Content Expectations by Grade Span

Discipline: Physical Science (P)

Standard: Force and Motion (FM)

Grade Span: Elementary (K-4)

Content Statement Code	Content Statement
P.FM.E.1	***Position-*** *A position of an object can be described by locating the object relative to other objects or a background. The description of the motion of an object from one observer's view may be different from that reported from a different observer's view.*
Content Expectation Code	**Content Expectation**
P.FM.00.11	Compare the position of an object (for example: above, below, in front of, behind, on) in relation to other objects around it.
P.FM.00.12	Describe the motion of an object (for example: away from or closer to) from different observers' views.

Content Expectations by Grade Span

Discipline: Physical Science (P)

Standard: Force and Motion (FM)

Grade Span: Elementary (K-4)

Content Statement Code	Content Statement
P.FM.E.2	***Gravity-*** *Earth pulls down on all objects with a force called gravity. With very few exceptions, objects fall to the ground no matter where the object is on the Earth.*
Content Expectation Code	**Content Expectation**
P.FM.00.21	Observe how objects fall toward the Earth.
P.FM.03.22	Identify the force that pulls objects towards the Earth.

Content Expectations by Grade Span

Discipline: Physical Science (P)

Standard: Force and Motion (FM)

Grade Span: Elementary (K-4)

Content Statement Code	Content Statement
P.FM.E.3	***Force-*** *A force is either a push or a pull. The motion of objects can be changed by forces. The size of the change is related to the size of the force. The change is also related to the weight (mass) of the object on which the force is being exerted. When an object does not move in response to a force, it is because another force is being applied by the environment.*
Content Expectation Code	**Content Expectation**
P.FM.00.31	Demonstrate pushes and pulls.
P.FM.00.32	Observe that objects initially at rest will move in the direction of the push or pull.
P.FM.00.33	Observe how pushes and pulls can change the speed or direction of moving objects.
P.FM.00.34	Predict how shape (for example: cone, cylinder, sphere), size, and weight of an object can affect motion.
P.FM.03.35	Describe how a push or a pull is a force.
P.FM.03.36	Relate a change in motion of an object to the force that caused the change of motion.
P.FM.03.37	Demonstrate how the change in motion of an object is related to the strength of the force acting upon the object and to the mass of the object.
P.FM.03.38	Demonstrate when an object does not move in response to a force, it is because another force is acting on it.

Content Expectations by Grade Span

Discipline: Physical Science (P)

Standard: Force and Motion (FM)

Grade Span: Elementary (K-4)

Content Statement Code	Content Statement
P.FM.E.4	***Speed-*** *An object is in motion when its position is changing. The speed of an object is defined by how far it travels divided by the amount of time it took to travel that far.*
Content Expectation Code	**Content Expectation**
P.FM.03.41	Compare and contrast the motion of objects in terms of direction.
P.FM.03.42	Identify changes in motion (change direction, speeding up, slowing down).
P.FM.03.43	Calculate the speed of an object based on the distance it travels divided by the amount of time it took to travel that distance.

Content Expectations by Grade Span

Discipline: Physical Science (P)

Standard: Energy (EN)

Grade Span: Elementary (K-4)

Content Statement Code	Content Statement
P.EN.E.1	***Forms of Energy-*** *Heat, electricity, light, and sound are forms of energy.*
Content Expectation Code	**Content Expectation**
P.EN.03.11	Identify light and sound as forms of energy.
P.EN.04.12	Identify heat and electricity as forms of energy.

Content Expectations by Grade Span

Discipline: Physical Science (P)

Standard: Energy (EN)

Grade Span: Elementary (K-4)

Content Statement Code	Content Statement
P.EN.E.2	***Light Properties-*** *Light travels in straight lines. Shadows result from light not being able to pass through an object. When light travels at an angle from one substance to another (air and water), it changes direction.*
Content Expectation Code	**Content Expectation**
P.EN.03.21	Demonstrate that light travels in a straight line and that shadows are made by placing an object in a path of light.
P.EN.03.22	Demonstrate what happens to light when it travels from water to air (straw half in water looks bent).

Content Expectations by Grade Span

Discipline: Physical Science (P)

Standard: Energy (EN)

Grade Span: Elementary (K-4)

Content Statement Code	Content Statement
P.EN.E.3	***Sound-*** *Vibrating objects produce sound. The pitch of sound varies by changing the rate of vibration.*
Content Expectation Code	**Content Expectation**
P.EN.03.31	Relate sounds to their sources of vibrations (for example: a musical note produced by a vibrating guitar string, the sounds of a drum made by the vibrating drum head).
P.EN.03.32	Distinguish the effect of fast or slow vibrations as pitch.

Content Expectations by Grade Span

Discipline: Physical Science (P)

Standard: Energy (EN)

Grade Span: Elementary (K-4)

Content Statement Code	Content Statement
P.EN.E.4	***Energy and Temperature-*** *Increasing the temperature of any substance requires the addition of energy.*
Content Expectation Code	**Content Expectation**
P.EN.04.41	Demonstrate how temperature can be increased in a substance by adding energy.
P.EN.04.42	Describe heat as the energy produced when substances burn, certain kinds of materials rub against each other, and when electricity flows through wires.
P.EN.04.43	Describe how heat is produced through electricity, rubbing, and burning.

