**Curriculum**

**5th Grade Science**

**Course Overview**

Science 5 is taught in topics from three major areas: life science, earth science and physical science. Hands-on opportunities are offered as often as possible. Resources used support the Core Knowledge Sequence™ science content. Experiments and projects are an essential part of the program as children learn to manipulate their natural environment. There is a health strand, including separate sessions on “Growing Up”.

**Department Standards**

* Students will apply scientific concepts, and theories pertaining to the physical setting and living environment.
* Students will recognize the historical development of ideas in science.

**Benchmarks**:

Fifth grade students will:

1. Understand the classification of living things.
2. Understand simple cell structures and processes.

 3. Understand simple plant structures and processes.

 4. Understand the human life cycle and reproductive system.

 5. Understand basic chemistry: matter and change.

 6. Learn about the lives of important scientists.

**Performance Indicators:**

**(Benchmark 1)**

* Know the five large groups called kingdoms.
* Divide kingdoms into smaller groupings.
* Understand scientific nomenclature.
* Know major characteristics of fish, amphibians, reptiles, birds, and mammals.

**(Benchmark 2)**

* Understand that all living things are made of cells.
* Know the structures and differences of plant and animal cells.
* Know that some organisms consist of a single cell.
* Understand the relationship of cell shapes to functions.
* Understand the organization of cells into tissues, organs, and systems.

**(Benchmark 3)**

* Know the structures of non-vascular and vascular plants.
* Understand the process and purpose of photosynthesis.
* Understand sexual and asexual plant reproduction.

**(Benchmark 4)**

* Know the changes in human adolescence.
* Know the function of the endocrine system.
* Understand human development from conception through birth.
* Understand the human reproductive system.

**(Benchmark 5)**

* Know the structures of atoms, molecules, and compounds.
* Understand elements and the Periodic Table.
* Understand chemical and physical change.

**(Benchmark 6)**

* Be familiar with the lives of Galileo, Percy Lavon Julian, Ernest Just, and Carl Linnaeus.

**Assessments:**

Class Discussions and Activities

Individual and Group Observation

Homework

Projects

Unit Tests

Reports

**Core Topics**

1. Classifying Living Things
2. Cells: Structures and Processes
3. Plant Structures and Processes
4. Structure: Non-Vascular and Vascular Plants
5. Photosynthesis
6. Reproduction

 4. Life Cycles and Reproduction

 a. The Life Cycle and Reproduction

 b. Sexual Reproduction in Animals

 5. The Human Body

 a. Changes in human Adolescence

 b. The Endocrine System

 c. The Reproductive System

 6. Chemistry: Matter and Change

 a. Atoms, Molecules, and Compounds

 b. Elements

 c. Chemical and Physical Change

1. 7. Science BiographiesClassifying Living Things
2. Cells: Structures and Processes
3. Plant Structures and Processes
4. Structure: Non-Vascular and Vascular Plants
5. Photosynthesis
6. Reproduction

 4. Life Cycles and Reproduction

 a. The Life Cycle and Reproduction

 b. Sexual Reproduction in Animals

 The Human Body

 a. Changes in human Adolescence

 b. The Endocrine System

 c. The Reproductive System

 5. Chemistry: Matter and Change

 a. Atoms, Molecules, and Compounds

 b. Elements

 c. Chemical and Physical Change

 6. Science Biographies

**Specific Content**

Plant, Animal, Fungus, Protist, and Moneran (Kingdoms)1. Five large groups called Kingdoms

 Plant

 Animal

 Fungus

 Protist

 Moneran

Smaller groupings:

 Kingdom

 Phylum

 Class

 Order

 Family

 Genus

 Species

 (Variety)

Common language, Latin based

Homo Sapiens

Taxonomist

Different classes of vertebrates and major characteristics: fish, amphibians, reptiles, birds, mammals

2. All Living things are made up of cells

Structure of cells

 Cell membrane

 Nucleus

 Cytoplasm contains organelles

Plant cells

Cells without nuclei

Single cell organisms

Different shapes/different functions

Organization of cells

3. Structure: Nonvascular and vascular plants

Photosynthesis

Reproduction

 Asexual

 Sexual, by spore bearing plants; non-flowering seed plants; flowering plants; (functions of sepals, petals, stamen,(male), anther, pistil(female), ovary or ovule)

 Process of seed and fruit production

 Seed germination and plant growth

4. Life Cycle and Reproduction

All living things reproduce themselves

Sexual reproduction requires the joining of special male and female cells, called gametes, to form a fertilized egg

Sexual reproduction in animals

Changes in human adolescence

The endocrine system

The reproductive system

5. Matter and change

 Atoms, molecules and compounds

Atomic structure

Atoms constantly in motion

Atoms may join together to formmolecules and compounds

Common compounds and their forulas

 Water, H2O

 Salt, NaCl

 Carbon Dioxide, CO2

Elements

The Periodic Table (organizes elements with common properties)

 Atomic symbol and atomic number

Chemical and Physical change

6. Science Biographies

 Galileo

 Percy Lavon Julian

 Ernest Just

 Carl Linnaeus

**Resources**

*Holt Science and Technology* textbook series

DVDs and relevant websites

Classroom and Library Tradebooks

Relevant Classroom Posters

Classroom/Department science equipment

Kids Discover Magazine- *Plants*, *Atoms*, *Cells*

Core Knowledge Biographies (Core Knowledge Resource Binders)

Field Trip to British Wildlife Center

Classroom Visit by Reptile Center

Field Trip to Kew Gardens

4-5 day environmental study trip to Skern Lodge, Devon