Advance Information for Summer 2022

GCSE (9−1)

Biology B (Twenty First Century Science)

J257

We have produced this advance information to help support all teachers and students with revision for the Summer 2022 exams.

Information

- The format/structure of the papers remains unchanged.
- This notice covers all examined components.
- For each paper, the main list shows the major focus of the content of the exam.
- Topics **not** assessed, either directly or synoptically, have also been listed.
- The information is presented in specification order, and **not** in question order.
- Assessment of practical skills, maths skills, and Working Scientifically skills will occur throughout all of the papers.
- You are **not** permitted to take this notice into the exam.
- This document has **5** pages.

Advice

- It is advised that teaching and learning should still cover the entire subject content in the specification, so that students are as well prepared as possible for progression.
- Topics not explicitly given in either list may appear in low tariff questions or via synoptic questions (e.g., questions where students are asked to bring together knowledge, skills and understanding from across the specification).
- Students will still be expected to apply their knowledge to unfamiliar contexts.

If you have any queries about this notice, please call our Customer Support Centre on **01223 553998** or email general.qualifications@ocr.org.uk.

J257/01 Breadth in Biology, Foundation Tier

- Section 1.1 What is the genome and what does it do?
- Section 2.3 How can we prevent the spread of infections?
- Section 2.4 How can we identify the cause of an infection?
- Section 3.2 How do producers get the substances they need?
- Section 3.3 How are organisms in an ecosystem interdependent?
- Section 3.4 How are populations affected by conditions in an ecosystem?
- Section 4.1 What happens during cellular respiration?
- Section 4.3 How do organisms grow and develop?
- Section 4.4 How is plant growth controlled?
- Section 5.4 Why do we need to maintain a constant internal environment?
- Section 6.4 How is biodiversity threatened and how can we protect it?

Required practical skills that **will be assessed**:

- Practical Activity Group 1: Using a light microscope to observe microorganisms
- Practical Activity Group 2: Using qualitative reagents to identify biological molecules
- Practical Activity Group 6: Using a simple potometer
- Practical Activity Group 6: Investigating the effect of environmental factors on the rate of water uptake by a plant

Topics **not** assessed in this paper:

- Section 2.5 How can lifestyle, genes and the environment affect health?
- Section 4.5 Should we use stem cells to treat damage and disease?
- Section 5.5 What role do hormones play in human reproduction?
- Section 6.1 How was the theory of evolution developed?
- Section 6.2 How do sexual and asexual reproduction affect evolution?
- Section 6.3 How does our understanding of biology help us classify the diversity of organisms on Earth?

J257/02 Depth in Biology, Foundation Tier

- Section 1.2 How is genetic information inherited?
- Section 2.4 How can we identify the cause of an infection?
- Section 2.5 How can lifestyle, genes and the environment affect health?
- Section 2.6 How can we treat disease?
- Section 3.3 How are organisms in an ecosystem interdependent?
- Section 4.3 How do organisms grow and develop?
- Section 5.1 How do substances get into, out of and around our bodies?
- Section 5.2 How does the nervous system help us respond to changes?
- Section 5.6 What can happen when organs and control systems stop working?
- Section 6.1 How was the theory of evolution developed?

Required practical skills that **will be assessed**:

- Practical Activity Group 6: Investigating the response of the pupil in different light conditions
- Practical Activity Group 7: Explaining the aseptic techniques used in culturing organisms

Topics **not** assessed in this paper:

- Section 2.2 How do organisms protect themselves against pathogens?
- Section 3.4 How are populations affected by conditions in an ecosystem?
- Section 4.2 How do we know about mitochondria and other cell structures?
- Section 4.4 How is plant growth controlled?
- Section 4.5 Should we use stem cells to treat damage and disease?
- Section 5.3 How do hormones control responses in the human body?
- Section 5.5 What role do hormones play in human reproduction?
- Section 6.2 How do sexual and asexual reproduction affect evolution?
- Section 6.3 How does our understanding of biology help us classify the diversity of organisms on Earth?

J257/03 Breadth in Biology, Higher Tier

- Section 1.1 What is the genome and what does it do?
- Section 1.3 How can and should gene technology be used?
- Section 2.5 How can lifestyle, genes and the environment affect health?
- Section 3.1 What happens during photosynthesis?
- Section 3.2 How do producers get the substances they need?
- Section 3.4 How are populations affected by conditions in an ecosystem?
- Section 4.3 How do organisms grow and develop?
- Section 4.4 How is plant growth controlled?
- Section 5.2 How does the nervous system help us respond to changes?
- Section 5.4 Why do we need to maintain a constant internal environment?
- Section 6.1 How was the theory of evolution developed?

Required practical skills that **will be assessed**:

- Practical Activity Group 1: Using a light microscope to observe the structure of stomata
- Practical Activity Group 6: Using a simple potometer

Topics **not** assessed in this paper:

- Section 2.2 How do organisms protect themselves against pathogens?
- Section 2.4 How can we identify the cause of an infection?
- Section 2.6 How can we treat disease?
- Section 4.2 How do we know about mitochondria and other cell structures?
- Section 5.3 How do hormones control responses in the human body?

J257/04 Depth in Biology, Higher Tier

- Section 1.1 What is the genome and what does it do?
- Section 2.3 How can we prevent the spread of infections?
- Section 2.5 How can lifestyle, genes and the environment affect health?
- Section 2.6 How can we treat disease?
- Section 3.1 What happens during photosynthesis?
- Section 3.2 How do producers get the substances they need?
- Section 4.1 What happens during cellular respiration?
- Section 4.3 How do organisms grow and develop?
- Section 5.2 How does the nervous system help us respond to changes?
- Section 5.6 What can happen when organs and control systems stop working?

Required practical skills that **will be assessed**:

- Practical Activity Group 2: Using qualitative reagents to identify biological molecules
- Practical Activity Group 5: Investigating the requirements and products of photosynthesis
- Practical Activity Group 6: Investigating the response of the pupil in different light conditions

Topics **not** assessed in this paper:

- Section 1.3 How can and should gene technology be used?
- Section 4.4 How is plant growth controlled?
- Section 4.5 Should we use stem cells to treat damage and disease?
- Section 5.3 How do hormones control responses in the human body?
- Section 5.5 What role do hormones play in human reproduction?
- Section 6.2 How do sexual and asexual reproduction affect evolution?

END OF ADVANCE INFORMATION