

**MATATAG → Science → Grade 9**

Topic	FILENAME	File Type	Level of Skill Progression
<b>Q1: FORCE, MOTION, AND ENERGY</b>			
<b>Force and Motion: Newton's Laws</b>	PRO_Video - Forces: Inertia	video	Proficient
	PRO_Video - Newton's First Law of Motion	video	Proficient
	PRO_Video - Understanding Inertia	video	Proficient
	HPR_Video - Newton's Second Law of Motion 2	video	Highly Proficient
	PRO_Video - Newton's Second Law of Motion 1	video	Proficient
	PRO_Video - Newton's Third Law of Motion 1	video	Proficient
	HPR_Video - Newton's Third Law of Motion 2	video	Highly Proficient
	PRO_Discussion Presentation and Printable Worksheet - Projectile Motion	ppt and pdf	Proficient
	PRO_Discussion Presentation and Printable Worksheet - Linear Momentum and Its Conservation	ppt and pdf	Proficient
	DEV_Printable Worksheet - Inertia	PDF	Developing
	PRO_Discussion Presentation - Inertia	powerpoint	Proficient
	PRO_Discussion Presentation and Printable Worksheet - Acceleration	ppt and pdf	Proficient
	DEV_Printable Worksheet - Action-Reaction	PDF	Developing
	PRO_Discussion Presentation - Action-Reaction	powerpoint	Proficient
	DEV_eContent - Laws of Motion	html	Developing
	PRO_Video - Exploring Acceleration	video	Proficient
	HPR_Video - Introduction to Acceleration	video	Highly Proficient
	DEV_Printable Worksheet - Mechanical Energy	PDF	Developing
	PRO_Discussion Presentation - Mechanical Energy	powerpoint	Proficient
	PRO_Discussion Presentation and Printable Worksheet - Applications of the Law of Conservation of Mechanical Energy	ppt and pdf	Proficient
<b>Electric Current:</b> Electricity is a flow of electrons and can be measured and understood using current, voltage, and resistance in circuits.	PRO_Video - Electricity: Current	video	Proficient
	HPR_Video - Electricity	video	Highly Proficient
	HPR_Video - Electricity: Wires	video	Highly Proficient
	PRO_Video - Energy Transfers in Electricity Production	video	Proficient
	PRO_Discussion Presentation and Printable Worksheet - Introduction to Thermodynamics	ppt and pdf	Proficient
	HPR_Discussion Presentation and Printable Worksheet - Heat Engines	ppt and pdf	Highly Proficient
	PRO_Discussion Presentation and Printable Worksheet - Electric Power and Energy	ppt and pdf	Proficient
	PRO_Discussion Presentation and Printable Worksheet - Energy Generation, Transmission, and Distribution	ppt and pdf	Proficient
	DEV_Printable Worksheet - Electricity: The Charging Process	PDF	Developing
	PRO_Discussion Presentation - Electricity: The Charging Process	powerpoint	Proficient
	PRO_Discussion Presentation and Printable Worksheet - Electrical Energy and Current	ppt and pdf	Proficient
	PRO_Video - Series and Parallel Circuits 2	video	Proficient
	PRO_Video - Series and Parallel Circuits 1	video	Proficient
	DEV_Video - Electrical Circuits: Parallel Circuits	video	Developing
	PRO_Discussion Presentation and Printable Worksheet - Circuit and Circuit Elements	ppt and pdf	Proficient
	DEV_Printable Worksheet - Series and Parallel Circuits	PDF	Developing
	PRO_Discussion Presentation - Series and Parallel Circuits	powerpoint	Proficient
	PRO_eContent - Series and Parallel Circuits	html	Proficient

<b>Electromagnetic Waves:</b> Scientists and engineers use electromagnetic radiation to design modern technologies that benefit people and society.	DEV_Video - Electromagnetic Radiation	video	Developing
	PRO_Video - Electromagnetic Waves	video	Proficient
	PRO_Video - Uses and Applications of Electromagnetic Waves	video	Proficient
	DEV_Video - EMR Spectrum	video	Developing
	DEV_Video - The Nature of Light: Electromagnetic Spectrum	video	Developing
	DEV_Printable Worksheet - Electromagnets	PDF	Developing
	PRO_Discussion Presentation - Electromagnets	powerpoint	Proficient
	DEV_Printable Worksheet - Electromagnetic Waves	PDF	Developing
	PRO_Discussion Presentation - Electromagnetic Waves	powerpoint	Proficient
	BEG_eContent - Electromagnetic Waves	html	Beginning

