

Richmond Public Schools
Department of Curriculum and Instruction
Curriculum Pacing And Resource Guide – Unit Plan



Course Title/ Course #: Science

Unit Title/ Marking Period # (MP): Living Systems / 2

Start day: 65

Meetings (Length of Unit): 10 days

Desired Results ~ What will students be learning?

Standards of Learning/ Standards

SOL: 5.5

The student will investigate and understand that organisms are made of one or more cells and have distinguishing characteristics that play a vital role in the organism's ability to survive and thrive in its environment. Key concepts include

- a) basic cell structures and functions;
- b) classification of organisms using physical characteristics, body structures, and behavior of the organism; and
- c) traits of organisms that allow them to survive in their environment.

Essential Understandings/ Big Ideas

All living things are made of cells with different structures and functions.
Organisms can be classified into different categories.
Cells of various organisms have similarities and differences.
Specific traits of an organism help it to survive in its environment.

Key Essential Skills and Knowledge

Students will:

Draw, label, and describe the essential structures and functions of plant and animal cells.
Design an investigation to make observations of cells.
Compare and contrast plant and animal cells and identify their major parts and functions.

Group organisms into categories, using their characteristics: plants (vascular and nonvascular) and animals (vertebrates or invertebrates).
Identify and explain traits of organisms that allow them to survive in their environment.

Vocabulary

animal, cell, cell membrane, cell wall, chloroplast, classification, cytoplasm, invertebrates, kingdom, nonvascular plants, nucleus, organism, plant, vascular plants, vacuole, vertebrates, trait, survive

Assessment Evidence ~ What is evidence of mastery? What did the students master & what are they missing?

Assessment/ Evidence

Students will describe how living organisms can be described as producers and consumers.
Students will describe how organisms are dependent upon each other in their food web, community, or habitat.
Students will demonstrate how to group organisms based on adaptations.
Students will explain how chlorophyll is an essential part of photosynthesis.
Test/Assessment

Learning Plan ~ What are the strategies and activities you plan to use

Learning Experiences/ Best Practice

Spring Onion Plant Activity

Students observe a whole spring onion, then sketch and label the plant in order to determine that organisms are made up of systems and smaller parts (organs)

Egg Activity

Using a raw egg, have students record the circumference of an egg. Place an egg in 200 mL of vinegar for 2 days (this dissolves the shell). Remove egg and record the amount of fluid remaining in jar. Record egg's circumference. Place egg in container of 200 mL of corn syrup and leave for one day. Remove egg and record circumference and remaining fluid level. This activity shows the egg as a model of a cell. It shows that substances move in and out through the membrane of a cell.

Technology Integrations

Web Sites:

Websites:

- [Comparing Plant and Animal Cells](#)
- [The Mixed-up Cells](#)
- [Form and Function](#)
- [Study Jams-Animals](#)
- [Study Jams-Plants](#)
- [Cells Alive](#)
- [Cells for Kids](#)
- [Apple Anatomy](#)
- [Nature Works](#)
- [“Cell Phone”](#)
- [The Water Storers: Cactus Adaptations](#)

Resources

Videos:

Cells (Human Body in Action Series), Schlessinger Media, c2006

Cells, Discovery Communications, c2004

The Magic of Cells, Allied Video, c1994

Cells (Bill Nye the Science Guy), Disney Educational Productions, c2003

Blood and Circulation (Bill Nye the Science Guy), Disney Educational Productions, c2003

Cross Curricular Connection

Students will create raps/poems/plays emulating the functions of cells.

Students will research the flora and fauna of different regions.