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Unit 1 Preview

Unit Preview

Example

How to use

This preview is your **map**. Use the TOC to jump into any Topic page. Fill each Topic page later — the links already exist.

Topics in this Unit

- **1.1** Moles and Molar Mass
- **1.2** Mass Spectra of Elements
- **1.3** Elemental Composition of Pure Substances
- **1.4** Composition of Mixtures
- **1.5** Atomic Structure and Electron Configuration
- **1.6** Photoelectron Spectroscopy
- **1.7** Periodic Trends
- **1.8** Valence Electrons and Ionic Compounds

1.1 Moles and Molar Mass

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

Drop an image later:

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Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

1.2 Mass Spectra of Elements

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

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Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

1.3 Elemental Composition of Pur

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

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Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

1.4 Composition of Mixtures

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

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Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

1.5 Atomic Structure and Electron

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

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Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

1.6 Photoelectron Spectroscopy

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

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Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

1.7 Periodic Trends

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

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Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

1.8 Valence Electrons and Ionic C

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

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Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

Unit 2 Preview

Unit Preview

Example

How to use

This preview is your **map**. Use the TOC to jump into any Topic page. Fill each Topic page later — the links already exist.

Topics in this Unit

- 2.1 Types of Chemical Bonds
- 2.2 Intramolecular Force and Potential Energy
- 2.3 Structure of Ionic Solids
- 2.4 Structure of Metals and Alloys
- 2.5 Lewis Diagrams
- 2.6 Resonance and Formal Charge
- 2.7 VSEPR and Hybridization

2.1 Types of Chemical Bonds

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

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Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

2.2 Intramolecular Force and Pot...

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

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Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

2.3 Structure of Ionic Solids

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

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Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

2.4 Structure of Metals and Alloys

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

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Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

2.5 Lewis Diagrams

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

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Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

2.6 Resonance and Formal Charge

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

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Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

2.7 VSEPR and Hybridization

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

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Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

Unit 3 Preview

Unit Preview

Example

How to use

This preview is your **map**. Use the TOC to jump into any Topic page. Fill each Topic page later — the links already exist.

Topics in this Unit

- 3.1 Intermolecular and Interparticle Forces
- 3.2 Properties of Solids
- 3.3 Solids, Liquids, and Gases
- 3.4 Ideal Gas Law
- 3.5 Kinetic Molecular Theory
- 3.6 Deviations from Ideal Gas Law
- 3.7 Solutions and Mixtures
- 3.8 Representation of Solutions
- 3.9 Separation of Solutions and Mixtures

3.1 Intermolecular and Interparticle

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

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Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

3.2 Properties of Solids

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

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Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

3.3 Solids, Liquids, and Gases

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

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Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

3.4 Ideal Gas Law

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

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```

Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

3.5 Kinetic Molecular Theory

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

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```

Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

3.6 Deviations from Ideal Gas Law

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

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```

Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

3.7 Solutions and Mixtures

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

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```

Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

3.8 Representation of Solutions

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

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```

Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

3.9 Separation of Solutions and M

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

Drop an image later:

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Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

Unit 4 Preview

Unit Preview

Example

How to use

This preview is your **map**. Use the TOC to jump into any Topic page. Fill each Topic page later — the links already exist.

Topics in this Unit

- 4.1 Introduction for Reactions
- 4.2 Net Ionic Equations
- 4.3 Representations of Reactions
- 4.4 Physical and Chemical Changes
- 4.5 Stoichiometry
- 4.6 Introduction to Titration
- 4.7 Types of Chemical Reactions
- 4.8 Introduction to Oxidation-Reduction (Redox)
- 4.9 Oxidation-Reduction (Redox) Reactions

4.1 Introduction for Reactions

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

Drop an image later:

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```

Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

4.2 Net Ionic Equations

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

Drop an image later:

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```

Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

4.3 Representations of Reactions

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

Drop an image later:

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```

Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

4.4 Physical and Chemical Change

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

Drop an image later:

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```

Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

4.5 Stoichiometry

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

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Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

4.6 Introduction to Titration

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

Drop an image later:

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```

Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

4.7 Types of Chemical Reactions

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

Drop an image later:

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```

Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

4.8 Introduction to Oxidation-Reduction

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

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Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

4.9 Oxidation-Reduction (Redox)

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

Drop an image later:

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Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

Unit 5 Preview

Unit Preview

Example

How to use

This preview is your **map**. Use the TOC to jump into any Topic page. Fill each Topic page later — the links already exist.