Q2: EARTH AND SPACE SCIENCE			
Plate Boundaries	PRO_Video - Exploring Continental Drift	powerpoint	Proficient
	PRO_Video - The Theory of Continental Drift	PDF	Proficient
	PRO_Video - Great Minds: Marie Tharp, the Scientist Who Mapped the Seafloor	video	Proficient
	BEG_Video - 3 Types of Rocks and the Rock Cycle	video	Beginning
	PRO_Discussion Presentation - Plate Boundaries	powerpoint	Proficient
	DEV_Printable Worksheet - Plate Boundaries	PDF	Developing
	PRO_Discussion Presentation - Earth's Internal Structure and Active Volcanoes	powerpoint	Proficient
	DEV_Printable Worksheet - Earth's Internal Structure and Active Volcanoes	PDF	Developing
	BEG_Discussion Presentation and Printable Worksheet - The Sun and the Planets	ppt and pdf	Beginning
	DEV_Discussion Presentation and Printable Worksheet - Other Members of the Solar System	ppt and pdf	Developing
	PRO_Video - Plate Tectonics	video	Proficient
	BEG_Video - Plate Boundary	video	Beginning
	DEV_Video - Plate Boundaries	video	Developing
Structure of the Earth: (a) Radioactive decay of material inside the Earth since it was formed is its internal source of energy. (b) The Earth's interior is made up of layers of varying characteristics.	PRO_Video - GCSE Physics: Seismic Waves	video	Proficient
	PRO_Video - Anomalous Structures Around the Earth's Core	video	Proficient
	PRO_Video - An Overview of Earth's Layers	video	Proficient
	HPR_Video - Earth's Structure and Its Different Layers	video	Highly Proficient
Geologic time: (a) The movement of lithospheric plates provides a theory for understanding Earth's geological history. (b) The geological time scale organizes major stages in the history of the Earth over more than 4 billion years.	PRO_Video - Layers of History	video	Proficient
	PRO_Video - Relative Age of Fossils	video	Proficient
	HPR_Video - Methods of Dating the Earth Part 1	video	Highly Proficient
	HPR_Video - Methods of Dating the Earth Part 2	video	Highly Proficient
	DEV_Video - Geologic Time	video	Developing
	PRO_Video - Seismic Waves	video	Proficient
	PRO_Video - The Geologic Time Scale	video	Proficient
Origin of the Solar System: (a) Models represent the size, structure, and relationship of components of the Solar System. (b) Observable evidence and models help explain the nature and origin of the Solar System.	BEG_Video - Formation of Solar System	video	Beginning
	PRO_Video - The Origin of the Solar System	video	Proficient
	PRO_Video - The Orionid Meteor Shower	video	Proficient
	HPR_Video - The Perseid Meteor Shower	video	Highly Proficient
	HPR_Video - TED: 6 Space Technologies We Can Use to Improve Life on Earth	video	Highly Proficient
Space Technologies	HPR_Video - NASA in Silicon Valley: Steve Ord Talks About Launching New Technologies into Space	video	Highly Proficient
	PRO_Video - NASA: National Aeronautics and Space Administration	video	Proficient

Q3: LIFE SCIENCE			
<b>DNA Replication and Mutations:</b> Transmission of traits is determined by DNA, genes, and chromosomes.	PRO_Discussion Presentation - Genes and Chromosomes	powerpoint	Proficient
	DEV_Printable Worksheet - Genes and Chromosomes	PDF	Developing
	PRO_Discussion Presentation - Protein Synthesis	powerpoint	Proficient
	DEV_Printable Worksheet - Protein Synthesis	PDF	Developing
	PRO_Discussion Presentation - Mutations	powerpoint	Proficient
	DEV_Printable Worksheet - Mutations	PDF	Developing
	HPR_Video - Genetics in Our Lives: DNA	video	Highly Proficient
	HPR_Video - What Is DNA? Structure and Function of DNA	video	Highly Proficient
	PRO_Video - Chromosomes	video	Proficient
	HPR_Video - DNA, Chromosomes, Genes, and Traits	video	Highly Proficient
	PRO_Video - What Are Mutations and What Are the Different Types of Mutations?	video	Proficient
	HPR_Video - Mutations 2	video	Highly Proficient
	HPR_Video - Mutations 1	video	Highly Proficient
	PRO_Video - Mutations and Natural Selection	video	Proficient
	HPR_Video - Mutations 3	video	Highly Proficient
	PRO_Video - TED ED Rosalind Franklin DNA's unsung hero	video	Proficient
	BEG_eContent - Location of Genes in Chromosomes	html	Beginning
<b>Biodiversity and Endangered Species:</b> (a) High biodiversity means populations are more likely to overcome adverse conditions. (b) Human activities can adversely affect animals and plants in a variety of ecosystems.	BEG_Discussion Presentation and Printable Worksheet - Interactions among Living Things and Nonliving Things in Estuaries	ppt and pdf	Beginning
	BEG_Discussion Presentation and Printable Worksheet - Interactions among Living and Nonliving Things in Intertidal Zones	ppt and pdf	Beginning
	DEV_Discussion Presentation - Conservation of Biodiversity	powerpoint	Developing
	BEG_Printable Worksheet - Conservation of Biodiversity	PDF	Beginning
	PRO_Discussion Presentation - Energy Flow in Ecosystems	powerpoint	Proficient
	DEV_Printable Worksheet - Energy Flow in Ecosystems	PDF	Developing
	PRO_Discussion Presentation - Extinction and Its Causes	powerpoint	Proficient
	DEV_Printable Worksheet - Extinction and Its Causes	PDF	Developing
	PRO_Discussion Presentation and Printable Worksheet - Biodiversity and Survival of Organisms	ppt and pdf	Proficient
	PRO_Video - Surprising Reasons Why We Need Biodiversity	video	Proficient
	HPR_Video - Why Does Biodiversity Matter To Me?	video	Highly Proficient
	PRO_Video - Threatened, Endangered, and Extinct	video	Proficient
	PRO_Video - Why Is Biodiversity Important?	video	Proficient
	HPR_Video - The Sixth Extinction: Human Impact on Earth's Biodiversity	video	Highly Proficient
	HPR_Video - Biodiversity	video	Highly Proficient
	PRO_Video - Attempting De-Extinction	video	Proficient
	BEG_Video - Endangered Animals: An Outline	video	Beginner
	BEG_Video - Biodiversity on Earth	video	Beginning

