

# Contents

## 1 Properties and States of Matter

15

### Themes

States of matter, properties of matter, physical and chemical properties, surface tension, energy types

### Reading skills

Skimming and scanning  
Identifying main points

### Vocabulary

Collocations  
Adjective suffixes

### Writing skills

Paragraph structure;  
Identifying topic sentences

### Note-taking skills

Taking linear notes from a lecture on "States of matter"

### Introducing formality and academic register

Introducing formality by comparing and contrasting two webinars on "States of matter"

## 2 Chemical elements, periodic table and atomic structure

35

### Themes

Periodic table, element symbols and names, halogens, noble gases, groups and families, properties of elements, fluorine, electronegativity, electron affinity and ionisation potential, metals, metalloids, non-metals

### Academic style

Formality; one word verbs

### Writing

Cohesion and Coherence

### Discussion skills

Asking for clarification  
Asking for opinions

### Tenses

Past simple  
Present perfect simple

### 3 Chemical and Physical interactions and cycles 57

#### Themes

Earth and atmosphere, hydrological cycle, rock cycle, water phases, chemical reactions, nitrogen cycle

#### Note-taking skills

Lecture cues

#### Adverbs

Of degree, opinion, frequency, manner

#### Formality

Noun phrases

Confusing words

#### References

Why and how we use them

### 4 Laboratory Safety Issues 81

#### Themes

Laboratory safety issues and regulations, laboratory tools and equipment

#### Introduction to Paraphrasing

Cause and effect of lab accidents

#### Expressing purpose

Note-taking task

#### Following instructions

Note-taking task

#### Adverbial phrases

#### Adjectives

Negative prefixes

#### Tenses

Past simple, past continuous

### 5 Chemical Reactions, Bonding and Intermolecular Forces (IF) 101

#### Themes

Covalent bonds, Ionic bonds, electronegativity, intermolecular forces, London forces, dipole-dipole, Van der Waals

#### Conditionals

### **Note-taking skills**

Paraphrasing notes

### **Exemplifying**

### **Chemical reactions**

### **Chemical formulas**

### **Note-taking skills**

Intermolecular forces

Identifying the moves in a lecture

## **6 Separation Techniques**

**119**

### **Themes**

Separation techniques; distillation, evaporation, crystallisation, thin layer or paper chromatography, separating funnel, filtration

### **Academic skills**

Describing processes

### **Vocabulary**

Synonyms

Word-formation and use in context

### **Grammar**

Inversions

If clauses

### **Note-taking**

Thin Layer Chromatography

### **Peer-reviewing other student's work**

### **Independent research skills**

Summarising, synthesising and paraphrasing two sources with the same content

## **7 Scientific Method**

**141**

### **Themes**

Scientific method, experimental science, primary research, bias, replication, reproducibility, peer reviewed journals

### **Skills**

Presentation structure and opening phrases

Writing/designing slides

### **Vocabulary**

Meaning variations between technical, academic and general words / word derivatives

### **Grammar**

Articles (A(n), the, or -)

### **Independent Research Projects**

Creating visuals following guidelines

Comparing and contrasting experimental and empirical data

### **Scientific Writing; noticing genre differences**

Noticing writing style for different audiences

Identifying rhetorical moves in scientific introductions

## **8 From Electricity to Electrochemistry**

**169**

### **Themes**

Electricity, electrochemistry, electroplating, electrolysis, redox reactions, galvanic cells

### **Note-taking style**

Making mind-maps

### **Modal verbs**

Avoiding informality

Introduction to cautious writing

### **Avoiding wordiness**

### **Vocabulary**

Synonyms

### **Compound words in science**

### **Noticing genre differences within the same discipline**

Focusing on academic writing style

### **Peer-reviewing a student's sample laboratory report**

### **Note-taking and Writing**

Revising a lab report following teacher feedback

### **Note-taking task**

Electrolysis experiment

Structure of a lab report

## **9 Acids and Bases**

**195**

### **Themes**

acids, bases, hydronium ion concentration, hydroxy ions concentration, conjugation, dissociation, amphoteric solvent

### **Definitions**

## **Grammar**

Relative clauses

## **Chemistry nomenclature**

Reading a Chemical Formula

Chemical Affixes and Prefixes

## **Academic writing**

Reporting graphs and charts

## **10 Water Treatment**

**217**

### **Themes**

Water treatment methods, effluents, distillation, pre and post chlorination, reverse osmosis, activated carbon

### **Definitions**

### **Evaluative language**

Favouring and unfavouring others' views

### **Latin and Greek Plurals**

### **Passive voice**

### **Note-taking skills**

Waste water treatment process

## **11 Polymers**

**241**

### **Themes**

Polymers, synthetic, natural, thermosetting, thermoplastic, linear, branched, cross-linked, fibers, plastics and elastomers

### **Gerund and infinitive**

### **Avoiding wordiness**

### **Note-taking task**

## **Glossary**

**257**

## **Evaluation Checklist**

**289**

## **Transcripts**

**295**

## **Bibliography**

**311**