



GRADE 7 SCIENCE

Elevate Science • Course 2

Student Workbook



Student Name: _____

Grade: _____ Section: _____

Academic Year: _____

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TOPIC 1 The Cell System

Instructions: Complete each section as you read the assigned textbook pages. Use complete sentences in your written responses.



Lesson 1: Structure and Function of the Cell

TB pp. 4–12

A. Key Vocabulary

VOCABULARY TERM	DEFINITION / EXPLANATION IN YOUR OWN WORDS
Cell	
Cell theory	
Organism	
Unicellular	
Multicellular	
Microscope	

B. Main Idea Questions

- What is the cell theory? State its three main principles.

2. How did the invention of the microscope contribute to our understanding of cells?

3. Explain the difference between a unicellular and a multicellular organism. Give one example of each.

C. Structure & Function — Fill in the Blank

1. The basic unit of structure and function in all living things is the _____

2. Cells carry out life processes such as growth, reproduction, and _____

3. Robert Hooke first used the word 'cell' after observing _____

D. Critical Thinking

4. Why is the cell considered the basic unit of life? Use evidence from your textbook to support your answer.

**Lesson 2: Cell Structures****TB pp. 14–23**

Instructions: Complete each section as you read the assigned textbook pages. Use complete sentences in your written responses.

A. Key Vocabulary

VOCABULARY TERM	DEFINITION / EXPLANATION IN YOUR OWN WORDS
Cell membrane	
Cell wall	
Nucleus	
Cytoplasm	
Organelle	
Mitochondria	
Chloroplast	
Vacuole	
Ribosome	
Endoplasmic reticulum	

B. Diagram — Label the Cell

Draw and label a plant cell AND an animal cell below. Include at least 6 organelles for each.

C. Compare and Contrast**PLANT CELL — Unique Structures****ANIMAL CELL — Unique Structures****D. Matching — Organelle Functions**

#	Column A — Term	Column B — Description
1	Mitochondria	Provides rigid support and protection (plants only)
2	Ribosome	Site of photosynthesis; contains chlorophyll
3	Vacuole	Stores water, nutrients, or waste
4	Cell wall	Controls cell activities; contains DNA
5	Chloroplast	Powerhouse of the cell; produces ATP energy
6	Nucleus	Site of protein synthesis

E. Main Idea Questions: Answer the following questions.

1. Describe the function of the cell membrane. How does it control what enters and exits the cell?

2. What is the role of the nucleus in a cell?

3. Why do plant cells have chloroplasts but animal cells do not?



Lesson 3: Obtaining and Removing Materials

TB pp. 24–31

Instructions: Complete each section as you read the assigned textbook pages. Use complete sentences in your written responses.

A. Key Vocabulary

VOCABULARY TERM	DEFINITION / EXPLANATION IN YOUR OWN WORDS
Diffusion	
Osmosis	
Passive transport	
Active transport	
Concentration gradient	
Selectively permeable	

B. True or False

#	T / F	Statement
1	T / F	Diffusion moves substances from low concentration to high concentration.
2	T / F	Osmosis is the diffusion of water across a selectively permeable membrane.
3	T / F	Active transport requires the cell to use energy (ATP).
4	T / F	The cell wall is selectively permeable and controls what enters the cell.
5	T / F	Cells in a salty solution will lose water through osmosis.

