# Rocket – Curriculum Links

By Doaa George

| Year 7 | Year 8 | Year 9 | Year 10 |
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| Change to an object's motion is caused by unbalanced forces acting on the object | Energy appears in different forms including movement (kinetic energy), heat and potential energy, and causes change within systems | | The motion of objects can be described and predicted using the laws of physics |
| Earth's gravity pulls objects towards the centre of the Earth | | | |
| Scientific knowledge changes as new evidence becomes available, and some scientific discoveries have significantly changed people's understanding of the world | Scientific knowledge changes as new evidence becomes available, and some scientific discoveries have significantly changed people's understanding of the world | Scientific understanding, including models and theories, are contestable and are refined over time through a process of review by the scientific community | Scientific understanding, including models and theories, are contestable and are refined over time through a process of review by the scientific community |
| Science knowledge can develop through collaboration and connecting ideas across the disciplines of science | Science knowledge can develop through collaboration and connecting ideas across the disciplines of science | People can use scientific knowledge to evaluate whether they should accept claims, explanations or predictions | People can use scientific knowledge to evaluate whether they should accept claims, explanations or predictions |
| People use understanding and skills from across the disciplines of science in their occupations | People use understanding and skills from across the disciplines of science in their occupations | Advances in science and emerging sciences and technologies can significantly affect people's lives, including generating new career opportunities | Advances in science and emerging sciences and technologies can significantly affect people's lives, including generating new career opportunities |
| Identify questions and problems that can be investigated scientifically and make predictions based on scientific knowledge | Identify questions and problems that can be investigated scientifically and make predictions based on scientific knowledge | The values and needs of contemporary society can influence the focus of scientific research | The values and needs of contemporary society can influence the focus of scientific research |
| Collaboratively and individually plan and conduct a range of investigation types , including fieldwork and experiments, | Collaboratively and individually plan and conduct a range of investigation types , including fieldwork and experiments, | Formulate questions or hypotheses that can be investigated scientifically | Formulate questions or hypotheses that can be investigated scientifically |

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| ensuring safety and ethical guidelines are followed | ensuring safety and ethical guidelines are followed | | |
| In fair tests, measure and control variables, and select equipment to collect data with accuracy appropriate to the task | In fair tests, measure and control variables, and select equipment to collect data with accuracy appropriate to the task | Plan, select and use appropriate investigation methods, including field work and laboratory experimentation, to collect reliable data; assess risk and address ethical issues associated with these methods | Plan, select and use appropriate investigation methods, including field work and laboratory experimentation, to collect reliable data; assess risk and address ethical issues associated with these methods |
| Construct and use a range of representations, including graphs, keys and models to represent and analyse patterns or relationships, including using digital technologies as appropriate | Construct and use a range of representations, including graphs, keys and models to represent and analyse patterns or relationships, including using digital technologies as appropriate | Analyse patterns and trends in data, including describing relationships between variables and identifying inconsistencies | Analyse patterns and trends in data, including describing relationships between variables and identifying inconsistencies |
| Summarise data, from students' own investigations and secondary sources, and use scientific understanding to identify relationships and draw conclusions | Summarise data, from students' own investigations and secondary sources, and use scientific understanding to identify relationships and draw conclusions | Use knowledge of scientific concepts to draw conclusions that are consistent with evidence | Use knowledge of scientific concepts to draw conclusions that are consistent with evidence |
| Reflect on the method used to investigate a question or solve a problem, including evaluating the quality of the data collected, and identify improvements to the method | Reflect on the method used to investigate a question or solve a problem, including evaluating the quality of the data collected, and identify improvements to the method | Evaluate conclusions, including identifying sources of uncertainty and possible alternative explanations, and describe specific ways to improve the quality of the data | Evaluate conclusions, including identifying sources of uncertainty and possible alternative explanations, and describe specific ways to improve the quality of the data |
| Use scientific knowledge and findings from investigations to evaluate claims | Use scientific knowledge and findings from investigations to evaluate claims | Critically analyse the validity of information in secondary sources and evaluate the approaches used to solve problems | Critically analyse the validity of information in secondary sources and evaluate the approaches used to solve problems |
| Communicate ideas, findings and solutions to problems using scientific language and representations | Communicate ideas, findings and solutions to problems using scientific language and representations | Communicate scientific ideas and information for a particular purpose, including constructing evidence-based arguments and using appropriate scientific | Communicate scientific ideas and information for a particular purpose, including constructing |

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| using digital technologies as appropriate | using digital technologies as appropriate | language, conventions and representations | evidence-based arguments and using appropriate scientific language, conventions and representations |

## Guidance

| Stage | Demonstrated inquiry | Prescribed inquiry | Structured inquiry | Guided inquiry | Open inquiry |
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| Formulate, question and predict | No question | Provided question | Sharpened question | Learner selects | Learner poses questions |
| Plan | No planning | Provided procedure | Discussion with teacher | Guided during planning | Learner determines plans |
| Conduct | Teacher conducts | Conducting and recording method told | Sharpened plan and conduct | Guided during conducting and recording | Learner conducts and records |
| Process and analyse | Teacher analyses | Analysis method told | Discussed analysis | Guided analysis | Learner analyses data studying trends |
| Reason, solve and link back | No problem solving | Teacher provides reasoning and links | Discussed reasoning and conclusion | Guided reasoning and formulating conclusion | Learner reasons to formulate conclusions |
| Communicate and justify | No conclusion | Teacher writes conclusion | Student writes | Guided justification and findings | Learner justifies findings and conclusions |