

# Science Intention Map

## Upper Key Stage Two



UKS2 Intention Map 2024 - 2025

**Placing learning at the heart of everything we do.**



# Animals Including Humans

(Bloodheart)



## Learning Intentions

Week 1	<p>Who was William Harvey?</p> <ul style="list-style-type: none"> <li>Report and present findings from enquiries.</li> <li>Identify scientific evidence that has been used to support or refute ideas or arguments.</li> </ul>
Week 2	<p>What is the job of the heart?</p> <ul style="list-style-type: none"> <li>Report and present findings from enquiries in oral and written forms such as displays and other presentations.</li> </ul>
Week 3	<p>What is the job of blood and the blood vessels?</p> <ul style="list-style-type: none"> <li>Report and present findings from enquiries in oral and written forms such as displays and other presentations.</li> <li>Plan different types of scientific enquiries to answer questions.</li> </ul>
Week 4	<p>How does exercise effect the heart?</p> <ul style="list-style-type: none"> <li>Plan a scientific enquiry to effect of exercise on heart rate.</li> <li>Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.</li> <li>Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.</li> <li>Report and present findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations.</li> </ul>
Week 5	<p>How do diet and exercise effect the body?</p> <ul style="list-style-type: none"> <li>Report and present findings from enquiries in oral and written forms such as displays and other presentations.</li> </ul>
Week 6	<p>How do drugs and alcohol effect the body?</p> <ul style="list-style-type: none"> <li>Report and present findings from enquiries in oral and written forms such as displays and other presentations.</li> </ul>

## The Laboratory



**William Harvey**

## National Curriculum

*Sc5-6/1.1 Sc5-6/1.2*  
*Sc5-6/1.3 Sc5-6/1.4 Sc5-6/1.5*  
*Sc5-6/1.6 Sc5-6/1.7*  
  
*Sc6/2.1a Sc6/2.1b Sc6/2.1c*



## Knowledge Intentions

Week 1	<ul style="list-style-type: none"><li>• Explain who William Harvey was and his discovery of the circulatory system.</li></ul>
Week 2	<ul style="list-style-type: none"><li>• Identify and name the main parts of the human circulatory system and describe the functions of the heart.</li></ul>
Week 3	<ul style="list-style-type: none"><li>• Identify and name the main parts of the human circulatory system and describe the functions of the blood vessels and blood.</li><li>• Describe the ways in which nutrients and water are transported within animals</li></ul>
Week 4	<ul style="list-style-type: none"><li>• Recognise the impact of exercise on the way their body's function.</li></ul>
Week 5	<ul style="list-style-type: none"><li>• Recognise the impact of exercise and diet on the way their body's function.</li></ul>
Week 6	<ul style="list-style-type: none"><li>• Recognise the impact of drugs and lifestyle of the way their body's function.</li></ul>

## Assessment

*Name and describe the purpose of the circulatory system and the functions of the heart, blood vessels and blood.*

## Reference Units

Circulatory System  
(CP)



How does blood flow? (SI)

What's in blood? (SI)





# Forces

(Revolution /  
Firedamp & Davy Lights)



## Learning Intentions

## The Laboratory



**Isaac Newton**

## National Curriculum

**Sc5-6/1.1 Sc5-6/1.3**

**Sc5-6/1.4**

**Sc5-6/1.6 Sc5-6/1.7**

**Sc5/5.1a Sc5/5.1b**

**Sc5/5.1c**

<b>Week 1</b>	<p><i>Who was Isaac Newton?</i></p> <ul style="list-style-type: none"> <li>Identify scientific evidence that has been used to support or refute ideas or arguments.</li> <li>Report and present findings from enquiries.</li> </ul>
<b>Week 2</b>	<p><i>What forces are acting on the object?</i></p> <ul style="list-style-type: none"> <li>Identify scientific evidence that has been used to support or refute ideas or arguments.</li> <li>Report and present findings from enquiries</li> </ul>
<b>Week 3</b>	<p><i>What are the effects of friction?</i></p> <ul style="list-style-type: none"> <li>Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.</li> <li>Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.</li> <li>Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.</li> </ul> <p><i>Use test results to make predictions to set up further comparative and fair tests.</i></p> <ul style="list-style-type: none"> <li>Report and present findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations.</li> </ul>
<b>Week 4</b>	<p><i>What are the effects of air resistance?</i></p> <ul style="list-style-type: none"> <li>Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.</li> <li>Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.</li> <li>Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.</li> <li>Use test results to make predictions to set up further comparative and fair tests.</li> <li>Report and present findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations.</li> </ul>
<b>Week 5</b>	<p><i>What are the effects of water resistance?</i></p> <ul style="list-style-type: none"> <li>Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.</li> <li>Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.</li> <li>Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.</li> <li>Use test results to make predictions to set up further comparative and fair tests.</li> <li>Report and present findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations.</li> </ul>
<b>Week 6</b>	<p><i>Can you design a simple mechanism?</i></p> <ul style="list-style-type: none"> <li>Plan different types of scientific enquiries to answer questions.</li> </ul>



