

TITANIC SCIENCE

CURRICULUM GRID FOR WALES

For each investigation we have mapped out which aspects of the Science range (content) would be being taught and which specific Science skills would be able to be taught according to the requirements of the National Curriculum Programme of Study for Science in Wales.

We have collated the Science skills to show a cyclical planning process of plan/develop/reflect. So, for each investigation we have matched up at least one planning, developing and reflecting skill to address, there will be more skills that could be addressed within each investigation but if you try to hit too many in one investigation, you don't end up doing any of them very well!

Lesson	Investigation Question/Ideas Explored	KS2 Programme of Study (Range)	KS2 Programme of Study (Skills)	Thinking Skills – (part of the Skills Framework)
Chapter One Building the Titanic	How were all the materials needed to build Titanic lifted? <i>Forces</i> <i>Pulleys</i>	How Things Work <i>2. Study forces of different kinds, e.g. gravity, magnetic and friction, including air resistance</i> <i>3. Study the ways in which forces can affect movement and how forces can be compared</i>	Communication 3. <i>Use standard measures and S.I. units, e.g. g, kg, s, N, m.</i> Planning 4. <i>When carrying out a fair test, the key variables that need to be controlled and how to change the independent variable whilst keeping other key variables the same.</i> Developing 2. <i>Make careful observations and accurate measurements, using digital and ICT equipment at times.</i> Reflecting 6. <i>Link the learning to similar situations, within and outside school.</i>	Plan Determine the process/ method and strategy. Develop Numeracy skills (accurate measuring) Reflect Linking and lateral thinking.

Lesson	Investigation Question/Ideas Explored	KS2 Programme of Study (Range)	KS2 Programme of Study (Skills)	Thinking Skills – (part of the Skills Framework)
Chapter One Building the Titanic	How did Titanic move? <i>Propellers</i>	How Things Work <i>2. Study forces of different kinds, e.g. gravity, magnetic and friction, including air resistance</i> <i>3. Study the ways in which forces can affect movement and how forces can be compared</i>	Communication 2. <i>Communicate clearly by speech, WRITING, drawings, diagrams, charts, TABLES, BAR CHARTS, line graphs, videos, and ICT packages, using relevant scientific vocabulary.</i> Planning 2. <i>Make predictions using some previous knowledge and understanding.</i> 4. <i>When carrying out a fair test, the key variables that need to be controlled and how to change the independent variable whilst keeping other key variables the same.</i> Developing 3. <i>Check observations and measurements by repeating them in order to collect reliable data.</i> 5. <i>Use some prior knowledge to explain links between cause and effect when concluding.</i> <i>Reflecting 4.</i> <i>Suggest how the approach/method could have been improved.</i>	Plan Activating prior skills, knowledge and understanding. Develop Thinking about cause and effect and making inferences. Reflect Evaluate own learning and thinking.
Chapter 2 Titanic strikes the iceberg	How much water is under the iceberg? <i>Temperature changes (endothermic and exothermic reactions)</i>	The Sustainable Earth <i>3. Study a comparison of the features and properties of some natural and made materials</i>	Communication 2. <i>Communicate clearly by speech, WRITING, DRAWINGS, diagrams, CHARTS, tables, bar charts, line graphs, videos, and ICT packages, using relevant scientific vocabulary</i> Planning 5. <i>Plan the observations or measurements that need to be made</i> Developing 2. <i>Make careful observations and accurate measurements,</i> Reflecting 2. <i>Decide whether the approach/method was successful.</i>	Plan Determine the process/ method and strategy Develop Numeracy skills (accurate measuring). Reflect Review the learning process/ method

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Chapter 3 “We are sinking fast!”	How did Titanic send her distress signals? <i>Electricity</i> <i>Switches</i>	How Things Work <i>1. Study the uses of electricity and its control in simple circuits.</i>	Communication 2. <i>Communicate clearly by SPEECH, writing, drawings, diagrams, charts, tables, bar charts, line graphs, videos, and ICT packages, using relevant scientific vocabulary.</i> Planning 6. <i>Decide upon the equipment and techniques required for the enquiry</i> Developing 7. <i>Form considered opinions and make informed decisions.</i> Reflecting 6. <i>Link the learning to similar situations, within and outside school.</i>	Plan Determine the process/ method and strategy. Develop Forming opinions and making decisions. Reflect Linking and lateral thinking.
Chapter 4 Distress signals	How did the distress signals get so high in the sky? <i>Forces</i> <i>Jump Rockets</i>	How Things Work <i>2. Study forces of different kinds, e.g. gravity, magnetic and friction, including air resistance</i> <i>3. Study the ways in which forces can affect movement and how forces can be compared.</i>	Communication 2. <i>Communicate clearly by SPEECH, writing, drawings, diagrams, charts, tables, bar charts, line graphs, videos, and ICT packages, using relevant scientific vocabulary.</i> Planning 1. <i>Determine the choice of success criteria.</i> 4. <i>When carrying out a fair test, the key variables that need to be controlled and how to change the independent variable whilst keeping other key variables the same.</i> Developing 6. <i>Consider different interpretations and distinguish between ‘facts’, beliefs and opinions, giving reasons and BEGIN TO RECOGNISE BIAS (e.g. when examining results, acknowledge that it is difficult to ensure that the jump will create the same amount of force each time).</i> Reflecting 1. <i>Begin to evaluate outcomes against success criteria</i> 2. <i>Decide whether the approach/method was successful (i.e. was it a fair test?)</i>	Plan Determining success criteria. Develop Consider evidence, information & ideas. Valuing errors and unexpected outcomes. Reflect Review the learning process/ method

