# 4th Grade Science Learning Targets
# (I can statements)

## Physical Science

I can ...

- identify the three states of matter
- explain how each state of matter takes up space and has mass
- describe the properties of the states of matter
- explain and model how matter can be changes from one state to another
- experiment with physical changes in matter
- describe the position of an object by comparing it to the position of another object
- predict ways to increase and decrease speed
- measure and graph changes in position of objects from one point to another
- identify what causes motion (push and pull)
- explain how an objects motion is affected by the force applied and the mass of the object
- compare different types of force
- describe Newton's Laws of Motion and construct experiments using these laws
- explain and demonstrate how sounds are produced
- tell how sound travels through different states of matter
- describe and create different pitches of sound
- compare the connection between pitch and rate of vibrations (frequency)

## Earth/Space Science

I can ...

- identify Earth's natural resources that are essential to modern life
- classify Earth's natural resources by their uses
- compare different properties that make Earth's natural resources useful
- predict what materials would be good for what purposes
- describe how slow changes have shaped the surface of the surface of the Earth and continue to do so
- explain how some events can change the Earth's surface quickly
- explain the consequences (positive and negative) to changes to Earth's surface
- compare and contrast fast changes with slow changes to the surface of the Earth
- explain how weather has both daily and seasonal patterns
- explain ways scientists observe, describe, and measure the weather
- observe and record daily weather
- describe seasonal patterns that help us predict the weather
- use models of different weather instruments to show how weather is studied and predicted
- measure, record, and graph temperature, wind direction, wind speed, and precipitation
- describe how the solar system is arranged
- describe how the Earth rotates on its axis every 24 hours
- describe how the Earth revolves around the sun in 365 days
- compare the summer solstice and winter equinox
- predict where different shadows will be at different times of the day
- create a model of a sundial and use it to show as the Earth rotates and the sun changes position in the sky, shadows also appear to change

- describe the rotation and revolution of the moon
- use models to show the different phases of the moon over a month's time
- observe and chart the progress of the moon through its phases

**Biological Science**

I can ...

- compare different structures of plants and animals and explain how they help them grow, survive, and reproduce
- infer and draw conclusions about how different structures on animals help them fulfill their basic needs
- identify the basic building block for all living organisms is the cell
- use models to compare the plant and animal cell's parts and their functions
- create a model of a plant and animal cell
- classify organisms as living, nonliving, and once living
- describe how scientists classify all of the world's organisms into kingdoms, classes, and species
- use models to classify organisms into different groups using various characteristics
- compare body parts from different animals and infer why they are best suited for each
- Explain that all organisms go through a life cycle (beginning of life, growth, and development, reproduction, and death).
- Describe the stages of the life cycle of a flowering plant
- Describe the ways non-flowering plants reproduce
- Use models to compare and classify the life cycles of a variety of animals
- Compare the life cycle of a plant and the life cycle of an animal
- Compare the difference between incomplete metamorphosis and complete metamorphosis
- Explain that heredity is the passing on of traits from parent to offspring
- Collect data about different traits in our classroom and record the data in tables
- Explain that how an animal reacts to changes is a behavior called an instinct
- Describe different instincts that animals have to help them survive
- Describe some behaviors that organisms have are learned
- Classify behaviors as either learned or inherited
- Describe how fossils are formed
- Compare the different types of fossils
- Draw conclusions about organisms and their environment by studying fossils
- Use models of fossils to make inferences about relationships to organisms that are alive today
- Create my own fossils

**Unifying Concepts**

I can ...

- Describe how plants make their own food through photosynthesis
- Identify producers, consumers, and decomposers and discuss their role in the environment
- Illustrate how food energy moves from the sun to the decomposer
- Trace how energy is passed along a food chain by dissecting owl pellets
- Demonstrate by playing relay games how energy passes along an environment

- Connect food chains to make a food web
- Predict what would happen to a food chain if a link from the chain disappeared
- Explain that current electricity is the flow of electrical energy through a wire or other conductor
- Create a simple circuit
- Create models and compare series and parallel circuits, and open and closed circuits
- Predict the outcome given changes in a circuit
- Test different materials to see if they are conductors or insulators
- Explain how electricity can be turned into other forms of energy such as light, heat, and sound
- Describe how light travels in a straight line until they are reflected, refracted, or absorbed by substances
- Predict and test paths of light through transparent, translucent, and opaque objects
- Differentiate between concave and convex lenses and create models of each
- Explain how white light contains all the colors of the rainbow
- Use prisms to create the color spectrum
- Identify and describe the different biomes of the world
- Create a diorama illustrating different features of a biome
- Describe adaptations of plants and animals that allow them to live in their habitats
- Create a creature that is adapted to survive in its environment
- Discuss how important it is for every environment to have a careful balance of different living and nonliving parts
- Describe human changes to the environment
- Classify the changes as beneficial or harmful to the environment
- Predict what would happen in my environment given various scenarios
- Discuss ways to become involved in protecting my environment