Advance Information for Summer 2022

GCSE (9−1)

Physics B (Twenty First Century Science)

J259

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, **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.

J259/01 Breadth in Physics, Foundation Tier

- Section 2.1 How much energy do we use?
- Section 3.2 What determines the current in an electric circuit?
- Section 3.4 What determines the rate of energy transfer in a circuit?
- Section 3.5 What are magnetic fields?
- Section 4.2 How can we describe motion?
- Section 4.3 What is the connection between forces and motion?
- Section 5.1 What is radioactivity?
- Section 5.2 How can radioactive materials be used safely?

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

- Practical Activity Group 6: Investigating the I-V characteristics of a thermistor
- Practical Activity Group 7: Investigating the resistance of a wire
- Practical Activity Group 8: Investigating the reflection of light

Topics **not assessed** in this paper:

- Section 1.2 What is climate change and what is the evidence for it?
- Section 2.2 How can electricity be generated?
- Section 3.1 What is electric charge?
- Section 3.6 How do electric motors work?
- Section 3.7 What is the process inside an electric generator?
- Section 5.3 How can radioactive materials be used to provide energy?
- Section 6.2 How does the particle model explain the effects of heating?
- Section 6.3 How does the particle model relate to material under stress?
- Section 6.5 How can scientific models help us understand the Big Bang?

J259/02 Depth in Physics, Foundation Tier

- Section 1.4 What happens when light and sound meet different materials?
- Section 3.2 What determines the current in an electric circuit?
- Section 3.5 What are magnetic fields?
- Section 4.3 What is the connection between forces and motion?
- Section 4.4 How can we describe motion in terms of energy transfers?
- Section 5.1 What is radioactivity?
- Section 5.2 How can radioactive materials be used safely?
- Section 6.1 How does energy transform matter?
- Section 6.4 How does the particle model relate to pressure in fluids?

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

- Practical Activity Group 7: Investigating the resistance of a wire
- Practical Activity Group 8: Investigating the refraction of light

Topics **not assessed** in this paper:

- Section 1.2 What is climate change and what is the evidence for it?
- Section 3.1 What is electric charge?
- Section 3.4 What determines the rate of energy transfer in a circuit?
- Section 3.6 How do electric motors work?
- Section 3.7 What is the process inside an electric generator?
- Section 4.2 How can we describe motion?
- Section 6.3 How does the particle model relate to material under stress?

J259/03 Breadth in Physics, Higher Tier

- Section 1.1 What are the risks and benefits of using radiations?
- Section 1.4 What happens when light and sound meet different materials?
- Section 2.1 How much energy do we use?
- Section 3.2 What determines the current in an electric circuit?
- Section 3.6 How do electric motors work?
- Section 4.2 How can we describe motion?
- Section 4.3 What is the connection between forces and motion?
- Section 6.4 How does the particle model relate to pressure in fluids?
- Section 6.5 How can scientific models help us understand the Big Bang?

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

- Practical Activity Group 6: Investigating the I-V characteristics of a thermistor
- Practical Activity Group 8: Investigating the reflection of light

Topics **not assessed** in this paper:

- Section 1.2 What is climate change and what is the evidence for it?
- Section 2.2 How can electricity be generated?
- Section 3.7 What is the process inside an electric generator?
- Section 5.3 How can radioactive materials be used to provide energy?
- Section 6.3 How does the particle model relate to material under stress?

J259/04 Depth in Physics, Higher Tier

Up to approximately 80% of the total paper content **will be assessed** from:

- Section 1.4 What happens when light and sound meet different materials?
- Section 3.2 What determines the current in an electric circuit?
- Section 3.4 What determines the rate of energy transfer in a circuit?
- Section 3.7 What is the process inside an electric generator?
- Section 4.4 How can we describe motion in terms of energy transfers?
- Section 5.2 How can radioactive materials be used safely?
- Section 6.4 How does the particle model relate to pressure in fluids?
- Section 6.5 How can scientific models help us understand the Big Bang?

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

- Practical Activity Group 6: Investigating the I-V characteristics of a diode

Topics **not assessed** in this paper:

- Section 1.1 What are the risks and benefits of using radiations?
- Section 1.2 What is climate change and what is the evidence for it?
- Section 2.2 How can electricity be generated?
- Section 3.1 What is electric charge?
- Section 3.6 How do electric motors work?
- Section 4.2 How can we describe motion?
- Section 5.3 How can radioactive materials be used to provide energy?
- Section 6.1 How does energy transform matter?
- Section 6.3 How does the particle model relate to material under stress?

END OF ADVANCE INFORMATION