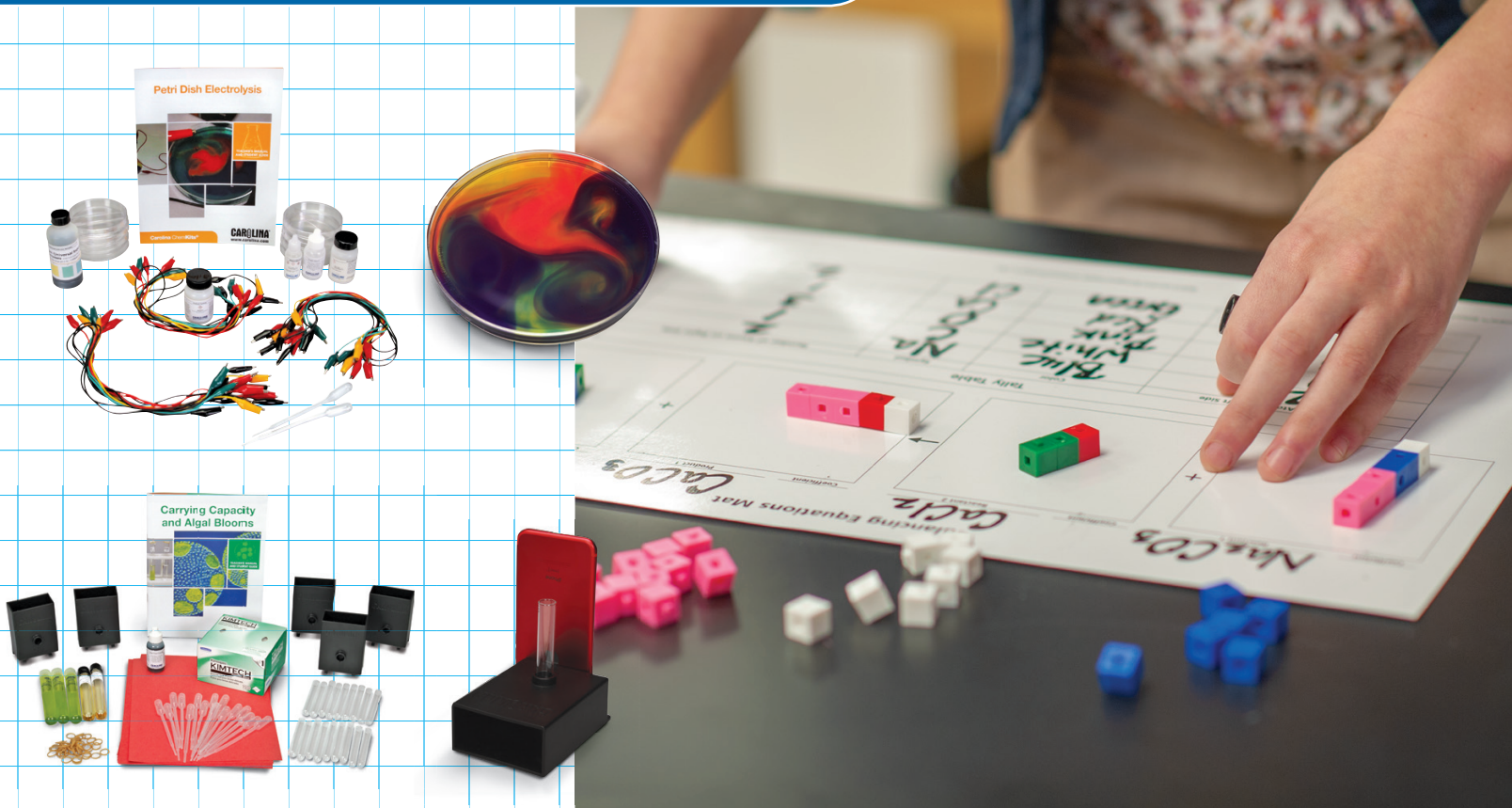


Teach the IB Program with Carolina® Kits



Discover Effective Science Kits for the IB Program

As you teach the International Baccalaureate (IB) program, it's crucial to have reliable science investigations to teach science in an engaging, meaningful way.

Use Carolina® kits to meet the science standards of the IB program for grades 9–12.

- Carolina® kits supplement the IB curriculum in biology, chemistry, physics, and environmental systems.
- The kits use hands-on investigations that challenge students to step into the shoes of a scientist, collect data, and analyze results.
- Students dig into investigations that foster independent research.
- Immersive labs support the IB standards for high school biology, chemistry, physics, and environmental systems.
- The kits are developed in-house and tested by a team of scientists, many of whom are former teachers.

Straightforward Kits with Minimal Preparation

Carolina® kits contain the framework and objectives that build toward IB program standards. With inquiry-based student and teacher manuals, digital resources, and helpful teacher tips, you can focus on what you love to do most—teach.

You Guide Them. We Guide You.



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CAROLINA®

Carolina® kits help students formulate, analyze, and evaluate:

- hypotheses, research questions, and predictions
- methodologies and techniques
- primary and secondary data
- scientific explanations



Biology Kits

Use our kits to address the following biology topics of the IB program:

Standard level (SL) topics

- Statistical Analysis
- Cell Biology
- Molecular Biology
- Genetics
- Ecology
- Evolution and Biodiversity

- Human Physiology
- Metabolism, Cell Respiration, and Photosynthesis

Higher level (HL) topics

- Nucleic Acids
- Plant Biology
- Genetics and Evolution
- Animal Physiology

TOPIC	SUBTOPIC	ITEM	KIT NAME
1. Cell Biology	1.1 Introduction to cells	251001	Inquiries in Science®: Investigating Cell Types
	1.2 Ultra structure of cells	292112	Typical Animal and Plant Cells Microscope Slide Set
		251001	Inquiries in Science®: Investigating Cell Types
	1.3 Membrane structure	292112	Typical Animal and Plant Cells Microscope Slide Sets
	1.4 Membrane transport	684260	Carolina BioKits®: Diffusion-Osmosis
		251022	Inquiries in Science®: Examining Cellular Transport
	1.5 The origin of cells	747530	Carolina Investigations® for Use with AP® Biology: Origin of Life
	1.6 Cell division	171000	Modeling Mitosis and Meiosis (1-Station Kit)
		171010	Modeling Mitosis and Meiosis (8-Station Kit)
		747720EBK	Carolina Investigations® for Use with AP® Biology: Exploring Mendelian Genetics Digital Resources
		251003	Inquiries in Science®: Cycling Through Mitosis
2. Molecular Biology	2.1 Molecules to metabolism	201100	Carolina BioKits®: Molecules of Life
		206100	Algae Bead Photosynthesis
	2.2 Water	750052	Carolina STEM Challenge®: Bubbles
	2.3 Carbohydrates and lipids	201100	Carolina BioKits®: Molecules of Life
		202500	Food Nutrient Analysis
		251000	Inquiries in Science®: Synthesizing Macromolecules

