Science

Course Description

1

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Series Description

This EduSystem's Science K-6 series was developed based on the curricular design Puerto Rico Core Standards and the Curriculum Framework created by the Department of Education of Puerto Rico. Additionally, the content has been enriched with curricular frameworks developed by other educational entities and private schools.

This series presents the content in a dynamic, stimulating, innovative and recreational manner. The series gives the students the opportunity to build their knowledge through the cognitive development of scientific keywords, principles, and laws. The series also encourages the study of this discipline by putting scientific research, science skills, and the scientific method within the student's reach.

Conceptual Framework

The design and conceptualization of the K-6 series is founded upon the following basic principles:

1. The need for emphasis on:
   - Encouraging students to think logically and analytically to develop reasoning and interpretive skills used for problem solving during the learning process.
   - Learning science by "doing science" through the completion of various activities, experiments, and scientific inquiry.
   - Promoting curricular integration and the application of scientific keywords to real life situations.
   - Systematically organizing the learning process (in sequence, going from the concrete to the abstract).
   - Encouraging the development of multiple talents and the opportunity to express them in different ways.
   - Promoting the development of keywords, principles, laws, scientific processes, and related skills.
   - Providing strategies to address the individuality of each student

2. The activities integrate a constructivist approach by encouraging more student participation in the building of knowledge and the development of skills.

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General Objectives

The objectives of this Series are to:

- Promote learning through real life experiences.
- Encourage the use of information technology as a learning tool.
- Educate students on the protection and conservation of the environment.
- Promote reflection and self-evaluation during the learning process
- Promotes experiences for the development and appreciation of science and the world around us
- Integrate the different scientific disciplines, such as chemistry, physics, and biology, among others with disciplines from other fields.
- Encourage participation in scientific inquiry and the development of keywords, skills and scientific processes.
- Integrate standards and grade level expectations. Encourage students to work with both concrete and abstract keywords.
- Provide situations, activities, and exercises to actively build and apply knowledge to different situations.
- Encourage students to work with both concrete and abstract keywords.
- Contribute to the development of language as a means of individual and collective communication while incorporation of scientific vocabulary.
- Enrich the lessons with level appropriate documents, activities, and exercises.
- Highlight the scientific environment in accordance with grade level.

Course Structure

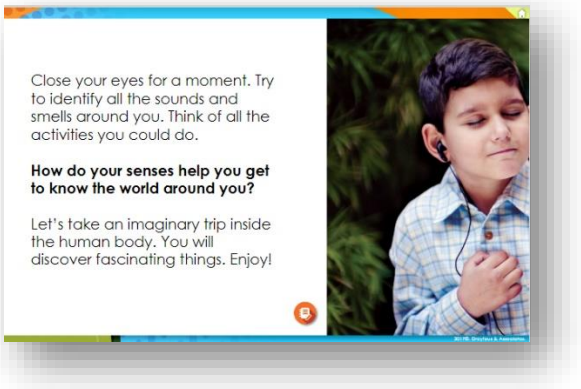
The course Science 1 is composed of five units. Each unit is composed of lessons. Each lesson is divided into sections that develop their individual topics. Each lesson contains a descriptive log, activities, worksheets and handouts that are related to the content and, as in most cases, website links and resources. It also proposes assessment exercises in order to help the students in different tasks.

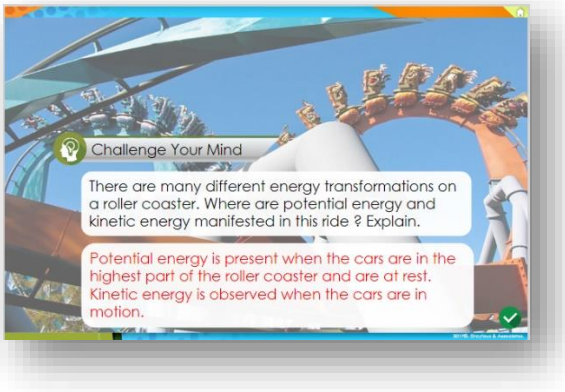
Here are some of the sections normally found in each lesson's presentation and documents.

Presentation

Let's Explore

In this section, the students will look at important details of a photograph. Additionally, they will discuss and answer questions geared toward increasing their curiosity towards different topics that will be discussed in the lessons.





Topics

Concept development, where the content will be discussed using specific situations for exploration while presenting other examples

Icons

Each of the sections in our lessons is identified with an icon. These help both the student and the teacher compliment their ideas and activities. Below, you will find the icon next to a description of its function.

