

# AQA GCSE Biology: Higher tier

Advance Information of Assessed Content 2022

Link to specification:

[GCSE Biology Specification](#)

Link to advance information document:

[AQA Advanced information - GCSE Biology](#)

AQA GCSE Biology:  
Higher Tier  
Paper 1

These specification points will be the **major focus** of this paper.

**Exam date: 17<sup>th</sup> May**

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| Spec point   | Concepts   | Bitesize  | YouTube  |
|--|--|---|--|
| <b>4.1.1</b> Cell Structure  | <ul style="list-style-type: none"> <li>• Difference between prokaryotic and eukaryotic cells</li> <li>• Comparison of plant cells and animal cells</li> <li>• Function of organelles</li> <li>• Cell differentiation and specialised plant cells and animal cells</li> </ul> | <a href="https://www.bbc.co.uk/bitesize/guides/z84jtv4/revision/1">https://www.bbc.co.uk/bitesize/guides/z84jtv4/revision/1</a> | <a href="#">Prokaryotic and eukaryotic cells</a><br><a href="#">Animal cells</a><br><a href="#">Plant cells</a>              |
| <b>Required practical 1:</b><br>use of light microscope to observe cells   | <ul style="list-style-type: none"> <li>• How to prepare slides</li> <li>• How to use the microscope to improve field of view, clarify, change magnification</li> <li>• Microscopy calculations</li> <li>• Unit conversions (mm, micrometres etc)</li> </ul>                  | <a href="https://www.bbc.co.uk/bitesize/guides/z84jtv4/revision/1">https://www.bbc.co.uk/bitesize/guides/z84jtv4/revision/1</a> | <a href="#">Required practical - Use of microscopes</a><br><a href="#">Microscopy</a><br><a href="#">Orders of magnitude</a> |
| <b>4.1.3</b> Transport in cells  | <ul style="list-style-type: none"> <li>• Diffusion</li> <li>• Factors affecting the rate of diffusion</li> <li>• Osmosis</li> <li>• Active transport</li> </ul>  | <a href="https://www.bbc.co.uk/bitesize/guides/zs63tv4/revision/4">https://www.bbc.co.uk/bitesize/guides/zs63tv4/revision/4</a> | <a href="#">Osmosis</a><br><a href="#">Diffusion</a><br><a href="#">Active transport</a>                                     |
| <b>Required practical 3:</b><br>Investigate the effect of a range of concentrations of salt solution on the mass of plant tissue | <ul style="list-style-type: none"> <li>• Calculate rate of water uptake</li> <li>• Identify independent, dependent and control variables</li> <li>• Calculate percentage change in mass</li> <li>• Interpret graph to find salt/ sugar concentration in potato</li> </ul>    | <a href="https://www.bbc.co.uk/bitesize/guides/zs63tv4/revision/5">https://www.bbc.co.uk/bitesize/guides/zs63tv4/revision/5</a> | <a href="#">Required practical link</a>  |