TOPIC	SUBTOPIC	ITEM	KIT NAME
2. Molecular Biology continued	2.4 Proteins	201100	Carolina BioKits®: Molecules of Life
		251023	Inquiries in Science®: Synthesizing Macromolecules
	2.5 Enzymes	747820	Carolina Investigations® for Use with AP® Biology: Evolving Enzymes
		251023	Inquiries in Science®: Synthesizing Macromolecules
		747908	Biotechnology: Restriction Enzymes Analysis of DNA Materials Kit for AP® Example Labs
	2.6 Structure of DNA and RNA	211183	Modeling DNA to Protein
		154704	Plant Biotechnology: DNA Extraction
		171093	Biotechnology Kit: DNA Extraction of E. coli
	2.7 DNA replication, transcription, and translation	211555	Gene to Protein: Green Fluorescent Protein Necklace
	2.8 Cell respiration	746490	Cell Respiration
3. Genetics	3.1 Genes	251020	Inquiries in Science®: Comprehending Genetic Inheritance
		747720	Carolina Investigations® for Use with AP® Biology: Exploring Mendelian Genetics
	3.2 Chromosomes	171000	Modeling Mitosis and Meiosis
		171100	Chromosome Simulation
	3.3 Meiosis	171000	Modeling Mitosis and Meiosis
		251007	Inquiries in Science®: Understanding Reproduction and Chromosomes
	3.4 Inheritance	158940	Wisconsin Fast Plants® 72-Hour Monohybrid Genetics
		176360	Mendelian Genetics of Corn
		747720EBK	Carolina Investigations® for Use with AP® Biology: Exploring Mendelian Genetics Digital Teacher's Manual
		158768	Wisconsin Fast Plants® Monohybrid Genetics
		158774	Wisconsin Fast Plants® Dihybrid Genetics
	3.5 Genetic modification and biotechnology	747770	Carolina Investigations® for Use with AP® Biology: Electrophoresis and Simulated Genetic Screen
		211555	Gene to Protein: Green Fluorescent Protein Necklace
		211082	Green Gene Colony Transformation
		211162	E-Z Gene Splicer DNA Recombination and Transformation
		747907	Biotechnology: Bacterial Transformation Materials Kits for AP® Example Labs
		251003	Inquiries in Science®: Cycling Through Mitosis
4. Ecology	4.1 Species, communities, and ecosystems	747810	Carolina Investigations® for Use with AP® Biology: Species Interaction
		251410	Inquiries in Science®: Sustaining Ecosystems
		187012	Carolina EcoKits®: Build Your Own Microcosm
	4.2 Energy flow	187104	Food Chains and Energy Flow
		747810	Carolina Investigations® for Use with AP® Biology: Species Interaction
	4.3 Carbon cycle	187100	Contributors to the Carbon Cycle
	4.4 Climate change	251417	Inquiries in Science®: Understanding Climate Change
5. Evolution and Biodiversity	5.1 Evidence for evolution	521012	Carolina Investigations® for Use with AP® Biology: Population Genetics and Evolution
		171206	Evolution in Real Time: Bacteria and Antibiotic Resistance
		154740	Antibiotic Sensitivity
	5.2 Natural selection	171200	Natural Selection
		171995	Natural Selection with Drosophila
		251021	Inquiries in Science®: Behaving Like Animals

TOPIC	SUBTOPIC	ITEM	KIT NAME
5. Evolution and Biodiversity continued	5.3 Classification and biodiversity	181089	Carolina Investigations® for Use with AP® Environmental Science: Wastewater Treatment
		187224	Succession in a Hay Infusion
		251015	Inquiries in Science®: Classifying Across the Kingdoms
	5.4 Cladistics	221042	Cladograms and Evolution
		211105	Genetic Kinship: Following the Globin Gene Through Time
6. Human Physiology	6.1 Digestion and absorption	684056	Enzyme, Digestion, Osmosis
		202340	Carolina BioKits®: Digestion
	6.2 The blood system	747620	Carolina Investigations® for AP® Biology: Physiology of the Circulatory System
	6.3 Defense against infectious disease	154982	The Tragic Case of Stan: Laboratory Case Study
		211207	Outbreak! Fingerprinting Virus DNA
		154665	Epidemic Simulation Classroom
		154739	Carolina® Antibiotic Production
		154716	pH Tolerance of Microbes
	6.4 Gas exchange	692600	Breathing Fitness
	6.5 Neurons and synapses	694527	Carolina® Visual Perception
		694515	Carolina® Confusing the Senses
		694505	Lab-Aids Human Senses Experiment
		695200	Carolina® Cutaneous Sensations
	6.6 Hormones, homeostasis and reproduction	206200	Carolina BioKits®: Homeostasis in Animals
7. Nucleic Acids	HL only		
	7.1 DNA structure and replication	251005	Inquiries in Science®: Discovering Nucleic Acids
		747730	Carolina Investigations® for Use with AP® Biology: Transformation
		747770	Carolina Investigations® for Use with AP® Biology: Electrophoresis and Simulated Genetic Screen
	7.2 Transcription and gene expression	211114	Transcription DNA Molecular Model
		211392	Examining the RNAi Mechanism
		211391	Inducing RNAi by Feeding
	7.3 Translation	211116	Translation Molecular Model
		211391	Inducing RNAi by Feeding
8. Metabolism, Cell Respiration, and Photosynthesis	8.1 Metabolism	682022	Carolina® Small Animal Metabolism
	8.2 Cell respiration	202208	Investigating Aerobic and Anaerobic Respiration in Yeast Beads
		747600	Carolina Investigations® for Use with AP® Biology: Cell Respiration
	8.3 Photosynthesis	747840	Carolina Investigations® for Use with AP® Biology: Plant Pigments and Photosynthesis
9. Plant Biology	9.1 Transport in the xylem of plants	747610	Carolina Investigations® for Use with AP® Biology: Transpiration
	9.2 Transport in the phloem of plants	303086	Sunflower Young Stem Microscope Slide
		303062	Pumpkin Stem Microscope Slide
	9.3 Growth in plants	158706	Exploring Variation with Wisconsin Fast Plants®
		157896	Carolina STEM Challenge®: How to Train a Plant
	9.4 Reproduction in plants	158768	Wisconsin Fast Plants® Monohybrid Genetics
		158702	Wisconsin Fast Plants® Growth, Development, and Reproduction Advanced Classroom Kit
10. Genetics and Evolution	10.1 Meiosis	171100	Carolina BioKits®: Chromosome Simulation
		176360	Mendelian Genetics of Corn

