Curriculum Description: Science Grade 4

The Grade 4 Science Expedition is a comprehensive course designed to stimulate the curious minds of our young learners and foster their enthusiasm for scientific exploration. This course is carefully aligned with national education standards (USA/Jordan), offering children a well-rounded understanding of various scientific concepts, principles and phenomena.

The course curriculum delves into a wide range of fascinating topics, including energy, the earth's systems and environment, plants and animals, Classification of plants and animals and their reproduction, Relationships between Organisms, The human body and its health, and Matter. . Our tried-and-tested interactive teaching methods ensure that the learning process is both engaging and enjoyable.

In the Energy and Force module, students will explore the fundamentals of physics by examining how things move, the effects of forces such as gravity, electricity, light, and magnetism, and the transfer and conversion of energy.

In the Earth's Systems and Natural Resources module, students will gain an understanding of geological processes, weather patterns, and the importance of conservation. They will learn the value of caring for our environment through lessons on recycling, renewable energy, and biodiversity.

The Plants and Animals module allows students to delve into the world of biology. They will learn about different species of animals and plants, their life cycles, and habitats. With hands-on experiments, such as growing a plant from a seed, students will understand the processes of photosynthesis and germination.

Lastly, in the Space Exploration module, the universe becomes the classroom. Students will learn about our solar system, constellations, and basic principles of astronomy. They might create a model of the solar system, enhancing their understanding of planets, their orbits, and their relationships with the sun and each other.

The Grade 4 Science Expedition goes beyond textbooks, incorporating experiments, educational videos, interactive projects, and field trips to make science both fun and practical. Our aim is not just to teach but to inspire our students, encouraging them to question, explore, and discover the world around them. We strongly believe that this early immersion into scientific learning will lay a strong foundation for their future academic endeavors in the field of science.

To teach skills in this course, the course uses a variety of teaching methods to ensure mastery of the intended skills, as well as the correct applications of said skills and acquired knowledge.

Different teaching methods include: Engaging video explainers, AI, video lectures, advanced graphics and animations, interactive exercises, games, interactive illustrations, various assessment modes, and online exams.

Please note: This course meets all national standards for Grade 4 Science education, in USA, Jordan and other similar educational curriculum.

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

#	Unit	Skills
1	Chapter 1: Classification of Plants and Animals	• The concept of classification • the characteristics of the mammalian group • the characteristics of the reptile group • the characteristics of the bird group • the characteristics of the insect group • the characteristics of the fish group • the characteristics of the amphibian group • the identification of the classification key and its importance • the explanation of how to use the classification key • the clarification of plant varieties (vascular, non-vascular) • clarification varieties of vascular plants (seeded, non-seeded) • the concept of vectors, identification of types of vectors • mentioning the method of propagation of seed and seedless vascular plants • clarification of the types of seed plants (flowering, non-flowering).
2	Chapter Two: Reproduction of Plants and Animals	• Determining the importance of the flower, identifying the parts of the flower, determining the male and female member of the flower • the concept of the process of pollination, the concept of fertilization, explaining how the process of pollination and fertilization occurs in the flower • explaining the life cycle of flowering plants, explaining the life cycle of non-flowering plants • mentioning the needs of each stage of the life cycle of plants, clarification of the impact of the environment on plant reproduction and growth • clarification of reproduction by creeping stems, clarification of vegetative reproduction (propagation by bulbs, reproduction by tubers, etc), clarification of reproduction by seeds • concept of adult animals, clarification of the similarities And the difference between parents and offspring • mentioning the ways of animal reproduction, explaining the life cycle of animals that reproduce with eggs, and explaining the life cycle of animals that reproduce by birth.
3	Chapter Three: Relationships between organisms in an ecosystem	• Clarification of the relationship between organisms in the environment • the concept of predation and examples of the relationship of predation between organisms