Challenge Your Mind

A situation or an exercise Will be presented to the students so they can develop their critical thinking skills.

Connect What You Have Learned

that can be applied to daily life. This will also help them understand what was studied in class.

Scientists in Action

Diverse assessment activities in which the students can express themselves and apply what they have learned about any topic discussed in class.

Link with…

In this section, students will be able to relate the topics with other branches of Science.

Think

The students will answer questions that will encourage them to think and give their opinion about the topic presented in **Link with**… section.

Interactive Icons

Audio

Diagram

Images

Videos

Games

Answers

Lecture

Internet

Animation

Steps

Information

Writing Assignments

Music

Let's Solve Together

Handouts and Worksheets

Let's Investigate

This document presents an inquiry activity in which the students will learn science by "doing science" and participate in activities related to scientific investigation.

Did you know?

This document presents intriguing scientific topics and trivia to stimulate students' imaginations

Stimulate your mind

This document includes a number of stimulating activities that will help students better understand the topics discussed in class.

Ecological Awareness

This document will prompt the students to learn and actively contribute to the preservation of our environment.

Scientific Zone

This document presents a scientific concept related to a specific process in such a way that learning can be integrated along with a single scientific skill.

Complementary Documents

A variety of activities, exercises, and games related to the topics discussed in the lesson.

Vocabulary

Definitions of the most important keywords in the lesson.

Evaluation

Practical exercises to verify the student's learning process.

The lessons 00 contain unit documents that may be used at the beginning, during, or after discussing the corresponding unit.

Unit Breakdown

Below is an itemization of the division of each unit in lessons, including the name of each lesson with its corresponding objectives and keywords

Unit I. Life

At the end of this unit the student will have completed the objectives found in the following lessons.

Lesson 0. Life

Code: C417G01U01L00

Unit's documents: Scientific Zone, Evaluation

Lesson 1. Learning About Living Things

Code: C417G01U01L01

Objetives

- Recognize living and nonliving things.

Topics

- The world of living and non living things
- Variety of living things

Keywords

- carnivore
- habitat
- herbivore
- living things
- nonliving things
- omnivore
- photosynthesis

Lesson 2. Living Things and Their Characteristics

Code: C417G01U01L02

Objetives

- Explain that living things need a habitat, to reproduce and obtain energy.
- Identify different ways in which different living things are born.
- Compare the growth of living things from birth to adulthood.
- Identify the different ways a living organism mov

Topics

- Living Things and Their Characteristics
- Living things are born fron other living things
- Living things need energy

Keywords

- adulthood
- birth
- climb
- displacement
- fly
- growth
- jump
- movement
- photosynthesis
- pollen
- reproduction
- run
- seed
- slither
- swim
- walk

Lesson 3. A Visit to the World of Plants

Code: C417G01U01L03

Objetives

- Identify parts of a plant.
- Identify and explain the principal functions of the parts of a plant.
- Identify and describe the diversity of plants, flowers, seeds, and fruits.
- Create a model of and illustrate a plant.

Topics

- Visits the world of plants
- Parts of plants
- Leaves

Keywords

- flower
- fruit
- habitat
- leaf
- plant
- root
- seed
- stem

Lesson 4. The World of Animals

Code: C417G01U01L04

Objetives

- Identify the parts of the body of an animal and describe their functions.
- Explain diversity and the necessity of migration and the habitat of an animal.
- Identify terrestrial and aquatic animals.
- Identify examples about the benefits that animals give to hu

Topics

- The bodies of animals
- Why do animals move from one place to another?
- Places where animals lives

Keywords

- animal
- body
- displacement
- extremities
- food
- habitat
- head
- torso

Unit 2. Parts of the human body

At the end of this unit the student will have completed the objectives found in the following lessons.

Lesson 0. Parts of the Human Body

Code: C417G01U02L00

Unit's documents: Scientific Zone, Evaluation

Lesson 1. Parts of the Human Body

Code: C417G01U02L01

Objetives

- Identify and name parts of the human body.
- Relate parts of the human body with the concept of organs.
- Identify and describe the organs of the head, torso, and upper and lower extremities
- Ilustrate examples of parts of the body that grow or change throug

Topics

- Parts os then human body
- Head
- Torso

Keywords

- abdomen
- arm
- back
- elbow
- face
- foot
- forearm
- growth
- hand
- head
- heart
- height
- hip
- knee
- leg
- lower extremities
- lungs
- neck
- organ
- thigh
- torso
- upper extremities
- weight

Lesson 2. Our Bones and Muscles

Code: C417G01U02L02

Objetives

- Identify and name of some of the external and internal organs.
- Describe parts of the skeleton, its characteristics, and functions.
- Name the muscles from different parts of the body.
- Relate the skeletal function with muscles.

