

Parent/Caregiver Guide



Working Together

Collaborations between parents, caretakers, extended family, teachers, and principals are important to connect the learning of science between home and school. Trips to science museums, nature walks, environmental education centers, and playgrounds are some examples of these connections.

To support families, communities, and teachers in realizing the goals of the 2023 North Carolina K-12 Science Standards, this guide provides an overview of the learning expectations for students studying middle school science.



6-8 SCIENCE

PORTRAIT of a GRADUATE



The 2023 North Carolina K-12 Science Standards provide a grade-by-grade road map to help ensure students are successful in college, careers, and life. The standards provide guidance regarding what students should learn about the science content and practices at each grade level while emphasizing the seven durable skills outlined by [North Carolina's Portrait of a Graduate](#):

Adaptability Collaboration Communication Critical Thinking

Empathy Learner's Mindset Personal Responsibility



SCIENCE STANDARDS

When students enter middle school they are better prepared for understanding more complex material. With coaching from teachers, middle school students will use core science ideas in physical, life, and earth sciences, along with science and engineering practices, to prepare them for more advanced learning at the high school level.

The NC 2023 science standards describe objectives for student learning, but how those objectives are met are determined at the local level. Therefore, your student's teacher(s) and school are the best sources of information about what is being learned (curriculum) and how it is being taught (instruction) in the classroom.

To review the NC 2023 K-12 Science Standards, visit the [K-12 Science Canvas Hub](#). The hub provides access to a variety of resources for supporting school leaders, administrators, educators, and parents/caregivers.

Additional Resources



Accountability and Testing

The mission of the Office of Accountability and Testing is to promote the academic achievement of all North Carolina public school students and to assist stakeholders in understanding and gauging this achievement against state and national standards. Visit the [Office of Accountability and Testing](#) for more information.

Multilingual Learners

The NCDPI ML/Title III Team is dedicated to growing the success of multilingual learners (MLs). The team developed a [Parent/Caregiver Guide for English Language Development](#) which includes information regarding the English Learners (ELs) identification process, the ELD Standards, as well as access to resources to support at-home learning.



Exceptional Children

The mission of the Office of Exceptional Children is to ensure that students with disabilities develop intellectually, physically, emotionally, and vocationally through the provision of an appropriate individualized education program in the least restrictive environment. To access resources specifically for students with disabilities, visit the homepage for the [Office of Exceptional Children](#).

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Sixth Grade

By the end of sixth grade your child will be able to...

- Describe the structure, properties, and states of matter.
- Investigate how thermal and electrical energy transfers through matter.
- Understand the properties and transfer of energy in different types of waves.
- Learn about the ways plants are able to survive and reproduce.
- Investigate the flow of energy through different ecosystems.
- Describe the earth/moon/sun system, and the structure of other celestial bodies.
- Understand how the Earth's surface has changed over time.
- Investigate how humans depend on the Earth's soil.

School and Home Connections

- Act out how water particles may be interacting with each other in frozen, solid, and liquid forms.
- Discuss why some cups keep drinks hotter or colder than other cups.
- Take a walk and point out examples of waves in everyday life (e.g. ripples in puddles, rhythmic pulses of sound waves from passing cars).
- Collect discarded flowers from a flower store and observe the structures and functions of the flower's parts that help it survive.
- Take a nature hike and discuss how plants and animals get their energy.
- Observe and record what the moon looks like for a month. Develop models of the Earth, moon, and sun to explain the changes to these patterns.
- Discuss what knowledge we might gain from observing and investigating other galaxies even though we can't visit them.
- Identify different types of weathering and erosion happening on driveways, roads, sidewalks, walls and other rock-based structures, and look for patterns to explain what may cause the difference in rate of change. Look for possible solutions to slow weathering.
- Plant a garden of vegetables or fruits. Discuss how humans depend on the soil for survival. Identify ways for you and your child to be better stewards of your garden.