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|--|--|---|---|
| <b>4.2.2</b> Animal tissues, organs and organ systems  | <ul style="list-style-type: none"> <li>• Functions of tissues and organs in the digestive system</li> <li>• Digestive enzymes</li> <li>• Functions of tissues and organs in the circulatory system</li> <li>• Pathway of blood through the heart</li> <li>• Adaptations of components of the blood</li> <li>• Risk factors of non-communicable diseases</li> </ul> | <a href="#">Digestion</a><br><br><a href="#">Animal transport systems</a>   | <a href="https://www.youtube.com/watch?v=4ui4oSHHzA">https://www.youtube.com/watch?v=4ui4oSHHzA</a><br><br><a href="https://www.youtube.com/watch?v=VLK2wANjQm0">https://www.youtube.com/watch?v=VLK2wANjQm0</a><br><br><a href="https://www.youtube.com/watch?v=bpYaKM2hVFY">https://www.youtube.com/watch?v=bpYaKM2hVFY</a> |
| <b>Required practical 4:</b><br>Use qualitative reagents to test for a range of carbohydrates, lipids and proteins | <ul style="list-style-type: none"> <li>• Reagents used to test for sugars, starch, proteins and lipids</li> <li>• Positive result for each food test</li> <li>• Conditions required to carry out food test</li> </ul>  | <a href="#">Food tests</a>  | <a href="#">Food tests – video summary</a><br><br><a href="#">Food tests - detailed methods</a>   |
| <b>4.2.3</b> Plant tissues, organs and systems   | <ul style="list-style-type: none"> <li>• Cross section of a leaf</li> <li>• Functions and adaptations of xylem and phloem</li> <li>• Transpiration</li> <li>• Translocation</li> </ul>   | <a href="#">Plant organisation</a>  | <a href="#">Plant organisation</a><br><br><a href="#">Transpiration</a><br><br><a href="#">Plant cell specialisations</a>   |
| <b>4.3.1</b> Communicable Diseases   | <ul style="list-style-type: none"> <li>• Definition and examples of pathogen</li> <li>• How viruses and bacteria make us ill</li> <li>• Examples of diseases caused by each type of pathogen</li> <li>• Human defence mechanisms</li> <li>• What happens in a vaccine</li> <li>• Comparing antibody production after active and passive immunity</li> </ul>        | <a href="https://www.bbc.co.uk/bitesize/guides/zs4mk2p/revision/1">https://www.bbc.co.uk/bitesize/guides/zs4mk2p/revision/1</a> | <a href="https://www.youtube.com/watch?v=rAJGnS_ktk4">https://www.youtube.com/watch?v=rAJGnS_ktk4</a>   |

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| Spec point                  | Concepts  | Bitesize  | YouTube  |
|-----------------------------|---|---|--|
| 4.3.2 Monoclonal antibodies | <ul style="list-style-type: none"> <li>- Describe what a monoclonal antibody is</li> <li>- Describe how monoclonal antibodies are produced</li> <li>- Describe how monoclonal antibodies can be used</li> </ul> | <a href="https://www.bbc.co.uk/bitesize/guides/zt8t3k7/revision/1">https://www.bbc.co.uk/bitesize/guides/zt8t3k7/revision/1</a> | <a href="#">Monoclonal antibodies</a><br><a href="#">Uses of monoclonal antibodies</a> |

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| Spec point                                     |
|--|
| 4.2.2.3 Blood                                  |
| 4.2.2.7 Cancer                                 |
| 4.3.1.8 Antibiotics and painkillers            |
| 4.3.1.9 Discovery and the development of drugs |
| 4.4.2.2 Response to exercise                   |

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Paper 2

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**Exam date: 15<sup>th</sup> June**

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| Spec point  | Concepts  | Bitesize  | YouTube   |
|---|---|---|---|
| 4.5.2 The human nervous system  | <ul style="list-style-type: none"> <li>• Function of the NS</li> <li>• Control of body temperature</li> <li>• Response to high/ low temperatures</li> </ul>   | <a href="#">Controlling body temperature.</a>   | <a href="https://www.youtube.com/watch?v=WoMPARSQPZw">https://www.youtube.com/watch?v=WoMPARSQPZw</a> |
| 4.5.3 Hormonal control in humans  | <ul style="list-style-type: none"> <li>• The endocrine system</li> <li>• Function of hormones within the endocrine system</li> <li>• Control of blood glucose</li> <li>• Diabetes</li> <li>• Kidneys and the role of ADH</li> <li>• Adrenaline and thyroxine</li> </ul> | <a href="https://www.bbc.co.uk/bitesize/guides/zttqfcw/revision/1">https://www.bbc.co.uk/bitesize/guides/zttqfcw/revision/1</a> | <a href="#">Endocrine system</a>  |
| 4.5.4 Plant hormones  | <ul style="list-style-type: none"> <li>• Site of auxin production</li> <li>• Role of auxin in producing phototropism / gravitropism</li> </ul>  | <a href="https://www.bbc.co.uk/bitesize/guides/zc6cqhv/revision/1">https://www.bbc.co.uk/bitesize/guides/zc6cqhv/revision/1</a> | <a href="https://www.youtube.com/watch?v=_Bf5WKEMB5o">https://www.youtube.com/watch?v=_Bf5WKEMB5o</a> |
| <b>Required practical 8</b> – Investigate the effect of light on the growth of newly germinated seedlings | <ul style="list-style-type: none"> <li>• Identify independent, dependent and control variables</li> <li>• Describe how variables can be controlled</li> </ul>   | <a href="https://www.bbc.co.uk/bitesize/guides/zc6cqhv/revision/3">https://www.bbc.co.uk/bitesize/guides/zc6cqhv/revision/3</a> | <a href="https://www.youtube.com/watch?v=fEo21LbnJJM">https://www.youtube.com/watch?v=fEo21LbnJJM</a> |
| 4.6.1 Reproduction  | <ul style="list-style-type: none"> <li>• Sexual and asexual reproduction</li> <li>• Gametes</li> <li>• Meiosis</li> </ul>   | <a href="https://www.bbc.co.uk/bitesize/guides/z9pkmsg/revision/1">https://www.bbc.co.uk/bitesize/guides/z9pkmsg/revision/1</a> | <a href="https://www.youtube.com/watch?v=Fh9b6a-3DLQ">https://www.youtube.com/watch?v=Fh9b6a-3DLQ</a> |

