Science Unit: Push, Pulls, and Motion Grade One

Content Area: **Science**
Course(s): **Science 1**
Time Period: **Marking Period 4**
Length: **April-May-June**
Status: **Published**

Established Goals/Standards

Please choose the appropriate Goals/Standards from the Standards tab above.

SCI.K-2.5.1.2	All students will understand that science is both a body of knowledge and an evidence-based, model-building enterprise that continually extends, refines, and revises knowledge. The four Science Practices strands encompass the knowledge and reasoning skills that students must acquire to be proficient in science.
SCI.K-2.5.1.2.C	Scientific knowledge builds on itself over time.
SCI.K-2.5.2.2	All students will understand that physical science principles, including fundamental ideas about matter, energy, and motion, are powerful conceptual tools for making sense of phenomena in physical, living, and Earth systems science.
SCI.K-2.5.2.2.E	It takes energy to change the motion of objects. The energy change is understood in terms of forces.
SCI.K-2.5.2.2.E.1	Investigate and model the various ways that inanimate objects can move.
SCI.K-2.5.2.2.E.2	Predict an object's relative speed, path, or how far it will travel using various forces and surfaces.
SCI.K-2.5.2.2.E.3	Distinguish a force that acts by direct contact with an object (e.g., by pushing or pulling) from a force that can act without direct contact (e.g., the attraction between a magnet and a steel paper clip).
SCI.K-2.5.2.2.E.a	Objects can move in many different ways (fast and slow, in a straight line, in a circular path, zigzag, and back and forth).
SCI.K-2.5.2.2.E.b	A force is a push or a pull. Pushing or pulling can move an object. The speed an object moves is related to how strongly it is pushed or pulled. When an object does not move in response to a push or a pull, it is because another push or pull (friction) is being applied by the environment.
SCI.K-2.5.2.2.E.c	Some forces act by touching, while other forces can act without touching.
SCI.K-2.5.4.2.A	Our universe has been expanding and evolving for 13.7 billion years under the influence of gravitational and nuclear forces. As gravity governs its expansion, organizational patterns, and the movement of celestial bodies, nuclear forces within stars govern its evolution through the processes of stellar birth and death. These same processes governed the formation of our solar system 4.6 billion years ago.

Essential Questions

Please add your Essential Questions by clicking on the Lists tab above.

- Does the size of the force make a difference in the motion observed?
- How do objects move?
- How does friction impact an objects speed, path, or distance traveled?

Enduring Understanding

Please add your Enduring Understandings by clicking on the Lists tab above.

- Friction is a force that slows motion and lessens distance traveled.
- Pushes or pulls make objects in our world move.
- The larger the force will result in a greater change in motion.

Content

Students will be able to:

- discover and learn that objects can move in many different ways (fast and slow, in a straight line, in a circular path, zigzag, and back and forth).
- discover and learn that motion of objects can be changed by pushing and pulling.
- investigate and act out the various ways that inanimate objects can move.
- predict an object's speed, path, or how far it will travel, using various forces and surfaces.
- discuss the forces at work on a car rolling down a ramp
- predict ways to make the car travel farther, slower, and faster
- understand that a way to change how something is moving is too apply a push or a pull.
- understand the size of the change is related to the size of the force (push or pull) and the weight (mass) of the objectg on which the force is exerted.
- understand that objects do not move in response to a push or pull because another push or pull (friction) is being applied by the environment.
- model different pathways of movement and have classmates describe or name the movement. Switch roles.
- Identify objects that only move in one way and others that may move in many ways.
- use various toys, carts, etc. and ramps to explore speed, pathways, and forces.
- conduct on line simulations and discuss observations and conclusions. Use appropriate methods of recording data and sharing results with classmates.
- identify the force thqat starts something moving or slows/stops motion.

Assessments

Performance Based Assessment:

Investigate and act out the various ways that inanimate objects can move.

Predict an object's speed, path, or how far it will travel, using various forces and surfaces.

Discuss the forces at work on a rolling down a ramp

Predict ways to make the car travel farther, slower, and faster

Resources

Teacher generated ActivBoard Flipcharts

United Streaming

You Tube

Silver Burdett Ginn Science Discovery Works

Harcourt School Publishers (physical science)

Experiments/Observations/Journals

Treasure's Cross Curricular Lessons

Non-Fiction Science leveled readers

Non-Fiction Books from school library

The Three Little Javelinas by Susan Lowell

Motion by Rebecca Olien

Push and Pull by Patricia J. Murphy

Wheels by Annie Cobb

Wheel Away

Video: "Why Don't We Fall Up?"

Scholastic News First Grade Level

Mailbox Magazine activities (core curriculum aligned)

Teacher's Helper activities (core curriculum aligned)

Big Dog Charades activity

Blow and Go activity

Shapes on the Move activity

It's a Force of Course activity

If it's up, It Must Come Down activity

Willy the Worm activity

Various labs using the following supplies:

sand trays

magnets

ramps

cars

geometry shapes

paper clips

marbles

pencils

feathers

cottons

sandpaper

carpet squares

wax paper

bubble wrap

brainpop.com