

Teacher(s): Henry Gowers, Gary Rolfe, Cheryl Walker

Faculty: Science

Unit Duration: Semester 2, 2024

The **Australian Curriculum Achievement Standards in Science** has three interrelated strands: Science Understanding, Science as a Human Endeavour, and Science Inquiry Skills. Together, the three strands of the science curriculum provide students with understanding, knowledge, and skills through which they can develop a scientific view of the world. Students are challenged to explore science, its concepts, nature and uses through clearly described inquiry processes.

Australian Curriculum Achievement Standard By the end of Year 10 students will sequence key events in the origin and evolution of the universe and describe the supporting evidence for the big bang theory. They describe trends in patterns of global climate change and identify causal factors. They explain how Newton's laws describe motion and apply them to predict motion of objects in a system.

Students plan and conduct safe, valid and reproducible investigations to test relationships or develop explanatory models. They explain how they have addressed any ethical and intercultural considerations when generating or using primary and secondary data. They select equipment and use it efficiently to generate and record appropriate sample sizes and replicable data with precision. They select and construct effective representations to organise, process and summarise data and information. They analyse and connect a variety of data and information to identify and explain patterns, trends, relationships and anomalies. They evaluate the validity and reproducibility of methods, and the validity of conclusions and claims. They construct logical arguments based on analysis of a variety of evidence to support conclusions and evaluate claims. They select and use content, language and text features effectively to achieve their purpose when communicating their ideas, findings and arguments to diverse audiences.

Unit Description: In Semester 2, students explore the geological and astrological evidence for different theories. They appreciate how energy drives the Earth system and how climate models simulate the flow of energy and matter within and between Earth's spheres. They understand that motion and forces are related by applying physical laws and can be modelled mathematically. Students analyse and synthesise data from systems at multiple scales to develop evidence-based explanations for phenomena. They learn that all models involve assumptions and approximations, and that this can limit the reliability of predictions based on those models.

Essential Learning Outcomes developed from the Achievement Standards of the Australian Curriculum:

1. **V9.S.10.04** Explains how Newton's laws describe motion and applies them to predict motion of objects in a system.
2. **V9.S.10.03** Describes trends in patterns of global climate change and identifies causal factors.
3. **V9.S.10.02** Sequences key events in the origin and evolution of the universe and describes the supporting evidence for the big bang theory.
4. **V9.S.10.09** Explain how they have addressed any ethical and intercultural considerations when generating or using primary and secondary data.
5. **V9.S.10.11** Selects and constructs effective representations to organise, process and summarise data and information. *(Analysing)*
6. **V9.S.10.12** Analyse and connect a variety of data and information to identify and explain patterns, trends, relationships, and anomalies. *(Analysing)*
7. **V9.S.10.13** Evaluate the validity and reproducibility of methods, and the validity of conclusions and claims. *(Analysing)*
8. **V9.S.10.14** Construct logical arguments based on analysis of a variety of evidence to support conclusions and evaluate claims. *(Communication)*
9. **V9.S.10.15** - Selects and uses content, language, and text features effectively to achieve their purpose when communicating their ideas, findings, and arguments to diverse audiences *(Communication)*

Materials and Equipment Required: Students are expected to arrive at every class with a class book/folder to write notes for that subject, a writing instrument and a Chromebook or similar, appropriate electronic device. Students may also be required to provide the following additional materials and equipment: *Scientific Calculator*

Absences from Class: Students who miss classes due to absence or excursions will need to utilise the material on Google Classroom and Stileapp to catch up on missed work.

Use of IT in Class: A Google Classroom and Stileapp class has been set up for this class. Students will be required to log into these platforms regularly to access course material. Students must bring a personal device (not a smartphone) to all lessons, however, the use of these devices in class will be at the discretion of the teacher.

Homework: All students will be given multiple opportunities to demonstrate a proficiency level of 3 or above across all Essential Learnings during class time. Students may use time at home to complete additional enrichment and extension activities that demonstrate a proficiency above level 3, or to catch up on missed or unfinished classwork.

Late Work: Extensions may be negotiated with individual teachers before the due date.

Plagiarism: Plagiarism is copying or using another's work and claiming it as your own. This includes copying, cutting and pasting text or using ideas directly from a text, the internet or some other source without appropriate referencing. The use of Generative AI to produce your work or edit it so that it no longer reflects your work, is a form of plagiarism. If this happens, work may not be graded, and students will be asked to discuss the assessment with the classroom teacher and Executive Teacher for that subject. If a teacher suspects a student may have plagiarised their work they may choose to assess the student in an alternative way, such as verbally or under test conditions. Parents may be contacted as part of this process.

Assessment Portfolio: This contains evidence of work from the opportunities the students have been provided to demonstrate elements of the achievement standard.

Portfolio Assessment Tasks for this subject will include:

	Week / Date Due	Essential Learning
1. Test (1) – Newtons Laws of motion	Week 3	3
2. Test (2) – Physics Motion	Week 6	3
3. Scientific Investigation and Report – Motion down an incline plane	Week 7	5,6,7,8,9
4. Test – Global Systems	Week 12	2
5. In-class assessment – Human Endeavour	Week 12	4
6. Research task – The Universe	Week 14	1,8,9
7. Ongoing – Formative Assessments	Ongoing	All

A-E Reporting Grade Descriptors These are the grades and grade descriptors for reporting at the end of each Semester.

A Demonstrating **excellent** achievement of what is expected (Consistently achieving a proficiency level of 4 or above in each of the Essential Learnings)

B Demonstrating a **high** achievement of what is expected (Consistently achieving a proficiency level of between 3 and 4 in each of the Essential Learnings)

C Demonstrating **satisfactory** achievement of what is expected (Achieving a proficiency level of 3 across the Essential Learnings)

D Demonstrating **partial** achievement of what is expected (Achieving a proficiency of between 1 and 3 across the Essential Learnings)

E Demonstrating **limited** achievement of what is expected (Achieving a proficiency of 1 or less in each of the Essential Learnings)

S **Status** is awarded where unavoidable circumstances have prevented assessment. Must be negotiated with the Principal.

Grade Descriptors and the “C” grade

In ACT public schools the Australian Curriculum Achievement Standard is aligned with a ‘C’ grade. The ‘C’ grade indicates that your child has demonstrated a satisfactory level of knowledge, understanding and skill in relation to the Achievement Standard.

Appeals

A student must initiate an appeal for any grade with their subject teacher. If a student is dissatisfied with that initial process, they must pursue further appeal through the Faculty Executive Teacher for that subject.

Executive Teacher

Gary Rolfe

16/07/2024