

Unit 1—Matter (FOSS® Measurement)**Essential Question: What are some of the properties of matter?****Major Understandings:****PS 3.1 Observe and describe properties of materials using appropriate tools.**

3.1a Matter takes up space and has mass. Two objects cannot occupy the same place at the same time.

3.1b Matter has properties (color, hardness, odor, sound, taste, etc.) that can be observed through the senses.

3.1c Objects have properties that can be observed, described, and / or measured: length, width, volume, size, shape, mass or weight, temperature, texture, flexibility, reflectiveness of light.

3.1d Measurements can be made with standard metric units and nonstandard units.

3.1e The material(s) an object is made up of determine some specific properties of the object (sink/float, conductivity, magnetism). Properties can be observed or measured with tools such as hand lenses, metric rulers, thermometers, balances, magnets, circuit testers, and graduated cylinders.

3.1g Some properties of an object are dependent on the conditions of the present surrounding in which the object exists. For example:

- temperature—hot or cold
- lighting—shadows, color
- moisture—wet or dry

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WEEK 1	Lesson 1 (45 min) Objective(s):		Alignment with NYS Core Curriculum: PS 3.1a-g; 3.2a-b
	Advanced Planning/ Notes to Teachers – Teacher Guide, Benchmark Assessment Folio, pp. 1-23, 56, 58	Investigation/Activity – Benchmark Assessment Packet, Survey/Post-test – Letter to Parents, Teacher Sheet No.1	Homework/Extra Practice
	Lesson 2 (45 min) Objective(s): • A measurement standard is a unit agreed upon and used by a large number of people. • A meter (m) is the standard metric unit for measuring length or distance. • A centimeter (cm) is 1/100 of a meter; it takes 100cm to make a meter. • A kilometer (km) is 1000 meters.		Alignment with NYS Core Curriculum: PS 3.1b-e
	Advanced Planning/ Notes to Teachers – Teacher Guide Inv. 1: The First Straw, pages 9-10 – www.fossweb.com —Check website for interactive simulations, to write questions to a scientist, for teaching tips, and other websites to support teaching Measurement	Investigation/Activity – Investigation1: <i>The First Straw</i> Part 1: <i>Finding a Standard, #1-11</i> – Teacher Guide pages 8-15 – Student Sheet No. 2 – Teacher Observation	Homework/Extra Practice

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WEEK 1 (continued)	Lesson 3 (45 min) Objective(s): <ul style="list-style-type: none"> • A measurement standard is a unit agreed upon and used by a large number of people. • A meter (m) is the standard metric unit for measuring length or distance. • A centimeter (cm) is 1/100 of a meter; it takes 100cm to make a meter. • A kilometer (km) is 1000 meters. 		Alignment with NYS Core Curriculum: PS 3.1b-e
	Advanced Planning/ Notes to Teachers	Investigation/Activity <ul style="list-style-type: none"> – Investigation1: <i>The First Straw</i> Part 1: <i>Finding a Standard, #12-17</i> – <i>FOSS Science Stories: A Royal Measurement Mess</i>, pages 1-4 	Homework/Extra Practice Measure the height of your family members in centimeters. Make a graph illustrating their heights.
	Lesson 4 (45 min) Objective(s): <ul style="list-style-type: none"> • An estimate is a guess based on some reference or prior knowledge. 		Alignment with NYS Core Curriculum: PS 3.1b-e
	Advanced Planning/ Notes to Teachers <ul style="list-style-type: none"> – Teacher Guide Inv. 1: The First Straw, page 17 – Plan to celebrate National Metric Week, October 8-12, 2007; visit www.nctm.org/metric-week.aspx for information. 	Investigation/Activity <ul style="list-style-type: none"> – Investigation 1: <i>The First Straw</i> Part 2: <i>Estimating and Measuring, #1-5</i> – Teacher Guide pages 16-19 – Student Sheet No. 3 – Teacher Observation 	Homework/Extra Practice Home School Connection Student Sheet No. 22

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WEEK 2	Lesson 5 (45 min) Objective(s): • An estimate is a guess based on some reference or prior knowledge.		Alignment with NYS Core Curriculum: PS 3.1b-e	
	Advanced Planning/Notes to Teachers	Investigation/Activity – Investigation 1: <i>The First Straw</i> Part 2: <i>Estimating and Measuring</i> , #6-8 – Student Sheet No. 4 – <i>FOSS Science Stories: The Metric System</i> , pages 5-6		Homework/Extra Practice
	Lesson 6 (45 min) Objective(s): • Apply content introduced in previous parts.		Alignment with NYS Core Curriculum: PS 3.1b-e	
	Advanced Planning/Notes to Teachers – Teacher Guide Inv.1: <i>The First Straw</i> , page 21	Investigation/Activity – Investigation 1: <i>The First Straw</i> Part 3: <i>Making Comparisons</i> , #1-9 – Teacher Guide pages 20-24 – Response Sheet Number 5		Homework/Extra Practice Math Extension, Student Sheet No. 18
	Lesson 7 (45 min) Objective(s): • Apply content introduced in previous parts.		Alignment with NYS Core Curriculum: PS 3.1b-e	
	Advanced Planning/Notes to Teachers	Investigation/Activity – Investigation 1: <i>The First Straw</i> Part 3: <i>Making Comparisons</i> , #10-12 – <i>FOSS Science Stories: Measure This!</i> page 7		Homework/Extra Practice Use your meter tape to measure the lengths and widths of 5 things in your home. Make a data table to show your results.
	Lesson 8 (45 min) Objective(s):		Alignment with NYS Core Curriculum: PS 3.1b-e	
	Advanced Planning/Notes to Teachers – Teacher Guide, Benchmark Assessment Folio, pp. 24-31, 58 – Plan Assessment Review time with class after teacher assessment coding.	Investigation/Activity – Benchmark Assessment Packet, Investigation 1 I-Check		Homework/Extra Practice

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WEEK 3	Lesson 9 (45 min) Objective(s): <ul style="list-style-type: none"> • A measurement standard is a unit agreed upon and used by a large number of people • The gram (g) is the standard unit of measure used to quantify mass in the metric system. (equal to 1cc, or 1ml of water). • Mass is how much of something there is. 		Alignment with NYS Core Curriculum: PS 3.1a-e
	Advanced Planning/ Notes to Teachers <ul style="list-style-type: none"> – Teacher Guide, Inv.2 Weight Watching, page 9 – Plan for weighing objects greater than 100 g, Teacher Guide, Inv.2 Weight Watching, page 15 	Investigation/Activity <ul style="list-style-type: none"> – Investigation 2: <i>Weight Watching</i> Part 1: <i>Setting a Standard</i>, # 1-13 – Teacher Guide pages 8-13 – Student Sheet No. 6 	Homework/Extra Practice
	Lesson 10 (45 min) Objective(s): <ul style="list-style-type: none"> • A measurement standard is a unit agreed upon and used by a large number of people • The gram (g) is the standard unit of measure used to quantify mass in the metric system. (equal to 1cc, or 1ml of water). • Mass is how much of something there is. 		Alignment with NYS Core Curriculum: PS 3.1a-e
	Advanced Planning/ Notes to Teachers	Investigation/Activity <ul style="list-style-type: none"> – Investigation 2: <i>Weight Watching</i> Part 1: <i>Setting a Standard</i>, #14-16 – <i>FOSS Science Stories: The Metric System in the United States</i>, pages 8-9 – <i>FOSS Science Stories: Mind-Boggling Measurements</i>, page 10 	Homework/Extra Practice Home School Connection Student Sheet No. 23

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WEEK 3 (continued)	Lesson 11 (45 min) Objective(s): <ul style="list-style-type: none"> • A kilogram is 1000 grams or the same as the mass of 1 liter of water 		Alignment with NYS Core Curriculum: PS 3.1a-e
	Advanced Planning/ Notes to Teachers <ul style="list-style-type: none"> – Teacher Guide, Inv. 2: Weight Watching, page 15 	Investigation/Activity <ul style="list-style-type: none"> – Investigation 2: <i>Weight Watching</i> Part 2: <i>Weighing Practice</i>, #1-9 – Teacher Guide pages 14-17 – Student Sheet No.7 – Response Sheet No. 8 	Homework/Extra Practice
	Lesson 12 (45 min) Objective(s): <ul style="list-style-type: none"> • A kilogram is 1000 grams or the same as the mass of 1 liter of water 		Alignment with NYS Core Curriculum: PS 3.1a-e
	Advanced Planning/ Notes to Teachers <ul style="list-style-type: none"> – Plan for water use: Teacher Guide, Inv. 2: Weight Watching, page 19 	Investigation/Activity <ul style="list-style-type: none"> – Investigation 2: <i>Weight Watching</i> Part 2: <i>Weighing Practice</i>, #10-12 – <i>FOSS Science Stories</i>: Measurements through Time, pages 11-12 – <i>FOSS Science Stories</i>: Ancient Measurements Used Today, page 13 	Homework/Extra Practice Find 4 animals that weigh less than a kilogram (1 kg) and give their approximate weights.

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WEEK 4	Lesson 13 (45 min) Objective(s): • Apply content introduced in previous parts.		Alignment with NYS Core Curriculum: PS 3.1a-e	
	Advanced Planning/ Notes to Teachers – Teacher Guide, Inv. 2: Weight Watching, page 19	Investigation/Activity – Investigation 2: Weight Watching Part 3: Soaking Sponges, # 1-7 – Teacher Guide pages 18-21 – Student Sheet No. 9 – Teacher Observation		Homework/Extra Practice Math Extension, Student Sheet No. 19
	Lesson 14 (45 min) Objective(s): • Apply content introduced in previous parts.		Alignment with NYS Core Curriculum: PS 3.1a-e	
	Advanced Planning/ Notes to Teachers	Investigation/Activity – Investigation 2: <i>Weight Watching</i> Part 3: <i>Soaking Sponges, #8-10</i> – <i>FOSS Science Stories: The Metric System at Work</i> , pages 14-15		Homework/Extra Practice
	Lesson 15 (45 min) Objective(s):		Alignment with NYS Core Curriculum: PS 3.1a-e	
	Advanced Planning/ Notes to Teachers – Teacher Guide, Benchmark Assessment Folio, pp. 32-39, 56, 58 – Plan Assessment Review time with class after teacher assessment coding. – Plan for water use: Teacher Guide, Inv. 3: Take Me to Your Liter, page 9	Investigation/Activity – Benchmark Assessment Packet, Investigation 2 I-Check		Homework/Extra Practice

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WEEK 4 (continued)	<p>Lesson 16 (45 min) Objective(s):</p> <ul style="list-style-type: none"> • A measurement standard is a unit agreed upon and used by a large number of people • Volume is the three-dimensional space occupied by something • The liter (L) is the standard for measuring fluid volume in the metric system. • One liter is equal to 1000 milliliters; 1 milliliter is equal to 1/1000 liter. 		<p>Alignment with NYS Core Curriculum: PS 3.1c-e</p>
	<p>Advanced Planning/ Notes to Teachers</p> <ul style="list-style-type: none"> – Teacher Guide, Inv. 3: Take me to Your Liter, pages 9-10 – Obtain containers for Inv. 3: Take me to Your Liter, Part 2, page 15, step 4 <u>and</u> page 19, step 3. 	<p style="text-align: center;">Investigation/Activity</p> <ul style="list-style-type: none"> – Investigation 3: <i>Take Me to Your Liter</i> Part 1: <i>Defining a Liter</i>, #1-8 – Teacher Guide pages 8-13 – Teacher Observation 	<p style="text-align: center;">Homework/Extra Practice</p> <p>Make a chart or collage with labels of household items showing their metric measurement.</p>

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WEEK 5	Lesson 17 (45 min) Objective(s): <ul style="list-style-type: none"> • A measurement standard is a unit agreed upon and used by a large number of people • Volume is the three-dimensional space occupied by something • The liter (L) is the standard for measuring fluid volume in the metric system. • One liter is equal to 1000 milliliters; 1 milliliter is equal to 1/1000 liter. 		Alignment with NYS Core Curriculum: PS 3.1c-e	
	Advanced Planning/Notes to Teachers	Investigation/Activity <ul style="list-style-type: none"> – Investigation 3: <i>Take Me to Your Liter</i> Part 1: <i>Defining a Liter</i>, #9-11 – <i>FOSS Science Stories</i>: Water Everywhere, pages 16-17 – <i>FOSS Science Stories</i>: Measurements in the Marketplace, page 18 	Homework/Extra Practice	
	Lesson 18 (45 min) Objective(s): <ul style="list-style-type: none"> • Capacity is the volume of liquid (such as water) a container can hold when full. 		Alignment with NYS Core Curriculum: PS 3.1c-e	
	Advanced Planning/Notes to Teachers <ul style="list-style-type: none"> – Teacher Guide, Inv.3: Take Me to Your Liter, page 15 	Investigation/Activity <ul style="list-style-type: none"> – Investigation 3: <i>Take Me to Your Liter</i> Part 2: <i>Measuring Capacity</i>, #1-7 – Teacher Guide pages 14-17 – Student Sheet No. 10 	Homework/Extra Practice <ul style="list-style-type: none"> Home School Connection Student Sheet No. 24 	
	Lesson 19 (45 min) Objective(s): <ul style="list-style-type: none"> • Apply content introduced in previous parts. 		Alignment with NYS Core Curriculum: PS 3.1c-e	
	Advanced Planning/Notes to Teachers	Investigation/Activity <ul style="list-style-type: none"> – Investigation 3: <i>Take Me to Your Liter</i> Part 2: <i>Measuring Capacity</i>, # 8-10 – Teacher Guide pages 18-21 – Response Sheet Number 11 	Homework/Extra Practice <ul style="list-style-type: none"> Math Extension, Student Sheet No. 20 	

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WEEK 5 (continued)	Lesson 20 (45 min)		Alignment with NYS Core Curriculum: PS 3.1c-e
	Objective(s): <ul style="list-style-type: none"> Apply content introduced in previous parts. 		
	Advanced Planning/ Notes to Teachers <ul style="list-style-type: none"> Teacher Guide, Inv. 3: Take Me to Your Liter, page 19 	Investigation/Activity <ul style="list-style-type: none"> Investigation 3: <i>Take Me to Your Liter</i> Part 3: <i>Measuring Soda-Can Capacity, #1-7</i> Student Sheet No. 12 <i>FOSS Science Stories: Angela Amato, School Reporter, pages 19-20</i> 	Homework/Extra Practice

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WEEK 6	Lesson 21 (45 min)		Alignment with NYS Core Curriculum: PS 3.1c-e	
	Objective(s):			
	Advanced Planning/ Notes to Teachers	Investigation/Activity	Homework/Extra Practice	
	<ul style="list-style-type: none"> – Teacher Guide, Benchmark Assessment Folio, pp. 40-47, 56, 58 – Plan Assessment Review time with class after teacher assessment coding. – Plan for hot and cold water needed for Inv.4: The Third Degree, Part 1, page 9, steps 3 & 4. 	<ul style="list-style-type: none"> – Benchmark Assessment Packet, Investigation 3 I-Check 		
	Lesson 22 (45 min)		Alignment with NYS Core Curriculum: PS 3.1b-e, g	
	Objective(s):			
<ul style="list-style-type: none"> • A measurement standard is a unit agreed upon and used by a large number of people. • Degree Celsius (°C) is the unit used when scientists measure temperature. 				
Advanced Planning/ Notes to Teachers	Investigation/Activity	Homework/Extra Practice		
<ul style="list-style-type: none"> – Teacher Guide page 9 	<ul style="list-style-type: none"> – Investigation 4: <i>The Third Degree</i> – Part 1: <i>Measuring Temperature, #1-11</i> – Teacher Guide pages 8-13 – Student Sheet No. 13 – Teacher Observation 	Research to find out what the lowest Celsius temperature & highest Celsius Temperature ever recorded in New York City.		

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WEEK 6 (continued)	Lesson 23 (45 min) Objective(s): <ul style="list-style-type: none"> • A measurement standard is a unit agreed upon and used by a large number of people. • Degree Celsius (°C) is the unit used when scientists measure temperature 		Alignment with NYS Core Curriculum: PS 3.1b-e, g	
	Advanced Planning/Notes to Teachers Plan for ice needed for Inv.4: The Third Degree, Part 2, page 15, step 3.	Investigation/Activity <ul style="list-style-type: none"> – Investigation 4: <i>The Third Degree</i> Part 1: <i>Measuring Temperature</i>, #12-14 – <i>FOSS Science Stories</i>: Fahrenheit and Celsius, page 21 – <i>FOSS Science Stories</i>: Thermometers, pages 22-23 		Homework/Extra Practice
	Lesson 24 (45 min) Objective(s): <ul style="list-style-type: none"> • Temperature is affected by the addition or subtraction of heat. 		Alignment with NYS Core Curriculum: PS 3.1c-e, g	
	Advanced Planning/Notes to Teachers <ul style="list-style-type: none"> – Teacher Guide, Inv. 4: The Third Degree, page 15 	Investigation/Activity <ul style="list-style-type: none"> – Investigation 4: <i>The Third Degree</i> Part 2: <i>Cooling Off</i>, #1-7 – Teacher Guide pages 14-17 – Student Sheet No. 14-15 – Response Sheet Number 16 		Homework/Extra Practice Home School Connection Student Sheet No. 25

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WEEK 7	Lesson 25 (45 min) Objective(s): • Temperature is affected by the addition or subtraction of heat.		Alignment with NYS Core Curriculum: PS 3.1c-e, g
	Advanced Planning/ Notes to Teachers	Investigation/Activity – Investigation 4: <i>The Third Degree</i> Part 2: <i>Cooling Off</i> , #8-10 – FOSS Science Stories: Careers You Can Count On, pages 24-26	Homework/Extra Practice
	Lesson 26 (45 min) Objective(s): • Apply content introduced in previous parts and investigations.		Alignment with NYS Core Curriculum: PS 3.1a-g
	Advanced Planning/ Notes to Teachers – Teacher Guide, Benchmark Assessment Folio, pp. 48-55, 57, 58 – Plan Assessment Review time with class after teacher assessment coding.	Investigation/Activity – Benchmark Assessment Packet, Investigation 4 I-Check	Homework/Extra Practice
	Lesson 27 (45 min) Objective(s): • Apply content introduced in previous parts and investigations.		Alignment with NYS Core Curriculum: PS 3.1a-g
	Advanced Planning/ Notes to Teachers – Teacher Guide, Inv. 4: The Third Degree, page 19	Investigation/Activity – Investigation 4: <i>The Third Degree</i> Part 3: <i>Metric Field Day</i> , #1-5 – Teacher Guide pages 18-21 – Teacher Observation	Homework/Extra Practice Math Extension, Student Sheet No. 21

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WEEK 7 (continued)	Lesson 28 (45 min) Objective(s): <ul style="list-style-type: none"> Apply content introduced in previous parts and investigations. 		Alignment with NYS Core Curriculum: PS 3.1a-g
	Advanced Planning/ Notes to Teachers <ul style="list-style-type: none"> Teacher Guide, Inv. 4: The Third Degree, page 19 	Investigation/Activity <ul style="list-style-type: none"> Investigation 4: <i>The Third Degree</i> Part 3: <i>Metric Field Day</i>, #1-5 Teacher Guide pages 18-21 Teacher Observation 	Homework/Extra Practice

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WEEK 8	Lesson 29 (45 min) Objective(s): • Apply content introduced in previous parts and investigations.		Alignment with NYS Core Curriculum: PS 3.1a-g
	Advanced Planning/ Notes to Teachers – Teacher Guide, Inv. 4: The Third Degree, page 19	Investigation/Activity – Investigation 4: <i>The Third Degree</i> Part 3: <i>Metric Field Day</i> , #6-9 – Teacher Guide pages 18-21 – Teacher Observation	Homework/Extra Practice
	Lesson 30 (45 min) Objective(s): • Apply content introduced in previous parts and investigations.		Alignment with NYS Core Curriculum: PS 3.1a-g
	Advanced Planning/ Notes to Teachers	Investigation/Activity – Investigation 4: <i>The Third Degree</i> Part 3: <i>Metric Field Day</i> , #10-11 – <i>FOSS Science Stories: Vacation Aggravation</i> , pages 27-29 – <i>FOSS Science Stories: Everything Is Made of Atoms</i> , pages 30-33	Homework/Extra Practice
	Lesson 31 (45 min) Objective(s):		Alignment with NYS Core Curriculum: PS 3.1a-g; 3.2a-b
	Advanced Planning/ Notes to Teachers – Teacher Guide, Benchmark Assessment Folio, pp. 1-23, 56	Investigation/Activity – Benchmark Assessment Packet, Survey/Post-test	Homework/Extra Practice
	Lesson 32 (45 min) Objective(s):		Alignment with NYS Core Curriculum: PS 3.1a-g; 3.2a-b
	Advanced Planning/ Notes to Teachers – Teacher Guide, Benchmark Assessment Folio, pp. 1-23, 56	Investigation/Activity – Benchmark Assessment Review	Homework/Extra Practice