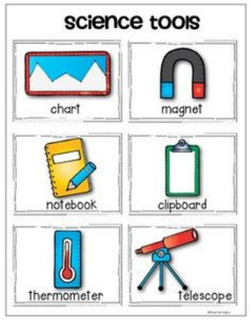
Science Topics

Physical Science

- ★ **Machines**
- ★ **Heat Energy**
- ★ **Sound**
- ★ **Solids, Liquids, and Gases**

Process Science



- ★ **Tools**
- ★ **Skills**

Layout Design & Collaboration

Janis Heigl
janis@esnorthwest.com

March 2016

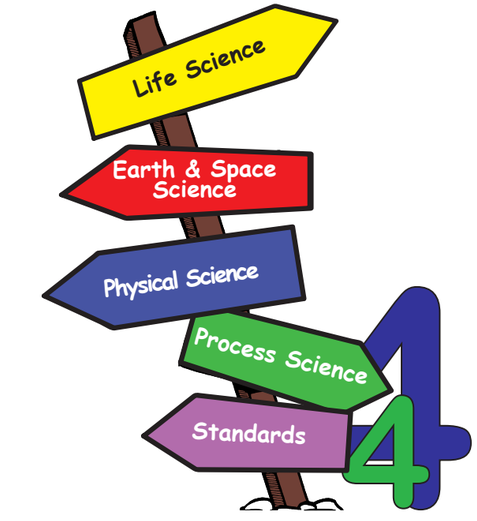
Source Documents:

Provided by

ASOCIACIÓN ACADEMIA HEBREA DE PANAMÁ

Grade 4

Science Expectations



Science Topics

Life Science

- ★ **Vertebrates**
- ★ **Invertebrates**
- ★ **Plant Life**
- ★ **The Human Body**
- ★ **Habitats/ Environment**

Earth and Space Science

- ★ **The Solar System**
- ★ **Clouds, Winds, and Storms**
- ★ **Minerals, Rocks, and Soil**

My checklist of what I can do in 4th grade science . . . . . .

Life Science . . . . . .

Life Science units teach students about the living world around them and how organisms interact with one another.

- ☐ SC.4.L.16.: Heredity - A. Offspring of plants and animals are similar to, but not exactly like, their parents or each other
- ☐ SC.4.L.16.2.: Explain that although characteristics of plants and animals are inherited, some characteristics can be affected by the environment.
- ☐ SC.4.L.16.3.: Recognize that animal behaviors may be shaped by heredity and learning.
- ☐ SC.4.L.16.4.: Compare and contrast the major stages in the life cycles of plants and animals, such as those that undergo incomplete and complete metamorphosis, and flowering and nonflowering seed-bearing plants.
- ☐ SC.4.L.17.: Interdependence - A. Plants and animals, including humans, interact with and depend upon each other and their environment to satisfy their basic needs. B. Both human activities and natural events can have major impacts on the environment. C. Energy flows from the sun through producers to consumers.
- ☐ SC.4.L.17.1.: Compare the seasonal changes in Florida plants and animals to those in other regions of the country.
- ☐ SC.4.L.17.2.: Explain that animals, including humans, cannot make their own food and that when animals eat plants or other animals, the energy stored in the food source is passed to them.
- ☐ SC.4.L.17.3.: Trace the flow of energy from the Sun as it is transferred along the food chain through the producers to the consumers.
- ☐ SC.4.L.17.4.: Recognize ways plants and animals, including humans, can impact the environment.

Earth and Space Science . . . . . .

Earth and Space Science units teach students about features, materials, and processes on Earth and in outer space.

