

Planning Guide for *Liquids and Solids*

Teaching Plans	Specific Curriculum Outcomes	Components	Materials	Literacy Place Connections
What Is a Liquid? What Is a Solid? Students investigate various objects in order to identify them as either liquids or solids.	Skills [GCO 2] • 1.0	• IWB Activity 1 • Science Card 1 • BLM <i>Examples of Liquids and Solids</i> • IWB Activity 2 • Anchor Video: <i>Liquids and Solids</i>	• sticky notes • students' Science Folders • students' Science Journals • digital camera (optional) • a "mystery box" containing various liquids and solids, such as a block of wood, glue stick, crayon, cotton ball, piece of tin foil, ketchup packet, travel-size hand sanitizer, juice box, snack-size tube of yogurt, liquid-filled stress ball	
How Can We Describe Solids? Students explore and describe various solids, then group their descriptive words into categories (properties).	Skills [GCO 2] • 12.0 • 10.0 STSE/K [GCO 1/3] • 23.0	• Science Card 2 • IWB Activity 3 • BLM <i>Properties of Solids</i> • IWB Activity 4	• strips of paper • various small solids (e.g., cotton balls, sheets of tin foil, sheets of paper, plastic baggies, crayons, blocks of wood, erasers, drinking straws, modelling clay, gummy bears) • students' Science Folders • students' Science Journals • several chunks of modelling clay or chocolate • several mugs, shallow foam trays, and small baggies • kitchen scale	

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How Can We Describe Liquids? Students explore and describe various liquids, then sequence liquids according to a variety of properties.	Skills [GCO 2] • 12.0 • 10.0 STSE/K [GCO 1/3] • 23.0	• IWB Activity 5 • BLM <i>Sequencing Liquids</i> • Science Card 3 • Science Card 4	• several clear plastic containers of various shapes and sizes • 250–500 ml of coloured water • clear mug, shallow foam tray, and small baggie • Properties of Solids Anchor Chart • small clear plastic cups, such as medicine cups • 250 ml each of several liquids (e.g., glue, milk, vinegar, juice, cooking oil, chocolate sauce, hand lotion, shampoo) in clear plastic cups • various containers (e.g., mugs, bowls, test tubes, square pans) • students' Science Journals • 3 clear containers of same size and shape, containing 100 ml of apple juice, hair conditioner, and molasses (separately) • sticky notes • students' Science Folders • a variety of liquids (e.g., bottle of glue, litre of milk, bottle of vinegar, bottle of cooking oil, bottle of chocolate syrup, hand lotion in dispenser or bottle, bottle of shampoo, bottle of water, hand soap in dispenser, jar of honey, bottle of ketchup, container of maple syrup) • ml measuring spoons • one large piece of stiff cardboard for every 3–4 students; one side should be covered with parchment paper • several foil pans	

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What Happens When We Combine Liquids and Solids? Students investigate the ways in which familiar liquids and solids can interact with one another.	Skills [GCO 2] • 7.0 • 14.0 STSE/K [GCO 1/3] • 24.0	• <i>Perfect Snow</i> (Read Aloud) • Science Card 5 • Science Card 6 • BLM <i>Results Table</i>	• snow • bottle of oil-and-vinegar dressing containing rosemary/basil and black pepper pods • beakers of water (one per group) • eyedroppers of water (one per group) • small portions of cooking oil, maple syrup, chocolate syrup, food colouring, ground black pepper, flour, grapes, and dry cereal (one portion of each per group) • small blocks of wood (two per group) • cotton balls (two per group) • pieces of cardboard (two per group) • pieces of tissue (two per group) • plastic blocks (two per group) • sugar cubes (two per group) • Styrofoam packing “peanuts” (two per group) • tin foil (one sheet per group) • digital camera (optional) • sensory bottle (plastic water bottle filled with oil and coloured water, with one or more solids such as glitter, plastic confetti, sea shells, pebbles, beads, or fish tank gravel) • plastic water bottles pre-filled with an oil-and-water mixture (one per pair of students) • glitter, plastic confetti, sea shells, pebbles, beads, fish tank gravel, etc. • small spoons • hot glue gun	<i>An Early Worm Got Out of Bed</i> (“The Muddy Puddle,” pages 16–17, Shared Reading—Active Learning Kit)

