



Switched-On™
ONLINE

2009-2010 Curriculum Catalog

Integrated Physics and Chemistry

Welcome to AOP!

We are excited that you are including AOP as part of your program of instruction, and we look forward to serving you and your students.

AOP comes complete with a full, multimedia-enriched curriculum for grades 3—12 in five core subjects and electives.

This course catalog covers the following course:

- Algebra I

Thanks for choosing us!

Glynlyon Curriculum Development Team

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Monday – Friday 7:00 am to 7:00 pm (CT)

Integrated Physics and Chemistry

Unit 1

Assignment Title
1. What is Science?
2. The Scientific Method
3. Experiment: Making Observations
4. Quiz 1: Nature of Science
5. The Metric System
6. Scales
7. Volume
8. Experiment: Determining Volume
9. Mass and Density
10. Experiment: Determining Density
11. Experiment: Density Column
12. Quiz 2: Measuring Matter
13. Special Project
14. Review
15. Test
16. Alternate Test

Unit 2

Assignment Title
1. The History of Atomic Theory
2. Experiment: Atomic Structure
3. The Atomic Model
4. Quiz 1: Atomic Structure
5. Elements and Their Properties
6. The Periodic Table
7. Trends on the Periodic Table
8. Experiment: Identifying an Unknown
9. Compounds
10. Quiz 2: Pure Substances
11. Mixtures
12. Separating Mixtures
13. Experiment: Separating a Mixture
14. Quiz 3: Mixtures
15. Special Project
16. Review
17. Test
18. Alternate Test

Unit 3

Assignment Title
1. States of Matter
2. Changes of State
3. Experiment: Graphing Changes of State
4. Solutions—The Dissolving Process
5. Acids and Bases
6. Experiment: The Cabbage Indicator
7. Quiz 1: Physical Changes
8. Chemical Bonding
9. Atomic Structure and Bonding
10. Experiment: Chemical Changes
11. Chemical Reactions and Conservation of Mass
12. Types of Chemical Reactions
13. Quiz 2: Chemical Changes
14. Radioactivity
15. Nuclear Reactions
16. Experiment: Half-Life
17. Nuclear Energy
18. Quiz 3: Nuclear Changes
19. Special Project
20. Review
21. Test
22. Alternate Test

Unit 4

Assignment Title
1. Properties of Solids
2. Experiment: Comparing Hardness and Density of Solids
3. Elasticity and Strength in Solids
4. Electrical Conductivity in Solids
5. Quiz 1: Solids
6. Characteristics of Liquids
7. Experiment: Viscosity
8. Pressure in Liquids
9. Archimedes' Principle and Flotation
10. Liquids and Capillary Action
11. Quiz 2: Liquids
12. General Characteristics of Gases
13. Pressure and Volume in Gases
14. Experiment: Pressure in Gases
15. Temperature and Volume Changes in Gases
16. Quiz 3: Gases
17. Special Project
18. Review
19. Test
20. Alternate Test

Integrated Physics and Chemistry (cont.)

Unit 5

Assignment Title
1. Distance and Displacement
2. Speed and Velocity
3. Acceleration
4. Motion Graphs
5. Experiment: Motion Graphs
6. Momentum
7. Quiz 1: Motion
8. Forces
9. Friction
10. Newton's Laws
11. Experiment: Propulsion
12. Centripetal Force
13. Quiz 2: Forces
14. Special Project
15. Review
16. Test
17. Alternate Test

Unit 6

Assignment Title
1. Review
2. Exam
3. Alternate Exam

Unit 7

Assignment Title
1. Forms of Energy
2. Work
3. Mechanical Energy
4. Conservation of Energy
5. Experiment: Conservation of Energy
6. Power
7. Quiz 1: Work, Energy, and Power
8. Simple Machines; Levers
9. Mechanical Advantage and Efficiency
10. Pulleys; Wheels and Axles
11. Inclined Planes, Wedges, and Screws
12. Experiment: Inclined Planes
13. Quiz 2: Simple Machines
14. Special Project
15. Review
16. Test
17. Alternate Test

Unit 8

Assignment Title
1. Thermodynamics and Entropy
2. Specific Heat Capacity
3. Heat Flow
4. Experiment: Insulators
5. Quiz 1: Energy Transfer
6. Heating Systems
7. Experiment: Heat and Expansion
8. Cooling and Refrigeration
9. Heat Engines
10. Quiz 2: Heat Flow and Technology
11. Special Project
12. Review
13. Test
14. Alternate Test

Unit 9

Assignment Title
1. Electric Charges
2. Static Electricity
3. Experiment: Electrostatic Investigations
4. Electric Current
5. Circuits
6. Electrical Energy and Power
7. Quiz 1: Electricity
8. Magnetism
9. Magnetism and Electricity
10. Experiment: Diverting a Magnetic Field
11. Magnetic Fields in Space
12. Quiz 2: Magnetism
13. Special Project
14. Review
15. Test
16. Alternate Test

Integrated Physics and Chemistry (cont.)

Unit 10

Assignment Title
1. Waves and Energy Transfer
2. Types of Waves
3. Properties of Waves
4. Experiment: Changing the Speed of a Wave
5. The Behavior of Waves
6. Quiz 1: Wave Characteristics and Properties
7. Sound Vibrations
8. Detecting Sound
9. Experiment: Using Vibrations to Produce Sound
10. Doppler Effect
11. Beats, Resonance, and Harmonics
12. Quiz 2: Sound
13. Light and the Electromagnetic Spectrum
14. Properties of Light
15. Reflection and Mirrors
16. Experiment: Law of Reflection
17. Lenses
18. Quiz 3: Light
19. Special Project
20. Review
21. Test
22. Alternate Test

Unit 11

Assignment Title
1. Carbon Dioxide and Global Warming
2. Experiment: Carbon Dioxide and Water Acidity
3. Fossil Fuels' Effect on the Environment
4. Experiment: Water Acidity and the Environment
5. Quiz 1: Environmental Chemistry
6. Atomic Spectra and Moving Stars
7. The Temperature of Stars
8. Kepler and the Motion of the Spheres
9. Experiment: Kepler's Second Law
10. Quiz 2: Space Physics
11. Special Project
12. Review
13. Test
14. Alternate Test

Unit 12

Assignment Title
1. Review
2. Exam
3. Alternate Exam