



Ormiston
Horizon Academy



OHA Honours Programme.

Expanding Horizons in Science.

Point Values		
	2	3
4	5	10

- Complete tasks from the list below and record what you have done in your learning journal.
- Collecting points allows you to earn a bronze, silver and gold maths award.

	Date Started	Date Completed	Points Earned
Physics			
Watch a TED Talk about physics, space or the universe (e.g., black holes, gravitational waves, quantum physics). Record three key ideas and one question.			
Research a famous physicist such as Albert Einstein, Isaac Newton, Marie Curie, or Stephen Hawking and explain their impact.			
Research a career involving physics and investigate the required qualifications, skills, and experience.			
Watch a modern physics discovery explained (e.g. Higgs boson or exoplanets) to someone who has never studied physics.			

Explore the physics of sport (how forces, energy, or momentum affect performance).			
Explore the physics of music (sound waves, frequency, amplitude, and resonance).			
Attend a Physics or STEM club and record what you discovered or investigated.			
Research how physics is used in medicine (X-rays, MRI, ultrasound, radiotherapy).			
Investigate renewable energy by comparing two sources and their pros/cons.			
Explore the physics of climate change (greenhouse effect and Earth's energy balance).			

Visit a science museum, observatory, or planetarium and explain the physics behind an exhibit.			
Attend a public astronomy or physics lecture and record the main ideas.			
Attend a Keele Observatory event or astronomy activity and reflect on our place in the universe.			
Complete an independent investigation into a physics question of your choice (hypothesis, method, results).			
Organise science-related work experience in a physics-related environment (engineering, technology, energy).			

Chemistry

Watch a TED Talk about chemistry, materials, medicine, or climate change. Record three key ideas.

Research a famous chemist such as Dorothy Hodgkin, Marie Curie, or Dmitri Mendeleev and explain their contribution.

Research an element from the periodic table and create a profile of its properties and uses.

Research a career involving chemistry (pharmaceuticals, forensic science, chemical engineering).

Choose an everyday product (soap, sunscreen, batteries) and investigate the chemistry behind it.

Investigate plastics and polymers, how they are made, and associated environmental challenges.			
Explore the chemistry of food (caramelisation, fermentation, or the Maillard reaction).			
Attend a Chemistry or STEM club and keep a record of what you investigated.			
Explore the chemistry of climate change (greenhouse gases, carbon dioxide, methane).			
Research chemistry in medicine and how treatments are developed.			
Investigate green chemistry and how chemists make processes safer and more sustainable.			

Research forensic chemistry and how chemicals are used to solve crimes.			
Attend a science lecture, university outreach event, or practical workshop.			
Carry out a safe chemistry investigation at home or school and record observations.			
Complete an independent chemistry research project and present your findings.			

Biology

Watch a TED Talk about biology, medicine, genetics, evolution, or the brain. Record three key ideas.

Research a famous biologist or medical scientist (Charles Darwin, Jane Goodall, Alexander Fleming) and their impact.

Research a career involving biology (veterinary science, ecology, microbiology, neuroscience).

Research a disease or medical condition, its causes, symptoms, and current treatments.

Explore genetics by researching an inherited condition, genetic engineering, or DNA sequencing.

Investigate evolution and natural selection for a chosen organism's adaptations.			
Attend a Biology, Science or STEM club and record what you discovered.			
Explore the human brain (memory, sleep, neuroplasticity).			
Investigate the human microbiome and the role of microorganisms in health.			
Research a local ecosystem (woodland, river, park) and explain how organisms interact.			
Explore biodiversity and conservation for an endangered species.			

Investigate climate change and biodiversity (how temperature and rainfall affect ecosystems).			
Visit a zoo, aquarium, nature reserve, or wildlife centre and investigate a specific organism.			
Attend a biology, medicine, or environmental science outreach event and write a reflection.			
Complete an independent biological investigation with a full question, hypothesis, and conclusion.			

Cross-Science Activities

Watch a TED Talk about a scientific issue of your choice and evaluate how effectively it communicates ideas.

Attend a local science, technology or engineering event and write a reflection.

Read a popular science book and record the key ideas you discovered.

Attend a science event or Natural Sciences outreach at Keele University.

Attend a Keele University science outreach activity and reflect on your future ambitions.

Watch a science documentary and write a critical response evaluating its claims.			
Research a scientific controversy or ethical question (animal testing, AI in medicine, nuclear power).			
Research a scientific discovery that changed everyday life and society.			
Compare how Physics, Chemistry and Biology contribute to one real-world problem (e.g., cancer or space exploration).			
Create a science communication resource (infographic, podcast, video) explaining a complex idea.			
Enter a science competition (essay, STEM, or research competition).			

Attend a careers fair and investigate at least three careers involving science.			
Arrange science-related work experience for two days or longer in a scientific setting.			
Complete an independent research project on a scientific question of your choice as a report or presentation			

Stretch Challenges			
Investigate a career in science that you had not previously considered, looking at university courses and apprenticeships.			
Read a popular science book and independently compare the author's claims with two reliable scientific sources.			

Create and deliver a 5 – 10 minute science presentation explaining a complex idea to a non-specialist audience.			
Research a current scientific breakthrough, the evidence supporting it, and remaining questions.			
Become a 'Science Explorer': complete at least two activities from Physics, Chemistry, and Biology and compare them.			
Science in the real world: choose a major global challenge and explain how all three sciences contribute to solving it.			
Attend two different science events covering different branches and compare what you learnt.			
Design your own scientific investigation from scratch with a full evaluation and write-up.			