

Curriculum Description: Grade 5 Science

Welcome to an exciting world of discovery! Our Grade 5 Science course is designed to ignite curiosity, encourage exploration, and foster the development of scientific thinking in young learners. This course aligns with the standard curriculum, and it is tailored to engage 5th-grade students in the fascinating world of science, making it both fun and educational. The Course covers Life Science, Earth Science, Physical Science, Space and Astronomy, Environmental Science.

Course Content:

- The environment.
- Organisms.
- Natural resources and energy sources.
- Chemical elements and compounds.
- Light and sound.
- Food and health.
- Organs of the human body.
- Matter.
- Motion and Force.
- Energy.
- Earth.
- Meteorology.
- Growth and heredity.

Throughout the course, students will engage interactive practices, gamification, and interactive activities. They will also learn the scientific method – the process of making observations, forming hypotheses, conducting experiments, and drawing conclusions.

By the end of this course, students will have a strong foundation in science, preparing them for more advanced studies. They will not only learn scientific facts but also develop critical thinking and problem-solving skills, which are essential in today's world.

Whether your child aspires to be a scientist or simply has a natural curiosity about how the world works, this course promises to be an exciting journey of discovery and learning. The hands-on nature of the course and the real-world applications of the concepts learned will help make science come alive for your 5th grader.

Please note: This course meets all national standards for Grade 5 Science education, in USA, Jordan and other similar educational curriculum.

Join us for a year of exciting exploration in the world of science!

The following are the most prominent curriculum content, curriculum chapters, and science skills covered in the course:

#	Unit	Skills
1	Chapter 1: Environment	• The concept of the ecosystem, identifying the components of the ecosystem • the concept of habitat, • the concept of the biotic community, • the concept of biodiversity, • the concept of adaptation • explaining examples of adaptation of living organisms • the concept of natural balance, • clarifying the balanced and unbalanced ecosystem • identifying natural changes in the environment, • changing the topography of the earth, natural disasters, climate changes • clarifying the factors that change the topography of the earth (wind, water movement, etc) • mentioning some disasters that change the surface of the earth (hurricanes, earthquakes, etc.) • identifying the impact of climate changes on the earth's surface, • identifying the impact of living organisms on the environment (overfishing, overgrazing, destroying forests, etc.) • explaining types of pollutions, • concept of extinction, • clarification of how ecosystems change, • concept of environmental succession • explanation of natural resources and their types, • concept of natural resources, • identification of how to protect natural resources • concept of natural reserve, • clarification of the importance of nature reserves, • concept of afforestation • concept of greenhouses, concept of restoration recycling, and • showing how to protect endangered plants.
2	Chapter Two: Diversity of Organisms.	• Classification of plants into groups (seeded plants, seedless plants), • the concept of seed and seedless plants • examples of seed and seedless plants, • mentioning groups of seed plants (anthers, gymnosperms) • the concept of angiosperms, examples of angiosperms • mention the divisions of angiosperms (cotyledons, dicotyledons) • explain the importance of plants in human life, • classify animals into two groups (vertebrates, invertebrates) • the concept of vertebrates and invertebrates clarification of vertebrate groups (fishes, amphibians, reptiles, birds, mammals) • mention the characteristics of animal groups, • clarify invertebrate groups (mollusks, arthropods, worms), • mention the characteristics of invertebrate groups • clarify the importance of animals in human life, • the concept of fungi, clarify the characteristics of fungi, • clarify the importance of fungi to humans, and • the concept and importance of decomposers.
3	Chapter Three: Natural Resources and Energy Sources	• The concept of natural resources, mention examples of natural resources, the concept of renewable resources, mentioning examples of renewable resources

		- the concept of non-renewable resources, mention examples of non-renewable resources, - the concept of mineral resources, the concept of energy sources - mention the types of energy sources (renewable sources, non-renewable sources), - the concept of renewable and non-renewable sources - the importance of fossil fuels, and - mention examples of energy transformations.
4	Chapter Four: Chemical Elements and Compounds	- The concept of the element, the concept of the atom, mention examples of elements in the solid, liquid, and gaseous states - the concept of symbols of elements, the importance of symbols of elements, - identify the names of some elements and their symbols, identify the properties of some elements - the concept of the compound, mentioning examples of some compounds and their uses, - identify the symbols of some compounds and their constituent elements, - identify the properties of some compounds - distinguish between the properties of compounds and the properties of the elements, the concept of mixture, - identify the types of mixtures, the concept of a heterogeneous mixture - the concept of the solution, mention examples of heterogeneous mixtures, mention examples of solutions, distinguish between a mixture and a solution - identify methods for separating components of a heterogeneous mixture, - identify methods for separating components of a solution, and - identify the parts of a distillation apparatus.
5	Chapter Five: Light and Sound	- Identify the characteristics of light, clarify the concept of refraction of light, - identify some applications of light refraction (lens, rainbow), - the concept of lenses, identify types of lenses (convex lens, concave lens) - distinguish between a convex lens and a concave lens, the concept of true focus, - identify the characteristics of the arches in the convex lens, identify the characteristics of the arches in the concave lens - clarify the rainbow phenomenon, clarify how sound originated, the concept of water and sound waves, clarify the transmission of sound through materials - explain the compressions and rarefactions in the movement of air particles, - explain the mechanism of action of vocal strings, the concept of the medium, clarify the transmission of sound in liquids and solid materials - identify the properties of sound (velocity of sound, sound reflection, sound absorption), - the concept of the speed of sound, the concept of sound reflection - explain the importance of sound reflection, - the concept of echo phenomenon and sound absorption - explain the effect of hard and smooth materials on sound reflection and absorption, - explain the effect of soft and coarse materials on sound reflection - mention examples of hard materials that reflect the sound well, mention examples of soft and rough materials that absorb sound well, identify the parts of the ear and their functions - explain how humans and animals hear sound, identify the importance of ear care, the concept of sound intensity,