Topics

- Our Bones and Muscles
- Bones
- The characteristics of bones

Keywords

- bone
- calcium
- clavicle
- external
- femur
- internal
- joint
- muscle
- muscular system
- organs
- ribs
- skeleton
- skull
- vertebras

Lesson 3. Taking Care of Our Bodies

Code: C417G01U02L03

Objetives

- Explain the importance of exercising, resting, and healthy nutrition.
- Explain the importance of visiting a doctor and taking medicine.
- Describe and identify examples of healthy habits.
- Identify the parts of the body that need to be washed frequently.
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Topics

- Taking Care of Our Bodies
- Exercise
- Sleep
- Health

Keywords

- breathing
- calcium
- dentist
- doctor
- exercise
- healthy habits
- medicines
- nutrients
- pediatrician
- physical hygiene
- health
- rest
- vitamins

Lesson 4. Nutrition and the Body

Code: C417G01U02L04

Objetives

- Explain the advantages of having a balanced diet.
- Identify the groups in the food pyramid.
- Distinguish between foods that correspond to the different groups of the food pyramid.
- Identify foods that come from plants and animals.
- Identify the most nutritious foods among groups of food that are presented.
- Express the importance of not consuming excess sweets and fats.
- Relate good health with a balanced diet

Topics

- Healthy food
- Fruits and vegetables
- Grain
- Meats and Meat substitutes

Keywords

- breathing
- calcium
- dentist
- doctor
- exercise
- medicines
- nutrients
- nutrition
- pediatrician
- physical hygiene
- health
- rest
- vitamins

Unit 3. Matter and energy

At the end of this unit the student will have completed the objectives found in the following lessons.

Lesson 0. Matter and Energy

Code: C417G01U03L00

Unit's documents: Scientific Zone, Evaluation

Lesson 1. Characteristics of Matter

Code: C417G01U03L01

Objetives

- Identify and describe characteristics of matter like mass and volume.
- Explain that matter occupies space.
- Explain what some measuring instruments like the balance and the ruler are used for.
- Describe some physical properties like: color, shape, hardness, size, and texture.
- Identify simple geometric shapes.
- Differentiate between small and large objects.
- Classify objects using their physical

Topics

- Matter
- Matter takes up space
- Other characteristics of Matter
- Color

Keywords

- balance
- color
- hardness
- length
- mass
- matter
- ruler
- shape
- size
- space
- texture
- volume

Lesson 2. Characteristics and Observations

Code: C417G01U03L02

Objetives

- Describe the characteristics of different objects like: appearance, smell, texture, and sound.
- Explain that observation is a way to learn about the characteristics of an object.
- Identify synthetic and natural materials.
- Describe how characteristics change in some materials.
- Use instruments to measure objects.
- Identify soluble substances.

Topics

- Measuring objets and materials
- Other charactheristics of materials

Keywords

- balance
- color
- hardness
- length
- mass
- matter
- ruler
- shape
- size
- space
- texture
- volume

Lesson 3. States of Matter

Code: C417G01U03L03

Objetives

- Classify objects into states of matter.
- Identify and describe objects in each state of matter.
- Identify and name objects in a solid, liquid, and gaseous state.
- Generate examples of each state of matter.
- Experiment with objects in each state of matter.

Topics

- States of matter
- Solids
- Liquids
- Gases
- How do matter change?

Keywords

- defined form
- defined space
- gaseous
- liquid
- material
- matter
- mix
- oxygen

Lesson 4. Forms of Energy

Code: C417G01U03L04

Objetives

- List three different forms of energy.
- Identify and give examples of artificial and natural light.
- Identify the Sun as the main source of Earth's natural light.
- Distinguish between sounds and noises.
- Discuss how unpleasant noise or sounds can be harmful for human beings and the environment.

Topics

- Forms of energy
- Light
- Heat
- Sound
- Noise

Keywords

- artificial light
- energy
- heat
- light
- natural light
- noise
- sound

Unit 4. Force, work, and machines

At the end of this unit the student will have completed the objectives found in the following lessons.