C. Main Idea Questions: Answer the following questions.

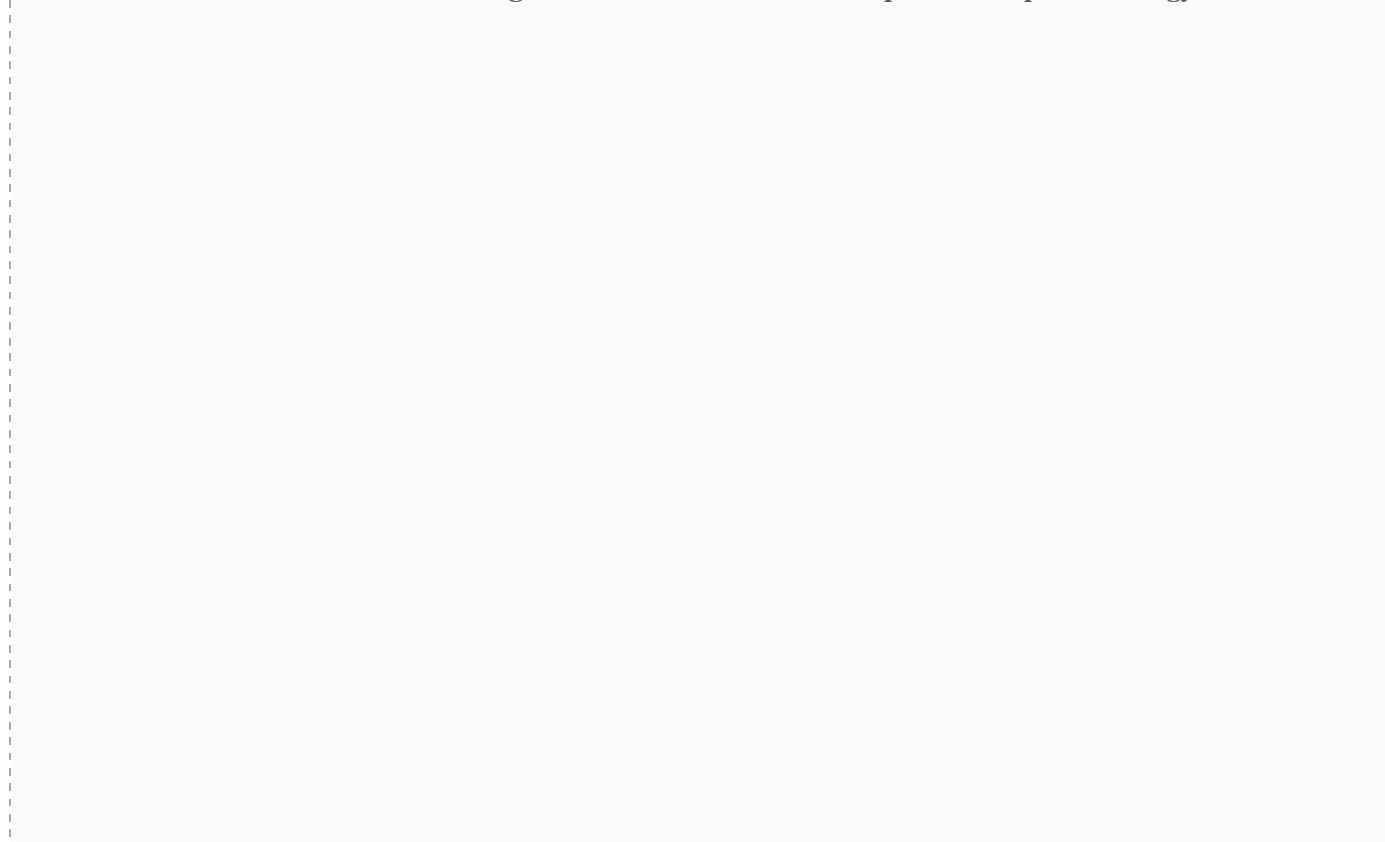
1. What is the difference between passive transport and active transport?

2. Define osmosis. In which direction does water move during osmosis?

3. Why is the cell membrane described as 'selectively permeable'?

D. Drawing:

 *Draw a diagram showing both passive transport (diffusion) and active transport across a cell membrane. Label the concentration gradient and indicate which process requires energy.*





Lesson 4: Cell Division

TB pp. 32–39

Instructions: Complete each section as you read the assigned textbook pages. Use complete sentences in your written responses.

A. Key Vocabulary

VOCABULARY TERM	DEFINITION / EXPLANATION IN YOUR OWN WORDS
Cell division	
Mitosis	
Chromosome	
DNA	
Cell cycle	
Interphase	
Cytokinesis	

B. Sequence — Stages of Mitosis

Prophase	Metaphase	Anaphase	Telophase
Describe:	Describe:	Describe:	Describe:
Draw:	Draw:	Draw:	Draw:

C. Main Idea Questions: Answer the following questions.

1. Why is cell division important for living organisms?

2. What is the role of DNA during cell division? What must happen to DNA before a cell can divide?

**Lesson 5: Photosynthesis**

TB pp. 40–48

Instructions: Complete each section as you read the assigned textbook pages. Use complete sentences in your written responses.

