Science 3

Course Description

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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

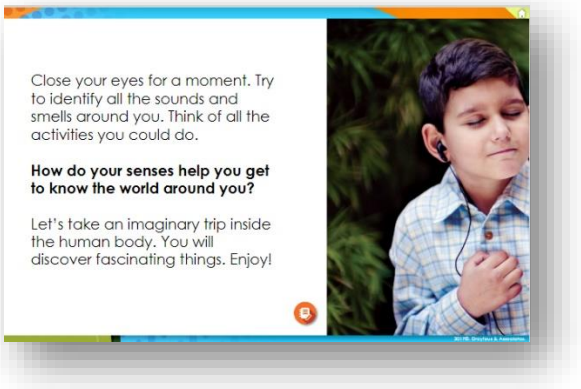
The course Science 3 is composed of five units. Each unit is composed of lessons. Each lesson is divided into sections that develop their individual topics. Each lesson contains a descriptive log, activities, worksheets and handouts that are related to the content and, as in most cases, website links and resources. It also proposes assessment exercises in order to help the students in different tasks.

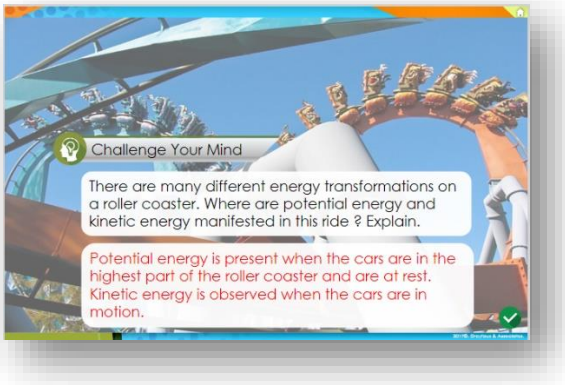
Here are some of the sections normally found in each lesson's presentation and documents.

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 1. Living things

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

Lesson 0. Living things

Code: C417G03U01L00

Unit's documents: Scientific Zone, Evaluation

Lesson 1. Life on our planet

Code: C417G03U01L01

Objetives

- Differentiate between living and non-living things.
- Identify and describe the common needs of living things.
- Explain what a habitat is and identifies different habitats.
- Classify living things into two categories (terrestrial or aquatic).
- Sort living thin

Topics

- Life on our planet
- They are living things because…
- Living things need…
- Our home
- Freshwater or saltwater?
- On land
- Rough terrain
- Very cold lands
- Reproduction of living things
- Forming groups
- Classifying living things

Keywords

- adaptation
- animal
- aquatic environment
- cold regions
- desert
- environment
- freshwater aquatic environment
- fungi
- habitat

- living thing
- macroscopic
- microorganism
- microscopic
- non-living thing
- plant
- saltwater aquatic environment
- terrestrial environment

Lesson 2. The world of plants

Code: C417G03U01L02

Objetives

- Identify plant characteristics.
- Describe the parts that make up a plant.
- Identify and describe the parts of a plant and a seed.
- Describe the two types of leaves and fruits.
- Explain the importance that plants have according to their uses.
- Classify plants

Topics

- The world of plants
- Plants have…
- Plants also have…
- Some plants have…
- They are important!
- They use me for
- They are plants, but…
- To which group do I belong?

Keywords

- anther
- bushes
- compound leaves
- corolla
- cotyledon
- dry fruits
- edible plants
- epiphyte
- fleshy fruits
- flower ovary
- flowers
- fruits
- herbaceous stem
- herbs
- industrial plants
- leaf
- leaves
- medicinal plants
- ornamental plants
- parasitic plant
- parts of a plant
- petals
- photosynthesis
- phototropism

- pistil
- plants with seed
- plants without seed
- plants
- poisonous plants
- roots
- seed embryo
- seedpod
- seeds
- sepal
- simple leaves
- stamen
- stems
- tree
- types of fruit
- types of leaves
- types of plants
- undergrowth
- veins of the leaf
- venation
- vitamin
- weeds
- woody stem

Lesson 3. The world of animals

Code: C417G03U01L03

Objetives

- Group animals as aquatic, terrestrial, or aerial according to their habitat.
- Group animals depending on their type of locomotion.
- Appreciate life in community.
- Classify animals as vertebrates or invertebrates, according to the presence or absence of a spi

