



Oxford Cambridge and RSA

**OCR**

**GCSE 21<sup>st</sup> Century Science Suite - Chemistry B  
(9-1) - J258**

## **Specification Summary**

### **Chapter C1: Air and water**

- C1.1 How has the Earth's atmosphere changed over time, and why?**
- C1.2 Why are there temperatures changes in chemical reactions?**
- C1.3 What is the evidence for climate change, why is it occurring?**
- C1.4 How can scientists help improve the supply of potable water?**

### **Chapter C2: Chemical patterns**

- C2.1 How have our ideas about atoms developed over time?**
- C2.2 What does the Periodic Table tell us about the elements?**
- C2.3 How do metals and non-metals combine to form compounds?**
- C2.4 How are equations used to represent chemical reactions?**
- C2.5 What are the properties of transition metals? (separate science only)**

### **Chapter C3: Chemicals of the natural environment**

- C3.1 How are the atoms held together in a metal?**
- C3.2 How are metals with different reactivities extracted?**
- C3.3 What are electrolytes and what happens during electrolysis?**
- C3.4 Why is crude oil important as a source of new materials?**

### **Chapter C4: Material choices**

- C4.1 How is data used to choose a material for a particular use?
- C4.2 What are the different types of polymers? (separate science only)
- C4.3 How do bonding and structure affect properties of materials?
- C4.4 Why are nanoparticles so useful?
- C4.5 What happens to products at the end of their useful life?

### **Chapter C5: Chemical analysis**

- C5.1 How are chemicals separated and tested for purity?
- C5.2 How do chemists find the composition of unknown samples? (separate science only)
- C5.3 How are the amounts of substances in reactions calculated?
- C5.4 How are the amounts of chemicals in solution measured?

### **Chapter C6: Making useful chemicals**

- C6.1 What useful products can be made from acids?
- C6.2 How do chemists control the rate of reactions?
- C6.3 What factors affect the yield of chemical reactions?
- C6.4 How are chemicals made on an industrial scale? (separate science only)

### **Chapter C7: Ideas about Science**

- 1aS1 What needs to be considered when investigating a phenomenon scientifically?
- 1aS2 What conclusions can we make from data?
- 1aS3 How are scientific explanations developed?
- 1aS4 How do science and technology impact society?

### **Chapter C8: Practical Skills**



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**GCSE 21<sup>st</sup> Century Science Suite - Physics B  
(9-1) - J259**

***Specification Summary***

### **Chapter P1: Radiation and waves**

**P1.1 What are the risks and benefits of using radiations?**

**P1.2 What is climate change and what is the evidence for it?**

**P1.3 How do waves behave?**

**P1.4 What happens when light and sound meet different materials?  
(separate science only)**

### **Chapter P2: Sustainable energy**

**P2.1 How much energy do we use?**

**P2.2 How can electricity be generated?**

### **Chapter P3: Electric circuits**

**P3.1 What is electric charge? (separate science only)**

**P3.2 What determines the current in an electric circuit?**

**P3.3 How do series and parallel circuits work?**

**P3.4 What determines the rate of energy transfer in a circuit?**

**P3.5 What are magnetic fields?**

**P3.6 How do electric motors work?**

**P3.7 What is the process inside an electric generator? (separate science only)**

### **Chapter P4: Explaining motion**

**P4.1 What are forces?**

**P4.2 How can we describe motion?**

**P4.3 What is the connection between forces and motion?**

**P4.4 How can we describe motion in terms of energy transfers?**

### **Chapter P5: Radioactive materials**

**P5.1 What is radioactivity?**

**P5.2 How can radioactive materials be used safely?**

**P5.3 How can radioactive materials be used to provide energy? (separate science only)**

### **Chapter P6: Matter – models and explanations**

**P6.1 How does energy transform matter?**

**P6.2 How does the particle model explain the effects of heating?**

**P6.3 How does the particle model relate to material under stress?**

**P6.4 How does the particle model relate to pressure in fluids? (separate science only)**

**P6.5 How can scientific models help us understand the Big Bang? (separate science only)**

### **Chapter P7: Ideas about Science**

1aS1 What needs to be considered when investigating phenomenon scientifically?

1aS4 How do science and technology impact society?

1aS2 What conclusions can we make from data?

1aS3 How are scientific explanations developed?

## **Chapter P8: Practical Skills**



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**GCSE 21<sup>st</sup> Century Science Suite – Biology B  
(9-1) - J259**

**Specification Summary**

### **Chapter B1: You and your genes**

B1.1 What is the genome and what does it do?

B1.2 How is genetic information inherited?

B1.3 How can and should gene technology be used?

### **Chapter B2: Keeping healthy**

B2.1 What are the causes of disease?

**B2.2 How do organisms protect themselves against pathogens?**

**B2.3 How can we prevent the spread of infections?**

**B2.4 How can we identify the cause of an infection? (separate science only)**

**B2.5 How can lifestyle, genes and the environment affect my health?**

**B2.6 How can we treat disease?**

## **Chapter B3: Living together – food and ecosystems**

**B3.1 What happens during photosynthesis?**

**B3.2 How do producers get the substances they need?**

**B3.3 How are organisms in an ecosystem interdependent?**

**B3.4 How are populations affected by conditions in an ecosystem?**

## **Chapter B4: Using food and controlling growth**

**B4.1 What happens during cellular respiration?**

**B4.2 How do we know about mitochondria and other cell structures?**

**B4.3 How do organisms grow and develop?**

**B4.4 How is plant growth controlled? (separate science only)**

**B4.5 Should we use stem cells to treat damage and disease?**

## **Chapter B5: *The human body – staying alive***

**B5.1 How do substances get into, out of and around our bodies?**

**B5.2 How does the nervous system help us respond to changes?**

**B5.3 How do hormones control responses in the human body?**

**B5.4 Why do we need to maintain a constant internal environment?**

**B5.5 What role do hormones play in human reproduction?**

**B5.6 What can happen when organs and control systems stop working?**

## **Chapter B6: *Life on Earth – past, present and future***

**B6.1 How was the theory of evolution developed?**

**B6.2 How do sexual and asexual reproduction affect evolution?  
(separate science only)**

**B6.3 How does our understanding of biology help us classify the diversity of organisms on Earth?**

**B6.4 How is biodiversity threatened and how can we protect it?**

## **Chapter B7: *Ideas about Science***

**1aS1 What needs to be considered when investigating a phenomenon scientifically?**

**1aS2 What conclusions can we make from data?**

**1aS3 How are scientific explanations developed?**

**1aS4 How do science and technology impact society? Chapter**

## **B8: Practical Skills**