

# SCIENCE

## NORTH CAROLINA STANDARD COURSE OF STUDY

### FORCES AND MOTION

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#### **4.P1 Explain how various forces affect the motion of an object.**

- 4.P1.1 Explain how magnets interact with all things made of iron and with other magnets to produce motion without touching them.
- 4.P1.2 Explain how electrically charged objects push or pull on other electrically charged objects and produce motion.

### MATTER: PROPERTIES AND CHANGE

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#### **4.P2 Understand the composition and properties of matter before and after they undergo a change or interaction.**

- 4.P2.1 Compare the physical properties of samples of matter (strength, hardness, flexibility, ability to conduct heat, ability to conduct electricity, ability to be attracted by magnets, reactions to water and fire).
- 4.P2.2 Explain how minerals are identified using tests for the physical properties of hardness, color, luster, cleavage and streak.
- 4.P2.3 Classify rocks as metamorphic, sedimentary or igneous based on their composition, how they are formed and the processes that create them.

### ENERGY: CONSERVATION AND TRANSFER

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#### **4.P3 Recognize that energy takes various forms that may be grouped based on their interaction with matter.**

- 4.P3.1 Recognize the basic forms of energy (light, sound, heat, electrical, and magnetic) as the ability to cause motion or create change.
- 4.P3.2 Recognize that light travels in a straight line until it strikes an object or travels from one medium to another, and that light can be reflected, refracted, and absorbed.

### EARTH IN THE UNIVERSE

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#### **4.E.1 Explain the causes of day and night and phases of the moon.**

- 4.E.1.1 Explain the cause of day and night based on the rotation of Earth on its axis.
- 4.E.1.2 Explain the monthly changes in the appearance of the moon, based on the moon's orbit around the Earth.

### EARTH HISTORY

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#### **4.E.2 Understand the use of fossils and changes in the surface of the earth as evidence of the history of Earth and its changing life forms.**

- 4.E.2.1 Compare fossils (including molds, casts, and preserved parts of plants and animals) to one another and to living organisms.
- 4.E.2.2 Infer ideas about Earth's early environments from fossils of plants and animals that lived long ago.
- 4.E.2.3 Give examples of how the surface of the earth changes due to slow processes such as erosion and weathering, and rapid processes such as landslides, volcanic eruptions, and earthquakes.

## **ECOSYSTEMS**

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### ***4.L.1 Understand the effects of environmental changes, adaptations and behaviors that enable animals (including humans) to survive in changing habitats.***

- 4.L.1.1 Give examples of changes in an organism's environment that are beneficial to it and some that are harmful.
- 4.L.1.2 Explain how animals meet their needs by using behaviors in response to information received from the environment.
- 4.L.1.3 Explain how humans can adapt their behavior to live in changing habitats (e.g., recycling wastes, establishing rain gardens, planting trees and shrubs to prevent flooding and erosion).
- 4.L.1.4 Explain how differences among animals of the same population sometimes give individuals an advantage in surviving and reproducing in changing habitats.

## **MOLECULAR BIOLOGY**

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### ***4.L.2 Understand food and the benefits of vitamins, minerals and exercise.***

- 4.L.2.1 Classify substances as food or non-food items based on their ability to provide energy and materials for survival, growth and repair of the body.
- 4.L.2.2 Explain the role of vitamins, minerals and exercise in maintaining a healthy body.

# SCIENCE

## EXTENDED CONTENT STANDARDS

### FORCES AND MOTION

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#### ***EX.4.P.1 Understand how force affects the motion of an object.***

- EX.4.P.1.1 Describe the motion of a moving object (away from or closer).
- EX.4.P.1.2 Define force as a push or a pull.
- EX.4.P.1.3 Predict how forces can change the speed or direction of moving objects.

### MATTER, PROPERTIES AND CHANGE

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#### ***EX.4.P.2 Compare solid materials by their physical properties.***

- EX.4.P.2.1 Identify different types of solid materials (wood, rock, plastic, rubber, glass, metal).
- EX.4.P.2.2 Compare physical properties of solid materials (weight, texture, hardness, flexibility, and strength).

### EARTH SYSTEMS, STRUCTURES AND PROCESSES

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#### ***EX.4.E.1 Use the tools for observing, recording and measuring changes in weather conditions.***

- EX.4.E.1.1 Use a thermometer to record temperature changes, during the day, from day to day, and season to season.
- EX.4.E.1.2 Measure precipitation and note amounts (none, some, much) from day to day.
- EX.4.E.1.3 Understand that moving air is wind and it affects the weather and our environment.

### STRUCTURES AND FUNCTIONS OF LIVING ORGANISMS

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#### ***EX.4.L.1 Understand the needs of living things.***

- EX.4.L.1.1 Identify healthy and unhealthy food choices for humans.
- EX.4.L.1.2 Understand the effects of healthy and unhealthy food choices on the body.

### ECOSYSTEMS

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#### ***EX.4.L.1 Understand the effects of environmental changes, adaptations and behaviors that enable plants and animals to survive in changing habitats.***

- EX.4.L.1.1 Describe how animals adapt to their environment (e.g. bears hibernate in the winter, birds fly south for the winter, lizards change color).
- EX.4.L.1.2 Describe how plants adapt to their environments (e.g. plants grow towards the sun, leaves fall in the winter).
- EX.4.L.1.3 Identify ways that plants and animals protect themselves.
- EX.4.L.1.4 Understand why adaptations and changes in behavior are essential for survival.

