



An At-Home Guide for Families

5th Grade Science in North Carolina Public Schools

Course Outline

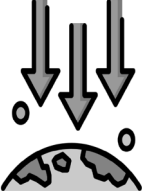

At the end of the course, my child will know...

- how to understand and explain force, motion, and the relationship between them, as well as the factors that influence them.
- how to understand and explain how matter and energy interact and the changes that occur within them.
- how to explain the changes that occur in materials because of heating or cooling
- how to understand and explain the structures and systems of organisms (including the human body) perform functions necessary for life.
- how to explain the interdependence of plants and animals in their ecosystem
- how to explain why organisms are similar or different than their parents based on the characteristics of the organism
- how to understand and explain weather patterns and phenomena, making connections to the weather in a particular place and time


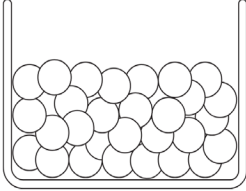
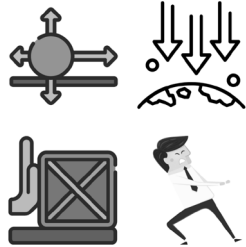
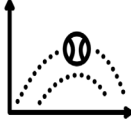


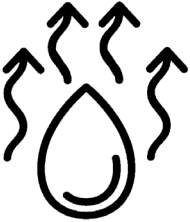
Curious what the specific standards are for 5th Grade Science in North Carolina?

Check out the [North Carolina Standard Course of Study](#) to learn more. Looking for additional explanations about what students should be able to do at the end of this course? Check out [NC DPI's unpacked contents document](#) aligned to the course standards.








Key Vocabulary

Visual	Term	Definition
	Gravity	The force of attraction between two objects based on their masses.
	Friction	A force that causes resistance in motion when one object moves past another.



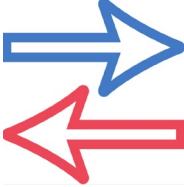
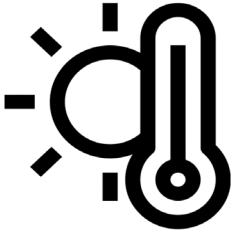


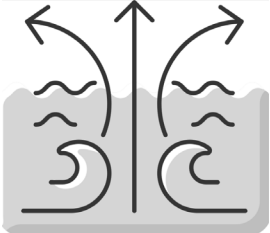


Visual	Term	Definition
	Mass	The measure of the amount of matter in an object.
	Matter	Material that has mass and takes up space.
	Force	A push or pull exerted on an object that causes a change in motion or direction.
	Motion	A change in the position of an object.
		
	Water Cycle	The constant movement of water between the land, the ocean, and the air, that is powered by the Sun.
	Evaporation	The process in which liquids become gasses or vapor.

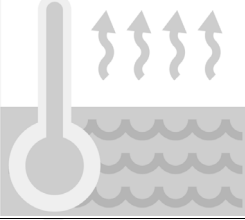
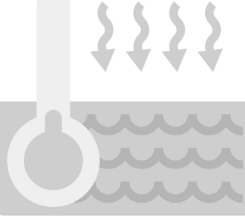

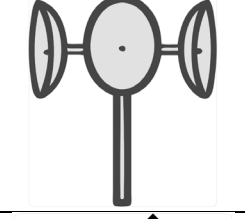

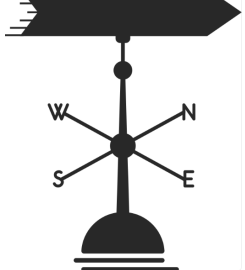


Visual	Term	Definition
	Condensation	The cooling down of gasses or vapors into liquids.
	Precipitation	Water released from the sky in the form of rain, sleet, snow, or hail.
	Runoff	Precipitation that is not absorbed into the ground or accumulated into a body of water.
	Transpiration	The process by which plants release water from their leaves into the atmosphere.
	Biotic	Living organisms in an ecosystem.
	Abiotic	Non-living organisms in an ecosystem.
	Conduction	The transfer of thermal (heat) energy through direct contact or touch.