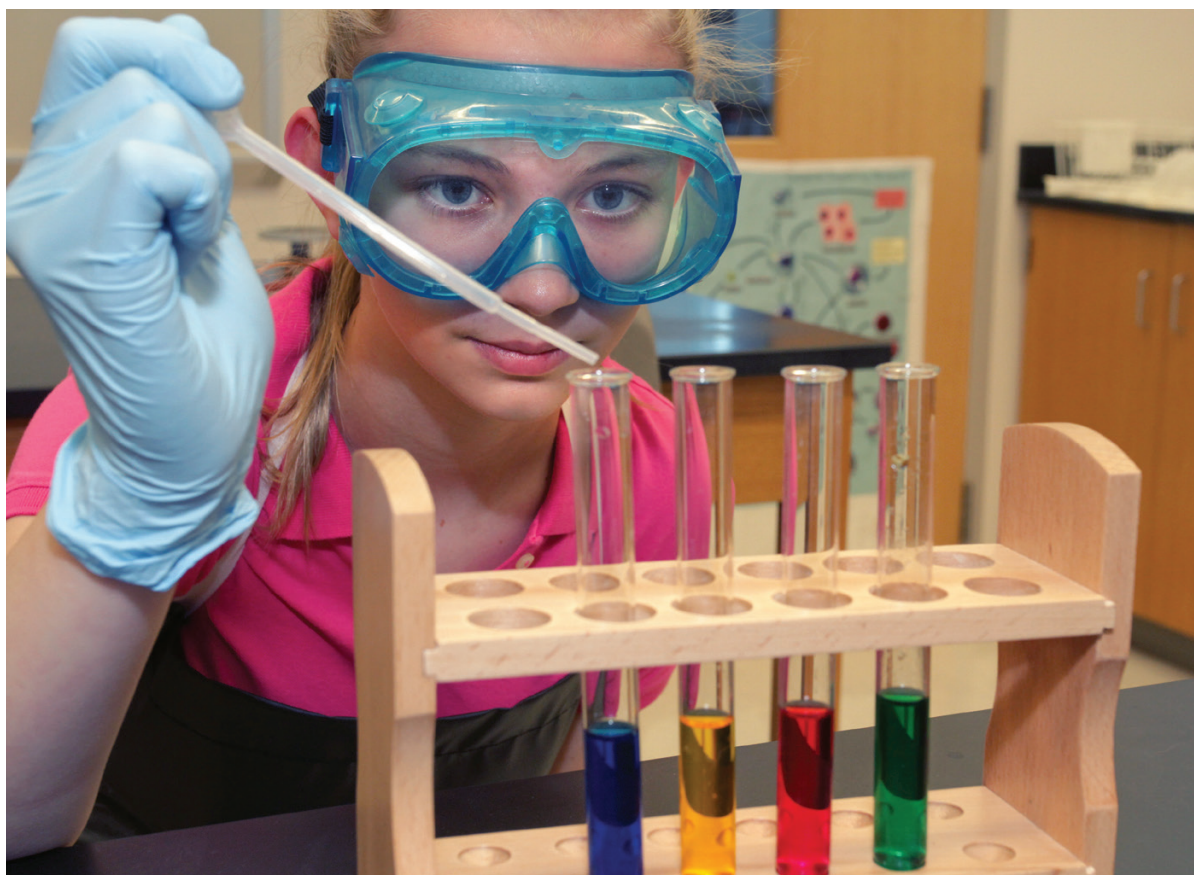
TOPIC	SUBTOPIC	ITEM	KIT NAME
10. Genetics and Evolution continued	10.2 Inheritance	747510	Carolina Investigations® for Use with AP® Biology: Population Genetics and Evolution
		176360	Mendelian Genetics of Corn
	10.3 Gene pools and speciation	171995	Natural Selection with Drosophila
		251013	Inquiries in Science®: Simulating the Darwinian Theory

11. Animal Physiology	11.1 Antibody production and vaccination	211127	Advanced Bacterial Conjugation
	11.2 Movement	203526	ATP Muscle
	11.3 The kidney and osmoregulation	228585M	Mammalian Kidney Dissection BioKit® with Dissection Mats
	11.4 Sexual reproduction	131196	C-FERN Asexual and Sexual Reproduction

OPTIONS A, B, C, D

A. Neurobiology and Behavior	SL and HL		
	A.1 Neural development	309306	General Embryology Microscope Slide Set
	A.2 The human brain	221490M	Mammalian Brain Dissection BioKit® with Dissection Mats
	A.3 Perception of stimuli	694527	Carolina® Visual Perception
		694515	Carolina® Confusing the Senses
		694505	Lab-Aids Human Senses Experiment
		695200	Carolina® Cutaneous Sensations
	HL only		
	A.4 Innate and learned behavior	145000	Carolina STEM Challenge®: How to Train Your Isopod
		187010	Carolina EcoKits®: Predator-Prey Relationships
	A.5 Neuropharmacology	N/A	No kit available
	A.6 Ethology	747750	Carolina Investigations® for Use with AP® Biology: Exploring Animal Behavior with Isopods
		143725	Group Behavior and Social Insects
B. Biotechnology and Bioinformatics	SL and HL		
	B.1 Microbiology: organisms in industry	181324	Oil Spill Bioremediation
	B.2 Biotechnology in agriculture	181080	Carolina Investigations® for Use with AP® Environmental Science: Agriculture and Feeding a Growing Human Population
	B.3 Environmental protection	180950	Carolina STEM Challenge®: Biofuels
		759250	Renewable Energy Education Set
	HL only		
	B.4 Medicine	N/A	No kit available
	B.5 Bioinformatics	211124	Bioinformatics Map of the Human Beta-Globin Gene© Set
		211463	Identifying the Mutation in Non-Purple Stem Wisconsin Fast Plants® Extraction, Amplification, and Electrophoresis Kit with Carolina BLU™ Stain
		211386	DNA Barcode Amplification and Electrophoresis Kit with Carolina BLU™ Stain
C. Ecology and Conservation	SL and HL		
	C.1 Species and communities	251019	Inquiries in Science®: Interacting Populations
	C.2 Communities and ecosystems	N/A	No kit available
	C.3 Impacts of humans on ecosystems	181072	Carolina Investigations® for Use with AP® Environmental Science: Loss of Biodiversity
		187220	Coliform Contamination
	C.4 Conservation of biodiversity	187208	Carolina EcoKits®: Habitat Degradation
		187202	Climate Patterns and Species Distribution
	HL only		
	C.5 Population ecology	251420	Inquiries in Science®: Analyzing Population Growth
		187015	Carrying Capacity and Algal Blooms with Carolina® Spectroscopy Chambers
	C.6 Nitrogen and phosphorous cycles	251010	Inquires in Science®: Exploring the Nitrogen Cycle

