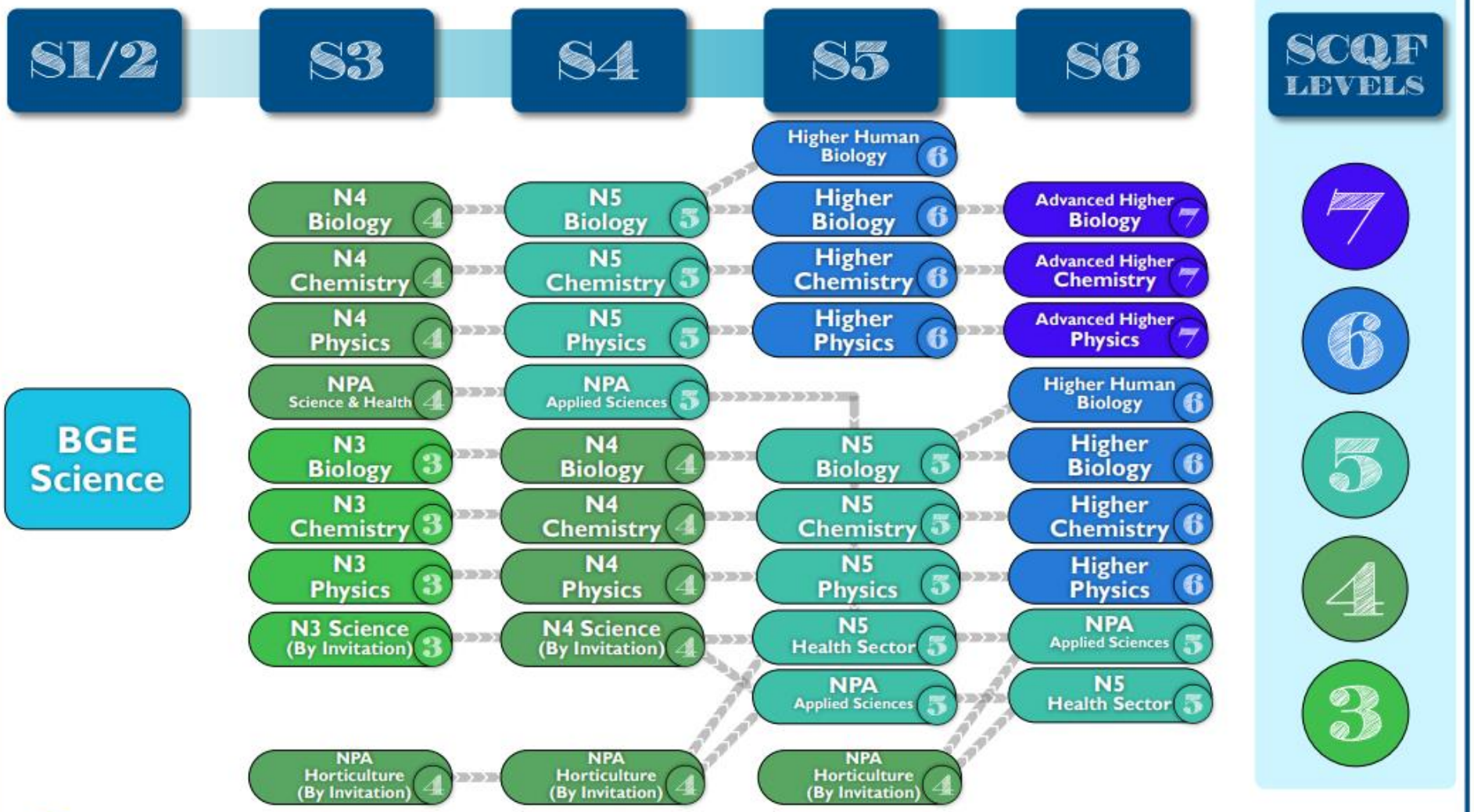
KIRKCALDY HIGH SCHOOL
Community, Ambition, Respect

# S4/5 Subject Choices

## Faculty of Science

# Science


S1/2
S3
S4
S5
S6
SCQF LEVELS
BGE Science
N4 Biology 4
N4 Chemistry 4
N4 Physics 4
NPA Science & Health 4
N3 Biology 3
N3 Chemistry 3
N3 Physics 3
N3 Science (By Invitation) 3
NPA Horticulture (By Invitation) 4
N5 Biology 5
N5 Chemistry 5
N5 Physics 5
NPA Applied Sciences 5
N4 Biology 4
N4 Chemistry 4
N4 Physics 4
N4 Science (By Invitation) 4
NPA Horticulture (By Invitation) 4
Higher Human Biology 6
Higher Biology 6
Higher Chemistry 6
Higher Physics 6
N5 Biology 5
N5 Chemistry 5
N5 Physics 5
N5 Health Sector 5
NPA Applied Sciences 5
NPA Horticulture (By Invitation) 4
Advanced Higher Biology 7
Advanced Higher Chemistry 7
Advanced Higher Physics 7
Higher Human Biology 6
Higher Biology 6
Higher Chemistry 6
Higher Physics 6
NPA Applied Sciences 5
N5 Health Sector 5
7
6
5
4
3

# Biology – National 5, Higher and Advanced Higher

Entry Requirements - Preferred Skills and Knowledge

Biology reveals how life works and equips you to tackle challenges in health, food, and the environment.