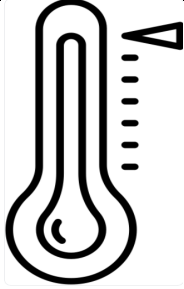

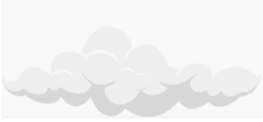

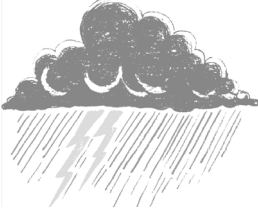




Visual	Term	Definition
	Convection	The movement of thermal (heat) energy in liquids and gasses caused by the rising and sinking of molecules.
	Radiation	The movement of thermal (heat) energy through electromagnetic waves.
	Heat Transfer	The movement of thermal (heat) energy from warmer objects to cooler objects.
	Temperature	The measure of the amount of heat energy in an object. Measured in degrees Fahrenheit or degrees Celsius.
	Barometer	A weather instrument used to measure barometric or atmospheric pressure.
	Jet Stream	Fast moving air current found high in the atmosphere. Responsible for moving weather systems.
	Water Currents	A fast-moving water system moving water from one location to another caused by differences in temperature, wind, and/or the amount of salt present. Examples: Gulf Stream.

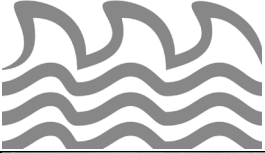

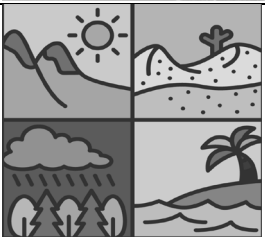





Visual	Term	Definition
	El Niño	The unusual warming of the Pacific Ocean causing an increase in precipitation for the southern part of the United States from North Carolina to California.
	La Niña	The unusual cooling of the Pacific Ocean causing drier and warmer weather for the southern United States.
	Air Pressure	The pressure the atmosphere exerts on the Earth.
	Anemometer	A weather instrument that measures wind speed.
	Rain Gauge	A weather instrument that collects and measures the amount of fallen participation.
	Wind Vane	A weather instrument that measures wind direction.



Visual	Term	Definition
	Thermometer	A weather instrument that measures the temperature or amount of thermal energy present.
	Cirrus	A cloud found at a high level in the atmosphere, made of ice crystals and shaped like a feather. Usually an indication of fair weather.
	Stratus	A lower-level cloud that blankets the atmosphere. Can indicate the coming or presence of rain. Fog is a common stratus cloud.
	Cumulus	A large fluffy cloud resembling a cotton ball. Tall with a flat bottom, usually present in fair weather.
	Cumulonimbus	A thunderhead cloud present during heavy amounts of rain and thunderstorms.
	Ecosystems	The living and non-living components of the different environments making up Earth.
	Terrestrial	Land based elements of ecosystems.


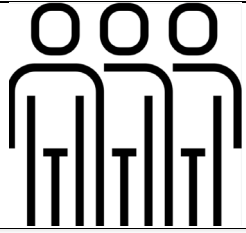

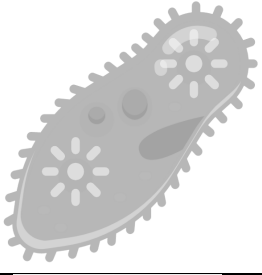
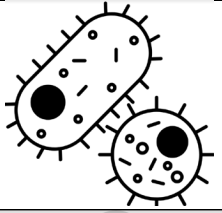
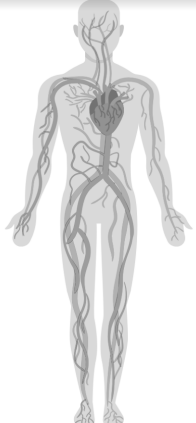