TOPIC	SUBTOPIC	ITEM	KIT NAME
D. Human Physiology	SL and HL		
	All human physiology subtopics	251105	Inquires in Science®: Physiology Lab Package
	D.1 Human nutrition	202500	Food Nutrient Analysis
	D.2 Digestion	202340	Carolina BioKits®: Digestion
	D.3 Functions of the liver	N/A	No kit available
	D.4 The heart	221495M	Mammalian Heart BioKit® with Dissection Mats
	HL only		
	D.5 Hormones and metabolism	191177	Lettuce Hormone Interaction
	D.6 Transport of respiratory gases	493514	Respiration and Circulation: Gas Exchange, Molecular Transport DVD



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Carolina® kits help students develop a firm understanding of scientific processes.

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Chemistry Kits

Use our kits to address the following chemistry topics of the IB program:

- Acids and Bases
- Atomic Structure
- Chemical Kinetics
- Energetics/Thermochemistry
- Equilibrium
- Measurement and Analysis
- Measurement and Data Processing
- Organic Chemistry
- Periodicity
- The Periodic Table: Transition Metals
- Redox Processes
- Stoichiometric Relationships

TOPIC	SUBTOPIC	ITEM	KIT NAME
1. Stoichiometric Relationships	1.1 Introduction to the particulate nature of matter and chemical changes	840968	Carolina ChemKits®: Elements, Compounds, and Mixtures
	1.2 The mole concept	840717	Introduction to Stoichiometry
		840105	Mole Set
		251206	Inquiries in Science®: Determining Chemical Formulas
	1.3 Reacting masses and volumes	251208	Inquiries in Science®: Calculating with Stoichiometry
		251210	Inquiries in Science®: Finding Solutions
		251205	Inquiries in Science®: Expanding on the Gas Laws
2. Atomic Structure	2.1 The nuclear atom	840232	Carolina ChemKits®: Atomic Theory
		840357	Energy Transformations with Irradiated Salt
	2.2 Electron configuration	251219	Inquiries in Science®: Reconstructing Atomic Theory
3. Periodicity	3.1 Periodic table	840074	Periodic Table Inquiry
	3.2 Periodic trends	840260	Atoms, Electrons, and Energy
		840319	Metal Activity Series

TOPIC	SUBTOPIC	ITEM	KIT NAME
4. Chemical Bonding And Structure	4.1 Ionic bonding and structure	840576	Carolina Investigations® for Use with AP® Chemistry: Types of Chemical Bonds
		251204	Inquiries in Science®: Bonding Chemically
		840660	Mystery Chemical Reactions
	4.2 Covalent bonding	840835	Chemical Bonding
	4.3 Covalent structures	251204	Inquiries in Science®: Bonding Chemically
		841174	Molecular Structure
	4.4 Intermolecular forces	840576	Carolina Investigations® for Use with AP® Chemistry: Types of Chemical Bonds
		841168	Modeling Phase Change
	4.5 Metallic bonding	840576	Carolina Investigations® for Use with AP® Chemistry: Types of Chemical Bonds
5. Energetics/ Thermochemistry	5.1 Measuring energy changes	840744	It's Not the Heat, It's Thermochemistry
		840592	Carolina Investigations® for Use with AP® Chemistry: Fundamentals of Calorimetry
	5.2 Hess's Law	840592	Carolina Investigations® for Use with AP® Chemistry: Fundamentals of Calorimetry
	5.3 Bond enthalpies	251209	Inquiries in Science®: Examining Thermochemistry
6. Chemical Kinetics	6.1 Collision theory and rates of reactions	840590	Carolina Investigations® for Use with AP® Chemistry: Factors Affecting Reaction Rates
		251212	Inquiries in Science®: Investigating Reaction Rates
		841166	Reaction Rate of an Antacid
		840315	Carolina Chemonstrations®: Elephant Toothpaste
7. Equilibrium	7.1 Equilibrium	840709	Chemical Equilibrium and Le Châtelier's Principle
8. Acids and Bases	8.1 Theories of acids and bases	840578	Carolina Investigations® for Use with AP® Chemistry: Stoichiometry of Chemical Reactions
	8.2 Properties of acids and bases	251214	Inquiries in Science®: Discovering Acids and Bases
	8.3 The pH scale	840665	Carolina ChemKits®: Exploring Acids and Bases
	8.4 Strong and weak acids and bases	840600	Carolina Investigations® for Use with AP® Chemistry: Evaluating Lemonade as a Buffer
		840719	Carolina ChemKits®: Advanced Stoichiometry
	8.5 Acid deposition	158745	Wisconsin Fast Plants® Acid Precipitation
9. Redox Processes	9.1 Oxidation and reduction	840584	Carolina Investigations® for Use with AP® Chemistry: Vitamin C in Fruit Juices by Redox Titration
	9.2 Electrochemical cells	251215	Inquiries In Science®: Exploring Voltaic and Electrolytic Cells
		840830	Petri Dish Electrolysis
10. Organic Chemistry	10.1 Fundamentals of organic chemistry	251218	Introducing Organic Chemistry
	10.2 Functional group chemistry	251217	Modeling Hydrocarbons
		841174	Molecular Structure
11. Measurement And Data Processing	11.1 Uncertainties and errors in measurement and results	N/A	No kit available
	11.2 Graphical techniques	251211	Inquiries In Science®: Observing Colligative Properties
	11.3 Spectroscopic identification of organic compounds	840566	Carolina Investigations® for Use with AP® Chemistry: Molecular Spectroscopy
12. Atomic Structure	HL only		
	12.1 Electrons in atoms	840357	Energy Transformations with Irradiated Salt