Lesson 0. Force, Work and Machines

Code: C417G01U04L00

Unit's documents" Scientific Zone, Evaluation

Lesson 1. Force and Motion

Code: C417G01U04L01

Objetives

- Name the different forms of motion.
- Explain that when making a force, objects change from place and position.
- Identify slow and fast motions.
- Describe the effect of the type of surface over the motion of an object. Illustrate examples that represent the motion of an object in air and water

Topics

- Force and motion
- How do you move?

Keywords

- energy
- force
- motion

Lesson 2. Machines

Code: C417G01U04L02

Objetives

- Explain the purpose of machines.
- Identify examples in which the wheel, lever, and inclined plane are used.
- Illustrate and construct models of simple machines.
- Describe how machines help human beings carry out work.

Topics

- Machines
- Wheels
- Levels
- Inclined planes
- Compound Machines

Keywords

- machines
- lever
- inclined plane
- ramp
- wheel

Lesson 3. Force and Technology

Code: C417G01U04L03

Objetives

- Explain that a force can cause objects to change their place and position.
- Identify slow and fast motions.
- Describe how the type of surface affects the motion of an object.
- Illustrate examples of an object's motion in air and in water.
- Explain that work occurs when an object moves in the direction of a force.

Topics

- Force and Technology
- Work
- Gravity
- Machines and Tools makes our jobs easier

Keywords

- energy
- push
- force
- gravity
- motion
- pull
- work

Lesson 4. Machines and Energy

Code: C417G01U04L04

Objetives

- Explain the importance of using energy to carry out work.
- Identify water, wind, and some animals as a source of energy.
- Identify examples of machines that use electrical energy.
- Identify examples of machines that use solar energy.

Topics

- Machines and energy
- Energy from animals
- Energy from water and wind
- Electric energy
- Solar energy

Keywords

- electrical energy
- solar energy
- machines
- generating plant
- receptacle
- transportation

Unit 5. Our environment

At the end of this unit the student will have completed the objectives found in the following lessons.

Lesson 0. Our Environment

Code: C417G01U05L00

Unit's documents: Scientific Zone, Evaluation

Lesson 1. Water

Code: C417G01U05L01

Objetives

- Identify different bodies of water of planet Earth.
- Identify the three states of matter in which water is found in nature.
- Identify examples of the many ways people use water.
- Explain and give examples of the contamination of bodies of water.
- Create a simple model of bodies of wate

Topics

- Water
- The states of water in nature

Keywords

- bodies of water
- contamination
- drinking water
- gas
- lakes
- liquid
- natural resource ocean
- planet Earth
- rivers
- seas
- solid
- states of matter
- water

Lesson 2. Air

Code: C417G01U05L02

Objetives

- State that the air is everywhere.
- Explain and demonstrate how the air takes up space.
- Identify images that show examples of the air in movement.
- Distinguish between a breeze and wind gust.
- Identify weather patterns

Topics

- What's is air?
- Air takes up space
- The air's shape

Keywords

- air
- atmosphere
- breeze
- dry
- gas
- gust
- humid
- humidity
- mixture
- oxygen
- temperature
- weather
- Wind

Lesson 3. What Is the Soil?

Code: C417G01U05L03

Objetives

- Describe the soil.
- Distinguish among types of soils.
- Explain the importance of soils for human beings.
- Identify organisms that live or use the soil to survive.
- Analyze, in a simple way, some terrains and their basic characteristics.

Topics

- What Is the Soil?
- Types of soils
- Taking care of soils
- We all depends os soil
- Humans beings needs soil

Keywords

- housing
- materials
- nutrients
- soil
- sowing
- types of soil
- sand
- clay
- rocks
- wood

Lesson 4. Planet Earth and the Universe

Code: C417G01U05L04

Objetives

- Name the planets that compose our Solar System.
- Identify the Earth at day or night depending on the location of the Sun.
- Identify the movements of translation and rotation in respect to the Sun.
- List the days of the week.
- Differentiate the activities that normally take place during the day or night.

Topics

- Planete Earth and de universe
- Night and day
- Days of the week

Keywords

- comets
- days of the week
- Earth
- Friday
- Jupiter
- Mars
- Mercury
- Monday
- moon
- Neptune
- night
- planet
- rotation
- satellite
- Saturday
- Saturn
- Solar System
- space
- stars
- Sun
- Sunday
- Thursday
- translation
- Tuesday
- Uranus
- Venus
- Wednesday