Visual	Term	Definition
	Aquatic	Water based elements of ecosystems.
	Estuary	A water area where salt and fresh water meet and mix. Examples include inlets and bays.
	Biome	A large area on Earth, land or water based, with similar climate, temperatures, animal and plant life.
	Deciduous Forest	The only terrestrial biome where there are four naturally occurring seasons. Contains a variety of animal life such as, squirrels, bears, foxes, raccoons, birds, etc. and characterized by mostly deciduous trees (trees that change colors and lose their leaves in the fall).
	Rainforest	A terrestrial biome that contains the most amount of diversity in plant and animal life. Receives more than 400 cm of rain per year and is located in tropical areas near the equator.
	Grasslands	A terrestrial biome with few trees, low growing shrubs and grasses. Typically found in warmer climates.

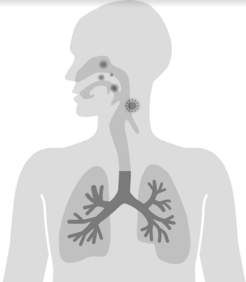
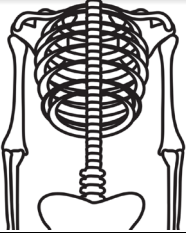
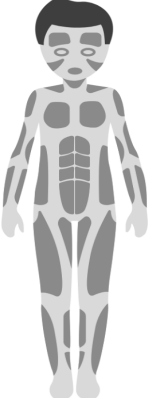

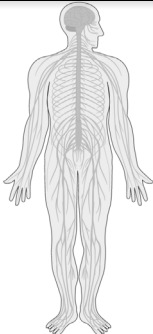


Visual	Term	Definition
	Food Chain	A depiction of a single chain showing how matter is passed through an ecosystem. This begins with a producer (plant), passes through two or more consumers (animals), and ends with a decomposer (fungi, worms).
	Food Web	The overlapping food chains that can be found in specific ecosystems.
	Producers	Green plants that make their own food using photosynthesis. The beginning of a food chain.
	Consumers	Animals that consume other living things (producers or other consumers) for nutrients.
	Decomposers	Organisms that break down dead plants or animals. Examples include fungi, bacteria, worms.
	Niche	The role of a living thing in its ecosystem. Examples include prey, predator, producer, consumer, etc.

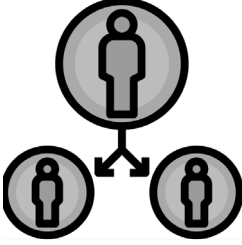
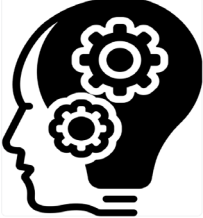


Visual	Term	Definition
	Community	All of the different living things and populations found in an ecosystem.
	Population	A group of the same species found within a community and/or ecosystem.
	Organism	A living thing made of one or more cells.
	Unicellular	An organism made of only one single cell in which all life processes are carried out. Examples include paramecium and amoeba.
	Multicellular	An organism made up of many cells that are specialized and designed to carry out specific life processes. Examples include most plants and animals.
	Circulatory System	The human body system that carries blood, oxygen, and fluids throughout the body. Major parts include the heart and blood.



Visual	Term	Definition
	Respiratory System	The human body system that is responsible for taking in oxygen and expelling carbon dioxide. Major parts include the lungs, nose, mouth, and trachea.
	Skeletal System	The human body system responsible for movement and protection of vital organs. Major parts include the bones and skull.
	Muscular System	The human body system that works with the skeletal system to allow for movement and support. Major parts include muscles.
	Digestive System	The human body system responsible for taking in nutrients and expelling waste. Major parts include the stomach, large and small intestines.
	Nervous System	The human body system responsible for sending signals and transporting information to all other parts of the body. Major parts include the brain, spinal cord, and nerves.



Visual	Term	Definition
	Inherited Traits	The genetic information that parents pass to their offspring. Examples include eye and hair color, freckles, dimples, etc.
	Learned Behaviors	The behaviors acquired through experience and education. Examples include ability to play sports or musical instruments.

Learning in Action: Grade Level Skills

Examples of Grade Level Skills



Examples of grade level skills by content area as follows:

- 1.Explain the relationship between force and motion and the factors that impact each.
- 2.Give examples of forces that are helpful and harmful to people.
- 3.Give examples and explain the difference between a chemical change and a physical change of matter.
- 4.Explain how matter can change states.
- 5.Give day to day examples of the three types of heat energy transfer.
- 6.Draw a model and label the parts of the water cycle.
- 7.Create a weather map for your area. Include high and low pressure systems, fronts, and the type of weather that corresponds to these terms.
8. Explain how the Coriolis Effect impacts weather on Earth.
9. Describe how animals are impacted by the biotic and abiotic factors in their ecosystem. Be able to do this for any of the Biomes studied.
10. Make a chart of the major systems of the human body and tell about their primary function and organs.
11. Explain how and why parents and children are similar. Tell what is inherited vs. what is learned.

Resources

Links and online resources to allow you to support your child’s learning.

- [Crash Course Kids Science](#)



- [PBS Learning Media Science](#)
- [Study Jams Science](#)
- [Khan Academy Science](#)
- [Kids Discover Online](#)
- [The National Science Digital Library](#)

At-Home Connections

- Tell me how force and motion are related to each other.
- Find examples of how more force may be required to move objects
- Discuss chemical and physical changes to matter while you are cooking in the kitchen
- Look around your home for examples of the three states of matter
- Do an experiment with water to demonstrate the changes from solid to liquid to gas, then reverse it!
- Heat an equal amount of water and measure the temperature in three different containers. Measure the temperature again after 3 minutes and then after 5 minutes. Which container is the best insulator?
- Talk about the water cycle when it is raining, when you see examples of condensation, or when things would evaporate faster.
- Discuss the daily weather patterns with each other. What types of fronts and pressure systems are moving through your area and how is it changing the temperature and precipitation you see?
- Make a graph of the types of clouds you see for a week. What types of weather came from each type of cloud?
- Make a skeletal system model out of Q-tips and glue. Label the main bones in the body.
- Do a competition with your family to see how to increase heart rate. Whose heart rate is the highest? Why do you think so?
- Take a nature walk around your neighborhood or at the park. Discuss the local ecosystem and the biotic/abiotic factors in your area.
- Make a list of the traits each of your family members inherited from one another. Look for similarities. Make a list of behaviors you each exhibit. Why do you think you act the way you do?

Challenges to Anticipate

- Fifth grade students could find the transition to fifth grade science somewhat challenging. This is the first year students will be accountable for science as a tested subject.
- Vocabulary is especially important in fifth grade. Try making flash cards for new words and reviewing previously studied words often.
- Weather is often a difficult topic for students to fully understand. Discuss weather changes as they happen and what could be the cause for them.



- Look for other real-world examples in day to day activities. These connections will help learning resonate more with students.
- Students may need assistance with managing their time and practicing study skills.
- Students may need technical assistance with the online course and platform. There are tools available in the course for students to access for help.
- Using this document, staying in contact with your child’s teacher, and the other resources available, will help the success of your child.

Communicating with Your Child’s Teacher

Still feeling stuck? Reach out to your child’s teacher to discuss what you can do to further your child’s learning. Some questions that might guide your discussion:

- What resources would you suggest I use to support my child?
- Where do you see my child struggling? What can we do together to help?
- What should my child practice at home?
- What collective message can we send together to help my child learn?

Need Technical Help?

Reach out to your student’s home school for technical assistance. Include the type of device (PC, Mac, Chromebook, etc.) and browser (Chrome, Firefox, Safari, etc.).

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