## Knowledge Intentions

Week 1	<ul style="list-style-type: none"><li>• Explain who Isaac Newton was and his discovery of gravity.</li><li>• Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.</li></ul>
Week 2	<ul style="list-style-type: none"><li>• Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.</li><li>• Identify the effects of air resistance, water resistance and friction, that act between moving surfaces.</li></ul>
Week 3	<ul style="list-style-type: none"><li>• Identify and explain the effects of friction.</li></ul>
Week 4	<ul style="list-style-type: none"><li>• Identify and explain the effects of air resistance.</li></ul>
Week 5	<ul style="list-style-type: none"><li>• Identify and explain the effects of water resistance.</li></ul>
Week 6	<ul style="list-style-type: none"><li>• Recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect.</li></ul>

## Assessment

*Draw and label a diagram to show the forces acting on an object.*

## Reference Units

Forces and Mechanisms  
(CP)



What do pulleys do? (SI)



Why are zip wires so fast? (SI)





## Animals & Changing State

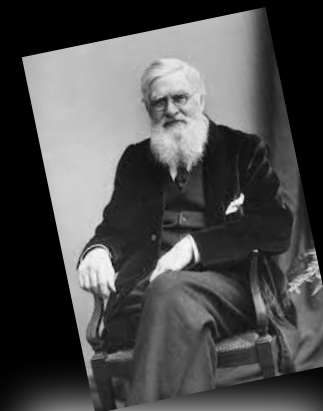
(Frozen Kingdom)



### Learning Intentions

Week 1	<p>Who was Alfred Wallace?</p> <ul style="list-style-type: none"> <li>Identify scientific evidence that has been used to support or refute ideas or arguments.</li> <li>Report and present findings from enquiries.</li> </ul>
Week 2	<p>How are animals from the polar region adapted to their environment?</p> <ul style="list-style-type: none"> <li>Report and present findings from enquiries in oral and written forms such as displays and other presentations.</li> <li>Identify scientific evidence that has been used to support or refute ideas or arguments.</li> </ul>
Week 3	<p>What do animals from the polar region eat?</p> <ul style="list-style-type: none"> <li>Report and present findings from enquiries in oral and written forms such as displays and other presentations.</li> <li>Identify scientific evidence that has been used to support or refute ideas or arguments.</li> </ul>
Week 4	<p>How do animals stay warm?</p> <ul style="list-style-type: none"> <li>Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.</li> <li>Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.</li> </ul>
Week 5	<p>Is changing state reversible?</p> <ul style="list-style-type: none"> <li>Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.</li> <li>Use test results to make predictions to set up further comparative and fair tests.</li> <li>Report and present findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations.</li> </ul>
Week 6	<p>How does an iceberg change over time?</p> <ul style="list-style-type: none"> <li>Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.</li> <li>Use test results to make predictions to set up further comparative and fair tests.</li> <li>Report and present findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations.</li> </ul>

### The Laboratory



**Alfred Wallace**

### National Curriculum

**Sc5-6/1.1 Sc5-6/1.3**

**Sc5-6/1.7**

**Sc5/3.1e Sc6/2.3c**



## Knowledge Intentions

Week 1	<ul style="list-style-type: none"><li>Explain who Alfred Wallace was and his contributions to the theory of adaptation.</li></ul>
Week 2	<ul style="list-style-type: none"><li>Identify how animals are adapted to suit their environment in different ways.</li></ul>
Week 3	<ul style="list-style-type: none"><li>Identify the food chain of an animal from the polar region.</li></ul>
Week 4	<ul style="list-style-type: none"><li>Identify how animals are adapted to suit their environment in different ways.</li></ul>
Week 5	<ul style="list-style-type: none"><li>Demonstrate that changes of state are reversible changes.</li></ul>
Week 6	<ul style="list-style-type: none"><li>Understand how icebergs can melt and get smaller over time.</li></ul>

## Assessment

*Design a poster for an animal in the Polar region that explains how it is adapted to suit its environment.*

## Reference Units



How do animals stay warm? (SI)

Frozen Kingdoms? (KRP)



Do solids dissolve? (SI)



# Light

(Hola Mexico)



