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| Year 10 Science Curriculum and assessment plan  [Insert school name, implementation year] |

Use this template to plan an overview or summary of the teaching, learning and assessment for a year level in the Australian Curriculum: Science. For planning advice, refer to the *Planning for teaching, learning and assessment* document available on the Planning tab for each learning area at [www.qcaa.qld.edu.au/p-10/aciq/version-9/learning-areas](http://www.qcaa.qld.edu.au/p-10/aciq/version-9/learning-areas).

**How to use this template:** Type information into the fields (yellow shading). When the plan is complete, delete the highlighted instructions (blue shading). To do so, select the instruction text, click the **Home tab > Styles dropdown > Clear All/Clear Formatting >** text will revert to Normal style and you can delete the text.

| Level description | Context and cohort considerations (if applicable) |
| --- | --- |
| In Year 10 students explore the biological, chemical, geological and astronomical evidence for different theories, such as the theory of natural selection and the big bang theory. Through investigating natural selection and processes of heredity they come to understand the evolutionary feedback mechanisms that ensure the continuity of life. 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.  Students develop a more sophisticated understanding of atomic theory to understand patterns and relationships within the periodic table. 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.  Inquiry questions can help excite students’ curiosity and challenge their thinking. Following are examples of inquiry questions that could be used to prompt discussion and exploration:   * Why is the periodic table such a big deal? * How do we know what is science and what is pseudoscience? * Why is accelerating climate change a threat to biodiversity? * Just because we can, should we? * How have advanced computing and big data changed science? | Describe the context and cohort.  Consider the following to make informed professional decisions during the planning process:   * + relevant student data and information, e.g. achievement data   + available resources, e.g. timetabling   + school and sector priorities.   [Insert context and cohort considerations] |

**Note:** Insert/delete rows/columns, as required, to provide an overview of the teaching, learning and assessment sequence across the year level.

| Unit 1 — [Insert unit title] | Unit 2 — [Insert unit title] | Unit 3 — [Insert unit title] | Unit 4 — [Insert unit title] |
| --- | --- | --- | --- |
| Duration: [Insert semester, term and/or weeks] | Duration: [Insert semester, term and/or weeks] | Duration: [Insert semester, term and/or weeks] | Duration: [Insert semester, term and/or weeks] |
| [Insert unit description and learning focus] | [Insert unit description and learning focus] | [Insert unit description and learning focus] | [Insert unit description and learning focus] |

**Note:**

Adjust the table to reflect the number of units you will offer.

Highlight the aspects of the achievement standard that will be assessed within each unit.

|  | Unit 1 | | Unit 2 | | Unit 3 | | Unit 4 | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Assessment — [Insert assessment title] | Timing | Assessment — [Insert assessment title] | Timing | Assessment — [Insert assessment title] | Timing | Assessment — [Insert assessment title] | Timing |
| Assessment | [Insert concise description of assessment]  [Insert technique]  [Insert mode, if applicable]  [Insert conditions] | [Insert week/s or date/s] | [Insert concise description of assessment]  [Insert technique]  [Insert mode, if applicable]  [Insert conditions] | [Insert week/s or date/s] | [Insert concise description of assessment]  [Insert technique]  [Insert mode, if applicable]  [Insert conditions] | [Insert week/s or date/s] | [Insert concise description of assessment]  [Insert technique]  [Insert mode, if applicable]  [Insert conditions] | [Insert week/s or date/s] |
| Achievement standard | By the end of Year 10 students explain the processes that underpin heredity and genetic diversity and describe the evidence supporting the theory of evolution by natural selection. They 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. They explain patterns and trends in the periodic table and predict the products of reactions and the effect of changing reactant and reaction conditions. Students analyse the importance of publication and peer review in the development of scientific knowledge and analyse the relationship between science, technologies and engineering. They analyse the key factors that influence interactions between science and society.  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. | | By the end of Year 10 students explain the processes that underpin heredity and genetic diversity and describe the evidence supporting the theory of evolution by natural selection. They 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. They explain patterns and trends in the periodic table and predict the products of reactions and the effect of changing reactant and reaction conditions. 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| Moderation | [Insert moderation details, including when moderation will occur and how it will be conducted] | | [Insert moderation details, including when moderation will occur and how it will be conducted] | | [Insert moderation details, including when moderation will occur and how it will be conducted] | | [Insert moderation details, including when moderation will occur and how it will be conducted] | |

**Note:** Adjust the table to reflect the number of units you will offer. Check or uncheck the columns as appropriate for each unit.