		• the concept of competition and examples of the relationship of competition between organisms • the concept of symbiosis and examples of the relationship of symbiosis between organisms, the concept of trade-offs • examples of the mutualistic relationship between living organisms, the concept of decomposers • defining the components of the ecosystem, the concept of the biotic community • the concept of habitat, and clarification of the lifestyle of some living organisms.
4	Chapter Four: The human body and its health	• The importance of the five senses, the relationship of the five senses to the brain, clarifying the role of the five senses in learning, clarifying the relationship of the five senses with each other • the concept of physical health, the concept of mental and emotional health • the concept of drugs, determining the importance of drugs, mentioning the types of drugs, and determining the importance of pharmaceuticals.
5	Chapter Five: Matter	• The concept of matter, volume, and mass, mentioning the units of mass measurement, mentioning the units of volume • identifying the volume measuring instrument, explain how to measure mass, explain how to calculate volume • the concept of temperature and how to measure temperature, clarifying the unit of heat measurement, stating the states of matter • showing the melting, boiling, and freezing points of water, explaining the factors that affect the rate of evaporation, explaining how to slow down the evaporation process • clarifying the dissolution process, explaining how to test the dissolution process, explaining the physical and chemical changes of a substance • clarifying the concept of reversible and irreversible change, mentioning examples of chemical changes, providing examples on physical changes • the concept of soluble and insoluble substances, and the distinction between soluble substances and insoluble substances.
6	Chapter Six: Light	• The concept of light, identifying light sources (natural light source, artificial light source), giving examples of light sources, explaining how light travels • concept of light reflection, explaining types of light reflections (regular, irregular) • Explaining how we see things around us, identifying the importance of the pupil for vision, explaining pupil changes • identifying the types of materials in terms of the passage of light (transparent, semi-transparent, opaque) • the concept of transparent, semi-transparent, and opaque materials • mentioning examples of transparent, semi-transparent, and opaque materials • explaining how shadows are formed, explaining how the direction of light changes, and enumerate materials that change the direction of light.
7	Chapter Seven: The Universe and Earth	• The concept of the Universe, the concept of the solar system, mentioning the planets of the solar system, the description of the characteristics of each planet of the solar system

		• the concept of the Earth's axis, clarification of how day and night occur, day and night modeling, the concept of orbit, clarification of how the four seasons occur, and defining the characteristics of the four seasons.
8	Chapter Eight: Power and Energy	• Defining the types of forces, determining the effect of force on static bodies and moving objects • the concept of frictional force, mentioning examples of frictional force, the concept of contact force, mentioning examples of contact forces, the concept of distance effect force, mentioning examples of forces of distance effect • identifying forms of energy (kinetic energy, potential energy), the concept of kinetic and potential energy, explaining energy transformations.
9	Chapter Nine: Electricity	• Determining the types of electricity (static electricity, mobile electricity), mentioning examples of static electricity, the concept of electric current • clarifying the impact of electric current in our lives, distinguishing between static electricity and mobile electricity, the concept of a simple electric circuit • defining the components of a simple electric circuit, explaining the functions of a simple electric circuit components, showing how to make a simple electrical circuit • distinguish between an open circuit and a closed circuit, the concept of a conductive material, • the concept of an insulating material • an explanation of how to test a conductive material and an insulating material, mentioning examples of electrically conductive materials • mentioning examples of insulating materials, mentioning the importance of conductive materials and insulators in our lives, the concept of the socket, the concept of the electric switch • The explanation of the importance of the electric switch, mentioning of the shapes of the switches, and • Explaining how to make an electric switch in different ways.
10	Chapter Ten: Natural Resources in the Environment	• The concept of natural resources, mentioning the types of natural resources, the concept of biological resources • the concept of fossil fuels, explaining the uses of fossil fuels, mentioning the types of fossil fuels • explaining the stages of oil formation, explaining how oil is extracted, explaining the uses of oil • explaining the impact of fossil fuel combustion, the concept of climate, the concept non-vital resources • explaining the importance of water, the concept of water bodies, • The concept of minerals, mentioning examples of minerals, • Understanding rocks • explaining the importance of minerals in our lives, mentioning examples of rocks, and explaining the uses of rocks.