A. Key Vocabulary

VOCABULARY TERM	DEFINITION / EXPLANATION IN YOUR OWN WORDS
Photosynthesis	
Chlorophyll	
Glucose	
Chloroplast	
Carbon dioxide	
Sunlight	
Oxygen	

B. The Photosynthesis Equation

Write the chemical equation for photosynthesis and explain what each part means:

C. Input and Output Chart

INPUTS (Reactants)	OUTPUTS (Products)

D. Main Idea Questions: Answer the following questions.

1. Where does photosynthesis take place in a plant cell? What structure is responsible?

2. Why is photosynthesis important not only for plants but for all living things on Earth?

3. How does sunlight provide the energy needed for photosynthesis?



Lesson 6: Cellular Respiration

TB pp. 50–57

Instructions: Complete each section as you read the assigned textbook pages. Use complete sentences in your written responses.

A. Key Vocabulary

VOCABULARY TERM	DEFINITION / EXPLANATION IN YOUR OWN WORDS
Cellular respiration	
ATP	
Aerobic respiration	
Anaerobic respiration	
Fermentation	
Mitochondria	

B. Compare: Photosynthesis vs. Cellular Respiration

Comparison Point	Photosynthesis	Cellular Respiration
Reactants (Inputs)		
Products (Outputs)		
Location in Cell		
Energy: Stored or Released?		
Organism Types		

C. Main Idea Questions: Answer the following questions.

1. Explain in your own words: how does cellular respiration release energy stored in food?

2. What is the difference between aerobic and anaerobic respiration? Give a real-life example of **each**.

TOPIC 2 Human Body Systems

Lesson 1: Body Organization

TB pp. 72–80

Instructions: Complete each section as you read the assigned textbook pages. Use complete sentences in your written responses.

A. Key Vocabulary

VOCABULARY TERM	DEFINITION / EXPLANATION IN YOUR OWN WORDS
Cell	
Tissue	
Organ	
Organ system	
Organism	
Hierarchy	

B. Levels of Organization — Sequence Diagram

 *Draw and label the 5 levels of body organization from smallest to largest*

(Cell → Tissue → Organ → Organ System → Organism). Give a science example at each level.

C. Main Idea Questions: Answer the following questions.

1. How do cells, tissues, organs, and organ systems work together to maintain life?

2. Give one example of how two different organ systems must cooperate to perform a single body function.

**Lesson 2: Systems Interacting**

TB pp. 82–91

Instructions: Complete each section as you read the assigned textbook pages. Use complete sentences in your written responses.

A. Key Vocabulary

VOCABULARY TERM	DEFINITION / EXPLANATION IN YOUR OWN WORDS
Digestive system	
Circulatory system	
Respiratory system	
Excretory system	
Skeletal system	
Muscular system	
Nervous system	
Homeostasis	

B. Systems Interaction Table

Body System	Main Function	Interacts With (+ How)
Digestive System		
Circulatory System		
Respiratory System		
Excretory System		
Nervous System		



Lesson 3: Supplying Energy

TB pp. 94–104

Instructions: Complete each section as you read the assigned textbook pages. Use complete sentences in your written responses.

A. Key Vocabulary

VOCABULARY TERM	DEFINITION / EXPLANATION IN YOUR OWN WORDS
Nutrients	
Carbohydrates	
Proteins	
Fats	
Vitamins	
Minerals	
Digestion	
Absorption	

B. Main Idea Questions: Answer the following questions.

1. How does the digestive system break down food into nutrients the body can use?

2. Trace the path of a piece of food from the mouth to where nutrients are absorbed into the blood.

3. Why does the body need different types of nutrients (carbohydrates, proteins, fats)?

C. Nutrient Functions Table

Nutrient	Function in the Body	Food Source
Carbohydrates		
Proteins		
Fats		
Vitamins		
Minerals		
Water		

 Lesson 4: Managing Materials
TB pp. **106–117**

Instructions: Complete each section as you read the assigned textbook pages. Use complete sentences in your written responses.

A. Key Vocabulary

VOCABULARY TERM	DEFINITION / EXPLANATION IN YOUR OWN WORDS
Circulatory system	
Heart	
Blood vessels	
Arteries	
Veins	
Capillaries	
Blood	
Lungs	
Respiratory system	
Excretion	

B. Diagram — The Heart and Blood Flow

 *Draw a simple diagram of the heart showing the four chambers, the direction of blood flow, and where blood receives oxygen. Label: right atrium, left atrium, right ventricle, left ventricle, lungs, body.*

C. Main Idea Questions: Answer the following questions.

1. Describe the pathway of blood through the circulatory system, starting from the heart.

2. How do the circulatory and respiratory systems work together to deliver oxygen to body cells?

3. What is the role of the excretory system in managing materials in the body?



Lesson 5: Controlling Processes

TB pp. 118–131

Instructions: Complete each section as you read the assigned textbook pages. Use complete sentences in your written responses.