Topics in this Unit

- 5.1 Reaction Rates
- 5.2 Introduction to Rate Law
- 5.3 Concentration Changes Over Time
- 5.4 Elementary Reactions
- 5.5 Collision Model
- 5.6 Reaction Energy Profile
- 5.7 Introduction to Reaction Mechanisms
- 5.8 Reaction Mechanism and Rate Law
- 5.9 Pre-Equilibrium Approximation
- 5.10 Multistep Reaction Energy Profile
- 5.11 Catalysis

5.1 Reaction Rates

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

Drop an image later:

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Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

5.2 Introduction to Rate Law

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

Drop an image later:

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\includegraphics[width=\linewidth]{diagrams/U5/5.2.png}
```

Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

5.3 Concentration Changes Over Time

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

Drop an image later:

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```

Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

5.4 Elementary Reactions

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

Drop an image later:

```
\includegraphics[width=\linewidth]{diagrams/U5/5.4.png}
```

Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

5.5 Collision Model

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

Drop an image later:

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```

Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

5.6 Reaction Energy Profile

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

Drop an image later:

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Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

5.7 Introduction to Reaction Mech

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

Drop an image later:

```
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```

Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

5.8 Reaction Mechanism and Rate

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

Drop an image later:

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Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

5.9 Pre-Equilibrium Approximation

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

Drop an image later:

```
\includegraphics[width=\linewidth]{diagrams/U5/5.9.png}
```

Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

5.10 Multistep Reaction Energy P

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

Drop an image later:

```
\includegraphics[width=\linewidth]{diagrams/U5/5.10.png}
```

Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

5.11 Catalysis

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

Drop an image later:

```
\includegraphics[width=\linewidth]{diagrams/U5/5.11.png}
```

Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

Unit 6 Preview

Unit Preview

Example

How to use

This preview is your **map**. Use the TOC to jump into any Topic page. Fill each Topic page later — the links already exist.

Topics in this Unit

- 6.1 Endothermic and Exothermic Processes
- 6.2 Energy Diagram
- 6.3 Heat Transfer and Thermal Equilibrium
- 6.4 Heating Curve
- 6.5 Calorimetry
- 6.6 Introduction to Enthalpy of Reaction
- 6.7 Hess's Law
- 6.8 Standard Enthalpies of Formation
- 6.9 Bond Enthalpies

6.1 Endothermic and Exothermic

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

Drop an image later:

```
\includegraphics[width=\linewidth]{diagrams/U6/6.1.png}
```

Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

6.2 Energy Diagram

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

Drop an image later:

```
\includegraphics[width=\linewidth]{diagrams/U6/6.2.png}
```

Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

6.3 Heat Transfer and Thermal Energy

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

Drop an image later:

```
\includegraphics[width=\linewidth]{diagrams/U6/6.3.png}
```

Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

6.4 Heating Curve

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

Drop an image later:

```
\includegraphics[width=\linewidth]{diagrams/U6/6.4.png}
```

Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

6.5 Calorimetry

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

Drop an image later:

```
\includegraphics[width=\linewidth]{diagrams/U6/6.5.png}
```

Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

6.6 Introduction to Enthalpy of R

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

Drop an image later:

```
\includegraphics[width=\linewidth]{diagrams/U6/6.6.png}
```

Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

6.7 Hess's Law

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

Drop an image later:

```
\includegraphics[width=\linewidth]{diagrams/U6/6.7.png}
```

Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

6.8 Standard Enthalpies of Formation

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

Drop an image later:

```
\includegraphics[width=\linewidth]{diagrams/U6/6.8.png}
```

Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

6.9 Bond Enthalpies

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

Drop an image later:

```
\includegraphics[width=\linewidth]{diagrams/U6/6.9.png}
```

Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

Unit 7 Preview

Unit Preview

Example

How to use

This preview is your **map**. Use the TOC to jump into any Topic page. Fill each Topic page later — the links already exist.

