascular System including developing knowledge and skills in taking physiological measurements at different activity levels, current first aid procedures for life support for an adult casualty.

Health Sector – National 5 (SfW)

Course Assessments

- This course is practical based and is assessed throughout the course – there is no final examination.

Learning Activities & Homework

You will develop knowledge, employability skills and attitudes valued by employers in the health sector and beyond. You will review employability skills and seek feedback from your peers and teaching staff as appropriate. You will evaluate your own strengths and weaknesses, personal skills, qualifications and experience against career options.

Homework is issued throughout the session.

Health Sector – National 5 (SfW)

Wider Skills Development

Communication and ICT
Group work and working with others
Numeracy and Problem solving
Positive attitude to learning

Progression & Career Opportunities

As this is a vocational course, this specifically leads to:

- Further study: Other qualifications in the sciences, or related areas, at Level 5.
- Further education: level 6 Foundation Apprenticeship in Scientific Technologies, HND: Applied Sciences, HND: Applied Biological Sciences
- Career Opportunities: modern apprenticeships or direct employment in areas such as sciences, hospital laboratories, life sciences etc