

## Fifth Grade Science Scales

Students will be able to develop a model to describe that matter is made of particles too small to be seen.

4	Student is able to independently demonstrate understanding, with further explanation using science vocabulary and examples from class and/or real world situations.
3	Student is able to independently model the way atoms are arranged within a solid, liquid, and gas using concrete and specific examples (talk, depictions, models).
2	Student is able to model understanding of atom arrangement of one or two states of matter with support.
1	Student is able to describe that all matter is made of atoms with support.

Students will be able to make observations and measurements to identify materials based on their properties.

4	Student is able to independently demonstrate understanding, with further explanation using science vocabulary and examples from class and/or real world situations.
3	Student is able to independently observe, measure, and identify materials based on their physical properties.
2	Student is able to, with support, observe, measure, and identify materials based on their physical properties.
1	Student is able to, with support, determine that physical properties are used to categorize matter.

Students will be able to measure and graph quantities to provide evidence that regardless of whether a physical or chemical change occurs, the total weight of matter is conserved.

4	Student is able to independently demonstrate understanding, with further explanation using science vocabulary and examples from class and/or real world situations.
3	Student is able to independently demonstrate an understanding of the Law of Conservation of Matter independently, using measurable data.
2	Student is able to apply the measurements to the Law of Conservation of Matter with support.
1	Student is able to measure and graph quantities of matter with support.

Students will be able to conduct an investigation to determine whether the mixing of two or more substances results in new substances.

4	Student is able to independently demonstrate understanding, with further explanation using science vocabulary and examples from class and/or real world situations.
3	Student is able to independently determine whether a new substance has resulted (chemical reaction) in an investigation with evidence.
2	Student is able to, with support, identify that a substance is the result of a chemical reaction but does not provide evidence.
1	Student is able to identify that when two or more substances are combined, it can result in a new substance with support.

Students will be able to plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

4	Student is able to independently develop tests involving variables and provide further explanation using science vocabulary and examples from class and/or real world situations.
3	Student is able to independently <ol style="list-style-type: none"> <li>Plan and carry out investigations using the scientific method</li> <li>Record their scientific findings</li> <li>Consider possible errors that could impact data</li> </ol>
2	Student is able to plan and carry out investigations using some steps of the scientific method with support.
1	Student is able to plan and carry out investigations with considerable support.

*Growing Learners, Preparing Students*

Students will be able to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.

4	Student is able to independently demonstrate understanding, with further explanation using science vocabulary and examples from class and/or real world situations.
3	Student is able to independently: <ol style="list-style-type: none"> <li>identify components belonging to each of Earth's four spheres/systems (geosphere, biosphere, hydrosphere, and/or atmosphere)</li> <li>describe ways in which Earth's four systems naturally interact by use of a model.</li> </ol>
2	Student is able to, with support: <ol style="list-style-type: none"> <li>Identify components of each of Earth's Spheres/systems</li> <li>Name one or more interactions between Earth's Spheres/systems</li> </ol>
1	Student is able to define what Earth's Spheres/systems are with support.

Students will be able to explain the effects human activities have on Earth's four systems, and ways communities use science to protect Earth's resources and environment.

4	Student is able to independently demonstrate understanding, with further explanation using science vocabulary and examples from class and/or real world situations.
3	Student is able to independently synthesize data and explain the effects human activities have on Earth's four systems and explain ways communities use science to protect Earth's resources and environment.
2	Student is able to explain ways communities use science to protect Earth's resources and environment with support.
1	Student is able to explain the effects human activities have on Earth's four systems with support.

Students will be able to plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

4	Student is able to independently develop tests involving variables and provide further explanation using science vocabulary and examples from class and/or real world situations.
3	Student is able to independently <ol style="list-style-type: none"> <li>a.. Plan and carry out investigations using the scientific method</li> <li>b.. Record their scientific findings</li> <li>c. Consider possible errors that could impact data</li> </ol>
2	Student is able to plan and carry out investigations using some steps of the scientific method with support.
1	Student is able to plan and carry out investigations with considerable support.

*Growing Learners, Preparing Students*

Students will be able to represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky.

4	Student is able to independently demonstrate understanding, with further explanation using science vocabulary and examples from class and/or real world situations.
3	Student is able to independently <ol style="list-style-type: none"> <li>a. Explain the cause and effect relationships for all three changes</li> <li>b. Represent these cause/effect relationships through graphical displays</li> </ol>
2	Student is able to, with support, explain or graphically represent the cause of one or two of these changes.
1	Student is able to, with support, identify changes in shadows, day/night, and seasonal appearance of stars.

Students will be able to support an argument that differences in the apparent brightness of the sun compared to other stars is due to their relative distances from Earth.

4	Student is able to independently demonstrate understanding, with further explanation using science vocabulary and examples from class and/or real world situations.
3	Student is able to independently explain that the difference between the brightness of the sun and other stars is due to their relative distances from Earth.
2	Student is able to, with support, claim that the sun is brighter than other stars with some scientific explanation.
1	Student is able to, with support, claim that the sun is a star.

Students will be able to support an argument that the gravitational force exerted by earth on objects is directed down.

4	Student is able to independently demonstrate understanding, with further explanation using science vocabulary and examples from class and/or real world situations.
3	Student is able to independently provide evidence that the gravitational force exerted by earth on objects is directed down.
2	Student is able to, with support, claim that gravitational force exerted by Earth on objects is directed down with some scientific explanation.
1	Student is able to, with support, explain that Earth has gravitational force.

Students will be able to support an argument that plants get the materials they need for growth chiefly from air and water.

4	Student is able to independently demonstrate understanding, with further explanation using science vocabulary and examples from class and/or real world situations.
3	Student is able to independently <ol style="list-style-type: none"><li>Explain with evidence that plants are producers</li><li>Explain with evidence that plants obtain their food energy through the process of photosynthesis</li></ol>
2	Student is able to identify, with support, evidence of what plants need for growth.
1	Student is able to identify, with support, what plants need for growth.

Students will be able to develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.

4	Student is able to independently demonstrate understanding, with further explanation using science vocabulary and examples from class and/or real world situations.
3	Student is able to independently explain the interdependence and effects of changes in an ecosystem (such as addition or removal of a species)
2	Student is able to create a food web showing connections between components with support.
1	Student is able to create a food chain with support.

Students will be able to use models to describe that energy in animals' food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the Sun.

4	Student is able to independently demonstrate understanding, with further explanation using science vocabulary and examples from class and/or real world situations.
3	Student is able to independently use a model to represent the path of energy in an ecosystem and explain characteristics of consumers.
2	Student is able to explain that the energy animals use originates from the Sun's energy with support.
1	Student is able to understand that animals obtain energy from the food they consume with support.

Students will be able to plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

4	Student is able to independently develop tests involving variables and provide further explanation using science vocabulary and examples from class and/or real world situations.
3	Student is able to independently <ol style="list-style-type: none"> <li>a. Plan and carry out investigations using the scientific method</li> <li>b. Record their scientific findings</li> <li>c. Consider possible errors that could impact data</li> </ol>
2	Student is able to plan and carry out investigations using some steps of the scientific method with support.
1	Student is able to plan and carry out investigations with considerable support.

**\*These are end of the year 5th Grade Science goals\***