- 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

Course Assessments

**National 5**
- Prelim Examination
- Practical Assignment
- Final Examination (2½ hours)

**Higher**
- Prelim Examination
- Practical Assignment
- Final Examination (3 hours)

**Advanced Higher**
- Prelim Examination
- Practical Project
- Final Examination (3 hours)

Learning Activities & Homework

You will apply Biology knowledge to evaluate biological issues, make informed decisions and develop an ethical view of complex issues.
You will carry out experimental work and fieldwork investigations to develop collection and analysis of data and problem-solving skills.

Homework is issued regularly throughout the session.

# Biology – National 5, Higher and Advanced Higher

Wider Skills Development

- Curiosity
- Critical Thinking
- Collaborating
- Adapting
- Sense-making

Progression & Career Opportunities

- Further study: Biology at the next level or study 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

Human Biology explores the human body and its functions, helping improve health and wellbeing.

- 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**

- Prelim Examination
- Practical Assignment
- Final Examination (3 hours)

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

- Curiosity
- Critical Thinking
- Collaborating
- Adapting
- Sense-making

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

Chemistry uncovers how substances interact and helps solve problems in medicine, energy, and materials.

- 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**
- Prelim Examination
- Practical Assignment
- Final Examination (2½ hours)

**Higher**
- Prelim Examination
- Practical Assignment
- Final Examination (3 hours)

**Advanced Higher**
- Prelim Examination
- Practical Project
- Final Examination (3 hours)

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

- Curiosity
- Critical Thinking
- Collaborating
- Adapting
- Sense-making

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 and Advanced Higher

Entry Requirements - Preferred Skills and Knowledge

Physics explains how the universe works, helping you understand the world around you—from the very big to the very small.

- To study Higher Physics, you should have achieved an "A" or "B" at National 5 level.
- To study Advanced Higher Physics, you should have achieved an "A" or "B" at Higher level.

Course Content

The course covers the following main areas of Physics:

| National 5 | Higher | Advanced Higher |
|---|---|---|
| **Dynamics & Space** | **Our Dynamic Universe** | **Rotational motion & astrophysics** |
| **Electricity & Matter** | **Particles & Waves** | **Quanta & waves** |
| **Waves & Radiation** | **Electricity** | **Electromagnetism** |

# Physics – National 5, Higher and Advanced Higher

## Course Assessments

**National 5**
- Prelim Examination
- Practical Assignment
- Final Examination (2½ hours)

**Higher**
- Prelim Examination
- Practical Assignment
- Final Examination (3 hours)

**Advanced Higher**
- Prelim Examination
- Practical Project
- Final Examination (3 hours)

## Learning Activities & Homework

You will carry out experiments to test ideas, observe effects, and collect and analyse data, developing problem-solving and logical thinking skills.

Homework is issued regularly throughout the session.

# Physics – National 5, Higher and Advanced Higher

Wider Skills Development

- Curiosity
- Critical Thinking
- Collaborating
- Adapting
- Sense-making

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.

# 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.

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

- Communicating
- Critical Thinking
- Collaborating
- Integrity
- Sense-making

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

# NPA Applied Sciences – Level 5

Entry Requirements - Preferred Skills and Knowledge

To study this subject, you should have an interest in all science; Biology, Chemistry and Physics and be curious about its relevance in everyday life. You should be willing to develop practical and investigation skills, working independently where required.

Course Content

The course covers four main areas of Science:

- Physics (Waves and Radiation)
- Chemistry (Chemical Changes and Structures)
- Biology (Cell Biology)
- Forensic Science: Applications or Laboratory Science: Practical Skills

# NPA Applied Sciences – Level 5

<u>Course Assessments</u>

There is no final exam for this course. It is assessed in class and will take the form of:

- 4 Unit Assessments – one for each main area of the course
- An Outcome 1 practical write-up

<u>Learning Activities & Homework</u>

You will develop knowledge, problem-solving, and investigation skills in science through practical experiments, group work, and research.

Homework is issued regularly throughout the session.

# NPA Applied Sciences – Level 5

Wider Skills Development

- Curiosity
- Critical Thinking
- Collaborating
- Adapting
- Sense-making

Progression & Career Opportunities

- Further study: Biology, Chemistry or Physics at the next level.
- Further education: HNC/HND Applied Science or any science related course or apprenticeship.
- Career Opportunities: Science & Healthcare, Engineering & Technology, Environment & Sustainability, Public Service & Industry.