



### Subject: Year 8 Biology - Inheritance

#### Overarching Topic: Inheritance

<p>Why is this topic being studied at this time?</p>	<ul style="list-style-type: none"> <li>Why is studying genetics important? In the future, doctors and scientists hope to use our genetic information to diagnose, treat, prevent and cure many illnesses. Genes are instructions, which tell your body how to make all the proteins it needs to survive and grow. By identifying each of these proteins, scientists hope to better understand how your body works, and what is happening when it doesn't work properly. They hope this knowledge will eventually lead to more effective medicines and treatments. Inherited characteristics are the result of genetic information, in the form of sections of DNA called genes, being transferred from parents to offspring during reproduction. Provides an understanding of inheritance of characteristics and how it helps in the survival of the species.</li> </ul>
<p>How does it fit into the wider subject curriculum?</p>	<ul style="list-style-type: none"> <li>This topic builds on the KS3 topics cells, reproduction and variation. This topic can also link to PSHE ideas around the ethics of DNA manipulation and cloning. Leading on to KS4 this topic links to communicable and non-communicable diseases, cell division, reproduction, variation, evolution and genetics.</li> </ul>

	Critical	Core	Pinnacle
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<p><b>The Big Questions</b> (What questions will students be able to answer upon mastery of the topic?)</p>	<p>What are chromosomes and what do they contain? How many chromosomes are in the gametes, and what happens during fertilisation?</p>	<p>What is the relationship between DNA, chromosomes and genes, use a diagram to show how genes are inherited? Explain how a change in the DNA (mutation) may affect an organism and its future offspring? Explain why offspring from the same parents look similar but are not usually identical?</p>	<p>What are the application of genetic modification? Can you suggest arguments for and against genetic modification? Should we eat GM food? Can you suggest benefits from scientists knowing all the genes in the human genome? Can you find out why scientists Watson, Crick and Franklin were so important?</p>
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**The Key Skills/ Techniques**      **The sophistication and application of skills will become more advanced as students' progress through the critical, core and pinnacle knowledge.**

Skill/Technique	How will this skill be developed?
1. Graphing & Drawing	Draw graphs with suitable scales, axes and units. Correct line of best fit. Appreciation of anomalies and processed data. Scientific drawing of cells, concepts and scientific equipment.
2. Variables	Identify independent, dependent and control variables and devise experiments to include these to ensure valid results. Appreciation of uncertainty.
3. Data Analysis	Describe, explain and predict trends. Graph and table data interpretation. Identify links and patterns within and between topics. Statistical analysis of data to include mode/median/mean/range determination. Drawing justified conclusions from presented data.
4. Application	Apply known and taught theory in unfamiliar contexts. Making links to taught theory and extracting key ideas. Communicating using correct scientific terminology.
5. Working Scientifically	Identify hazards and planning to limit risk. Describe how to improve accuracy/precision/repeatability/reproducibility/validity. Evaluate reliability of methods and investigations, taking in to account data analysis.