TOPIC	SUBTOPIC	ITEM	KIT NAME
13. The Periodic Table: Transition Metals	HL only		
	13.1 First-row d-block elements	N/A	No kit available
	13.2 Coloured complexes	N/A	No kit available
14. Chemical Bonding and Structure	HL only		
	14.1 Further aspects of covalent bonding and structure	N/A	No kit available
	14.2 Hybridization	N/A	No kit available
15. Energetics/ Thermochemistry	HL only		
	15.1 Energy cycles	840592	Carolina Investigations® for Use with AP® Chemistry: Fundamentals of Calorimetry
	15.2 Entropy and spontaneity	753720	Carolina® First and Second Laws of Thermodynamics
		753485	Exploring Specific Heat Capacity and Thermal Conductivity
16. Chemical Kinetics	HL only		
	16.1 Rate expression and reaction mechanism	840590	Carolina Investigation for Use with AP® Chemistry: Factors Affecting Reaction Rates
		840311	Carolina Chemonstrations®: Catalytic Cobalt
		840309	Carolina Chemonstrations®: Silver Lining
	16.2 Activation energy	840325	Carolina Chemonstrations®: Iodine Clock Reactions
17. Equilibrium	HL only		
	17.1 The equilibrium law	840594	Carolina Investigation for AP® Chemistry: Le Châtelier's Principle and Equilibrium Shifts
		840709	Chemical Equilibrium and Le Châtelier's Principle
		840364	Under Pressure
18. Acids and Bases	HL only		
	18.1 Lewis acids and bases	N/A	No kit available
	18.2 Calculations involving acids and bases	840598	Carolina Investigations for Use with AP® Chemistry: Preparation of a Buffered Solution
	18.3 pH curves	840333	Carolina Chemonstrations®: Rainbow Indicators
19. Redox Processes	HL only		
	19.1 Electrochemical cells	840301	Carolina Chemonstrations®: Water Electrolysis
		840830	Petri Dish Electrolysis
20. Organic Chemistry	HL only		
	20.1 Types of organic reactions	840327	Carolina Chemonstrations®: Polyurethane Foam
		840472	Polyurethane Foam (Classroom Kit)
		840475	Discovering Polymers Demo
		840339	Carolina Chemonstrations®: Nylon Synthesis
		840376	Carolina Chemonstrations®: Carbon Snake
		840844	Carolina ChemKits®: Aspirin Synthesis
	20.2 Synthetic routes	N/A	No kit available
	20.3 Stereoisomerism	251218	Inquiries in Science®: Introducing Organic Chemistry
21. Measurement and Analysis	HL only		
	21.1 Spectroscopic identification of organic compounds	840566	Carolina Investigations® for Use with AP® Chemistry: Molecular Spectroscopy

TOPIC	SUBTOPIC	ITEM	KIT NAME	
OPTIONS A, B, C				
A. Materials	SL and HL			
	A.1	Materials science introduction	N/A	No kit available
	A.2	Metals and inductively coupled plasma (ICP) spectroscopy	N/A	No kit available
	A.3	Catalysts	840311	Carolina Chemonstrations®: Catalytic Cobalt
	A.4	Liquid crystals	N/A	No kit available
	A.5	Polymers	840475	Discovering Polymers Demo
			840327	Carolina Chemostrations®: Polyurethane Foam
			841174	Molecular Structure
	A.6	Nanotechnology	840730	Exploring Nanotechnology
	A.7	Environmental impact - plastics	841174	Molecular Structure
	HL only			
	A.8	Superconducting metals and X-ray crystallography	N/A	No kit available
	A.9	Condensation polymers	840339	Carolina Chemonstrations®: Nylon Synthesis
	A.10	Environmental impact—heavy metals	N/A	No kit available
B. Biochemistry	SL and HL			
	B.1	Introduction to biochemistry	841152	Carolina ChemKits®: Introduction to Biochemistry
	B.2	Proteins and enzymes	841172	Carolina ChemKits®: Introduction to Enzymes
	B.3	Lipids	202500	Carolina Biokits®: Food Nutrient Analysis
	B.4	Carbohydrates	841134	Introduction to Qualitative Analysis of Carbohydrates
	B.5	Vitamins	202500	Food Nutrient Analysis
	B.6	Biochemistry and the environment	206100	Algae Bead Photosynthesis
			187100	Contributors to the Carbon Cycle
			180950	Carolina STEM Challenge®: Biofuels
			181324	Oil Spill Bioremediation
	HL only			
	B.7	Proteins and enzymes	211183	Modeling DNA to Protein
			211555	Gene to Protein: Green Fluorescent Protein Necklace
	B.8	Nucleic acids	251005	Inquiries in Science®: Discovering Nucleic Acids
B.9	Biological pigments	747840	Carolina Investigations® for Use with AP® Biology: Plant Pigments and Photosynthesis	
B.10	Stereochemistry in biomolecules	840566	Carolina Investigations® for Use with AP® Chemistry: Molecular Spectroscopy	
C. Energy	SL and HL			
	C.1	Energy sources	251405	Inquiries in Science®: Examining Energy Resources
	C.2	Fossil fuels	181324	Oil Spill Bioremediation
	C.3	Nuclear fusion and fission	840715	Radioactive Decay and Half-Life Simulations
	C.4	Solar energy	180950	Carolina STEM Challenge®: Biofuels
			206000	Carolina BioKits®: Photosynthesis
	C.5	Environmental impact-global warming	251417	Inquiries in Science®: Understanding Climate Change
	HL only			
	C.6	Electrochemistry, rechargeable batteries and fuel cells	251215	Inquiries in Science®: Exploring Voltaic and Electrolytic Cells
			180958	Carolina STEM Challenge®: Battery Dilemma
	C.7	Nuclear fusion and nuclear fission	251216	Inquiries in Science®: Simulating Nuclear Transformations
			840374	Observing Ionizing Radiation Using a Cloud Chamber
	C.8	Photovoltaic cells and dye-sensitized solar cells	251215	Inquiries in Science®: Exploring Voltaic and Electrolytic Cells

TOPIC	SUBTOPIC	ITEM	KIT NAME
D. Mechanical Chemistry	SL and HL		
	D.1 Pharmaceutical products and drug action	N/A	No kit available
	D.2 Aspirin and penicillin	840844	Carolina ChemKits®: Aspirin Synthesis
	D.3 Opiates	N/A	No kit available
	D.4 pH regulation of the stomach	840600	Carolina Investigations® for Use with AP® Chemistry: Evaluating Lemonade as a Buffer
		841166	Reaction Rate of an Antacid
	D.5 Antiviral medications	126000	Tobacco Mosaic Virus (TMV) Infectivity Assay
	D.6 Environmental impact of some medications	N/A	No kit available
	HL only		
	D.7 Taxol—a chiral auxiliary case study	N/A	No kit available
	D.8 Nuclear medicine	N/A	No kit available
	D.9 Drug detection and analysis	699837	Forensic Chemistry: Drug Detection



With Carolina® kits, students carry out investigations that contain safe and proven lab activities with reduced lab prep time.

