# *Year Ten - Downhill Motion*

| ***Teacher:*** *Mr Schmuck* | | | ***Student Name:*** | | |
|---|---|---|---|---|---|
| Criteria | A | B | C | D | E |
| ***Developed a hypothesis and designed and improved methods of investigation*** | Developed a highly accurate and well thought out hypothesis and independently designed and improved methods of investigation | Developed a well thought out hypothesis and independently designed and improved methods of investigation | Developed a hypothesis and designed and improved methods of investigation | Developed a hypothesis with some inconsistencies and designed and improved some aspects of the method of investigation | Inappropriate hypothesis and little logical design and methodology. |
| ***Explained how reliability and fairness have been considered*** | Robust and detailed explanation of how reliability and fairness have been considered | Detailed explanation of how reliability and fairness have been considered | Explained how reliability and fairness have been considered | Some explanation has been offered however there are inconsistencies | Inappropriate or no explanation |
| ***Identified alternative explanations for findings and explained any sources of uncertainty*** | Detailed and logical alternatives for findings have been offered and sources of uncertainty have been thoroughly explained | Logical alternatives for findings have been offered and sources of uncertainty have been thoroughly explained | Identified alternative explanations for findings and explained any sources of uncertainty | Identified some aspects of alternative explanations and sources of uncertainty have been identified | No alternative explanations have been offered and sources of uncertainty have not been clarified. |
| ***Selected and Created an investigative report including methodology, details of field work, data collection and analysis and a conclusion*** | Highly accurate investigative report including highly relevant methodology, details of field work, data collection and analysis and a conclusion | Accurate investigative report including relevant methodology, details of field work, data collection and analysis and a conclusion | Selected and Created an investigative report including methodology, details of field work, data collection and analysis and a conclusion | Investigative report was selected with some inconsistencies with the methodology, detail of field work, data collection and analysis and a conclusion | Inappropriate investigative report |
| ***Understood that the motion of objects can be described and predicted*** | Deep and Innovative understanding of concept | Deep understanding of concept | Understood that the motion of objects can be described and predicted | Some understanding of concept | Little understanding of concept |

Curricular Intentions:

The motion of objects can be described and predicted using the laws of physics (ACSSU229)

Plan, select and use appropriate investigation types, including field work and laboratory experimentation, to collect reliable data; assess risk and address ethical issues associated with these methods (ACSIS199)

Achievement Standard:

By the end of Year 10, students analyse how the periodic table organises elements and use it to make predictions about the properties of elements. They explain how chemical reactions are used to produce particular products and how different factors influence the rate of reactions. They explain the concept of energy conservation and

represent energy transfer and transformation within systems. They apply relationships between force, mass and acceleration to predict changes in the motion of objects. Students describe and analyse interactions and cycles within and between Earth's spheres. They evaluate the evidence for scientific theories that explain the origin of the universe and the diversity of life on Earth. They explain the processes that underpin heredity and evolution. Students analyse how the models and theories they use have developed over time and discuss the factors that prompted their review.

Students develop questions and hypotheses and independently design and improve appropriate methods of investigation, including field work and laboratory experimentation. They explain how they have considered reliability, safety, fairness and ethical actions in their methods and identify where digital technologies can be used to enhance the quality of data. When analysing data, selecting evidence and developing and justifying conclusions, they identify alternative explanations for findings and explain any sources of uncertainty. Students evaluate the validity and reliability of claims made in secondary sources with reference to currently held scientific views, the quality of the methodology and the evidence cited. They construct evidence-based arguments and select appropriate representations and text types to communicate science ideas for specific purposes.