Content Expectations by Grade Span

Discipline: Physical Science (P)

Standard: Energy (EN)

Grade Span: Elementary (K-4)

Content Statement Code	Content Statement
P.EN.E.5	***Electrical Circuits-*** *Electrical circuits transfer electrical energy and produce magnetic fields.*
Content Expectation Code	**Content Expectation**
P.EN.04.51	Explain how electrical energy is transferred and changed through the use of a simple circuit.
P.EN.04.52	Create a simple working electromagnet and explain the conditions necessary to make the electromagnet.

Content Expectations by Grade Span

Discipline: Physical Science (P)

Standard: Properties of Matter (PM)

Grade Span: Elementary (K-4)

Content Statement Code	Content Statement
P.PM.E.1	***Physical Properties-*** *All objects and substances have physical properties that can be measured.*
Content Expectation Code	**Content Expectation**
P.PM.01.11	Demonstrate the ability to sort objects according to observable attributes such as color, shape, size, sinking or floating.
P.PM.02.12	Describe objects and substances according to their properties (color, size, shape, texture, hardness, liquid or solid, sinking or floating)
P.PM.02.13	Measure the length of objects using rulers (centimeters) and meter sticks (meters).
P.PM.02.14	Measure the volume of liquids using common measuring tools (measuring cups, measuring spoons).
P.PM.02.15	Compare weight of objects using balances.
P.PM.04.16	Measure the weight (spring scale) and mass (balances in grams or kilograms) of objects.
P.PM.04.17	Measure volumes of liquids and capacities of containers in milliliters and liters.
P.PM.04.18	Demonstrate the use of centimeter cubes poured into a container to estimate the container's capacity.

Content Expectations by Grade Span

Discipline: Physical Science (P)

Standard: Properties of Matter (PM)

Grade Span: Elementary (K-4)

Content Statement Code	Content Statement
P.PM.E.2	***States of Matter-*** *Matter exists in several different states: solids, liquids and gases. Each state of matter has unique physical properties. Gases are easily compressed but liquids and solids do not compress easily. Solids have their own particular shapes, but liquids and gases take the shape of the container.*
Content Expectation Code	**Content Expectation**
P.PM.01.21	Demonstrate that water as a solid keeps its own shape (ice).
P.PM.01.22	Demonstrate that water as a liquid takes on the shape of various containers.
P.PM.04.23	Compare and contrast the states (solids, liquids, gases) of matter.

Content Expectations by Grade Span

Discipline: Physical Science (P)

Standard: Properties of Matter (PM)

Grade Span: Elementary (K-4)

Content Statement Code	Content Statement
P.PM.E.3	***Magnets-*** *Magnets can repel or attract other magnets. Magnets can also attract certain non-magnetic substances at a distance.*
Content Expectation Code	**Content Expectation**
P.PM.01.31	Identify materials that are attracted by magnets.
P.PM.01.32	Observe that like poles of a magnet repel and unlike poles of a magnet attract.
P.PM.04.33	Demonstrate magnetic field by observing the patterns formed with iron filings using a variety of magnets.
P.PM.04.34	Demonstrate that non-magnetic objects are affected by the strength of the magnet and the distance away from the magnet.

Content Expectations by Grade Span

Discipline: Physical Science (P)

Standard: Properties of Matter (PM)

Grade Span: Elementary (K-4)

Content Statement Code	Content Statement
P.PM.E.4	***Material Composition-*** *Some objects are composed of a single substance, while other objects are composed of more than one substance.*
Content Expectation Code	**Content Expectation**
P.PM.02.41	Classify objects as single substances (ice, silver, sugar, salt) or mixtures (salt and pepper, mixed dry beans).

Content Expectations by Grade Span

Discipline: Physical Science (P)

Standard: Properties of Matter (PM)

Grade Span: Elementary (K-4)

Content Statement Code	Content Statement
P.PM.E.5	***Conductive and Reflective Properties-*** *Objects vary to the extent they absorb and reflect light energy and conduct heat and electricity.*
Content Expectation Code	**Content Expectation**
P.PM.03.51	Demonstrate how some materials are heated more than others by light that shines on them.
P.PM.03.52	Explain how we need light to see objects: light from a source reflects off objects and enters our eyes.
P.PM.04.53	Identify objects that are good conductors or poor conductors of heat and electricity.

Content Expectations by Grade Span

Discipline: Physical Science (P)

Standard: Changes in Matter (CM)

Grade Span: Elementary (K-4)

Content Statement Code	Content Statement
P.CM.E.1	***Changes in State-*** *Matter can be changed from one state (liquid, solid, gas) to another and then back again. This may be caused by heating and cooling.*
Content Expectation Code	**Content Expectation**
P.CM.04.11	Explain how matter can change fom one state (liquid, solid, gas) to another by heating and cooling.