**Carolina® kits have short-term and long-term Investigations.
Teach standard level (SL) and higher level (HL) with our kits.
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Physics Kits

Use our kits to address the following physics topics of the IB program:

- Atomic, Nuclear and Particle Physics
- Circular Motion
- Electricity and Magnetism
- Energy Production
- Fields
- Electromagnetic Induction
- Forces and Motion
- Gravitation
- Measurements and Uncertainties
- Mechanics
- Quantum and Nuclear Physics
- Thermal Physics
- Waves
- Wave Phenomena

TOPIC	SUBTOPIC	ITEM	KIT NAME
1. Measurements and Uncertainties	1.1 Measurements in physics	751475	Measurement Set
	1.2 Uncertainties and errors	tr10646	Accuracy Versus Precision Beanbag Toss (Teacher's Resource)
	1.3 Vectors and scalars	753175	Visual Scientifics Starter Set with Pendulum
2. Mechanics	2.1 Motion	751463	Carolina® Introduction to Force and Motion
		750030	Carolina STEM Challenge®: Projectile Launcher
		750028	Carolina STEM Challenge®: Paint Stirrer Catapult
		750056	Carolina STEM Challenge®: Trebuchets
	2.2 Forces	751463	Carolina® Introduction to Force and Motion
		751340	Carolina® Simple Machines: Pulleys
	2.3 Work, energy and power	751346	Carolina® Simple Machines: Wheels, Gears, and Axles
		751340	Carolina® Simple Machines: Pulleys
		751342	Carolina® Simple Machines: Levers
		751346	Carolina® Simple Machines: Gears, Wheels, and Axles
		750036	Carolina STEM Challenge®: Roller Coasters
	2.4 Momentum and impulse	751664	Carolina® Introduction to Momentum and Collisions
		750030	Carolina STEM Challenge®: Projectile Launcher
		750050	Carolina STEM Challenge®: Balloon Rockets
		751527	Linear Air Track, 1.5 m

TOPIC	SUBTOPIC	ITEM	KIT NAME
2. Mechanics continued	2.4 Momentum and impulse continued	751526	Air Blower for Linear Air Trac
		751531	Air Blower for Linear Air Track, 220 V
3. Thermal Physics	3.1 Thermal concepts	750054	Carolina STEM Challenge®: Keep It Hot
		753545	Carolina® Introduction to Heat and Temperature
		753720	Carolina® First and Second Laws of Thermodynamics
	3.2 Modeling a gas	840289	Carolina® Gas Laws
4. Waves	4.1 Oscillations	750049	Carolina STEM Challenge®: Wave Machine
		754086	Carolina® Introduction to Waves
		750048	Carolina STEM Challenge®: Sound Off
		754163	Vibration and Waves
	4.2 Traveling waves	754086	Carolina® Introduction to Waves
		750049	Carolina STEM Challenge®: Wave Machine
	4.3 Wave characteristics	754086	Carolina® Introduction to Waves
		750049	Carolina STEM Challenge®: Wave Machine
	4.5 Standing waves	754086	Carolina® Introduction to Waves
		754163	Vibration and Waves
		750049	Carolina STEM Challenge®: Wave Machine
5. Electricity and Magnetism	5.1 Electric fields	756010	Carolina® Mapping Electric Fields
		756020	Carolina® Coulomb's Law
	5.2 Heating effect of electric currents	N/A	Carolina® Ohm's Law and Kirchhoff's Rules
	5.3 Electric cells	758661	Carolina® Introduction to Electromagnetism
	5.4 Magnetic effects of electric currents	756010	Carolina® Mapping Electric Fields
		750034	Carolina STEM Challenge®: Motors
6. Circular Motion and Gravitation	6.1 Circular motion	752211	Exploring Centripetal Force
		752222	The Flying Pig
	6.2 Newton's law of gravitation	751580	Carolina® Introduction to Gravity
7. Atomic, Nuclear and Particle Physics	7.1 Discrete energy and radioactivity	840715	Radioactive Decay and Half-Life Simulations
		754030	Determining Planck's Constant with LEDs: Investigating the Photoelectric Effect and Electronic Light Sensors
	7.2 Nuclear reactions	251216	Inquiries in Science®: Simulating Nuclear Transformations
		840374	Observing Ionizing Radiation Using a Cloud Chamber
		840715	Radioactive Decay and Half-Life Simulations
	7.3 The structure of matter	840835	Chemical Bonding
		841174	Molecular Structure
8. Energy Production	8.1 Energy sources	251405	Inquiries in Science®: Examining Energy Resources
		180960	Carolina STEM Challenge®: Solar Car Design
	8.2 Thermal energy transfer	753545	Carolina® Introduction to Heat and Temperature
		750054	Carolina STEM Challenge®: Keep It Hot
		841170	Heat of Combustion in Biofuels
		840378	Beaker Freezer
		753720	Carolina® First and Second Laws of Thermodynamics
		840744	It's Not the Heat, It's Thermochemistry

TOPIC	SUBTOPIC	ITEM	KIT NAME
9. Wave Phenomena	HL only		
	9.1 Simple harmonic motion	754163	Vibration and Waves
	9.2 Single-slit diffraction	755237	Laser Diffraction Set
	9.3 Interference	755237	Laser Diffraction Set
	9.4 Resonance	754300	Spouting Resonance Bowl
		754010	Carolina® AM Crystal Radio
		754163	Vibration and Waves
		754086	Carolina® Introduction to Waves
	9.5 Doppler effect	754301	Doppler Effect Apparatus

10. Fields	HL only		
	10.1 Describing fields	756010	Carolina® Mapping Electric Fields
	10.2 Fields at work	750034	Carolina STEM Challenge®: Motors