Topics

- The world of animals
- Where do animals live?
- Animals move in different ways
- How do animals live?
- Hi, we are invertebrate animals!
- Hi, we are vertebrate animals!
- Animals are important
- We should protect animals

Keywords

- aerial animal
- amphibian
- animals
- aquatic animal
- birds
- endangered species
- fish
- importance of animals
- invertebrate
- locomotion of animals
- mammals
- reptiles
- terrestrial animal
- vertebrate

Lesson 4. Living things and the environment

Code: C417G03U01L04

Objetives

- Recognize that all living things need other living things.
- Define the concepts: herbivore, carnivore, and omnivore.
- Differentiate between consumers and producers.
- Name the members of a food chain.
- Organize a food chain.
- Recognize that every living thing

Topics

- Living things and the environment
- My diet consists of…
- Who are the producers and the consumers?
- The link of the chain
- The food chain!
- We are all part of the chain
- We survive because…
- Other types od adaptation are

Keywords

- adaptation in the air
- adaptation in water
- adaptation to get food
- adaptation to protect from other animals
- adaptation to the weather
- adaptation
- animals
- biological control
- carnivore
- consumer
- decomposer
- first order consumer
- food chain
- food relationship
- herbivores
- living things
- omnivores
- primary consumer
- producer
- reproduction relationship
- scavengers
- second order consumer
- secondary consumer
- shelter relationship
- tertiary consumer
- third order consumer

Unit 2. Our body

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

Lesson 0. Our body

Code: C417G03U02L00

Unit's documents: Scientific Zone, Evaluation

Lesson 1. The five senses

Code: C417G03U02L01

Objetives

- Explain how the senses let us communicate with the world.
- Relate the sense organs to their function.
- Explain how each of the organs related to the senses works.
- Identify the purpose and importance of the senses.

Topics

- Connecting with our environment
- The nose knows
- For all tastes
- in search of sound waves
- I spy with my little eye
- More than a coat!
- Let's take care of our sense organs

Keywords

- auditory nerve
- brain
- crystalline
- dermis
- ear canal
- ear
- eardrum
- epidermis
- outer ear
- eye
- eyesight
- feel
- five senses
- flavor
- hear
- hearing
- inner ear
- iris
- middle ear
- nerves
- nose
- odor
- optic nerve
- pupil

- retina
- savor
- scent
- sebaceous glands
- see
- sense organs
- senses
- skin
- smell
- sound wave
- sound
- spinal cord
- sweat glands
- sweat
- taste buds
- taste
- tongue
- touch
- vision

Lesson 2. Inside our bodies

Code: C417G03U02L02

Objetives

- Label the parts of the human skeleton.
- Identify important organs: the brain, the heart, the lungs, the stomach, the large intestine, the small intestine, and the kidneys.
- Describe the following internal organs: brain, heart, lungs, stomach, large intesti

Topics

- Your internal organs
- Your brain: the control center
- The one that never stops: your heart
- The lungs
- The stomach
- Food's journey through the small intestine
- Journey's end: the large intestine
- Youre body's filter: the kidneys
- Protecting your organs

Keywords

- alimentary bolus
- brain
- chime
- head
- heart
- kidneys
- large intestine
- limbs
- lungs
- organs
- small intestine
- stomach
- torso

Lesson 3. Let's get moving

Code: C417G03U02L03

Objetives

- Describe the way humans move.
- Label and explain the function of the parts of the skeleton.
- Name the parts that make up the head and the torso.
- Explain the function of the torso, the extremities, and the muscles.
- Classify extremities as superior and infer

Topics

- The body's movement
- The skeleton supports you
- The head
- The torso
- Extremities
- Muscles
- Do you move or not?
- How is movement produced?
- Let's take care of our muscles and bones

Keywords

- arm
- backbone
- bone care
- brain
- cranium
- elbow
- electrolyte
- extremity
- extremity
- face
- foot
- forearm
- hand
- head
- human neck
- inferior extremity
- involuntary movement
- joint
- knee
- leg
- mandible
- motion of the body
- muscle care
- muscle
- rib
- shoulder
- skeleton
- spine
- sternum
- tendon
- thigh
- torso
- voluntary movement

