

Grade: 1 Subject: Science	Unit of Study: Solids and Liquids
Big Idea/Rationale	<ul style="list-style-type: none"> • Everything in our world is made up of matter. Matter exists in three states- solid, liquid or gas. Each state of matter exhibits its own properties. Properties are those characteristics of matter that can be used to describe it. Scientists distinguish the three states of matter on the basis of their properties. In this unit we will discover some of the properties of solids and liquids.
Enduring Understanding (Mastery Objective)	<ul style="list-style-type: none"> • Solids and Liquids can be described by their properties. • Some properties of solids are color, shape, ability to roll or stack, hardness, magnetic attraction, and whether they float or sink in water. • Some properties of liquids are color, tendency to flow, degree of viscosity or fluidity, whether they are miscible with water, and whether they float or sink in water. • Test can be performed to investigate properties of solids and liquids that cannot otherwise be observed.
Essential Questions (Instructional Objective)	<ul style="list-style-type: none"> • What are the three states of matter? • What are some of the properties used to describe a solid? • What are some of the properties used to describe a liquid? • What are some of the tests we use to investigate the properties of a solid or a liquid?
Content (Subject Matter)	<ul style="list-style-type: none"> • Observing and describing the properties of solids and liquids. • Conducting test to investigate the properties of solids and liquids. • Sorting solids into groups on the basis of their properties. • Comparing similarities and differences among solids. • Comparing similarities and differences among liquids. • Applying test to investigate new solids and liquids. • Comparing the properties of solids with the properties of liquids. • Communicating ideas, observations, and experiences through writing, drawing, and discussion. • Accepting that there is more than one way to describe solids and liquids. • Recognizing the importance of organizing information and results on charts. • Developing an interest in investigating the physical world.
Skills/ Benchmarks (CCSS Standards)	<ul style="list-style-type: none"> • 5.1.P.B.1: Observe, question, predict, and investigate materials, objects, and phenomena (e.g., using simple tools to crack a nut and look inside) during indoor and outdoor classroom activities and during any longer-term investigations. • 5.1.P.B.2: Use basic science terms and topic-related science vocabulary. • 5.1.P.B.3: Identify and use basic tools and technology to extend exploration in conjunction with science investigations.

- 5.1.P.C.1: Communicate with other children and adults to share observations, pursue questions, and make predictions and/or conclusions.
- 5.1.P.D.1: Represent observations and work through drawing, recording data, and “writing.”
- 5.3.2.A.1: Group living and nonliving things according to the characteristics that they share.
- 5.3.4.A.1: Develop and use evidence-based criteria to determine if an unfamiliar object is living or nonliving.
- 5.3.4.A.2: Compare and contrast structures that have similar functions in various organisms, and explain how those functions may be carried out by structures that have different physical appearances.
- 5.3.2.B.1: Describe the requirements for the care of plants and animals related to meeting their energy needs.
- 5.3.2.B.2: Compare how different animals obtain food and water.
- 5.3.2.B.3: Explain that most plants get water from soil through their roots and gather light through their leaves.
- 5.3.4.B.1: Identify sources of energy (food) in a variety of settings (farm, zoo, ocean, forest).
- 5.3.2.C.1: Describe the ways in which organisms interact with each other and their habitats in order to meet basic needs.
- 5.3.2.C.2: Identify the characteristics of a habitat that enable the habitat to support the growth of many different plants and animals.
- 5.3.2.C.3: Communicate ways that humans protect habitats and/or improve conditions for the growth of the plants and animals that live there, or ways that humans might harm habitats.
- 5.3.2.D.1: Record the observable characteristics of plants and animals to determine the similarities and differences between parents and their offspring.
- 5.3.2.D.2: Determine the characteristic changes that occur during the life cycle of plants and animals by examining a variety of species, and distinguish between growth and development.
- 5.3.4.D.1: Compare the physical characteristics of the different stages of the life cycle of an individual organism, and compare the characteristics of life stages among species.
- 5.3.2.E.1: Describe similarities and differences in observable traits between parents and offspring.
- 5.3.2.E.2: Describe how similar structures found in different organisms (e.g., eyes, ears, mouths) have similar functions and enable those organisms to survive in different environments.
- 5.4.2.E.1: Model an adaptation to a species that would increase its chances of survival, should the environment become wetter, dryer, warmer, or colder over time.
- 5.4.2.G.3: Identify and categorize the basic needs of living organisms as they relate to the environment.

Materials and Resources

- Lesson 1 – Observing and Describing Two Solids(For each student) Plastic try, blue spoon, stainless steel ball.
- Lesson 2 – Observing Properties (For each group of students) plastic try, 1 set of the 20 solids (blue plastic spoon, blue rubber ball, blue wood cube bead, blue Unifix Cube, red wood golf tee, red pipe cleaner, red octagon jewel, red plastic button, Ping-Pong ball, small white plastic spoon, plastic cup lid, stainless steel ball, steel washer, steel nut, jumbo metal paper clip, brass washer, booby pin, acrylic cube, acrylic cylinder, cork).
- Lesson 3- Comparing Solids That Roll with Solids That Stack (per group of students) black line master of the 20 solids, plastic tray, 20 solids
- Lesson 4 – Rolling Solids (For each group of students) 2 plastic trays and 1 ½ of a tray, set of 20 solids, ruler with groves, books
- Lesson 5 - Testing the Hardness of Solids – (For each group of students) 1 plastic tray, 1 set of solids
- Lesson 6 – Investigating Solids in Water (For each group of students) 2 plastic trays, 1 set of solids, 1 clear plastic tub.
- Lesson 7 – Testing Solids with a Magnet – (For each group of students) 2 plastic trays, 1 set of solids, magnets.
- Lesson 8 – Guess My Reason – (For each group of students) 1 plastic tray, 1 set of solids, 1 large sheet of paper.
- Lesson 9 – Investigating Two New Solids – (For each group of students) 1 Copy of the Story Snow Friends, 1 plastic tray, 1 blue sponge, 1 metal button.
- Lesson 10 – Observing and Describing Two Liquids – (For each group of students) 1 sheet of white construction paper, 2 small white spoons, 2 plastic cups, 2 plastic lids.
- Lesson 11 – Investigating Liquids – (For each group) White construction paper, 4 plastic cups filled with the 4 liquids (shampoo, water, oil, glue), 4 plastic small spoons, waxed paper, hand lenses.
- Lesson 12 – Flowing Liquids – (For each group) re-sealable bags for each group, cups filled with 4 liquids, Paper towels.
- Lesson 13 – Drop Races – (For each group) 2 plastic taster spoons, 1 plastic tray, small cups with 4 liquids.
- Lesson 14 – Mixing Liquids – (For each group of students) Large & small plastic cups, 4 liquids, taster spoons, stirring sticks. 1 copy for each student of Oil Spills: Cleaning Up, Keeping Clean Teacher’s Guide Page 129.
- Lesson 15 – Investigating Two New Liquids – (For each group) Plastic trays, waxed paper, white construction paper, taster spoons, large and small cups, wood stirring sticks, hand lenses, Two new liquids (Red shampoo and corn syrup).
- Lesson 16 – Comparing Solids and Liquids - Paper

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