		• identify the factors that affect the intensity of sound, the concept of pitch • clarification of how thick and sharp sounds originated, the concept of sound type, the classification of sounds into sounds we are comfortable hearing and sounds we are not comfortable hearing, and the concept of noise.
6	Chapter Six: Food and Health	• Identify the main food groups (carbohydrates, proteins, fats, vitamins, mineral salts) • identify the importance of the main food groups • identify the types of foods rich in each of the main food groups • identify the effects of decreasing or increasing some substances in food to determine the outcome on the health of the body, and • explain balanced food concept.
7	Chapter Seven: The organs of the human body	• The concept of the digestive process, • identify the parts of the digestive system, • clarify the mechanism of food digestion by the digestive system • the importance of the urinary system, • identify the parts of the urinary system, • the concept of skin, • clarify the importance of the respiratory system • identify the parts of the respiratory system, • identify the function of each part of the respiratory system, • clarification of the types of respiratory movements (inhalation, exhalation) • clarification of the mechanism of action of respiratory movements, • clarify the importance of the circulatory system, • identify the parts of the circulatory system, • identify the function of each part of the circulatory system • identify the types of blood vessels (arteries, veins, capillaries), • identify the importance of the skeletal system, • identify the parts of the skeletal system • identify the importance the muscular system, • identify the types of muscles in the human body (skeletal, smooth, cardiac), and • distinguish the age of the types of muscles in the human body.
8	Chapter Eight: Matter	• Identify the properties of matter (mass, weight, density), • the concept of physical properties, • the concept of mass, identify tools for measuring mass, • identify units of mass measurement (grams, kilograms) • the concept of weight, identify the unit of weight (newtons), • identify the relationship between body weight and mass, • the relationship between density, mass and volume, • the concept of density • the definition of the unit of measurement for density (grams/cubic centimeter), • identify how to calculate density • the concept of buoyancy force, • explanation of the buoyant force, • review some examples of buoyant force • the concept of physical change, identify the effect of high temperature on different materials, • the concept of fusion, evaporation, boiling, and sublimation • mention examples of the sublimation process,

		• identify the effect of low temperature on different materials, • the concept of condensation, the concept of freezing • identify the relationship between a change in the state of a substance and its temperature, the concept of thermal expansion, the concept of thermal contraction, and clarification of the mechanism of material expansion and contraction in the temperature scale.
9	Chapter Nine: Motion and Force	• The concept of position, motion, and velocity, the definition of the law of speed, the identification of units of measurement of speed, the concept of constant velocity • solving some applications on the law of speed, the effect of force on objects • identify the force of action and reaction, mention examples of action and reaction force • the concept of the force of friction, the definition of magnetic force, the definition of the electrostatic force, and the concept of the force of gravity.
10	Chapter Ten: Energy	• The concept of energy, identify the forms of energy and its uses, the concept of kinetic energy, • identify the factors on which kinetic energy depends (body speed, body mass) • the concept of potential energy, • identify the factors on which potential energy depends, the concept of energy transformations, give an example of mechanical energy transformations • identify energy chains, mention examples of energy chains, • identify energy sources, • identify alternative sources of energy, and • explain how to rationalize energy consumption.
11	Chapter Eleven: The Earth	• Identify the Earth's layers and their characteristics, identify the Earth's covers (hydrosphere, lithosphere, atmosphere, biosphere), identify the importance of the Earth's covers and the relationships between them, identify some changes on the Earth's surface • the concept of plates, • identify internal geological processes (earthquakes, volcanoes, geological structures), • the concept of earthquake and earthquake intensity, • identify the factors on which the intensity of earthquakes depends • identify public safety measures during an earthquake, • the concept of a volcano and lava, identify the stages of development of the volcano, identify the terrain arising from the volcano • the concept of geological structures, • explanation of the types of geological structures (fold, fault), • identification of external geological processes (weathering, erosion, sedimentation) • the concept of weathering, identification of weathering factors such as (rain, temperature change, etc.), • the concept of transportation, erosion, and sedimentation • explain the reason for the diversity of sedimentary rocks, • the concept of fossil, clarify the stages of fossil formation, • clarify the conditions for the fossilization process • clarification of fossilization methods (preservation of the original hard parts, petrification of solid parts, molds and models, prints), clarification of the characteristics of fossilization methods

		• mention some types of fossils formed by the petrification of hard parts, • clarification of the stages of formation of templates and models • distinguish between fossils of living organisms through prints, • identification of the benefits of fossils, • the concept of geological time scale, and the concept of epoch.
12	Chapter Twelve: Meteorology	• Identify the weather phenomena arising from condensation (clouds, fog, dew, frost, freezing), the concept of precipitation, identify the forms of precipitation, explain the forms of precipitation and how they arise, the concept of the amount of precipitation • the concept of dams, • the identification of the troposphere and its characteristics, • the concept of weather, • identification of the units of temperature measurement (Celsius), • the concept of humidity • the identification of the hygrometer, • The concept of atmospheric pressure, the identification of the atmospheric pressure measuring device (barometer) • the identification of the impact of weather elements on the movement of air and the formation of clouds, and • The identification of the importance of a weather map.
13	Chapter Thirteen: Growth and Genetics	• The concept of growth, • Identify the reason for the difference in growth from one person to another, identify the stages of growth, • Identify the characteristics of each stage, • The concept of deciduous and permanent teeth, • The concept of genetic traits and genetics, and • Identify some genetic traits in humans.