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How Do Liquids and Solids Change When We Mix Them? Students explore the ways in which familiar liquids and solids can change when they are mixed with one another.	Skills [GCO 2] • 16.0 STSE/K [GCO 1/3] • 25.0	• Science Card 7	• glass of water • bottle of food colouring • various mixing tools • sticky notes • safety goggles for all students • small cups (30) • three pitchers of water • small quantities of bubble bath liquid, cooking oil, instant coffee, drink mix, baking powder, vitamin C tablets, compressed soil discs, and various other liquids and solids (e.g., bar of soap, crackers, tissue, dried fruit, salt, sugar, sand, kitty litter, honey, glue, chocolate syrup) • digital camera (optional) • students' Science Folders • aprons for all students • plastic table coverings and/or paper towels • large box of cornstarch • water • 1 large bowl • 1 small bowl • measuring cups and spoons • empty, clear plastic water or soda bottles (one per group) • uninflated balloons (one per group) • small funnels or spouted containers (one per group) • white vinegar • baking soda	<i>3-2-1 Blast Off!</i> (Shared Reading—Sequencing Strategy Unit)

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How Can We Mix Liquids and Solids to Make Useful Things? Students explore how to create useful mixtures of liquids and solids.	Skills [GCO 2] • 16.0 STSE/K [GCO 1/3] • 26.0	- Science Card 8 <i>The Little Knight Who Battled the Rain</i> (Read Aloud, Unit 1) - Science Card 9 - IWB Activity 6 - BLM <i>Recipe Card</i>	- package of gelatin dessert mix - electric kettle - several large clear bowls - measuring cups and spoons - stirring tools - ingredients, containers, and tools to make a variety of items that come with instructions (e.g., orange juice or lemonade from concentrate, chocolate milk, pudding or custard, chip dip, or brownies, cakes, and cookies) - flour, salt, cold and hot water, food colouring, saucepan or bowl, whisk or rotary beater	<i>Mr. Fix-It</i> (Guided Reading, Level K)
How Can We Use Liquids and Solids to Keep Our World Clean? Students investigate how to use liquids and solids to keep our world clean.	Skills [GCO 2] • 27.0 • 19.0 STSE/K [GCO 1/3] • 28.0	- Science Card 10 - IWB Activity 7	- honey, paint, cereal in milk, mud, glitter - various surfaces or containers (e.g., foil trays, pieces of cardboard) - materials with varying degrees of absorbency (e.g., towels, newspaper, paper towels, tissue paper, J-cloths, felt, baby wipes) - ingredients to make homemade cleaners (e.g., baking soda, water, vinegar, olive oil, sea salt, peppermint or citrus essential oil, eggs, lemon juice) - small mixing bowls and tools, measuring spoons and cups - empty spray bottle - old toothbrushes - dish tubs (one per small group) - water - vegetable oil - small items to which oil would adhere (e.g., rubber ducks, small rocks, feathers) - various commercial cleaning products (glass cleaner, dish soap, laundry detergent) - students' Science Journals	<i>Keep Us Clean</i> (Guided Reading, Level J)

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What Materials Float? What Materials Sink? Students use the inquiry process to investigate the buoyancy of different self-chosen solids. Students record their predictions and results on a graph.	Skills [GCO 2] • 19.0 • 21.0	• <i>What Is the Inquiry Process?</i> poster • Science Card 11 • IWB Activity 8	• bottle of oil-and-vinegar dressing from <i>What Happens When We Combine Liquids and Solids?</i> (see page 35) • 3–4 samples each of marbles, cotton balls, sugar cubes, blocks of wood, plastic blocks, Styrofoam trays, sponges, gummy candies, and soda crackers • tubs of water (one per pair + one extra for demonstration) • students' Science Journals • small amounts of various items, such as paper clips, crayons, craft sticks, jelly beans, coins, bars of soap, lumps of clay, rocks, plastic toys, ice cubes, feathers, cans of diet cola, cans of regular cola, pumice stones, peeled oranges, unpeeled oranges, and pieces of string • digital camera (optional) • large box of salt • stirring tools • toy plastic buckets (one per pair) • ½ dozen raw eggs (if permitted)	
Design Challenge: Build a Boat Students use the design process to build a boat capable of supporting a specific number of coins.	Skills [GCO 2] • 30.0 • 31.0 • 32.0 STSE/K [GCO 1/3] • 29.0	• Science Card 12 • IWB Activity 9 • <i>What Is the Design Process?</i> poster • BLM TAG <i>Feedback</i> (one per group)	• tin foil • several coins of the same size (10 per group) • students' Science Journals • digital camera or tablets (optional) • large tub of water • various buoyant materials and adhesives (e.g., craft sticks, stiff cardboard, straws, Styrofoam, tape, glue)	