



Course Name: Elementary Science 4th Grade
School Year: 2021-2022

Course Purpose and Relevance:

Course Purpose and Relevance: §112.15. Science, Grade 4, Adopted 2017

(a) Introduction.

(1) In Grade 4, investigations are used to learn about the natural world. Students should understand that certain types of questions can be answered by investigations and that methods, models, and conclusions built from these investigations change as new observations are made. Models of objects and events are tools for understanding the natural world and can show how systems work. They have limitations and, based on new discoveries, are constantly being modified to more closely reflect the natural world.

(A) Within the physical environment, students know about the physical properties of matter including mass, volume, states of matter, temperature, magnetism, and the ability to sink or float. Students will differentiate among forms of energy including mechanical, light, sound, and thermal energy. Students will explore electrical circuits and design descriptive investigations to explore the effect of force on objects.

(B) Within the natural environment, students know that earth materials have properties that are constantly changing due to Earth's forces. The students learn that the natural world consists of resources, including renewable and nonrenewable, and their responsibility to conserve our natural resources for future generations. They will also explore Sun, Earth, and Moon relationships. The students will recognize that our major source of energy is the Sun.

(C) Within the living environment, students know and understand that living organisms within an ecosystem interact with one another and with their environment. The students will recognize that plants and animals have basic needs, and they are met through a flow of energy known as food webs. Students will explore how all living organisms go through a life cycle and have structures that enable organisms to survive in their ecosystem.

(2) Science, as defined by the National Academy of Science, is the “use of evidence to construct testable explanations and predictions of natural phenomena, as well as the knowledge generated through this process.”

(3) Recurring themes are pervasive in sciences, mathematics, and technology. These ideas transcend disciplinary boundaries and include patterns, cycles, systems, models, and change and constancy.

(4) The study of elementary science includes planning and safely implementing classrooms and outdoor investigations using scientific processes, including inquiry methods, analyzing information, making informed decisions, and using tools to collect and record information, while addressing the major concepts and vocabulary, in the context of physical, earth, and life sciences. Districts are encouraged to facilitate classroom and outdoor investigations for at least 50% of instructional time.

Science Support Tips for Busy Parents from the National Science Teachers Association

Do you panic when your child comes home from school asking for help with his or her science fair project? Do you ever wonder how you can help your child learn science? You are not alone. Many parents—especially those who didn't pursue careers in science—may be apprehensive, sometimes even fearful, about this endeavor.

We commend you for your desire to help guide and support your children in their education, specifically in the field of science. Science is a way of understanding the world, a perspective, and a pattern of thinking that begins in the very early years. That is why parent involvement is so important in a child's science education.

Families who explore together nurture great young scientists! Studies show that the family experiences that students bring to school are some of the biggest predictors of success (Hazen and Trefil 1991). With this in mind, the National Science Teachers Association has created the following set of resources for parents:

- **See science everywhere.** Parents can take opportunities to ask, "What would happen if...?" questions or present brainteasers to encourage children to be inquisitive and seek out answers. Children need to know that science isn't just a subject, but it is a way of understanding the world around us.
- **Lead family discussions on science-related topics.** Dinnertime might be an ideal time for your family to have discussions about news stories that are science based, like space shuttle missions, severe weather conditions, or new medical breakthroughs. Over time, children will develop a better understanding of science and how it affects many facets of our lives. Movies and TV shows with science-related storylines are also great topics for discussion. For example: After watching Jurassic Park, you might want to discuss with your children the significance of the name of the movie or how human involvement in natural processes can cause drastic consequences.
- **Encourage girls and boys equally.** Many fathers might be inclined to fix a problem for a daughter without challenging her to find the solution on her own. Many girls are left out of challenging activities simply because of their gender. Be aware that both girls and boys need to be encouraged and exposed to a variety of subjects at a very early age.
- **Do science together.** Children, especially elementary-age children, learn better by investigating and experimenting. Simple investigations done together in the home can bolster what your child is learning in the classroom. Check with your child's teacher on what your child is currently learning in class and what activities you can explore at home. There are also many books on the market and numerous websites that present ideas for investigations. For example: Using a penny and a water dropper, ask your child to guess how many drops of water will fit on top of it. Ask your child to count the drops as he or she drops them on the penny. Why doesn't the water spill off after a few drops? Water molecules across the surface are attracted to each other. The attraction is strong enough to allow the water to rise above the penny without spilling. At some point, the molecules of water can no longer hold together and spill off the penny.
- **Obtain science resources.** Follow up science discussions, home experiments, or classroom lessons with books, magazines, CDs, and other resources. Science themes will be reinforced through further exploration, and over time your family will have plenty of resources on which to draw.

