

Science at TCPS

Kindergarten Course Description

In Kindergarten, science is taught within the classroom. The curriculum focuses on different types of animal and their characteristics, which allows for easier classification and comparison. Through the study of an "Environment" (or place in our world), the students study different aspects of our world which can include reptiles, insects, arachnids, mammals, plants, birds, amphibians, fish, and families. Students build the actual environment as a classroom display to celebrate and study their unique Environment. The kindergarten Environment changes every year!

- Reptiles
- Mammals
- Birds
- Fish
- Amphibians
- Insects and Arachnids

Kindergarten: General Goals and Objectives

- Understand the specific attributes that makes an animal group unique
- Recognize the difference between a vertebrate and a non-vertebrate
- reptiles:
- Use knowledge of each animal group to learn about and understand their Environment animals (chosen by teacher)
- learn adaptations, habits, diet of animals
- Understand a human connection to animals as mammals- we are similar, yet different because of our brains
- understand how birds develop in an egg
- understand how bird's beaks and feet work together for hunting
- know that a shark is a fish
- know that a whale and dolphin are not fish, they are mammals
- Understand that a reptile and amphibian are different and why
- Recognize the difference between a frog and toad
 - frogs- smooth, moist skin/ water and land dwelling
 - toads- dry, bumpy skin/ land dwelling
- Understand that amphibians go through Metamorphosis (change over time)
- differentiate between an insect and an arachnid (body composition)

recognize the difference between facts and opinions about spiders

Grades 1-8 Course Description

In grades 1-8, the students receive their science instruction in a separate science classroom with a separate science teacher. TCPS has designed a three year rotation of science topics for its curriculum. All TCPS students study the same unit simultaneously, at different levels of challenge and depth, based on their grade level. This allows for the entire science lab and curriculum to focus greatly on one particular topic. Students are exposed to a variety of topics from each of the three main disciplines (Earth, Physical, Life) each year.

The first time a unit is presented at an early grade level, the students are given an introductory perspective of that unit. When that same science topic rotation returns three years later, these same students, who are now at an older grade, are given more in-depth material to build upon their previous knowledge.

Rotation 1

- What is science?
- Petrology- rocks and minerals
- Weather
- Matter
- Space
- Biome (ecosystem)
- Health

Rotation 2

- What is science?
- Ecology
- Oceanography
- Forces/energy
- Simple machines
- Electricity and magnetism
- Biome (ecosystem)- perhaps in conjunction with oceanography
- Health

Rotation 3

- What is science?
- Earth's history, composition, changes, erosion, weathering
- Animal/plant life adaptations
- Color, light, and sound
- The microscopic world (cells)
- Biome (ecosystem)- in conjunction with animal and plant adaptations
- Health

Grade 1-8: General Goals and Objectives

- Use the senses to gather information about an object or event
- Make an "educated guess" about an object or event based on previously gathered data or information
- Use both standard and nonstandard measures or estimates to describe the dimensions of an object or event
- Use words or graphic symbols to describe an action, object or event
- Group or order objects or events into categories based on properties or criteria
- State the outcome of a future event based on a pattern of evidence
- Identify variables that can affect an experimental outcome, keeping most constant while manipulating only the independent variable
- Organize data and draw conclusions from it
- Conduct an experiment, including asking an appropriate question, stating a hypothesis, identifying and controlling variables, operationally defining those variables, designing a "fair" experiment, conducting the experiment, and interpreting the results of the experiment
- Create a physical model of a process or event