Lesson 4. Nutrition and your body

Code: C417G03U02L04

Objetives

- Discover the importance of nutrition in the human body.
- Classify people as vegetarian or omnivores according to their diet.
- Discover how nutrients work within the human body.
- Describe the groups included in MyPlate.
- Create a diet that a person should fol

Topics

- Your body's fuel
- What food do you eat?
- Nutrients
- My Plate
- Nutrition according to age
- Before eating vegetables
- Precautions
- Food and your health
- How to improve your health

Keywords

- balanced diet
- basic food groups
- carbohydrates
- cereal
- dairy products
- diet
- eating
- fat in food
- food safety
- food
- fruit
- grain
- herbivore
- importance of food
- lipids
- meat
- minerals
- MyPlate
- nutrient
- nutrition
- nutritious diet
- omnivore
- protein
- vegetable
- vegetarian
- vitamin
- water

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: C417G03U03L00

Unit's documents: Scientific Zone, Evaluation

Lesson 1. Everything is made of matter

Code: C417G03U03L01

Objetives

- Identify what matter is.
- Describe the properties of matter.
- Define mass and volume.
- Note what units are used to measure volume and mass.
- Describe how to measure the volume and how to obtain the mass of an object.
- Identify some of the properties that help

Topics

- Everything is made of matter
- The senses: powerful tools
- Mass: a property of matter
- Space: A property of matter
- Measuring volume
- What am I like?

Keywords

- graduated cylinder
- mass
- matter
- properties
- scale
- volume

Lesson 2. Solid, liquid, or gas

Code: C417G03U03L02

Objetives

- Specify the states of matter as: solid, liquid and gas.
- Detail the characteristics of each of the states of matter.
- Describe what the fluidity and the viscosity of liquid is.
- Demonstrate how solids and fluids occupy a finite amount of space.

Topics

- Solid, liquid, or gas
- Solid like a rock
- Solids and their space
- Liquid like water
- We also take a space
- Gas like the air
- Do gases occupy space?

Keywords

- fluidity
- states of matter
- solid
- liquid
- gas
- viscosity
- volume
- wind

Lesson 3. Changing states of matter

Code: C417G03U03L03

Objetives

- Identify the changes in state of matter.
- Describe how both solid and liquid matter interact with heat.
- Describe what happens to liquid matter when heat is removed.
- Describe what happens to gas matter when it loses heat.
- Explain how water changes throughou

Topics

- Changing states
- It melted!
- It froze!
- It evaporated!
- It lost heat!

Keywords

- condensation
- evaporation
- fusion
- gaseous
- liquid
- melt
- solid
- solidification
- thaw

Lesson 4. The power of energy

Code: C417G03U03L04

Objetives

- Define energy.
- Specify some materials used to make fuel.
- Detail what energy sources humans benefit from.
- Specify the ways energy manifests itself.
- Classify objects as transparent, translucent, and opaque.
- Explain the conversion of energy.

Topics

- The power of energy
- What burns?
- More energy
- So hot!
- Let there be light!
- The passage of light
- Sound for my ears
- Pure electricity
- Energy transforms

Keywords

- energy
- fuel
- hydroelectric
- noise
- thermoelectric
- transparent
- translucent and opaque
- objects
- types of energy
- caloric energy
- wind energy
- light energy
- sound energy
- waves

Unit 4. Motion , force and machines

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

Lesson 0. Motion, force, and machines

Code: C417G03U04L00

Unit's documents: Scientific Zone, Evaluation

Lesson 1. Motion

Code: C417G03U04L01

Objetives

- Define motion.
- Describe how an object move in relation to point of reference.
- Define rest as a fixed position in relation to a point of reference.
- Explain that in order to study the motion of bodies one must measure time and distance.
- Explain that living

Topics

- From here to there
- At rest or in motion
- Measuring motion
- We all move
- Do non-living things move?
- Searching for the path
- Types of motion
- From one place to another
- Spinning

Keywords

- circular motion
- curvilinear
- motion
- orbit
- point of reference
- rectilinear
- rest
- rotation

Lesson 2. Force

Code: C417G03U04L02

Objetives

- Define force.
- Explain how force acts upon a body.
- Explain the difference between force and mass.
- Describe friction and its effects.
- Define gravity, weight, and work.