Topics in this Unit

- 7.1 Introduction to Equilibrium
- 7.2 Direction of Reversible Reactions
- 7.3 Reaction Quotient and Equilibrium Constant
- 7.4 Calculating the Equilibrium Constant
- 7.5 Magnitude of the Equilibrium Constant
- 7.6 Properties of the Equilibrium Constant
- 7.7 Calculating Equilibrium Concentrations
- 7.8 Introduction to Le Châtelier's Principle
- 7.9 Le Châtelier's Principle
- 7.10 Introduction to Solubility Equilibria
- 7.11 Common Ion Effect
- 7.12 pH and Solubility

7.1 Introduction to Equilibrium

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

Drop an image later:

```
\includegraphics[width=\linewidth]{diagrams/U7/7.1.png}
```

Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

7.2 Direction of Reversible Reaction

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

Drop an image later:

```
\includegraphics[width=\linewidth]{diagrams/U7/7.2.png}
```

Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

7.3 Reaction Quotient and Equilibrium

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

Drop an image later:

```
\includegraphics[width=\linewidth]{diagrams/U7/7.3.png}
```

Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

7.4 Calculating the Equilibrium C

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

Drop an image later:

```
\includegraphics[width=\linewidth]{diagrams/U7/7.4.png}
```

Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

7.5 Magnitude of the Equilibrium

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

Drop an image later:

```
\includegraphics[width=\linewidth]{diagrams/U7/7.5.png}
```

Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

7.6 Properties of the Equilibrium

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

Drop an image later:

```
\includegraphics[width=\linewidth]{diagrams/U7/7.6.png}
```

Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

7.7 Calculating Equilibrium Concentration

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

Drop an image later:

```
\includegraphics[width=\linewidth]{diagrams/U7/7.7.png}
```

Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

7.8 Introduction to Le Châtelier's

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

Drop an image later:

```
\includegraphics[width=\linewidth]{diagrams/U7/7.8.png}
```

Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

7.9 Le Châtelier's Principle

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

Drop an image later:

```
\includegraphics[width=\linewidth]{diagrams/U7/7.9.png}
```

Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

7.10 Introduction to Solubility Eq

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

Drop an image later:

```
\includegraphics[width=\linewidth]{diagrams/U7/7.10.png}
```

Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

7.11 Common Ion Effect

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

Drop an image later:

```
\includegraphics[width=\linewidth]{diagrams/U7/7.11.png}
```

Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

7.12 pH and Solubility

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

Drop an image later:

```
\includegraphics[width=\linewidth]{diagrams/U7/7.12.png}
```

Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

Unit 8 Preview

Unit Preview

Example

How to use

This preview is your **map**. Use the TOC to jump into any Topic page. Fill each Topic page later — the links already exist.

Topics in this Unit

- 8.1 Introduction to Acids and Bases
- 8.2 pH and pOH of Strong Acids and Bases
- 8.3 Weak Acid and Base Equilibria
- 8.4 Acid-Base Reactions and Buffers
- 8.5 Acid-Base Titrations
- 8.6 Molecular Structure of Acids and Bases
- 8.7 pH and pKa
- 8.8 Properties of Buffers
- 8.9 Henderson-Hasselbalch Equation
- 8.10 Buffer Capacity
- 8.11 Titration Curves

8.1 Introduction to Acids and Bases

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

Drop an image later:

```
\includegraphics[width=\linewidth]{diagrams/U8/8.1.png}
```

Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

8.2 pH and pOH of Strong Acids and Bases

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

Drop an image later:

```
\includegraphics[width=\linewidth]{diagrams/U8/8.2.png}
```

Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

8.3 Weak Acid and Base Equilibria

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

Drop an image later:

```
\includegraphics[width=\linewidth]{diagrams/U8/8.3.png}
```

Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

8.4 Acid-Base Reactions and Buffers

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

Drop an image later:

```
\includegraphics[width=\linewidth]{diagrams/U8/8.4.png}
```

Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

8.5 Acid-Base Titrations

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

Drop an image later:

```
\includegraphics[width=\linewidth]{diagrams/U8/8.5.png}
```

Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

8.6 Molecular Structure of Acids and Bases

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

Drop an image later:

```
\includegraphics[width=\linewidth]{diagrams/U8/8.6.png}
```

Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

8.7 pH and pKa

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

Drop an image later:

```
\includegraphics[width=\linewidth]{diagrams/U8/8.7.png}
```

Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

8.8 Properties of Buffers

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

Drop an image later:

```
\includegraphics[width=\linewidth]{diagrams/U8/8.8.png}
```

Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

8.9 Henderson-Hasselbalch Equation

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

Drop an image later:

```
\includegraphics[width=\linewidth]{diagrams/U8/8.9.png}
```

Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

8.10 Buffer Capacity

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

Drop an image later:

```
\includegraphics[width=\linewidth]{diagrams/U8/8.10.png}
```

Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

8.11 Titration Curves

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

Drop an image later:

```
\includegraphics[width=\linewidth]{diagrams/U8/8.11.png}
```

Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

Unit 9 Preview

Unit Preview

Example

How to use

This preview is your **map**. Use the TOC to jump into any Topic page. Fill each Topic page later — the links already exist.

Topics in this Unit

- 9.1 Introduction to Entropy
- 9.2 Absolute Entropy and Entropy Change
- 9.3 Gibbs Free Energy and Thermodynamic Favorability
- 9.4 Thermodynamic and Kinetic Control
- 9.5 Free Energy and Equilibrium
- 9.6 Free Energy of Dissolution
- 9.7 Coupled Reactions
- 9.8 Galvanic (Voltaic) and Electrolytic Cells
- 9.9 Cell Potential and Free Energy
- 9.10 Cell Potential Under Nonstandard Conditions
- 9.11 Electrolysis and Faraday's Law

9.1 Introduction to Entropy

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

Drop an image later:

```
\includegraphics[width=\linewidth]{diagrams/U9/9.1.png}
```

Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

9.2 Absolute Entropy and Entropy

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

Drop an image later:

```
\includegraphics[width=\linewidth]{diagrams/U9/9.2.png}
```

Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

9.3 Gibbs Free Energy and Therm

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

Drop an image later:

```
\includegraphics[width=\linewidth]{diagrams/U9/9.3.png}
```

Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

9.4 Thermodynamic and Kinetic C

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

Drop an image later:

```
\includegraphics[width=\linewidth]{diagrams/U9/9.4.png}
```

Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

9.5 Free Energy and Equilibrium

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

Drop an image later:

```
\includegraphics[width=\linewidth]{diagrams/U9/9.5.png}
```

Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

9.6 Free Energy of Dissolution

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

Drop an image later:

```
\includegraphics[width=\linewidth]{diagrams/U9/9.6.png}
```

Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

9.7 Coupled Reactions

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

Drop an image later:

```
\includegraphics[width=\linewidth]{diagrams/U9/9.7.png}
```

Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

9.8 Galvanic (Voltaic) and Electrolytic Cells

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

Drop an image later:

```
\includegraphics[width=\linewidth]{diagrams/U9/9.8.png}
```

Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

9.9 Cell Potential and Free Energy

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

Drop an image later:

```
\includegraphics[width=\linewidth]{diagrams/U9/9.9.png}
```

Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

9.10 Cell Potential Under Nonstan

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

Drop an image later:

```
\includegraphics[width=\linewidth]{diagrams/U9/9.10.png}
```

Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs

9.11 Electrolysis and Faraday's Law

Main Notes

Definition

Key Idea

Write the core definition/idea here.

Equation

Must-Know Relationship

(equation / proportionality / unit analysis)

Example

Micro Example

(one short worked example or quick check)

Diagram / Figure

Diagram Placeholder

Drop an image later:

```
\includegraphics[width=\linewidth]{diagrams/U9/9.11.png}
```

Extra Notes

- ★ traps
- ★ quick rules
- ★ units/signs