

Common Core Math—Water, Water Everywhere: Designing Water Filters

Engineering is Elementary units are designed primarily to teach engineering skills and habits of mind. In doing so, all units also reinforce and link to other content areas. The math practices and standards addressed by this unit are listed below.

Math Practices Embedded Throughout the Unit:

1. Make sense of problems and persevere in solving them.
2. Reasons abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.

Grade	Lesson #	Common Core Math Cluster or Practice	Common Core Math Standard
1	4	Operations and Algebraic Thinking 1.0A: <ul style="list-style-type: none">• Represent and solve problem involving addition and subtraction.• Add and subtract within 20.	1.0A1: Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing with unknowns in all positions. 1.0A6: Add and subtract within 20, demonstrating fluency for addition and subtraction within 10.
1	3, 4	Measurement and Data 1.MC: <ul style="list-style-type: none">• Tell and write time• Represent and interpret data	1.MD3: Tell and write time in hours and half-hours using analog and digital clocks 1.MD4: Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.
2	3, 4	Measurement and Data 2.MD: <ul style="list-style-type: none">• Work with time and money	2.MD7: Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.

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Grade	Lesson #	Common Core Math Cluster or Practice	Common Core Math Standard
3	4	Operations and Algebraic Thinking 3.OA <ul style="list-style-type: none"> Represent and solve problems involving multiplication and division 	3.OA.1: Interpret products of whole numbers.
3	3, 4	Measurement and Data: 3.MD <ul style="list-style-type: none"> Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects. 	3.MD.1: Tell and write time to the nearest multiple and measure time intervals in minutes. 3.MD.2: Measure and estimate liquid volumes and masses of objects using standard units of grams, kilograms, and liters.
3	4 (extension lesson)	Numbers and operations—Fractions 10: 3.NF <ul style="list-style-type: none"> Develop understanding of fractions as numbers. 	3.NF.1: Understand a fraction $\frac{q}{b}$ as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction $\frac{a}{b}$ as the quantity formed by a parts of size $\frac{1}{b}$.
5	4	Numbers and operations in base 10: 5.NBT: <ul style="list-style-type: none"> Perform operations with multi-digit whole numbers and with decimals to hundredths. 	5.NBT.7: Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction