

**You Be The Chemist Grades 5-8 – Curriculum Connections**  
**Saskatchewan Curriculum, Grades 5 - 8**

Lesson 1: Goofy Putty

Grade 5: UNIT MC: PROPERTIES AND CHANGES OF MATERIALS

- MC5.1 e. Pose questions to investigate related to the characteristics and physical properties of matter.
- MC5.2 c. Explore to determine how characteristics and physical properties of materials may change when they interact with one another.
- MC5.2 d. Predict whether changes to a material will be reversible or non-reversible.
- MC 5.2 e. Observe and classify changes as reversible (e.g., melting ice cube, dissolving salt in water, blowing up a balloon, and folding paper) and non-reversible (e.g., paper burning, egg cooking, bicycle rusting, balloon popping, and apple turning brown).

Grade 6: none

Grade 7: UNIT MS: MIXTURES AND SOLUTIONS

- MS7.1 b. Describe the characteristics of pure substances, mechanical mixtures, and solutions.
- MS7.1 d. Classify common substances (e.g., Kool-Aid, vinegar, bubble bath, soft drinks, juice, chocolate chip cookies, salad dressings, hand lotion, shampoos, tea, bread, soil, and concrete) as pure substances, mechanical mixtures, or solutions.
- MS7.1 f. Create mechanical mixtures and solutions using common materials and compare the physical properties of the original materials and the resultant mixture or solution.
- MS7.3 b. Describe the characteristics of solutions using the terms solute, solvent, soluble, and insoluble, based on the particle model of matter.

Grade 8: none

Lesson 2: Goldenrod Detector

Grade 5: none

Grade 6: none

Grade 7: none

Grade 8: none

Lesson 3: Rusting Wool

Grade 5: UNIT MC: PROPERTIES AND CHANGES OF MATERIALS

- MC5.2 a. Pose and refine questions for investigation about changes in materials.
- MC5.2 c. Explore to determine how characteristics and physical properties of materials may change when they interact with one another.
- MC5.2 d. Predict whether changes to a material will be reversible or non-reversible.
- MC 5.2 e. Observe and classify changes as reversible (e.g., melting ice cube, dissolving salt in water, blowing up a balloon, and folding paper) and non-reversible (e.g., paper burning, egg cooking, bicycle rusting, balloon popping, and an apple turning brown).

- MC5.2 f. Differentiate between changes to materials that occur rapidly (e.g., wood burning, explosives detonating, balloon popping, and glass breaking) and those that occur over extended periods (e.g., bicycle rusting, paint fading, and newspaper yellowing).
- MC5.2 n. Develop conclusions about the effects of reversible and non-reversible changes on the characteristics and physical properties of materials.

Grade 6: none

Grade 7: none

Grade 8: none

#### Lesson 4: Buoyant Butter

Grade 5: none

Grade 6: none

Grade 7: none

Grade 8: UNIT FD: FORCES, FLUIDS, AND DENSITY

- FD8.1 c. Use instruments safely, effectively, and accurately for collecting data about the density of solids, liquids, and gases.
- FD8.1 g. Calculate the density of various regularly shaped materials using the formula  $d=m/v$  and using units of g/mL or  $g/cm^3$ .
- FD8.1 h. Compare the densities of common substances to the density of water and discuss practical applications that are based on differing densities.
- FD8.3 b. Use appropriate vocabulary related to the study of fluids, including fluid, viscosity, buoyancy, pressure, compressibility, hydraulic, pneumatic, and density.

#### Lesson 5: Rubber Eggs

Grade 5: UNIT MC: PROPERTIES AND CHANGES OF MATERIALS

- MC5.2 c. Explore to determine how characteristics and physical properties of materials may change when they interact with one another.
- MC5.2 d. Predict whether changes to a material will be reversible or non-reversible.
- MC 5.2 e. Observe and classify changes as reversible (e.g., melting ice cube, dissolving salt in water, blowing up a balloon, and folding paper) and non-reversible (e.g., paper burning, egg cooking, bicycle rusting, balloon popping, and apple turning brown).

Grade 6: none

Grade 7: none

Grade 8: none

#### Lesson 6: The Moving Molecule Stomp

Grade 5: none

Grade 6: none

Grade 7: UNIT MS: MIXTURES AND SOLUTIONS

- MS7.1 g. State the four main ideas of the particle model of matter.

Grade 8: none

Lesson 7: Lumpy Liquids

Grade 5: UNIT MC: PROPERTIES AND CHANGES OF MATERIALS

- MC5.2 a. Pose and refine questions for investigation about changes in materials.
- MC5.2 c. Explore to determine how characteristics and physical properties of materials may change when they interact with one another.
- MC5.2 d. Predict whether changes to a material will be reversible or non-reversible.
- MC 5.2 e. Observe and classify changes as reversible (e.g., melting ice cube, dissolving salt in water, blowing up a balloon, and folding paper) and non-reversible (e.g., paper burning, egg cooking, bicycle rusting, balloon popping, and apple turning brown).

Grade 6: none

Grade 7: UNIT MS: MIXTURES AND SOLUTIONS

- MS7.1 d. Classify common substances (e.g., Kool-Aid, vinegar, bubble bath, soft drinks, juice, chocolate chip cookies, salad dressings, hand lotion, shampoos, tea, bread, soil, and concrete) as pure substances, mechanical mixtures, or solutions.
- MS7.1 f. Create mechanical mixtures and solutions using common materials and compare the physical properties of the original materials and the resultant mixture or solution.
- MS7.2 a. Describe methods used to separate the components of mechanical mixtures and solutions, including mechanical sorting, filtration, evaporation, distillation, magnetism, and chromatography.
- MS7.2 f. Use tools and apparatus (e.g., safety glasses, glassware, and Bunsen burners) safely when conducting investigations into methods of separating mixtures.
- MS7.3 b. Describe the characteristics of solutions using the terms solute, solvent, soluble, and insoluble, based on the particle model of matter.

Grade 8: none

Lesson 8: Milk Rainbow

Grade 5: none

Grade 6: none

Grade 7: UNIT MS: MIXTURES AND SOLUTIONS

- MS7.1 d. Classify common substances (e.g., Kool-Aid, vinegar, bubble bath, soft drinks, juice, chocolate chip cookies, salad dressings, hand lotion, shampoos, tea, bread, soil, and concrete) as pure substances, mechanical mixtures, or solutions.

Grade 8: none

Lesson 9: Egg-Dye Solutions

Grade 5: none

Grade 6: none

Grade 7: none

Grade 8: none

Lesson 10: Iron In Cereal

Grade 5: none

Grade 6: none

Grade 7: UNIT MS: MIXTURES AND SOLUTIONS

- MS7.1 b. Describe the characteristics of pure substances, mechanical mixtures, and solutions.
- MS7.1 d. Classify common substances (e.g., Kool-Aid, vinegar, bubble bath, soft drinks, juice, chocolate chip cookies, salad dressings, hand lotion, shampoos, tea, bread, soil, and concrete) as pure substances, mechanical mixtures, or solutions.
- MS7.2 a. Describe methods used to separate the components of mechanical mixtures and solutions, including mechanical sorting, filtration, evaporation, distillation, magnetism, and chromatography.
- MS7.2 d. Classify common substances (e.g., Kool-Aid, vinegar, bubble bath, soft drinks, juice, chocolate chip cookies, salad dressings, hand lotion, shampoos, tea, bread, soil, and concrete) as pure substances, mechanical mixtures, or solutions.
- MS7.2 e. Listen to and consider the ideas of classmates when classifying materials as pure substances or mixtures.
- MS7.2 f. Use tools and apparatus (e.g., safety glasses, glassware, and Bunsen burners) safely when conducting investigations into methods of separating mixtures.

Grade 8: none

Lesson 11: The Great Escape

Grade 5: UNIT MC: PROPERTIES AND CHANGES OF MATERIALS

- MC5.1 b. Classify materials in their environment as solids, liquids, or gases based on personal observation.

Grade 6: none

Grade 7: UNIT MS: MIXTURES AND SOLUTIONS

- MS7.1 b. Describe the characteristics of pure substances, mechanical mixtures, and solutions.
- MS7.1 d. Classify common substances (e.g., Kool-Aid, vinegar, bubble bath, soft drinks, juice, chocolate chip cookies, salad dressings, hand lotion, shampoos, tea, bread, soil, and concrete) as pure substances, mechanical mixtures, or solutions.
- MS7.3 a. Provide examples of solid, liquid, and gaseous solutions and identify which substance is the solute and which is the solvent in each solution.
- MS7.3 b. Describe the characteristics of solutions using the terms solute, solvent, soluble, and insoluble, based on the particle model of matter.
- MS7.3 g. Design and implement an experiment to investigate the effect of temperature on the solubility of a solution.

UNIT HT: HEAT AND TEMPERATURE

- HT7.2 b. Conduct experiments to determine the effects of changes in temperature on solids, liquids, and gases.

Grade 8: UNIT FD: FORCES, FLUIDS, AND DENSITY

- FD8.3 b. Use appropriate vocabulary related to the study of fluids, including fluid, viscosity, buoyancy, pressure, compressibility, hydraulic, pneumatic, and density.

### Lesson 12: Diaper Polymers

Grade 5: none  
Grade 6: none  
Grade 7: none  
Grade 8: none

### Lesson 13: Disappearing Glass

Grade 5: none  
Grade 6: none  
Grade 7: none

#### Grade 8: UNIT OP: OPTICS AND VISION

- OP8.1 d. Select appropriate methods and tools and use them safely when collecting data and information to investigate properties of visible light.
- OP8.1 h Describe qualitatively how visible light is refracted when passing from one substance to a substance of a different refractive index.
- OP8.1 i. Predict how light will refract when passing into transparent media with different refractive indices (e.g., water, salt water, plastic, glass, and oil) and conduct an experiment to confirm or refute that prediction.
- OP8.1 j. State a conclusion that explains how evidence gathered supports or refutes a prediction related to the refraction of light through media with different refractive indices.

### Lesson 14: Wacky Waxy Watercolours

Grade 5: none  
Grade 6: none  
Grade 7: none  
Grade 8: none

### Lesson 15: Floating Paper Clips

Grade 5: none  
Grade 6: none  
Grade 7: none

#### Grade 8: UNIT FD: FORCES, FLUIDS, AND DENSITY

- FD8.2 a. Identify questions to investigate arising from practical problems and issues involving floating, sinking, and buoyancy (e.g., "What factors affect the amount of cargo a barge can hold?", "Why do some objects float and some objects sink?", and "How can a ship made of steel float in the ocean?").
- FD8.2 g. Conduct a fair test to identify which factors determine whether a given object will float or sink, and discuss reasons why scientists control some variables when conducting a fair test.
- FD8.3 b. Use appropriate vocabulary related to the study of fluids, including fluid, viscosity, buoyancy, pressure, compressibility, hydraulic, pneumatic, and density.

Lesson 16: Fountain Of Soda

Grade 5: UNIT MC: PROPERTIES AND CHANGES OF MATERIALS

- MC5.2 d. Predict whether changes to a material will be reversible or non-reversible.
- MC 5.2 e. Observe and classify changes as reversible (e.g., melting ice cube, dissolving salt in water, blowing up a balloon, and folding paper) and non-reversible (e.g., paper burning, egg cooking, bicycle rusting, balloon popping, and apple turning brown).
- MC5.2 f. Differentiate between changes to materials that occur rapidly (e.g., wood burning, explosives detonating, balloon popping, and glass breaking) and those that occur over extended periods (e.g., bicycle rusting, paint fading, and newspaper yellowing).

Grade 6: none

Grade 7: UNIT MS: MIXTURES AND SOLUTIONS

- MS7.1 b. Describe the characteristics of pure substances, mechanical mixtures, and solutions.
- MS7.1 d. Classify common substances (e.g., Kool-Aid, vinegar, bubble bath, soft drinks, juice, chocolate chip cookies, salad dressings, hand lotion, shampoos, tea, bread, soil, and concrete) as pure substances, mechanical mixtures, or solutions.
- MS7.3 a. Provide examples of solid, liquid, and gaseous solutions and identify which substance is the solute and which is the solvent in each solution.
- MS7.3 b. Describe the characteristics of solutions using the terms solute, solvent, soluble, and insoluble, based on the particle model of matter.

Grade 8: none

Lesson 17: Blubber In Sea Mammals

Grade 5: none

Grade 6: UNIT DL: DIVERSITY OF LIVING THINGS

- DL6.3 b. Compare and represent characteristics and behaviours (e.g., body shape, body description, method of respiration, method of reproduction, method of movement, and method of feeding) of student-selected examples of vertebrates.
- DL6.4 a. Propose questions to investigate related to the structures and behaviours that help organisms survive in their environments (e.g., “What advantage are different beaks for birds?”, “Why do owls turn their heads to look sideways?”, “Why do rabbits change colour at different times of the year?”, “Why do caribou migrate?”, “Why do ground squirrels hibernate?”).
- DL6.4 c. Describe examples of structures and behaviours, including seasonal changes, which help living things survive in their environments during the lifetime of the organism.
- DL6.4 d. Describe examples of adaptations to structures and behaviours (e.g., flippers, webbed feet, night-time vision, wide wings, camouflage colouring, migration, and hibernation) that have enabled living things to adapt to their environments in the long term.

Grade 7: UNIT HT: HEAT AND TEMPERATURE

- HT7.1 d. Compare, in qualitative terms, the heat capacities of some common materials, including water, and explain how heat capacity influences choices of materials used in the development of technologies related to clothing, food, and shelter.

Grade 8: none

Lesson 18: Puffed Rice Fleas

Grade 5: none

Grade 6: UNDERSTANDING MATTER AND ENERGY - ELECTRICITY AND ELECTRICAL DEVICES

- 2.3 use scientific inquiry/experimentation skills (see page 12) to investigate the characteristics of static electricity
- 2.6 use appropriate science and technology vocabulary, including current, battery, circuit, transform, static, electrostatic, and energy, in oral and written communication
- 3.1 distinguish between current and static electricity
- 3.2 use the principles of static electricity to explain common electrostatic phenomena (e.g., the attraction of hairs to a comb that has been rubbed on a piece of wool; the attraction of small pieces of paper to a plastic ruler that has been rubbed with a rag; the attraction of pieces of clothing to each other when they come out of a clothes dryer)

Grade 7: none

Grade 8: none

Lesson 19: Hold The Salt

Grade 5: UNIT MC: PROPERTIES AND CHANGES OF MATERIALS

- MC5.2 g. Provide evidence of the six changes of state (i.e., evaporation, condensation, freezing, melting, sublimation, and deposition) of matter in their environment (e.g., water evaporating from wet clothes, steam condensing on the wall of a shower, lake freezing, butter melting, ice cube sublimating in the freezer, and frost forming on a car window).
- MC5.2 h. Demonstrate that changes of state are reversible when heat is applied or removed.
- MC5.2 k. Follow established safety procedures for working with heating appliances and hot materials (e.g., switch hot plates off immediately after use, use tongs and insulated mitts for carrying hot materials and for tending a fire).

Grade 6: none

Grade 7: UNIT MS: MIXTURES AND SOLUTIONS

- MS7.1 b. Describe the characteristics of pure substances, mechanical mixtures, and solutions.
- MS7.1 d. Classify common substances (e.g., Kool-Aid, vinegar, bubble bath, soft drinks, juice, chocolate chip cookies, salad dressings, hand lotion, shampoos, tea, bread, soil, and concrete) as pure substances, mechanical mixtures, or solutions.
- MS7.1 f. Create mechanical mixtures and solutions using common materials and compare the physical properties of the original materials and the resultant mixture or solution.
- MS7.2 a. Describe methods used to separate the components of mechanical mixtures and solutions, including mechanical sorting, filtration, evaporation, distillation, magnetism, and chromatography.
- MS7.2 d. Classify common substances (e.g., Kool-Aid, vinegar, bubble bath, soft drinks, juice, chocolate chip cookies, salad dressings, hand lotion, shampoos, tea, bread, soil, and concrete) as pure substances, mechanical mixtures, or solutions.
- MS7.2 f. Use tools and apparatus (e.g., safety glasses, glassware, and Bunsen burners) safely when conducting investigations into methods of separating mixtures.
- MS7.3 a. Provide examples of solid, liquid, and gaseous solutions and identify which substance is the solute and which is the solvent in each solution.

- MS7.3 b. Describe the characteristics of solutions using the terms solute, solvent, soluble, and insoluble, based on the particle model of matter.

Grade 8: none

### Lesson 20: Liquid Rainbow

Grade 5: UNIT MC: PROPERTIES AND CHANGES OF MATERIALS

- MC5.1 i. Explain how some characteristics and physical properties such as melting point, boiling point, buoyancy, and solubility help to distinguish materials from one another.

Grade 6: none

Grade 7: UNIT MS: MIXTURES AND SOLUTIONS

- MS7.1 b. Describe the characteristics of pure substances, mechanical mixtures, and solutions.
- MS7.1 d. Classify common substances (e.g., Kool-Aid, vinegar, bubble bath, soft drinks, juice, chocolate chip cookies, salad dressings, hand lotion, shampoos, tea, bread, soil, and concrete) as pure substances, mechanical mixtures, or solutions.
- MS7.1 f. Create mechanical mixtures and solutions using common materials and compare the physical properties of the original materials and the resultant mixture or solution.
- MS7.2 a. Describe methods used to separate the components of mechanical mixtures and solutions, including mechanical sorting, filtration, evaporation, distillation, magnetism, and chromatography.
- MS7.2 e. Report the strengths and limitations of a chosen experimental design to determine the effectiveness and/or efficiency of one or more methods of separating mechanical mixtures and solutions.
- MS7.2 f. Use tools and apparatus (e.g., safety glasses, glassware, and Bunsen burners) safely when conducting investigations into methods of separating mixtures.
- MS7.3 a. Provide examples of solid, liquid, and gaseous solutions and identify which substance is the solute and which is the solvent in each solution.
- MS7.3 b. Describe the characteristics of solutions using the terms solute, solvent, soluble, and insoluble, based on the particle model of matter.
- MS7.3 c. Create and describe the concentration of student-prepared dilute, concentrated, saturated, and supersaturated solutions using those qualitative terms and quantitative measurements (e.g., parts per million [ppm], g/L, and g/100 mL).

Grade 8: UNIT FD: FORCES, FLUIDS, AND DENSITY

- FD8.1 c. Use instruments safely, effectively, and accurately for collecting data about the density of solids, liquids, and gases.
- FD8.3 b. Use appropriate vocabulary related to the study of fluids, including fluid, viscosity, buoyancy, pressure, compressibility, hydraulic, pneumatic, and density.

### Lesson 21: Making Paper

Grade 5: none

Grade 6: none

Grade 7: UNIT MS: MIXTURES AND SOLUTIONS

- MS7.1 b. Describe the characteristics of pure substances, mechanical mixtures, and solutions.

- MS7.1 d. Classify common substances (e.g., Kool-Aid, vinegar, bubble bath, soft drinks, juice, chocolate chip cookies, salad dressings, hand lotion, shampoos, tea, bread, soil, and concrete) as pure substances, mechanical mixtures, or solutions.
- MS7.1 f. Create mechanical mixtures and solutions using common materials and compare the physical properties of the original materials and the resultant mixture or solution.

Grade 8: none

### Lesson 22: Balloon Rockets

Grade 5: UNIT FM: FORCES AND SIMPLE MACHINES

- FM5.1 a. Differentiate between examples of contact (e.g., wind, push, and pull) and non-contact (magnetic and gravitational) forces in their daily lives.
- FM5.1 b. Demonstrate how forces can act directly or from a distance to cause objects to start to move, speed up, slow down, change direction, or stop moving.

Grade 6: UNIT FL: PRINCIPLES OF FLIGHT

- FL6.2 b. Use scientific terminology appropriately (e.g., thrust, drag, lift, and gravity) when communicating ideas about the principles of flight.
- FL6.2 h. Compare the sources of thrust of various constructed flying devices including the propeller, jet engine, and solid or liquid-fuelled rocket.

