

Springfield Public Schools
K-5 SCIENCE

COURSE DESCRIPTION

Science in fourth grade is taught on a daily basis for 30 – 45 minutes each day within a regular self-contained classroom. The fourth grade student will be introduced to different objectives within the areas of earth structures and processes, space science, light, electricity, sound and heat. The program emphasizes a hands-on approach to learning and scientific inquiry.

FOURTH GRADE
MAJOR INSTRUCTIONAL GOALS

The intent of the Springfield R-12 Science Program is:

- 1. The student will use data collected from hands-on scientific investigations to construct a reasonable explanation for observable phenomenon.**
 - a. Use simple metric tools to accurately measure objects (length, mass, capacity, and temperature) and record the data. (SC 7; 1.4; 1.8; **2.1**)
 - b. Analyze and interpret data resulting from simple investigations to support or reject predictions. (SC 7; 1.5; **1.8**; 3.3; 3.5)
 - c. Summarize data collected from investigations into tables, graphs and charts. (SC 7; 1.4; 1.8; 2.2; 4.1)

- 2. The student will understand that women and men of various backgrounds work in teams and alone, but all communicate extensively with others.**
 - a. Discuss current scientific knowledge and how recent findings guide future scientific investigations. (SC 8; **1.6**; **1.7**; **3.7**)
 - b. Demonstrate an understanding that safety is an important part of science investigations and that following safety rules prevent injuries in school and the workplace. (SC 8; **3.5**; **4.7**)

- 3. The student will demonstrate knowledge of the effects science and technology has on occupations, careers and the culture.**
 - a. Recognize the various ways in which science and technology impact on all careers and occupational areas. (SC 8; 1.10; 4.3; 4.8)
 - b. Identify reasons and/or causes for recent increases in technological advances. (SC 8; 1.2; 1.6; **4.1**)

- 4. The students will investigate the composition of the earth, the forces that act upon it and its natural processes.**
 - a. Compare differing soil types according to soil composition of weathered rocks and decomposing organic material. (SC 5; **1.3**; 2.4; **3.3**; **3.5**; 4.6)
 - b. Investigate reasons for conservation of natural resources and consequences associated with exploiting those resources. (SC 8; **1.1**; 1.2; **1.3**; **3.5**)

- c. Demonstrate an understanding of the basic components of the water cycle, atmosphere and how they relate to the weather. (SC 5; **1.3**; 1.8; 2.3)
- 5. The student will investigate properties, patterns, and movement of the earth, the solar system, and the universe; and will investigate space exploration.**
- a. Identify and describe celestial objects, such as: galaxies, solar system, stars, planets, moons, comets, asteroids, and meteorites. (SC 6; **1.7**; 1.8; 2.3; **3.5**)
 - b. Evaluate and explain how revolution, rotation, and the tilt of the earth influence seasons, weather and climate. (SC 6; **1.7**; 1.8; **3.5**)
 - c. Create a model of the solar system depicting accurate distances between objects in space. (SC 6; **1.6**; 2.1)
 - d. Compare and contrast the physical properties of the planets and their moons. (SC 6; 1.2; 1.7; 2.7; **4.1**)
 - e. Explain the effect the force of gravity has on celestial objects and their orbits. (SC 6; **1.3**; **1.6**)
 - f. Research and explain how information received from telescopes and space probes has either confirmed or modified scientific theories concerning the physical properties and conditions of the solar system. (SC 6; 1.7; 2.1; 2.7; **4.1**)
- 6. The student will investigate changes in the properties of matter and the transfer of energy (heat, light, sound and electricity.)**
- a. Explain differences between elements, mixtures and compounds and their ability to react with other substances. (SC 1; **1.3**; **1.6**; **2.1**; 2.4; **3.5**)
 - b. Demonstrate that substances have characteristic properties. (SC 1; 1.3; **2.1**; **3.3**; **3.5**)
 - c. Demonstrate an understanding of the basic types and properties of heat energy (e.g. conduction, convection and radiation). (SC 1; **1.3**; **1.6**; **3.5**; **4.1**)
 - d. Demonstrate the transference of electrical energy by investigating electrical current and circuits. (SC1 1.3 **2.1**; **3.3**; **3.5**)
 - e. Use a graph to represent the motion of an object from a description of its position, direction of motion, and speed. (SC 2; 1.3; 1.8)
 - f. Identify spectral properties of light (electromagnetic radiation). (SC 1; **1.2**; **1.6**; **3.3**)
 - g. Explore changes in the pitch of sound by changing the rate of vibration. (SC 1; 1.2; 1.6; 3.3)
 - h. Interpret and show the relationship between kinetic and potential energy. (SC 2; 1.2; **1.6**; 1.8; **3.5**)

*Processing skills in **bold print** are assessed by the Missouri Assessment Program at this grade level.