| Content descriptions | Units | | | | Content descriptions | Units | | | | Content descriptions | Units | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Science understanding | 1 | 2 | 3 | 4 | Science as a human endeavour | 1 | 2 | 3 | 4 | Science inquiry | 1 | 2 | 3 | 4 | |
| **Biological sciences**  explain the role of meiosis and mitosis and the function of chromosomes, DNA and genes in heredity and predict patterns of Mendelian inheritance AC9S10U01 |  |  |  |  | **Nature and development of science**  explain how scientific knowledge is validated and refined, including the role of publication and peer review AC9S10H01 |  |  |  |  | **Questioning and predicting**  develop investigable questions, reasoned predictions and hypotheses to test relationships and develop explanatory models AC9S10I01 |  |  |  |  | |
| use the theory of evolution by natural selection to explain past and present diversity and analyse the scientific evidence supporting the theory AC9S10U02 |  |  |  |  | **investigate how advances in technologies enable advances in science, and how science has contributed to developments in technologies and engineering AC9S10H02** |  |  |  |  | **Planning and conducting**  **plan and conduct valid, reproducible investigations to answer questions and test hypotheses, including identifying and controlling for possible sources of error and, as appropriate, developing and following risk assessments, considering ethical issues, and addressing key considerations regarding heritage sites and artefacts on Country/Place AC9S10I02** |  |  |  |  | |
| **Earth and space sciences**  describe how the big bang theory models the origin and evolution of the universe and analyse the supporting evidence for the theory AC9S10U03 |  |  |  |  | **Use and influence of science**  **analyse the key factors that contribute to science knowledge and practices being adopted more broadly by society AC9S10H03** |  |  |  |  | select and use equipment to generate and record data with precision to obtain useful sample sizes and replicable data, using digital tools as appropriate AC9S10I03 |  |  |  |  | |
| use models of energy flow between the geosphere, biosphere, hydrosphere and atmosphere to explain patterns of global climate change AC9S10U04 |  |  |  |  | examine how the values and needs of society influence the focus of scientific research AC9S10H04 |  |  |  |  | **Processing, modelling and analysing**  select and construct appropriate representations, including tables, graphs, descriptive statistics, models and mathematical relationships, to organise and process data and information AC9S10I04 |  |  |  |  | |
| **Physical sciences**  investigate Newton’s laws of motion and quantitatively analyse the relationship between force, mass and acceleration of objects AC9S10U05 |  |  |  |  |  |  |  |  |  | **analyse and connect a variety of data and information to identify and explain patterns, trends, relationships and anomalies AC9S10I05** |  |  |  |  | |
| **Chemical sciences**  explain how the structure and properties of atoms relate to the organisation of the elements in the periodic table AC9S10U06 |  |  |  |  |  |  |  |  |  | **Evaluating**  assess the validity and reproducibility of methods and evaluate the validity of conclusions and claims, including by identifying assumptions, conflicting evidence and areas of uncertainty AC9S10I06 |  |  |  |  | |
| identify patterns in synthesis, decomposition and displacement reactions and investigate the factors that affect reaction rates AC9S10U07 |  |  |  |  |  |  |  |  |  | construct arguments based on analysis of a variety of evidence to support conclusions or evaluate claims, and consider any ethical issues and cultural protocols associated with accessing, using or citing secondary data or information AC9S10I07 |  |  |  |  | |
|  |  |  |  |  |  |  |  |  |  | **Communicating**  write and create texts to communicate ideas, findings and arguments effectively for identified purposes and audiences, including selection of appropriate content, language and text features, using digital tools as appropriate AC9S10I08 |  |  |  |  | |

**Note:** Adjust the table to reflect the number of units you will offer. Check or uncheck the columns as appropriate for each unit.

| General capabilities | Units | | | |  | Cross-curriculum priorities | Units | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 1 | 2 | 3 | 4 |  |  | 1 | 2 | 3 | 4 |
| Critical and creative thinking |  |  |  |  |  | Aboriginal and Torres Strait Islander histories and cultures |  |  |  |  |
| Digital literacy |  |  |  |  |  | Asia and Australia’s engagement with Asia |  |  |  |  |
| Ethical understanding |  |  |  |  |  | Sustainability |  |  |  |  |
| Intercultural understanding |  |  |  |  |
| Literacy |  |  |  |  |
| Numeracy |  |  |  |  |
| Personal and social capability |  |  |  |  |

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