- ☐ SC.4.E.5.: Earth in Space and Time - Humans continue to explore Earth's place in space. Gravity and energy influence the formation of galaxies, including our own Milky Way Galaxy, stars, the Solar System, and Earth. Humankind's need to explore continues to lead to the development of knowledge and understanding of our Solar System.
- ☐ SC.4.E.5.1.: Observe that the patterns of stars in the sky stay the same although they appear to shift across the sky nightly, and different stars can be seen in different seasons.
- ☐ SC.4.E.5.2.: Describe the changes in the observable shape of the moon over the course of about a month.
- ☐ SC.4.E.5.3.: Recognize that Earth revolves around the Sun in a year and rotates on its axis in a 24-hour day.
- ☐ SC.4.E.5.4.: Relate that the rotation of Earth (day and night) and apparent movements of the Sun, Moon, and stars are connected.
- ☐ SC.4.E.6.: Earth Structures - Humans continue to explore the composition and structure of the surface of Earth. External sources of energy have continuously altered the features of Earth by means of both constructive and destructive forces. All life, including human civilization, is dependent on Earth's water and natural resources.
- ☐ SC.4.E.6.1.: Identify the three categories of rocks: igneous, (formed from molten rock); sedimentary (pieces of other rocks and fossilized organisms); and metamorphic (formed from heat and pressure).
- ☐ SC.4.E.6.2.: Identify the physical properties of common earth-forming minerals, including hardness, color, luster, cleavage, and streak color, and recognize the role of minerals in the formation of rocks.
- ☐ SC.4.E.6.3.: Recognize that humans need resources found on Earth and that these are either renewable or nonrenewable.
- ☐ SC.4.E.6.4.: Describe the basic differences between physical weathering (breaking down of rock by wind, water, ice, temperature change, and plants) and erosion (movement of rock by gravity, wind, water, and ice).

Physical Science . . . . . .

Physical Science units teach students about the nature and properties of energy, forces, and matter.

- ☐ SC.4.P.8.: Properties of Matter - A. All objects and substances in the world are made of matter. Matter has two fundamental properties: matter takes up space and matter has mass. B. Objects and substances can be classified by their physical and chemical properties. Mass is the amount of matter (or "stuff") in an object. Weight, on the other hand, is the measure of force of attraction (gravitational force) between an object and Earth.
- ☐ SC.4.P.8.1.: Measure and compare objects and materials based on their physical properties including: mass, shape, volume, color, hardness, texture, odor, taste, attraction to magnets.
- ☐ SC.4.P.8.2.: Identify properties and common uses of water in each of its states.
- ☐ SC.4.P.8.3.: Explore the Law of Conservation of Mass by demonstrating that the mass of a whole object is always the same as the sum of the masses of its parts.
- ☐ SC.4.P.8.4.: Investigate and describe that magnets can attract magnetic materials and attract and repel other magnets.
- ☐ SC.4.P.9.: Changes in Matter - A. Matter can undergo a variety of changes. B. Matter can be changed physically or chemically
- ☐ SC.4.P.9.1.: Identify some familiar changes in materials that result in other materials with different characteristics, such as decaying animal or plant matter, burning, rusting, and cooking.
- ☐ SC.4.P.10.: Forms of Energy - A. Energy is involved in all physical processes and is a unifying concept in many areas of science. B. Energy exists in many forms and has the ability to do work or cause a change.
- ☐ SC.4.P.10.1.: Observe and describe some basic forms of energy, including light, heat, sound, electrical, and the energy of motion.
- ☐ SC.4.P.10.2.: Investigate and describe that energy has the ability to cause motion or create change.
- ☐ SC.4.P.10.3.: Investigate and explain that sound is produced by vibrating objects and that pitch depends on how fast or slow the object vibrates.

Process Science . . . . . .

Process Science units teach students about the tools and skills necessary to conduct investigations and find answers.

- ☐ SC.4.N.1.: The Practice of Science - A: Scientific inquiry is a multifaceted activity; The processes of science include the formulation of scientifically investigable questions, construction of investigations into those questions, the collection of appropriate data, the evaluation of the meaning of those data, and the communication of this evaluation.
- ☐ SC.4.N.1.1.: Raise questions about the natural world, use appropriate reference materials that support understanding to obtain information (identifying the source), conduct both individual and team investigations through free exploration and systematic investigations, and generate appropriate explanations based on those explorations.
- ☐ SC.4.N.1.2.: Compare the observations made by different groups using multiple tools and seek reasons to explain the differences across groups.
- ☐ SC.4.N.1.3.: Explain that science does not always follow a rigidly defined method ("the scientific method") but that science does involve the use of observations and empirical evidence.
- ☐ SC.4.N.1.4.: Attempt reasonable answers to scientific questions and cite evidence in support.
- ☐ SC.4.N.1.5.: Compare the methods and results of investigations done by other classmates.
- ☐ SC.4.N.1.6.: Keep records that describe observations made, carefully distinguishing actual observations from ideas and inferences about the observations.
- ☐ SC.4.N.1.7.: Recognize and explain that scientists base their explanations on evidence.

How to use checklist:

- Show the date of when you were able to do the math expectation.
- Show an example of what you did in a journal.