## Learning Intentions

Week 1	<p>Who was Arthur James Wilson?</p> <ul style="list-style-type: none"> <li>Plan different types of scientific enquiries to answer questions.</li> <li>Report and present findings from enquiries in oral and written forms such as displays and other presentations.</li> <li>Identify scientific evidence that has been used to support or refute ideas or arguments.</li> </ul>
Week 2	<p>How can we see?</p> <ul style="list-style-type: none"> <li>Identify scientific evidence that has been used to support or refute ideas or arguments.</li> <li>Report and present findings from enquiries in oral and written forms such as displays and other presentations.</li> </ul>
Week 3	<p>What is refraction?</p> <ul style="list-style-type: none"> <li>Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.</li> <li>Record data and results of increasing complexity using scientific diagrams.</li> <li>Use test results to make predictions to set up further comparative and fair tests.</li> <li>Report and present findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations.</li> <li>Identify scientific evidence that has been used to support or refute ideas or arguments.</li> </ul>
Week 4	<p>How can we change a ray of light?</p> <ul style="list-style-type: none"> <li>Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.</li> <li>Record data and results of increasing complexity using scientific diagrams.</li> </ul>
Week 5	<p>How do we see colours?</p> <ul style="list-style-type: none"> <li>Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.</li> <li>Record data and results of increasing complexity using scientific diagrams.</li> <li>Report and present findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations.</li> <li>Identify scientific evidence that has been used to support or refute ideas or arguments.</li> </ul>
Week 6	<p>How are shadows made?</p> <ul style="list-style-type: none"> <li>Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.</li> <li>Record data and results of increasing complexity using scientific diagrams.</li> <li>Report and present findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations.</li> <li>Identify scientific evidence that has been used to support or refute ideas or arguments.</li> </ul>

## The Laboratory



**Arthur James Wilson**

## National Curriculum

**Sc5-6/1.1 Sc5-6/1.3**

**Sc5-6/1.4**

**Sc5-6/1.6 Sc5-6/1.7**

**Sc6/4.1a Sc6/4.1b**

**Sc6/4.1c Sc6/4.1d**





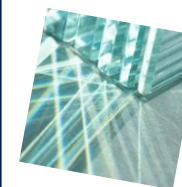
## Knowledge Intentions

Week 1	<ul style="list-style-type: none"><li>Explain who Arthur James Wilson was and his invention on the wing mirror in the context of convex and concave mirrors.</li></ul>
Week 2	<ul style="list-style-type: none"><li>Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye.</li><li>Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes.</li><li>Recognise that light appears to travel in straight lines.</li></ul>
Week 3	<ul style="list-style-type: none"><li>Recognise that light appears to travel in straight lines.</li></ul>
Week 4	<ul style="list-style-type: none"><li>Recognise that light appears to travel in straight lines.</li></ul>
Week 5	<ul style="list-style-type: none"><li>Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye.</li><li>Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes.</li></ul>
Week 6	<ul style="list-style-type: none"><li>Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.</li></ul>

## Assessment

*Draw a series of diagrams with labels to explain how light can be reflected and moved around an object.*

## Reference Units



Light Theory (CP)

What are reflections?  
(SI)



How does light travel? (SI)



## Learning Intentions



# Changing Materials (Alchemy Island)



<b>Week 1</b>	<p>Who was Lord Kelvin?</p> <ul style="list-style-type: none"> <li>Plan different types of scientific enquiries to answer questions.</li> <li>Report and present findings from enquiries in oral and written forms such as displays and other presentations.</li> <li>Identify scientific evidence that has been used to support or refute ideas or arguments.</li> </ul>
<b>Week 2</b>	<p>Can you sort materials based on their properties?</p> <ul style="list-style-type: none"> <li>Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.</li> <li>Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.</li> <li>Report and present findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations.</li> <li>Use test results to make predictions to set up further comparative and fair tests.</li> </ul>
<b>Week 3</b>	<p>What materials are good thermal conductors and insulators?</p> <ul style="list-style-type: none"> <li>Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.</li> <li>Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.</li> <li>Report and present findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations.</li> </ul>
<b>Week 4</b>	<p>What materials dissolve?</p> <ul style="list-style-type: none"> <li>Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.</li> <li>Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.</li> <li>Report and present findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations.</li> </ul>
<b>Week 5</b>	<p>How can we separate mixtures?</p> <ul style="list-style-type: none"> <li>Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.</li> <li>Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.</li> <li>Report and present findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations.</li> </ul>
<b>Week 6</b>	<p>Are the chemical changes reversible?</p> <ul style="list-style-type: none"> <li>Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.</li> <li>Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.</li> <li>Report and present findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations.</li> </ul>