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| Spec point  | Concepts   | Bitesize  | YouTube   |
|---|--|---|---|
| <b>4.7.2</b> Organisation of an ecosystem   | <ul style="list-style-type: none"> <li>-interpret food chains and webs</li> <li>-identify producers, consumers, predators and prey from food chains and webs</li> <li>-describe the carbon and water cycles</li> </ul>   | <a href="https://www.bbc.co.uk/bitesize/guides/zqskv9q/revision/1">https://www.bbc.co.uk/bitesize/guides/zqskv9q/revision/1</a> | <a href="https://www.youtube.com/watch?v=dRFQ8rZCK6Q">https://www.youtube.com/watch?v=dRFQ8rZCK6Q</a><br><br><a href="https://www.youtube.com/watch?v=urzpnjwazV0">https://www.youtube.com/watch?v=urzpnjwazV0</a>  |
| <b>Required Practical 7:</b><br>Measure the population size of a common species in a habitat. Use sampling techniques to investigate the effect of a factor on the distribution of this species | <ul style="list-style-type: none"> <li>-Using transects and quadrats are used by ecologists to determine the distribution and abundance of species in an ecosystem.</li> <li>-Understand the terms mean, mode and median</li> <li>-Calculate arithmetic means</li> </ul> | <a href="https://www.bbc.co.uk/bitesize/guides/zqskv9q/revision/3">https://www.bbc.co.uk/bitesize/guides/zqskv9q/revision/3</a> | <a href="https://www.youtube.com/watch?v=2MW6nwf80XM">https://www.youtube.com/watch?v=2MW6nwf80XM</a><br><br><a href="https://www.youtube.com/watch?v=RhMOCxXcDrQ">https://www.youtube.com/watch?v=RhMOCxXcDrQ</a><br><br><a href="https://www.youtube.com/watch?v=yLHz2Ea10Mg&amp;t=2s">https://www.youtube.com/watch?v=yLHz2Ea10Mg&amp;t=2s</a> |



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| Spec point   |
|--|
| <b>Topic 5: Homeostasis and response</b>                             |
| 4.5.2.1 Structure and function                                       |
| 4.5.2.2 The brain  |
| 4.5.2.3 The eye  |
| 4.5.2.3 Hormones in human reproduction                               |
| 4.5.3.5 Contraception  |
| 4.5.3.6 The use of hormones to treat infertility                     |
| 4.5.3.7 Negative feedback  |
| 4.5.4.2 Uses of plant hormones                                       |
| <b>Topic 6: Inheritance, variation and evolution</b>                 |
| 4.6.1.3 Advantages/ Disadvantages of sexual and asexual reproduction |
| 4.6.1.8 Sex determination  |
| 4.6.2 Variation and evolution  |
| 4.6.3 The development of understanding of genetics and evolution     |
| 4.6.4 Classification of living organisms                             |

| Spec point                             |
|--|
| <b>Topic 7: Ecology</b>                |
| 4.7.1.4 Adaptations                    |
| 4.7.2.4 Impact of environmental change |
| 4.7.3.1 Biodiversity                   |
| 4.7.3.4 Deforestation                  |
| 4.7.4.1 Trophic levels                 |
| 4.7.4.2 Pyramids of Biomass            |
| 4.7.5.3 Sustainable fisheries          |
| 4.7.5.4 Role of biotechnology          |