A. Key Vocabulary

VOCABULARY TERM	DEFINITION / EXPLANATION IN YOUR OWN WORDS
Nervous system	
Brain	
Spinal cord	
Neuron	
Stimulus	
Response	
Endocrine system	
Hormone	
Feedback	
Homeostasis	

B. Main Idea Questions: Answer the following questions.

1. Describe the roles of the brain and spinal cord in controlling body processes.

2. How does the endocrine system use hormones to regulate body functions? Give one specific example.

3. What is homeostasis? Give TWO examples of how the body maintains homeostasis.

C. Diagram: *Stimulus-Response Pathway*

 **Stimulus-Response Pathway:** Draw a flow diagram showing what happens from a stimulus (e.g., touching a hot pan) to a response. Include: Stimulus → Sensory neuron → Brain/Spinal cord → Motor neuron → Response.

TOPIC 3 Reproduction and Growth



Lesson 1: Patterns of Reproduction

TB pp. 140–149

Instructions: Complete each section as you read the assigned textbook pages. Use complete sentences in your written responses.

A. Key Vocabulary

VOCABULARY TERM	DEFINITION / EXPLANATION IN YOUR OWN WORDS
Reproduction	
Sexual reproduction	
Asexual reproduction	
Fertilization	
Gamete	
Spore	
Budding	
Binary fission	

B. Differentiation: Sexual VS Asexual Reproduction

SEXUAL REPRODUCTION	ASEXUAL REPRODUCTION

C. Main Idea Questions: Answer the following questions.

1. What are the advantages and disadvantages of sexual reproduction compared to asexual reproduction?

2. Give THREE examples of organisms that reproduce asexually and describe the method each uses.



Lesson 2: Plant Structures for Reproduction

TB pp. **150–158**

Instructions: Complete each section as you read the assigned textbook pages. Use complete sentences in your written responses.

A. Key Vocabulary

VOCABULARY TERM	DEFINITION / EXPLANATION IN YOUR OWN WORDS
Flower	
Pollen	
Pollination	
Seed	
Fruit	
Germination	
Dispersal	
Stamen	
Pistil	
Ovary	

B. Diagram: *Parts of a Flower*

 *Draw and label the parts of a flower (petal, sepal, stamen, pistil, anther, filament, stigma, style, ovary). Draw arrows showing the pathway from pollen production to seed formation.*

C. Main Idea Questions: Answer the following questions.

1. Describe the process of pollination. What role do insects, wind, and water play?

2. Explain how seeds are dispersed. Give THREE methods and an example of each.

TOPIC 4 Ecosystems**Lesson 1: Living Things and the Environment**TB pp. **194–201**

Instructions: Complete each section as you read the assigned textbook pages. Use complete sentences in your written responses.

A. Key Vocabulary

VOCABULARY TERM	DEFINITION / EXPLANATION IN YOUR OWN WORDS
Ecosystem	
Biotic factors	
Abiotic factors	
Habitat	
Niche	
Population	
Community	
Biome	

B. Differentiation: Biotic Factors VS Abiotic Factors

BIOTIC FACTORS (Living)	ABIOTIC FACTORS (Non-Living)

B. Main Idea Questions: Answer the following questions.

1. What is the difference between a habitat and a niche? Give an example of each for the same organism.

2. How do abiotic factors affect the organisms living in an ecosystem?

Lesson 2: Energy Flow in Ecosystems

TB pp. **204–212**

Instructions: Complete each section as you read the assigned textbook pages. Use complete sentences in your written responses.

A. Key Vocabulary

VOCABULARY TERM	DEFINITION / EXPLANATION IN YOUR OWN WORDS
Producer	
Consumer	
Decomposer	
Food chain	
Food web	
Energy pyramid	
Herbivore	
Carnivore	
Omnivore	

B. Diagram: *Constructing a food web*

 *Construct a food web using at least 8 organisms from any ecosystem (e.g., ocean, forest, grassland). Draw arrows showing the direction of energy flow. Identify at least 2 producers, 3 consumers, and 1 decomposer.*

C. Main Idea Questions: Answer the following questions.

1. Explain why only about 10% of energy is transferred from one trophic level to the next.

2. What would happen to a food web if all the producers suddenly disappeared? Explain step by step.

**Lesson 3: Cycles of Matter + Chapter Assessment**TB pp. **214–227**

Instructions: Complete each section as you read the assigned textbook pages. Use complete sentences in your written responses.

