

Common Core Math— Taking the Plunge: Designing Submersibles

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. Reason 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.OA: <ul style="list-style-type: none">• Represent and solve problems involving addition and subtraction.	1.OA1: 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.OA2: Solve word problems that call for addition of three whole numbers whose sum is less than or equal to, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.
1	2, 3	Measurement and Data 1.MD: <ul style="list-style-type: none">• Represent and interpret data.	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	4	Operations and Algebraic Thinking 2.OA: <ul style="list-style-type: none">• Represent and solve problems involving addition and subtraction.	2.OA1: Use addition and subtraction within 100 to solve one- and two- step word problems involving situations of adding two, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.

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Grade	Lesson #	Common Core Math Cluster or Practice	Common Core Math Standard
2	2, 3	Measurement and Data 2.MD: <ul style="list-style-type: none"> • Represent and interpret data. 	2.MD4: Make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$). Solve problems involving addition and subtraction of fractions by using information presented in line plots.
2	3 (extension lesson)	Measurement and Data 2.MD: <ul style="list-style-type: none"> • Represent and interpret data. 	2.MD10: Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems ¹ using information presented in a bar graph.
3	3	Measurement and Data 3.MD: <ul style="list-style-type: none"> • Represent and interpret data. 	3.MD3: Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs.
4	2 (extension lesson)	Measurement and Data 4.MD: <ul style="list-style-type: none"> • Represent and interpret data. 	4.MD4: Make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$). Solve problems involving addition and subtraction of fractions by using information presented in line plots.
5	3	Measurement and Data 5.MD: <ul style="list-style-type: none"> • Geometric measurement: understand concepts of volume. 	5.MD3: Recognize volume as an attribute of solid figures and understand concepts of volume measurement.