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Chapter 4 Distress signals	How do the rockets work? <i>Chemical Reactions</i> <i>Exploding Film Cases</i>	The Sustainable Earth <i>5. Study how some materials are formed or produced.</i>	Communication 2. <i>Communicate clearly by SPEECH, writing, drawings, diagrams, charts, tables, bar charts, line graphs, videos, and ICT packages, using relevant scientific vocabulary.</i> Planning 6. <i>Decide upon the equipment and techniques required for the enquiry.</i> 7. <i>Recognise any hazards and risks to themselves and others.</i> Developing 1. <i>Use apparatus and equipment correctly and safely</i> Reflecting 6. <i>Link the learning to similar situations, within and outside school.</i>	Plan Determine the process/ method and strategy. Develop Forming opinions and making decisions. Reflect Linking and lateral thinking.
Chapter 5 Abandon Ship	Why are the people in the lifeboats huddling together? <i>Thermal Properties of Materials</i>	The Sustainable Earth <i>4. Study the properties of materials relating to their uses.</i>	Communication 2. <i>Communicate clearly by speech, writing, DRAWINGS, diagrams, charts, TABLES, bar charts, line graphs, videos, and ICT PACKAGES, using relevant scientific vocabulary</i> 3. <i>Use standard measures and S.I. units, e.g. kg, s, N, m, degrees Celsius</i> Planning 2. <i>Make predictions using some previous knowledge and understanding</i> Developing 2. <i>Make careful observations and accurate measurements, using digital and ICT equipment at times.</i> Reflecting 6. <i>Link the learning to similar situations, within and outside school.</i>	Plan Determine the process/ method and strategy. Develop Numeracy skills (accurate measuring) Reflect Linking and lateral thinking.

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Chapter 5 Abandon Ship	<p><i>How does the cold water affect the bodies of those overboard?</i></p> <p><i>Icy water and motor skills</i></p>		<p>Communication 2. <i>Communicate clearly by speech, writing, drawings, diagrams, charts, TABLES, bar charts, line graphs, videos, and ICT packages, using relevant scientific vocabulary.</i></p> <p>Planning 7. <i>Recognise any hazards and risks to themselves and others.</i></p> <p>Developing 6. <i>Consider different interpretations and distinguish between ‘facts’, beliefs and opinions, giving reasons and begin to recognise bias.</i></p> <p>Reflecting 6. <i>Link the learning to similar situations, within and outside school.</i></p>	<p>Plan Determine the process/ method and strategy.</p> <p>Develop Consider evidence, information & ideas.</p> <p>Reflect Linking and lateral thinking</p>
Chapter 6 Sinking of Titanic	<p>Why did the water-tight compartments fail?</p> <p><i>Bulkheads</i></p> <p>Why are ships always a certain shape?</p> <p><i>Floating and sinking</i></p>	<p>How Things Work</p> <p><i>3. Study the ways in which forces can affect movement and how forces can be compared.</i></p>	<p>Communication 2. <i>Communicate clearly by SPEECH, writing, drawings, diagrams, charts, tables, bar charts, line graphs, videos, and ICT packages, using relevant scientific vocabulary.</i></p> <p>Planning 2. <i>Make predictions using some previous knowledge and understanding.</i></p> <p>Developing 7. <i>Form considered opinions and make informed decisions.</i></p> <p>Reflecting 6. <i>Link the learning to similar situations, within and outside school.</i></p> <p>Communication 2. <i>Communicate clearly by speech, WRITING, drawings, diagrams, charts, TABLES, bar charts, line graphs, videos, and ICT packages, using relevant scientific vocabulary.</i></p> <p>Planning 2. <i>Make predictions using some previous knowledge and understanding.</i></p> <p>Developing 5. <i>Use some prior knowledge to explain links between cause and effect when concluding.</i></p> <p>Reflecting 5. <i>Describe how they have learned and identifying the ways that worked the best.</i></p>	<p>Plan Determine the process/ method and strategy.</p> <p>Develop Forming opinions and making decisions.</p> <p>Reflect Linking and lateral thinking.</p> <p>Plan Determine the process/ method and strategy.</p> <p>Develop Thinking about cause and effect and making inferences.</p> <p>Reflect Evaluate own learning and thinking.</p>