- **Explore nonformal education sites.** In an informal learning situation—the kind of learning that happens outside the traditional confines of the classroom, at science centers, museums, zoos, and aquariums—children are encouraged to experiment on their own and ask questions about what they are experiencing.
- **Connect science with a family vacation.** Family vacations are a great way to explore science. It could be a hiking trip where you explore nature or a discussion on tides during a beach vacation.
- **Become active in your children's formal education by getting to know the teacher and the curriculum.** Participate in your child's school science program by locating scientists and others to be guest speakers or accompany your child on a field trip to a science-related place.
- **Show excitement for science.**

How to Assist Your Learner at Home:

<https://www.nsta.org/science-resources-parents>

Link to Course TEKS on State website:

<http://ritter.tea.state.tx.us/rules/tac/chapter112/ch112a.html>

4th Grade Science Year-at-a-Glance 2021-22

Date	Building Blocks	Unit	Notes
Aug. 17-20	BB #1	Science as Inquiry (2.5 weeks)	1 st 9 weeks
Aug.23-27	BB #1		
Aug. 30- Sept.3	BB #2		
Sept. 7-10	BB #1	Matter and Energy (5 weeks)	Sept. 6 th - Holiday
Sept. 13-17	BB #1		
Sept. 20-24	BB #2		
Sept. 27- Oct. 1	BB #2		
Oct. 4-8	BB #2		
Oct. 12-15	BB #1	Science Fair (2 weeks)	Oct. 11th – Campus PL
Oct. 18-22	BB #1	Force, Motion, & Energy: Uses of Energy (4 weeks)	
Oct. 25-29	BB #1		
Nov. 1-5	BB #1		
Nov. 8-12	BB #1		
Nov. 15-19	BB #2		
Nov. 22-26		Thanksgiving	
Nov. 29-Dec.3	BB #1	Force, Motion. & Energy Investigating Forces (3 weeks)	
Dec. 6-10	BB #1		
Dec. 13-17	BB #1		Dec. 17 th - Early Release
Dec. 20-24		Winter Break	
Dec. 27- Dec. 31			
Jan. 5-7	BB #1	Earth and Space: Changes in the in Earth & Sky (6 weeks)	3 rd 9 weeks /Jan.3 rd & 4th PL
Jan. 10-14	BB #1		
Jan. 18-21	BB #1		Jan. 17 th -Holiday
Jan. 24-28	BB #1		
Jan. 31-Feb. -4	BB #1		
Feb. 7-11	BB #2	LP Reteach/Extend	
Feb. 14-18	BB #1	Properties of Earth Materials (3 weeks)	
Feb. 22-25	BB #2		Feb. 21 st - District PL
Feb. 28-Mar. 4	BB #1/2		
Mar. 7-11	BB#2	Spring Break	
Mar. 14-18	BB #1	Life Cycles	
Mar. 21-25	BB #1	(2 weeks)	
Mar. 28-Apr. 1	BB #1 & 3	Interactions in Ecosystems (4 weeks)	
Apr. 4-8	BB #1		
Apr. 11-14	BB #1/2		April 15 th - Holiday
Apr. 18-22	BB #2		
April 25-29	BB #3	Structures and Functions (2 weeks)	
May 2-6	BB #3		
May 9-13	BB #4	Inherited Traits/Learned Behaviors (1 week) Revisit Life Cycles	STAAR Testing
May 16-20	BB #1		
May 23-26		Independent Projects/Enrichment	May 26th Early Release