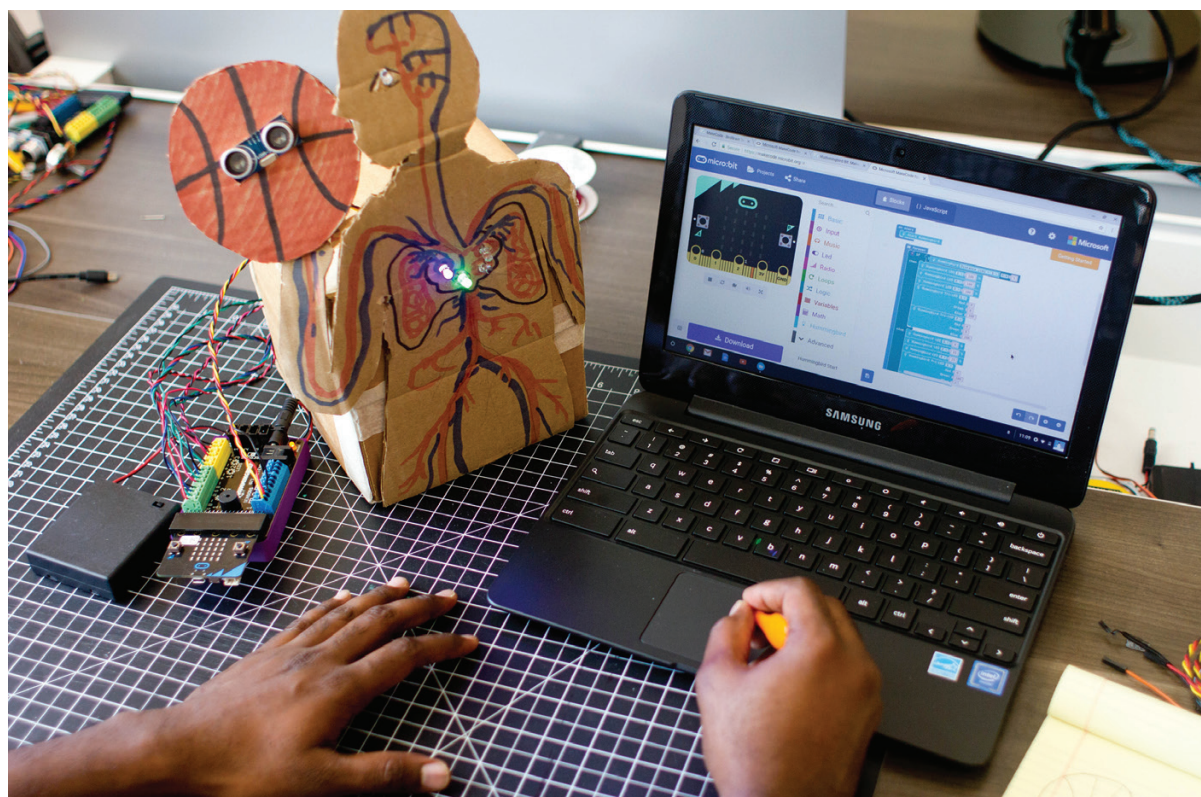
11. Electromagnetic Induction	HL only		
	11.1 Electromagnetic induction	758661	Carolina® Introduction to Electromagnetism
		750034	Carolina STEM Challenge®: Motors
	11.2 Power generation and transmission	756756	Transparent Alternator
		180952	Carolina STEM Challenge®: Hydroelectric Power
		751168	Carolina® Electricity System 2
	11.3 Capacitance	754010	Carolina® AM Crystal Radio

12. Quantum and Nuclear Physics	HL only		
	12.1 The interaction of matter with radiation	754030	Determining Planck's Constant with LEDs: Investigating the Photoelectric Effect and Electronic Light Sensors
	12.2 Nuclear physics	840374	Observing Ionizing Radiation Using a Cloud Chamber
		750222	Nuclear Magnetic Resonance Apparatus
		759471	Smart Geiger Pro
		759105	Radioactive Sources, 3-Piece Set (US only)

OPTIONS A, B

A. Relativity	SL and HL		
	A.1 The beginnings of relativity	N/A	No kit available
	A.2 Lorentz transformations	N/A	No kit available
	A.3 Spacetime diagrams	N/A	No kit available
	HL only		
	A.4 Relativistic mechanics	N/A	No kit available
	A.5 General relativity	N/A	No kit available
B. Engineering Physics	SL and HL		
	B.1 Rigid bodies and rotational dynamics	750044	Carolina STEM Challenge®: Structures
		751898	Ring and Disc Set
	B.2 Thermodynamics	753720	Carolina® First and Second Laws of Thermodynamics
		750054	Carolina STEM Challenge®: Keep It Hot
	HL only		
	B.3 Fluids and fluid dynamics	750032	Carolina STEM Challenge®: Boats and Buoyancy
		840289	Carolina® Gas Laws
		750024	Carolina STEM Challenge®: Cartesian Divers

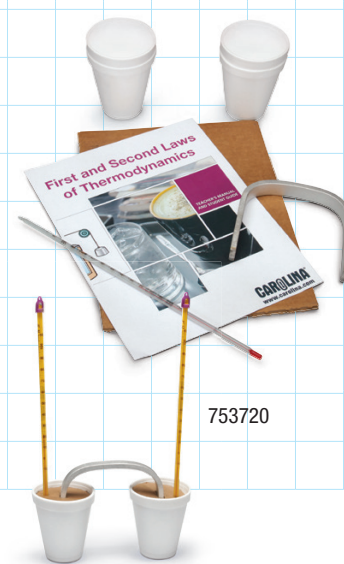
TOPIC	SUBTOPIC	ITEM	KIT NAME
B. Engineering Physics continued	B.3 Fluids and fluid dynamics	751161	Carolina® Mechanics System 2
	B.4 Forced vibrations and resonance	754163	Vibration and Waves
C. Imaging	SL and HL		
	C.1 Introduction to imaging	696142	Carolina STEM Challenge®: 3-D Art and Human Vision
	C.2 Imaging instrumentation	750222	Nuclear Magnetic Resonance Apparatus
	C.3 Fibre optics	N/A	No kit available
	HL only		
	C.4 Medical imaging	N/A	No kit available
D. Astrophysics	SL and HL		
	D.1 Stellar quantities	N/A	No kit available
	D.2 Stellar characteristics and stellar evolution	331104	Stellar Origin of the Elements
	D.3 Cosmology	331102	Evidence of the Big Bang
	HL only		
	D.4 Stellar processes	N/A	No kit available
	D.5 Further cosmology	N/A	No kit available