A. Key Vocabulary

VOCABULARY TERM	DEFINITION / EXPLANATION IN YOUR OWN WORDS
Water cycle	
Carbon cycle	
Nitrogen cycle	
Evaporation	
Condensation	
Precipitation	
Decomposition	
Nitrogen fixation	

B. Choose One Cycle — Annotated Diagram

 **Choose ONE cycle (water, carbon, OR nitrogen). Draw a complete, labeled diagram showing all major steps. Annotate each step with a one-sentence explanation.**

C. Main Idea Questions: Answer the following question

1. How are the water cycle, carbon cycle, and nitrogen cycle interconnected? Give one specific example of how a change in one affects another.

TOPIC 5 Populations, Communities, and Ecosystems



Lesson 1: Interactions in Ecosystems

TB pp. 236–245

Instructions: Complete each section as you read the assigned textbook pages. Use complete sentences in your written responses.

A. Key Vocabulary

VOCABULARY TERM	DEFINITION / EXPLANATION IN YOUR OWN WORDS
Predation	
Competition	
Symbiosis	
Mutualism	
Commensalism	
Parasitism	
Predator	
Prey	
Limiting factor	

B. Symbiosis Chart

Type	Definition	Effect on Org. A	Example
Mutualism (+/+)			
Commensalism (+/0)			
Parasitism (+/-)			

C. Main Idea Questions: Answer the following question.

1. How does predation help regulate population sizes in an ecosystem?

**Lesson 2: Dynamic and Resilient Ecosystems**

TB pp. 246–252

Instructions: Complete each section as you read the assigned textbook pages. Use complete sentences in your written responses.

A. Key Vocabulary

VOCABULARY TERM	DEFINITION / EXPLANATION IN YOUR OWN WORDS
Succession	
Primary succession	
Secondary succession	
Pioneer species	
Climax community	
Resilience	
Disturbance	

B. Main Idea Questions: Answer the following questions.

1. What is ecological succession? Describe the difference between primary and secondary succession.

2. What is a pioneer species? Give an example and explain its role in primary succession.

**Lesson 3: Biodiversity**TB pp. **254–265**

Instructions: Complete each section as you read the assigned textbook pages. Use complete sentences in your written responses.

A. Key Vocabulary

VOCABULARY TERM	DEFINITION / EXPLANATION IN YOUR OWN WORDS
Biodiversity	
Species	
Extinction	
Endangered	
Threatened	
Invasive species	
Keystone species	
Conservation	

B. Main Idea Questions: Answer the following questions.

- Why is biodiversity important for the health and stability of an ecosystem?

- What are the main threats to biodiversity? List and briefly explain THREE.

- What is a keystone species? How can the removal of a keystone species affect an entire ecosystem?

TOPIC 6 Distribution of Natural Resources**Lesson 1: Nonrenewable Energy Resources**TB pp. **290–299**

Instructions: Complete each section as you read the assigned textbook pages. Use complete sentences in your written responses.

A. Key Vocabulary

VOCABULARY TERM	DEFINITION / EXPLANATION IN YOUR OWN WORDS
Nonrenewable resource	
Fossil fuel	
Coal	
Oil (petroleum)	
Natural gas	
Nuclear energy	
Uranium	
Carbon emissions	

B. Differentiation:**ADVANTAGES of Fossil Fuels****DISADVANTAGES of Fossil Fuels****B. Main Idea Questions: Answer the following questions.**

1. Why are fossil fuels classified as nonrenewable resources?

2. How does the burning of fossil fuels affect Earth's climate and atmosphere?

**Lesson 2: Renewable Energy Resources**TB pp. **300–305**

Instructions: Complete each section as you read the assigned textbook pages. Use complete sentences in your written responses.

