

# Charyl Stockwell Academy

## Kindergarten Benchmarks and Grade Level Content Expectations

(benchmarks in normal font, GLCEs in italics)

### Science

Revised January, 2008

#### BENCHMARKS:

Children will:

#### SCIENCE PROCESSES:

- ***Inquiry Process (inquiry involves generating questions, conducting investigations, and developing solutions to problems through reasoning and observation)***
  - *Make purposeful observation of the natural world using the appropriate senses*
  - *Generate questions based on observations*
  - *Plan and conduct simple investigations*
  - *Manipulate simple tools (for example: hand lens, pencils, balances, non-standard objects for measurement) that aid observation and data collection*
  - *Construct simple charts and graphs from data and observations with teacher assistance*
- ***Inquiry Analysis and Communication (inquiry includes an analysis and presentation of findings that lead to future questions, research, and investigations)***
  - *Share ideas about science through purposeful conversation*
  - *Communicate and present findings of observation*
  - *Develop strategies for information gathering (ask an expert, use a book, make observations, conduct simple investigations, and watch a video)*
- ***Reflection and Social Implications (reflecting on knowledge is the application of scientific knowledge to new and different situations. Reflecting on knowledge requires careful analysis of evidence that guides decision making and the application of science throughout history and within society)***
  - *Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities*

**LIFE SCIENCE:** *Organization of Living Things (organisms have basic needs. Animals and plants need air, water, and food. Plants also require light. Plants and animals use food as a source of energy and as a source of building material for growth and repair)*

- **Classifying and Describing Familiar Organisms**
  - Compare and classify familiar organisms on the basis of observable physical characteristics

- Generate questions about the physical characteristics of plants or animals based on observation
- Construct graphs based on observations of the physical characteristics of animals and plants with extensive teacher support
- *Identify that living things have basic needs*
- *Identify and compare living and nonliving things*
- **Learning about life cycles**
  - Describe life cycles of familiar organisms
  - Show how the life cycles of familiar organisms can be represented through drawing

### **PHYSICAL SCIENCE: Force and Motion**

- **Properties of common objects**
  - Classify common objects according to observable attributes/properties
  - Describe common physical changes
  - Illustrate physical changes
  - Create clues to help identify physical objects
  - Construct a chart classifying objects based upon physical attributes/properties with teacher assistance
- ***Position: a position of an object can be described by locating the object relative to other objects or a background. The description of the motion of an object from one observer's view may be different from that reported from a different observer's view.***
  - *Compare the position of an object (for example: above, below, in front of, behind, on) in relation to other objects around it*
  - *Describe the motion of an object (for example: away from or closer to) from different observers' views*
- ***Gravity: Earth pulls down on all objects with a force called gravity. With very few exceptions, objects fall to the ground no matter where the object is on the Earth.***
  - *Observe how objects fall toward the Earth*
- ***Force: a force is either a push or a pull. The motion of objects can be changed by forces. The size of the change is related to the size of the force. The change is also related to the weight (mass) of the object on which the force is being exerted. When an object does not move in response to a force, it is because another force is being applied by the environment.***
  - *Demonstrate pushes and pulls.*
  - *Observe that objects initially at rest will move in the direction of the push or pull.*
  - *Observe how pushes and pulls can change the speed or direction of moving objects.*
  - *Observe how shape (for example: cone, cylinder, sphere), size, and weight of an object can affect motion.*

**EARTH SCIENCE:** *Solid Earth (Earth materials—Earth materials that occur in nature include rocks, minerals, soils, water, and the gases of the atmosphere. Some Earth materials have properties which sustain plant and animal life)*

- *Identify Earth materials (air, water, soil) that are used to grow food*

- **Seasonal changes and weather safety**

- Describe seasonal changes in Michigan weather
- Explain appropriate safety precautions during severe weather
- Construct charts and graphs about weather and prepare summaries of observations with teacher assistance
- Illustrate weather features through drawings