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- Foundations of Environmental Systems and Societies
- Ecosystems and Ecology
- Biodiversity and Conservation
- Water and Aquatic Food Production Systems and Societies
- Soil Systems and Terrestrial Food Production Systems and Societies
- Atmospheric Systems and Societies
- Climate Change and Energy Production
- Human Systems and Resource Use

TOPIC	SUBTOPIC	ITEM	KIT NAME
1. Foundations of Environmental Systems and Societies	1.1 Environmental value systems	N/A	No Kit Available
	1.2 Systems and models	180725	Carolina Investigations® for Use with AP® Environmental Science: Coriolis Effect and Atmospheric Circulation
	1.3 Energy and equilibria	759848	Carolina® Solar Energy
		753720	Carolina® First and Second Laws of Thermodynamics
	1.4 Sustainability	251410	Inquiries in Science®: Sustaining Ecosystems
		187222	Changing Ecosystems
	1.5 Humans and pollution	187218	Carolina EcoKits®: Air Quality Survey
		251414	Inquiries in Science®: Experiencing Air Pollution
		251417	Inquiries in Science®: Understanding Climate Change
		181069	Carolina Investigations® for AP® Environmental Science: Ocean Acidification
		187220	Coliform Contamination
2. Ecosystems and Ecology	2.1 Species and populations	181324	Oil Spill Bioremediation
		251418	Inquires in Science®: Investigating Legislation
		251019	Inquiries in Science®: Interacting Populations
		187000	Carolina EcoKits®: Population Growth and Carrying Capacity
		187015	Carrying Capacity and Algal Blooms with Spectroscopy Chambers

TOPIC	SUBTOPIC	ITEM	KIT NAME
2. Ecosystems and Ecology continued	2.2 Communities and ecosystems	187008	Carolina EcoKits®: Population Density and Biomass
		143725	Group Behavior and Social Insects
	2.3 Flows of energy and matter	187104	Food Chains and Energy Flow
		251011	Inquiries in Science®: Building Ecological Pyramids
		181061	Carolina Investigations® for AP® Environmental Science: Biogeochemical Cycles
		181079	Carolina Investigations® for AP® Environmental Science: Primary Consumer Energy Flow
	2.4 Biomes, zonation, and succession	251409	Inquiries in Science®: Simulating Succession
		187224	Succession in a Hay Infusion
	2.5 Investigating ecosystems	187222	Changing Ecosystems
		181066	Carolina Investigations® for AP® Environmental Science: Primary Productivity and Energy Flow
		187012	Carolina EcoKits®: Build Your Own Microcosm
3. Biodiversity and Conservation	3.1 An introduction to biodiversity	652016	Soil Organism Biodiversity
		187102	Carolina EcoKits®: Biodiversity
		180604	Carolina Investigations® for AP® Environmental Science: Exploring Biodiversity
	3.2 Origins of biodiversity	171200	Natural Selection
		171995	Natural Selection with Drosophila
		211105	Genetic Kinship: following the Globin Gene Through Time
		221042	Cladograms and Evolution
	3.3 Threats to biodiversity	187208	Carolina EcoKits®: Habitat Degradation
		187206	Endangered Species
		181072	Carolina Investigations® for APV Environmental Science: Loss of Biodiversity
	3.4 Conservation of biodiversity	251410	Inquires in Science®: Sustaining Ecosystems
4. Water and Aquatic Food Production Systems and Societies	4.1 Introduction to water systems	251401	Inquiries in Science®: Modeling the Hydrosphere
	4.2 Access to fresh water	251418	Inquires in Science®: Investigating Legislation
	4.3 Aquatic food production systems	746630	Dissolved Oxygen and Aquatic Primary Productivity
	4.4 Water pollution	251415	Inquiries in Science®: Testing Water Pollution
		181074	Carolina Investigations® for AP® Environmental Science: Cultural Eutrophication and Biodegradable Waste
		181089	Carolina Investigations® for AP® Environmental Science: Wastewater Treatment
		181324	Oil Spill Bioremediation
5. Soil Systems and Terrestrial Food Production Systems and Societies	5.1 Introduction to soil systems	181086	Carolina Investigations® for AP® Environmental Science: Soil Formation and Properties
		180605	Carolina Investigations® for AP® Environmental Science: Soil Productivity
	5.2 Terrestrial food production systems and food choices	251404	Inquiries in Science®: Determining Agricultural Resources
		158300	Carolina STEM Challenge®: Hydroponics
		180721	Carolina Investigations® for AP® Environmental Science: Agriculture and Feeding a Growing Population
	5.3 Soil degradation and conservation	653048	Carolina EcoKits®: Investigating the Effects of Pollutants in Soil
		251402	Inquires in Science®: Saving Soils
6. Atmospheric Systems and Societies	6.1 Introduction to the atmosphere	251421	Inquiries in Science®: Uncovering the Atmosphere
	6.2 Stratospheric ozone	653045	Carolina EcoKits®: Tropospheric Ozone
	6.3 Photochemical smog	181083	Carolina Investigations® for AP® Environmental Science: Air Pollution and Vehicle Emissions
		181076	Carolina Investigations® for AP® Environmental Science: Wet Scrubbers and Air Pollution
		155820	Air Pollution Assay
	6.4 Acid deposition	180727	Carolina Investigations® for AP® Environmental Science: Acid Deposition

TOPIC	SUBTOPIC	ITEM	KIT NAME
7. Climate Change and Energy Production	7.1 Energy choices and security	251405	Inquiries in Science®: Examining Energy Resources
	7.2 Climate change—causes and impacts	251417	Inquiries in Science®: Understanding Climate Change
		187222	Changing Ecosystems
	7.3 Climate change—mitigation and adaptation	187202	Climate Patterns and Species Distribution
8. Human Systems and Resource Use	8.1 Human population dynamics	251413	Inquiries in Science®: Estimating Human Populations
	8.2 Resource use in society	187214	Carolina EcoKits®: Resource Sustainability
		251419	Inquiries in Science®: Conserving Resources
		187206	Endangered Species
	8.3 Solid domestic waste	187210	Solid Waste Management
	8.4 Human population carrying capacity	187015	Carrying Capacity and Algal Blooms with Carolina® Spectroscopy Chambers

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