A. Key Vocabulary

VOCABULARY TERM	DEFINITION / EXPLANATION IN YOUR OWN WORDS
Renewable resource	
Solar energy	
Wind energy	
Hydroelectric power	
Geothermal energy	
Biomass	
Tidal energy	
Sustainability	

B. Renewable Energy Comparison

Energy Source	How it Works	Advantage	Limitation
Solar			
Wind			
Hydroelectric			
Geothermal			
Biomass			

C. Main Idea Questions: Answer the following question.

1. Why is transitioning to renewable energy sources important for the future of our planet?

TOPIC 8 Waves and Electromagnetic Radiation



Lesson 1: Wave Properties

TB pp. 392–399

Instructions: Complete each section as you read the assigned textbook pages. Use complete sentences in your written responses.

A. Key Vocabulary

VOCABULARY TERM	DEFINITION / EXPLANATION IN YOUR OWN WORDS
Wave	
Wavelength	
Frequency	
Amplitude	
Crest	
Trough	
Transverse wave	
Longitudinal wave	
Medium	

C. Diagram; Labeling Wave

 *Draw a labeled wave diagram. Label: crest, trough, wavelength, amplitude, direction of wave travel. Then, below it, draw a longitudinal wave and label: compression, rarefaction, wavelength.*

1. The number of complete waves that pass a point per second is called _____
2. The maximum displacement of a wave from its resting position is its _____
3. The distance from one crest to the next is the _____

C. Main Idea Questions: Answer the following question

1. How are frequency and wavelength related? What happens to wavelength when frequency increases?

**Lesson 2: Wave Interaction****TB pp. 402–410**

Instructions: Complete each section as you read the assigned textbook pages. Use complete sentences in your written responses.

A. Key Vocabulary

VOCABULARY TERM	DEFINITION / EXPLANATION IN YOUR OWN WORDS
Reflection	
Refraction	
Diffraction	
Absorption	
Interference	
Constructive interference	
Destructive interference	

B. Matching Type: Match column A withj Column B by connecting through line.

#	Column A — Term	Column B — Description
1	Reflection	Waves bending around obstacles or through openings
2	Refraction	Wave energy is taken in by the medium
3	Diffraction	Waves combining to form a smaller amplitude wave
4	Absorption	Waves combining to form a larger amplitude wave
5	Constructive interference	Wave bouncing off a surface
6	Destructive interference	Wave bending as it changes speed between media

C. Main Idea Questions: Answer the following question.

1. Explain why a straw appears bent when placed in a glass of water. Which wave interaction is responsible?

**Lesson 3: Sound Waves****TB pp. 412–421**

Instructions: Complete each section as you read the assigned textbook pages. Use complete sentences in your written responses.

A. Key Vocabulary

VOCABULARY TERM	DEFINITION / EXPLANATION IN YOUR OWN WORDS
Sound wave	
Pitch	
Volume	
Decibel	
Echo	
Sonar	
Ultrasound	
Doppler effect	

B. Main Idea Questions: Answer the following questions.

1. How is sound produced and transmitted? Does sound need a medium to travel?

2. What is the Doppler effect? Give a real-life example.

3. How does the pitch of a sound relate to its frequency? How does volume relate to amplitude?

**Lesson 4: Electromagnetic Waves**

TB pp. 422–430

Instructions: Complete each section as you read the assigned textbook pages. Use complete sentences in your written responses.

A. Key Vocabulary

VOCABULARY TERM	DEFINITION / EXPLANATION IN YOUR OWN WORDS
Electromagnetic spectrum	
Radio waves	
Microwaves	
Infrared	
Visible light	
Ultraviolet	
X-rays	
Gamma rays	

C. Diagram: Drawing a Electronic Spectrum

 *Draw the electromagnetic spectrum from lowest to highest energy. Label all 7 regions. Below each region, write ONE practical use (e.g., radio waves → radio communication).*

C. Main Idea Questions: Answer the following question.

1. What do all electromagnetic waves have in common? How do they differ from mechanical waves like sound?

**Lesson 5: Light****TB pp. 432–441**

Instructions: Complete each section as you read the assigned textbook pages. Use complete sentences in your written responses.

A. Key Vocabulary

VOCABULARY TERM	DEFINITION / EXPLANATION IN YOUR OWN WORDS
Visible light	
Reflection	
Refraction	
Opaque	
Transparent	
Translucent	
Concave lens	
Convex lens	
Prism	

B. Main Idea Questions: Answer the following questions.

1. Why does a prism separate white light into a rainbow of colors?

2. How do concave and convex lenses bend light differently? Draw a simple diagram for each.

C. Differentiation**CONCAVE LENS (Draw & Describe)****CONVEX LENS (Draw & Describe)**

TOPIC 9 Electricity and Magnetism



Lesson 1: Electric Force

TB pp. 454–462

Instructions: Complete each section as you read the assigned textbook pages. Use complete sentences in your written responses.