National Science Teaching Resources for Parents/Caregivers

[Ten Questions Your Child's Science Teacher Wishes You Would Ask](#)

[Parent Involvement in Science Learning](#)

[Tips for Busy Parents](#)



Seventh Grade

By the end of seventh grade your child will be able to...

- Investigate force and motion on objects and represent this data on graphical displays.
- Investigate how energy is transferred, transformed, and conserved in mechanical systems.
- Learn how the human body is made of different cells and how its organ systems interact with each other to support life.
- Understand how there are various patterns of inherited traits passed down from parent to offspring through chromosomes found in cells.
- Describe the atmosphere's role on the Earth's weather and climate.
- Learn about the reciprocal relationship between humans and the atmosphere.

School and Home Connections

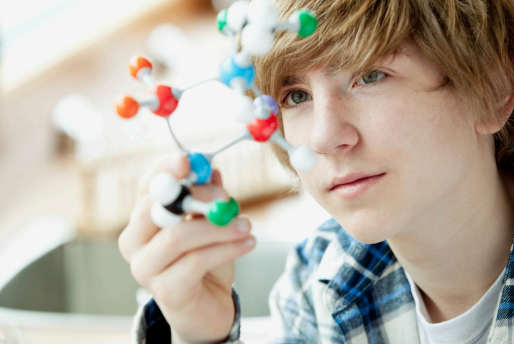
- Build different kinds of paper airplanes using various types of material to investigate the distance they travel when dropped from the same height.
- Talk about motion and speed in relation to recreational activities and vehicles. How do skateboards, bikes, and boats work? What impacts their speed?
- Ride or watch a roller coaster. Notice the times when the roller coaster moves faster and other times more slowly. Discuss why this happens.
- Talk about how the body systems work together. Do you feel differently when you eat and drink certain foods? How does that impact other systems?
- Talk about how our life choices can impact our genetics and lifespans.
- Discuss similarities and differences within genetic families around you and of people that you know. Do you have neighbors whose children look alike or do you and a sibling have different traits? Why do you think that is?
- Watch the weather report together or discuss radar images from your phone's weather app. What do you notice about the patterns? How does this connect to what your student is learning in science?
- Go outside after a rainstorm and find a puddle, then go back after the sun has come out for a period of time and ask your child what happened to the puddle.
- Talk about environmental issues that affect the atmosphere and discuss how certain choices can impact the atmosphere.

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Eighth Grade

By the end of eighth grade your child will be able to...

- Investigate properties of matter and the physical and chemical changes that occur when matter interacts.
- Understand how diseases affect living organisms.
- Investigate how living organisms respond to living and nonliving factors in their environment.
- Describe how organisms evolve over time using evidence.
- Learn how evidence from fossil records and landforms can lead to an understanding of the history of the Earth and its life forms.
- Investigate the composition of the hydrosphere.
- Learn about the reciprocal relationship between humans and the hydrosphere.
- Understand the various methods of obtaining energy resources around the earth and environmental impacts they may have.

School and Home Connections

- Spend some time together cooking different recipes in the kitchen. Discuss ways chemical and physical changes are occurring in the foods you are preparing.
- Examine data from COVID, Flu, or other communicable viruses for your region. Talk about the differences between bacteria and viruses. Discuss what a vaccine is and why it is important to finish all of an antibiotic if you are prescribed one.
- Look around at ecosystems near your home. See if they can identify a food chain. Use this to discuss flow of energy. Talk about producers and consumers and what the difference is.
- Look through nature magazines or watch nature programs on television. Discuss the organism's adaptations that help them survive in their environment.
- Use computer simulation programs or apps to identify and explain the effects of tectonic plate movement.
- Do a water analysis to estimate how much water your family uses on a weekly basis (e.g. cooking, cleaning, watering yards). Identify ways your family can conserve water.
- Check out a book at the library about renewable and nonrenewable resources. Discuss how to conserve these resources and be better stewards of the environment.

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