## The Laboratory



**Lord Kelvin**

## National Curriculum

**Sc5-6/1.1 Sc5-6/1.3**

**Sc5-6/1.6 Sc5-6/1.7**

**Sc5/3.1a Sc5/3.1b Sc5/3.1c**

**Sc5/3.1d Sc5/3.1e**

**Sc5/3.1f**



## Knowledge Intentions

Week 1	<ul style="list-style-type: none"><li>Explain who Lord Kelvin was and his discovery of how materials react at absolute zero.</li></ul>
Week 2	<ul style="list-style-type: none"><li>Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets</li></ul>
Week 3	<ul style="list-style-type: none"><li>Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.</li></ul>
Week 4	<ul style="list-style-type: none"><li>Know that some materials will dissolve in liquid to form a solution.</li></ul>
Week 5	<ul style="list-style-type: none"><li>Describe how to recover a substance from a solution.</li><li>Demonstrate that dissolving, mixing and changes of state are reversible changes.</li><li>Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating.</li></ul>
Week 6	<ul style="list-style-type: none"><li>Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.</li></ul>

## Assessment

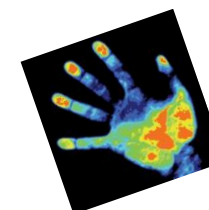
*Investigate a range of materials to see which can be separated.*

## Reference Units



Can we slow cooling down? (SI)

Properties & Changes of Materials (CP)



Which materials conduct heat (SI)



# Evolution & Inheritance

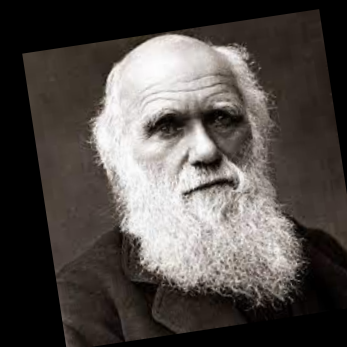
(Darwin)



## Learning Intentions

Week 1	<p>Who was Charles Darwin?</p> <ul style="list-style-type: none"><li>• Plan different types of scientific enquiries to answer questions.</li><li>• Report and present findings from enquiries in oral and written forms such as displays and other presentations.</li><li>• Identify scientific evidence that has been used to support or refute ideas or arguments.</li></ul>
Week 2	<p>What characteristics might you inherit?</p> <ul style="list-style-type: none"><li>• Plan different types of scientific enquiries to answer questions.</li><li>• Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.</li><li>• Report and present findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations.</li></ul>
Week 3	<p>What is variation?</p> <ul style="list-style-type: none"><li>• Report and present findings from enquiries, in oral and written forms such as displays and other presentations.</li><li>• Identify scientific evidence that has been used to support or refute ideas or arguments.</li></ul>
Week 4	<p>How are animals adapted to their environment?</p> <ul style="list-style-type: none"><li>• Plan different types of scientific enquiries to answer questions.</li><li>• Report and present findings from enquiries, in oral and written forms such as displays and other presentations.</li><li>• Identify scientific evidence that has been used to support or refute ideas or arguments.</li></ul>
Week 5	<p>How can animal adaptation lead to evolution?</p> <ul style="list-style-type: none"><li>• Report and present findings from enquiries, in oral and written forms such as displays and other presentations.</li><li>• Identify scientific evidence that has been used to support or refute ideas or arguments.</li></ul>
Week 6	<p>How have human beings evolved?</p> <ul style="list-style-type: none"><li>• Report and present findings from enquiries, in oral and written forms such as displays and other presentations.</li><li>• Identify scientific evidence that has been used to support or refute ideas or arguments.</li></ul>

## The Laboratory



**Charles Darwin**

## National Curriculum

*Sc5-6/1.1 Sc5-6/1.3*

*Sc5-6/1.6 Sc5-6/1.7*

*Sc6/2.3a Sc6/2.3b Sc6/2.3c*



## Knowledge Intentions

Week 1	<ul style="list-style-type: none"><li>• Explain who Charles Darwin was and his work with evolution.</li></ul>
Week 2	<ul style="list-style-type: none"><li>• Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents</li></ul>
Week 3	<ul style="list-style-type: none"><li>• Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.</li><li>• Explain the different between inherited and environmental variation.</li></ul>
Week 4	<ul style="list-style-type: none"><li>• Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.</li></ul>
Week 5	<ul style="list-style-type: none"><li>• Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.</li></ul>
Week 6	<ul style="list-style-type: none"><li>• Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.</li></ul>

## Assessment

*Compare two varieties of the same bird/mammal/amphibian that have adapted to a different habitat and identify the adaptations that have enabled it to survive.*

## Reference Units



*Evolution & Inheritance (CP)*

*How does inheritance work? (SI)*