A. Key Vocabulary

VOCABULARY TERM	DEFINITION / EXPLANATION IN YOUR OWN WORDS
Electric charge	
Proton	
Electron	
Static electricity	
Electric force	
Conductor	
Insulator	
Coulomb's law	

B. Differentiation: Conductors VS Insulators**CONDUCTORS — Examples & Properties****INSULATORS — Examples & Properties****C. Main Idea Questions: Answer the following questions.**

1. What is electric force? How does the distance between two charges affect the electric force between them?

2. Explain what happens when you rub a balloon on your hair. What causes the balloon to attract small pieces of paper?

**Lesson 2: Magnetic Force****TB pp. 464–471**

Instructions: Complete each section as you read the assigned textbook pages. Use complete sentences in your written responses.

A. Key Vocabulary

VOCABULARY TERM	DEFINITION / EXPLANATION IN YOUR OWN WORDS
Magnet	
Magnetic pole	
Magnetic field	
Ferromagnetic	
Pole	
Compass	
Magnetic field lines	
Earth's magnetic field	

B. Diagram: Drawing a field ines

 *Draw a bar magnet and show the magnetic field lines around it using arrows. Label the North and South poles. Show where the field is strongest.*

C. Main Idea Questions: Answer the following questions.

1. Why do like magnetic poles repel while opposite poles attract?

2. How does Earth's magnetic field protect us and how do compasses use it?

**Lesson 3: Electromagnetic Force**TB pp. **472–478**

Instructions: Complete each section as you read the assigned textbook pages. Use complete sentences in your written responses.

A. Key Vocabulary

VOCABULARY TERM	DEFINITION / EXPLANATION IN YOUR OWN WORDS
Electromagnet	
Electric current	
Coil	
Iron core	
Right-hand rule	
Magnetic field	
Solenoid	
Polarity	

B. Factors Affecting Electromagnet Strength

Factor	How to Increase Strength	Real-World Application
Number of coil turns		
Strength of current		
Core material		

C. Main Idea Questions: Answer the following questions.

1. Describe the right-hand rule. How is it used to find the direction of a magnetic field around a wire?

2. How is an electromagnet different from a permanent magnet? What is one advantage of each?

**Lesson 4: Electric and Magnetic Interactions****TB pp. 483–489**

Instructions: Complete each section as you read the assigned textbook pages. Use complete sentences in your written responses.

A. Key Vocabulary

VOCABULARY TERM	DEFINITION / EXPLANATION IN YOUR OWN WORDS
Electric motor	
Generator	
Electromagnetic induction	
Turbine	
Transformer	
Alternating current (AC)	
Direct current (DC)	

B. Differentiation: Electric motor VS Generator**ELECTRIC MOTOR (Electrical → Mechanical)****GENERATOR (Mechanical → Electrical)****C. Main Idea Questions: Answer the following questions.**

1. How does electromagnetic induction produce electricity? Describe the process in a generator.

2. What is the role of a transformer in distributing electricity from power plants to homes?

TOPIC 10 Information Technologies



Lesson 1: Electric Circuits

TB pp. 504–512

Instructions: Complete each section as you read the assigned textbook pages. Use complete sentences in your written responses.

A. Key Vocabulary

VOCABULARY TERM	DEFINITION / EXPLANATION IN YOUR OWN WORDS
Electric circuit	
Series circuit	
Parallel circuit	
Voltage	
Current	
Resistance	
Ohm's law	
Short circuit	
Switch	

B. Differentiation: Series Circuit VS Parallel Circuit**SERIES CIRCUIT — Draw & Describe****PARALLEL CIRCUIT — Draw & Describe**

1. Ohm's Law states that Voltage = Current $\times$ _____
2. In a series circuit, if one bulb burns out, all other bulbs _____
3. In a parallel circuit, each branch has the same _____

B. Main Idea Questions: Answer the following question.

1. Why are household electrical systems wired in parallel rather than in series?

**Lesson 2: Signals**TB pp. **514–523**

Instructions: Complete each section as you read the assigned textbook pages. Use complete sentences in your written responses.