Grade 7: none

Grade 8: none

### Lesson 23: Paper Chromatography

Grade 5: UNIT MC: PROPERTIES AND CHANGES OF MATERIALS

- MC5.1 i. Explain how some characteristics and physical properties such as melting point, boiling point, buoyancy, and solubility help to distinguish materials from one another.
- MC5.2 d. Predict whether changes to a material will be reversible or non-reversible.
- MC5.2 e. Observe and classify changes as reversible (e.g., melting ice cube, dissolving salt in water, blowing up a balloon, and folding paper) and non-reversible (e.g., paper burning, egg cooking, bicycle rusting, balloon popping, and apple turning brown).

Grade 6: none

Grade 7: UNIT MS: MIXTURES AND SOLUTIONS

- MS7.1 b. Describe the characteristics of pure substances, mechanical mixtures, and solutions.
- MS7.2 a. Describe methods used to separate the components of mechanical mixtures and solutions, including mechanical sorting, filtration, evaporation, distillation, magnetism, and chromatography.
- MS7.2 e. Report the strengths and limitations of a chosen experimental design to determine the effectiveness and/or efficiency of one or more methods of separating mechanical mixtures and solutions.
- MS7.2 f. Use tools and apparatus (e.g., safety glasses, glassware, and Bunsen burners) safely when conducting investigations into methods of separating mixtures.

Grade 8: none

### Lesson 24: Exploding Bags

Grade 5: none  
Grade 6: none  
Grade 7: none  
Grade 8: none

### Lesson 25: Gasping For Air

Grade 5: none

Grade 6: UNIT SS: OUR SOLAR SYSTEM

- SS6.1 a. Use a variety of sources and technologies to gather and compile pertinent information about the physical characteristics of the major components of the solar system.
- SS6.3 e. Identify potential personal, societal, technological, and environmental barriers to living and working in space.

Grade 7: none  
Grade 8: none

### Lesson 26: Capillary Carnations

Grade 5: none  
Grade 6: none  
Grade 7: none  
Grade 8: none

### Lesson 27: Melting Ice With Salt

Grade 5: UNIT MC: PROPERTIES AND CHANGES OF MATERIALS

- MC5.1 f. Observe and record characteristics and physical properties (e.g., colour, texture, mass, volume, hardness, flexibility, absorbency, strength, buoyancy, melting point, malleability, magnetism, and solubility) of different solids, liquids, and gases in their environment.
- MC5.2 c. Explore to determine how characteristics and physical properties of materials may change when they interact with one another.
- MC5.2 d. Predict whether changes to a material will be reversible or non-reversible.
- MC5.2 e. Observe and classify changes as reversible (e.g., melting ice cube, dissolving salt in water, blowing up a balloon, and folding paper) and non-reversible (e.g., paper burning, egg cooking, bicycle rusting, balloon popping, and apple turning brown).
- MC5.2 g. Provide evidence of the six changes of state (i.e., evaporation, condensation, freezing, melting, sublimation, and deposition) of matter in their environment (e.g., water evaporating from wet clothes, steam condensing on the wall of a shower, lake freezing, butter melting, ice cube sublimating in the freezer, and frost forming on a car window).

Grade 6: none  
Grade 7: none  
Grade 8: none

### Lesson 28: Separating Salt & Pepper

Grade 5: none

Grade 6: none

#### Grade 7: UNIT MS: MIXTURES AND SOLUTIONS

- MS7.1 b. Describe the characteristics of pure substances, mechanical mixtures, and solutions.
- MS7.1 d. Classify common substances (e.g., Kool-Aid, vinegar, bubble bath, soft drinks, juice, chocolate chip cookies, salad dressings, hand lotion, shampoos, tea, bread, soil, and concrete) as pure substances, mechanical mixtures, or solutions.
- MS7.1 f. Create mechanical mixtures and solutions using common materials and compare the physical properties of the original materials and the resultant mixture or solution.
- MS7.2 a. Describe methods used to separate the components of mechanical mixtures and solutions, including mechanical sorting, filtration, evaporation, distillation, magnetism, and chromatography.
- MS7.2 d. Design and conduct an experiment to determine the effectiveness and/or efficiency of one or more methods of separating mechanical mixtures and solutions.
- MS7.2 e. Report the strengths and limitations of a chosen experimental design to determine the effectiveness and/or efficiency of one or more methods of separating mechanical mixtures and solutions.
- MS7.2 f. Use tools and apparatus (e.g., safety glasses, glassware, and Bunsen burners) safely when conducting investigations into methods of separating mixtures.