Topics

- Force and the world
- How does force act on objects?
- Force and mass
- Smooth or rough?
- It will stop
- Effects of friction
- Force that pulls down
- Weight
- Work

Keywords

- force
- friction
- gravity
- mass
- weight
- work

Lesson 3. Magnetic attraction

Code: C417G03U04L03

Objetives

- Describe magnetic force.
- Define magnets and magnetism.
- Recognize magnets as either natural or artificial.
- Classify magnets as either temporary or permanent.
- Specify that magnets are composed of magnetic poles.
- Explain how magnets behave.
- Identify what the

Topics

- Magnetism
- Magnets
- Types of magnets
- North or south
- Behavior of magnets
- The magnetic field
- Are magnets useful?

Keywords

- magnetic field
- magnetic force
- magnetism
- magnetite
- magnets
- North Pole
- South Pole

Lesson 4. Machines

Code: C417G03U04L04

Objetives

- Detail the characteristics of a machine.
- Define simple machines.
- List examples of simple machines.
- Analyze how machines are used.
- Define complex machines.
- Describe how machines have changed over time.

Topics

- Characteristics of machines
- Simple machines
- Lever
- Inclined plane
- Pulley
- Wheel and axle
- Wedge
- Screw
- Use of machines
- Compound machines
- Machines change over time

Keywords

- complex machine
- fulcrum
- inclined plane
- lever
- pulley
- screw
- simple machine
- wedge
- wheel and axel

Unit 5. The Earth in the Universe

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

Lesson 0. The Earth in the Universe

Code: C417G03U05L00

Unit's documents: Scientific Zone, Evaluation

Lesson 1. Our Planet

Code: C417G03U05L01

Objetives

- Label the layers of Earth.
- Label the layers of the atmosphere.
- Explain how oxygen and carbon dioxide function in living things.
- Discuss how we can help to have cleaner air.
- Describe how living beings use water.
- Discuss ways to conserve water.

Topics

- Our Planet
- Characteristics of our Planet
- The air surrounds us
- Living things and gases
- Pure air
- The water planet
- Water is life
- Pure water

Keywords

- atmosphere
- carbon dioxide
- contamination
- hydrosphere
- ionosphere
- lithosphere
- minerals
- oxygen
- rock
- stratosphere
- terrain
- troposphere

Lesson 2. A satellite, the Moon

Code: C417G03U05L02

Objetives

- Define satellite.
- Characterize the Moon as a satellite.
- List the first Moon missions.
- Define astronaut.
- Define lunar eclipse.
- Detail the characteristics of the Sun and characterize it as the closest star to Earth.
- Identify rotation and translation motion

Topics

- The Moon: Earth's satellite
- Are there seas on the Moon?
- First stop: the Moon
- Earth, Sun and Moon
- Our star
- The Sun
- Our star: source of life
- What time is it?
- Protect yourself from the Sun!

Keywords

- astronaut
- lunar eclipse
- ozone
- rotation
- satellites
- translation

Lesson 3. Earth and the Moon

Code: C417G03U05L03

Objetives

- Note that Earth is in motion.
- Identify Earth’s rotational and translational motions.
- Note how weeks and months are divided.
- Note the methods created to measure time.
- Detail Earth’s climate zones.
- Identify the seasons of the year.
- Explain that the Moon has

Topics

- Earth's movement
- Day and night
- The week and the month
- The year and the century
- Cold, temperature, or warm
- Seasons
- The Moon moves
- The phases of the Moon
- The influence of the Moon over Earth

Keywords

- leap year
- day
- elliptical orbit
- lunar phases
- month
- night
- orbit
- rotation
- seasons
- revolution
- week

Lesson 4. The weather

Code: C417G03U05L04

Objetives

- Explore weather.
- Classify clouds within three basic types: cumulus, circus, and stratus.
- Characterize wind.
- Identify the different kinds of precipitation.
- Detail factors that influence climate.

Topics

- Weather events
- Fog
- Clouds
- The invisible
- Precipitation
- Hail and Snow
- Who does not change?

Keywords

- climate
- clouds
- cumulus
- cirrus
- precipitation
- stratus
- terrain
- trough
- weather
- wind

Lesson 5. The weather in Puerto Rico

Code: C417G03U05L05

Objetives

- Describe the Puerto Rico's climate.
- Identify the elements that influence Puerto Rico's climate.
- Define trade winds.

Topics

- Puerto Rico's climate
- Temperature
- Rain
- The winds in Puerto Rico

Keywords

- climate
- rain
- wind