A. Key Vocabulary

VOCABULARY TERM	DEFINITION / EXPLANATION IN YOUR OWN WORDS
Signal	
Analog signal	
Digital signal	
Binary code	
Bit	
Byte	
Encoding	
Bandwidth	

B. Differentiation: Analog Signal VS Digital Signals**ANALOG SIGNALS****DIGITAL SIGNALS****B. Main Idea Questions: Answer the following questions.**

1. What is the difference between an analog signal and a digital signal? Which is more reliable for transmitting information and why?

2. How is information encoded in binary (0s and 1s)? Why do computers use binary?



Lesson 3: Communication and Technology

TB pp. 526–539

Instructions: Complete each section as you read the assigned textbook pages. Use complete sentences in your written responses.

A. Key Vocabulary

VOCABULARY TERM	DEFINITION / EXPLANATION IN YOUR OWN WORDS
Telecommunication	
Satellite	
Fiber optics	
Internet	
Wireless communication	
Electromagnetic wave	
Bandwidth	
Data compression	

B. Main Idea Questions: Answer the following questions.

1. How do satellites enable global communication? What type of waves do they use?

2. What is the role of fiber optics in modern communication? How do they transmit information?

3. Describe how information travels from a person sending a text message to the person receiving it. Include all the technology involved.

D. Technology Impact — Reflection

How has modern communication technology changed society? Discuss ONE positive and ONE negative impact, using scientific concepts from this topic to support your answer:

MY LEARNING SELF-ASSESSMENT

Rate your confidence in each topic after completing the lesson.

Topic / Lesson	😞 Need Help	😬 Getting It	😊 Got It!	★ Mastered!
Topic 1: The Cell System				
Lesson 1: Structure and Function of Cell	☐	☐	☐	☐
Lesson 2: Cell Structures	☐	☐	☐	☐
Lesson 3: Obtaining and Removing Materials	☐	☐	☐	☐
Lesson 4: Cell Division	☐	☐	☐	☐
Lesson 5: Photosynthesis	☐	☐	☐	☐
Lesson 6: Cellular Respiration	☐	☐	☐	☐
Topic 2: Human Body Systems				
Lesson 1: Body Organization	☐	☐	☐	☐
Lesson 2: Systems Interacting	☐	☐	☐	☐
Lesson 3: Supplying Energy	☐	☐	☐	☐
Lesson 4: Managing Materials	☐	☐	☐	☐
Lesson 5: Controlling Processes	☐	☐	☐	☐
Topic 3: Reproduction and Growth				
Lesson 1: Patterns of Reproduction	☐	☐	☐	☐
Lesson 2: Plant Structures for Reproduction	☐	☐	☐	☐
Topic 4: Ecosystems				
Lesson 1: Living Things and the Environment	☐	☐	☐	☐
Lesson 2: Energy Flow in Ecosystems	☐	☐	☐	☐
Lesson 3: Cycles of Matter, Chapter Assessment	☐	☐	☐	☐
Topic 5: Populations, Communities, and Ecosystems				
Lesson 1: Interactions in Ecosystems	☐	☐	☐	☐
Lesson 3: Biodiversity	☐	☐	☐	☐
Topic 6: Distribution of Natural Resources				

Lesson 1: Nonrenewable Energy Resources	☐	☐	☐	☐
Lesson 2: Renewable Energy Resources	☐	☐	☐	☐
Topic 8: Waves and Electromagnetic Radiation				
Lesson 1: Wave Properties	☐	☐	☐	☐
Lesson 2: Wave Interaction	☐	☐	☐	☐
Lesson 3: Sound Waves	☐	☐	☐	☐
Lesson 4: Electromagnetic Waves	☐	☐	☐	☐
Lesson 5: Light	☐	☐	☐	☐
Topic 9: Electricity and Magnetism				
Lesson 1: Electric Force	☐	☐	☐	☐
Lesson 2: Magnetic Force	☐	☐	☐	☐
Lesson 3: Electromagnetic Force	☐	☐	☐	☐
Lesson 4: Electric and Magnetic Interactions	☐	☐	☐	☐
Topic 10: Information Technologies				
Lesson 1: Electric Circuits	☐	☐	☐	☐
Lesson 2: Signals	☐	☐	☐	☐
Lesson 3: Communication and Technology	☐	☐	☐	☐