Grade 8: none

### Lesson 29: Antigravity Water

Grade 5: none

Grade 6: none

Grade 7: none

#### Grade 8: UNIT FD: FORCES, FLUIDS, AND DENSITY

- FD8.2 c. Explain the concept of force and provide examples of different types of contact and non-contact forces.
- FD8.3 b. Use appropriate vocabulary related to the study of fluids, including fluid, viscosity, buoyancy, pressure, compressibility, hydraulic, pneumatic, and density.

### Lesson 30: Solid Or Liquid?

#### Grade 5: UNIT MC: PROPERTIES AND CHANGES OF MATERIALS

- MC5.1 j. Critique personal and scientific classification systems for matter by identifying substances that are not easily classified as solids, liquids, or gases (e.g., butter, fat scraped off hides, Jell-O, and wax).
- MC5.2 c. Explore to determine how characteristics and physical properties of materials may change when they interact with one another.
- MC5.2 d. Predict whether changes to a material will be reversible or non-reversible.
- MC5.2 e. Observe and classify changes as reversible (e.g., melting ice cube, dissolving salt in water, blowing up a balloon, and folding paper) and non-reversible (e.g., paper burning, egg cooking, bicycle rusting, balloon popping, and apple turning brown).

Grade 6: none

Grade 7: UNIT MS: MIXTURES AND SOLUTIONS

- MS7.1 b. Describe the characteristics of pure substances, mechanical mixtures, and solutions.
- MS7.1 f. Create mechanical mixtures and solutions using common materials and compare the physical properties of the original materials and the resultant mixture or solution.

Grade 8: none

Lesson 31: Balloon In A Bottle

Grade 5: none

Grade 6: none

Grade 7: none

Grade 8: UNIT FD: FORCES, FLUIDS, AND DENSITY

- FD8.1 i. Identify the effects of changes in temperature on the density of solids, liquids, and gases and explain the results using the particle theory of matter.
- FD8.3 b. Use appropriate vocabulary related to the study of fluids, including fluid, viscosity, buoyancy, pressure, compressibility, hydraulic, pneumatic, and density.
- FD8.3 g. Conduct a fair test to identify which factors determine whether a given object will float or sink, and discuss reasons why scientists control some variables when conducting a fair test.

Lesson 32: Rubber-Band Racers

Grade 5: UNIT FM: FORCES AND SIMPLE MACHINES

- FM5.1 b. Demonstrate how forces can act directly or from a distance to cause objects to start to move, speed up, slow down, change direction, or stop moving.

Grade 6: none

Grade 7: none

Grade 8: none

Lesson 33: T-shirt Tye-Dye

Grade 5: UNIT MC: PROPERTIES AND CHANGES OF MATERIALS

- MC5.2 c. Explore to determine how characteristics and physical properties of materials may change when they interact with one another.
- MC5.2 d. Predict whether changes to a material will be reversible or non-reversible.
- MC5.2 e. Observe and classify changes as reversible (e.g., melting ice cube, dissolving salt in water, blowing up a balloon, and folding paper) and non-reversible (e.g., paper burning, egg cooking, bicycle rusting, balloon popping, and apple turning brown).

Grade 6: none

Grade 7: UNIT MS: MIXTURES AND SOLUTIONS

- MS7.1 b. Describe the characteristics of pure substances, mechanical mixtures, and solutions.
- MS7.2 a. Describe methods used to separate the components of mechanical mixtures and solutions, including mechanical sorting, filtration, evaporation, distillation, magnetism, and chromatography.

- MS7.2 c. Describe common household examples of technologies that are used to separate components of mechanical mixtures or solutions (e.g., kitchen strainer, oil and air filters).
- MS7.2 e. Report the strengths and limitations of a chosen experimental design to determine the effectiveness and/or efficiency of one or more methods of separating mechanical mixtures and solutions.

Grade 8: none