Types of Ecosystems in the Philippines	DEV_Discussion Presentation - Protecting and Conserving the Ecosystems	powerpoint	Developing
	PRO_Printable Worksheet - Protecting and Conserving the Ecosystems	PDF	Beginning
	DEV_Discussion Presentation - Ecological Relationships	powerpoint	Developing
	BEG_Printable Worksheet - Ecological Relationships	PDF	Beginning
	DEV_Discussion Presentation - Changes in an Ecosystem	powerpoint	Developing
	BEG_Printable Worksheet - Changes in an Ecosystem	PDF	Beginning
	DEV_Discussion Presentation - Energy Flow in Ecosystems	powerpoint	Developing
	BEG_Printable Worksheet - Energy Flow in Ecosystems	PDF	Beginning
	BEG_Video - Ecosystems 1	video	Beginning
	BEG_Video - Ecosystems 2	video	Beginning
	DEV_Video - TED-ED by Jennifer Klos: The Threat of Invasive Species	video	Developing
	HPR_Video - Human Impacts on Biodiversity	video	Highly Proficient
	DEV_Video - How Do People Disrupt Ecosystems?	video	Developing

Q4: SCIENCE OF MATERIALS			
<b>Valid and Reliable Investigations:</b> Valid and reliable scientific investigations include identification and control of variables.	PRO_Video - Single and Double Replacement Reactions	video	Proficient
	HPR_Video - Precipitate Formation	video	Highly Proficient
<b>Chemical Bonding</b>	PRO_Discussion Presentation - Ionic Bonding	powerpoint	Proficient
	DEV_Printable Worksheet - Ionic Bonding	PDF	Developing
	PRO_Discussion Presentation - Formation of Covalent Compounds	powerpoint	Proficient
	DEV_Printable Worksheet - Formation of Covalent Compounds	PDF	Developing
	PRO_Discussion Presentation and Printable Worksheet - Naming of Covalent Compounds and Identifying Their Molecular Geometry	ppt and pdf	Proficient
	PRO_Discussion Presentation - Metallic Bonding and its Properties	powerpoint	Proficient
	DEV_Printable Worksheet - Metallic Bonding and its Properties	PDF	Developing
	PRO_Video - Introduction to Chemical Bonding	video	Proficient
	HPR_Video - Chemical Bonds: Covalent Vs. Ionic	video	Highly Proficient
	HPR_Video - What Are Valence Electrons and How to Find Them?	video	Highly Proficient
	HPR_Video - Bohr's Model of the Atom and the Concept of Valency	video	Highly Proficient
	HPR_Video - Atoms and the Periodic Table	video	Highly Proficient
	HPR_Video - Electron Energy Levels and Valency	video	Highly Proficient
	HPR_Video - Ionic Bonds	video	Highly Proficient
	HPR_Video - Forming Bonds: Ionic Bonds	video	Highly Proficient
	PRO_Video - Ionic Vs. Covalent Compounds: What's the Difference	video	Proficient
	PRO_Video - Covalent Bonds	video	Proficient
	HPR_Video - Covalent Bonding In Carbon Dioxide	video	Highly Proficient
	HPR_Video - How Does Water Bond?	video	Highly Proficient
	PRO_Video - Ionic vs Covalent Compounds - What's the Difference?	video	Proficient
	PRO_Video - Understanding Covalent Bonds	video	Proficient
	HPR_Video - Ionic Compounds: Their Properties	video	Highly Proficient
	HPR_Video - Covalent Molecules	video	Highly Proficient
	PRO_Discussion Presentation - Metallic Bonding and its Properties	powerpoint	Proficient
	DEV_Printable Worksheet - Metallic Bonding and its Properties	PDF	Developing
	HPR_Video - What Are Metallic Bonds?	video	Highly Proficient
	DEV_eContent - Ionic and Covalent Bonds	html	Developing
<b>Chemical Formula:</b> (a) Symbols for the elements are used as a basis for writing chemical formula of compounds. (b) The properties of pure substances depend on the type of bonding within them.	PRO_Video - Formula of Ionic Compounds	video	Proficient
	PRO_Video - Writing Names: Chemical Formula	video	Proficient
	PRO_Video - Here's Why You Should NEVER Mix Bleach and Ammonia	video	Proficient
	DEV_eContent - Properties of Compounds	html	Developing