

Course Description:

In Science 1 (1 of 2), students will learn about many of the basic concepts in the field of science. They will begin by exploring light and sound. Once students have had a chance to understand the concepts of light and sound, they will investigate light and sound in a hands-on project. Students will then discover matter, motion, and forces. From this knowledge, students will be able to identify properties of objects and how they move. Students will also get to investigate patterns in life such as how life cycles and how energy flows. Students will look at plants and animals throughout their life cycles and then focus on the similarities and differences between parent organisms and their young.

Course Objectives:

- Plan and do a test to show what happens when we put different things in front of light.
- Plan and do a test to show how sound can make things shake and how things that shake can make sound.
- Identify ways scientists do their work.
- Find answers to a problem and use science to test them.
- Sort things by what they are made of and how they look, feel, taste, smell, or sound.
- Talk about what happens when we heat, cool, or mix things.
- Tell about how heavy a thing is, how much space it takes up, and what makes it up.
- Tell how forces can make things move in different ways.
- Try ways to make things push harder or less hard against each other.
- Do a test to see how pushes and pulls that are the same and different make things move.
- Grow plants and see what helps them grow.
- Sort animals and plants and tell how they are alike.
- Measure plants and animals to show how they are the same and different.
- Tell how parents and their babies are the same.

Course Overview:

This course is made up of 6 units. Each unit has five lessons. Lessons are made of up activities that include the following types of learning:

- **Warm-Ups** allow for practice of skills or concepts taught in previous lessons. These are graded activities.
- **Direct Instructions** provide modeling of new skills and concepts. These are not graded activities.
- **Guided Practices** allow for practice of a skill with support. These are graded activities only on a completion basis.
- **Unit Reviews** allow for practice of skills prior to taking unit exams. These are not graded activities.
- **Unit Exams** test mastery of skills from the unit. These are graded activities.
- **Projects** provide an opportunity for practice of more complex skills across several activities or lessons within a unit. These activities require a final graded submission.

Required Materials:

Required:

- aluminum foil (1 sheet)
- ball
- bean seeds (10)

- book
- box with a lid, like a shoebox (empty)
- bucket or sink
- camera
- cardboard (1 piece)
- ceramic mug or plastic mug (solid color)
- ceramic plate
- cereal box (empty)
- colored construction paper
- crayons/markers/colored pencils
- cooking oil (1 tablespoon)
- desk lamp or other lamp
- flashlight
- foam cup
- freezer
- glass cup
- glass prism
- glue
- hand mirror
- heat source (heat lamp or a window in the sun)
- household objects to create 3D model, based on student drawing
- ice cubes
- ice cube tray
- magnets (2)
- metal can (empty)
- objects of different sizes and colors (like toy blocks, balls, etc.; 4 total)
- objects that will float (balloon, empty bottle, small hollow ball, bar soap, etc.; 2-3 objects)
- objects that could make a rolling ball stop (large box, large book, etc.; 1-2 objects)
- objects that could make a rolling ball change its motion (a 3-ring binder used as a ramp, a blanket used to slow it down, a paper towel roll to make the ball change directions, etc.; 1-2 objects)
- objects to add friction (foil, cardboard, sandpaper, construction paper, etc.; 2-3 objects)
- objects to take away friction (cooking oil, ice cubes, water, etc.; 2-3 objects)
- paper
- paper towel (1 sheet)
- paper towel roll
- pencils
- pictures of people at different life stages (baby, child, adult, elderly)
- pictures of the life cycle of a fish (egg, baby fish, young fish, adult fish)
- picture of the life cycle of a chicken (egg, chick, chicken)
- pictures of the life cycle of a frog (egg, tadpole, young frog, adult)
- picture of different life cycle stages of two types of mammals
- pictures of the different plants and animals
- picture of seeds and a plant with flowers
- pictures of local plants and animals
- pictures of four plants or four animals
- plastic sandwich bag

- plastic wrap (colored; 1 square)
- pot
- rice (1 tablespoon)
- rubber bands (5-6 of different lengths and widths)
- rubber ball
- ruler (12-inch)
- safety goggles
- sandpaper (2 small squares)
- scissors
- small ball
- small colored object (such as ball or toy)
- string (one 1-foot piece)
- tissue paper (1 sheet)
- toilet paper roll
- toy car
- water
- wax paper (1 square)
- white paper (blank; 1 sheet)
- wooden spoon

Optional:

- mixed vegetables (1 cup)
- spoon
- sugar (1 tablespoon)