

Biomedical Innovation (BI)

Common Core State Standards for Mathematics

Lesson 1.1

N.Q.2 - Quantities

Define appropriate quantities for the purpose of descriptive modeling.

S.ID.1 - Interpreting Categorical and Quantitative Data

Represent data with plots on the real number line (dot plots, histograms, and box plots).

S.IC.6 - Making Inferences and Justifying Conclusions

Evaluate reports based on data.

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Lesson 2.1

N.Q.1 - Quantities

Use units as a way to understand problems and to guide the solution of multistep problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.

N.Q.2 - Quantities

Define appropriate quantities for the purpose of descriptive modeling.

N.Q.3 - Quantities

Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.

A.SSE.1 - Seeing Structure in Expressions

Interpret expressions that represent a quantity in terms of its context.

A.SSE.1.a - Seeing Structure in Expressions

Interpret parts of an expression, such as terms, factors, and coefficients.

A.CED.4 - Creating Equations

Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. For example, rearrange Ohm's law $V = IR$ to highlight resistance R .

A.REI.1 - Reasoning with Equations and Inequalities

Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.

A.REI.2 - Reasoning with Equations and Inequalities

Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.

A.REI.3 - Reasoning with Equations and Inequalities

Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.

S.ID.2 - Interpreting Categorical and Quantitative Data

Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets.

S.ID.3 - Interpreting Categorical and Quantitative Data

Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).

S.ID.9 - Interpreting Categorical and Quantitative Data

Distinguish between correlation and causation.

S.IC.1 - Making Inferences and Justifying Conclusions

Understand statistics as a process for making inferences about population parameters based on a random sample from that population.

S.IC.2 - Making Inferences and Justifying Conclusions

Decide if a specified model is consistent with results from a given data-generating process, e.g., using simulation. For example, a model says a spinning coin falls heads up with probability 0.5. Would a result of 5 tails in a row cause you to question the model?

S.IC.3 - Making Inferences and Justifying Conclusions

Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each.

S.IC.4 - Making Inferences and Justifying Conclusions

Use data from a sample survey to estimate a population mean or proportion; develop a margin of error through the use of simulation models for random sampling.

S.IC.5 - Making Inferences and Justifying Conclusions

Use data from a randomized experiment to compare two treatments; use simulations to decide if differences between parameters are significant.

S.IC.6 - Making Inferences and Justifying Conclusions

Evaluate reports based on data.

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Lesson 4.1

N.Q.1 - Quantities

Use units as a way to understand problems and to guide the solution of multistep problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.

N.Q.2 - Quantities

Define appropriate quantities for the purpose of descriptive modeling.

N.Q.3 - Quantities

Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.

A.SSE.1 - Seeing Structure in Expressions

Interpret expressions that represent a quantity in terms of its context.

F.IF.4 - Interpreting Functions

For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.

F.IF.7 - Interpreting Functions

Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.

S.ID.1 - Interpreting Categorical and Quantitative Data

Represent data with plots on the real number line (dot plots, histograms, and box plots).

S.IC.6 - Making Inferences and Justifying Conclusions

Evaluate reports based on data.

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Lesson 5.1

N.Q.1 - Quantities

Use units as a way to understand problems and to guide the solution of multistep problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.

N.Q.2 - Quantities

Define appropriate quantities for the purpose of descriptive modeling.

N.Q.3 - Quantities

Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.

A.SSE.1 - Seeing Structure in Expressions

Interpret expressions that represent a quantity in terms of its context.

A.REI.1 - Reasoning with Equations and Inequalities

Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.

S.ID.9 - Interpreting Categorical and Quantitative Data

Distinguish between correlation and causation.

S.IC.1 - Making Inferences and Justifying Conclusions

Understand statistics as a process for making inferences about population parameters based on a random sample from that population.

S.IC.3 - Making Inferences and Justifying Conclusions

Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each.

S.IC.5 - Making Inferences and Justifying Conclusions

Use data from a randomized experiment to compare two treatments; use simulations to decide if differences between parameters are significant.

S.IC.6 - Making Inferences and Justifying Conclusions

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Lesson 6.1

N.Q.1 - Quantities

Use units as a way to understand problems and to guide the solution of multistep problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.

N.Q.2 - Quantities

Define appropriate quantities for the purpose of descriptive modeling.

A.SSE.1 - Seeing Structure in Expressions

Interpret expressions that represent a quantity in terms of its context.

S.IC.6 - Making Inferences and Justifying Conclusions

Evaluate reports based on data.

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Common Core State Standards for Mathematics

Lesson 7.1

N.Q.2 - Quantities

Define appropriate quantities for the purpose of descriptive modeling.

N.Q.3 - Quantities

Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.

S.IC.6 - Making Inferences and Justifying Conclusions

Evaluate reports based on data.

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Common Core State Standards for Mathematics

Lesson 8.1

N.Q.1 - Quantities

Use units as a way to understand problems and to guide the solution of multistep problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.

N.Q.2 - Quantities

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N.Q.3 - Quantities

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A.SSE.1 - Seeing Structure in Expressions

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A.SSE.1.a - Seeing Structure in Expressions

Interpret parts of an expression, such as terms, factors, and coefficients.

A.REI.1 - Reasoning with Equations and Inequalities

Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.

F.IF.4 - Interpreting Functions

For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.

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S.IC.1 - Making Inferences and Justifying Conclusions

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S.IC.3 - Making Inferences and Justifying Conclusions

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S.IC.5 - Making Inferences and Justifying Conclusions

Use data from a randomized experiment to compare two treatments; use simulations to decide if differences between parameters are significant.

S.IC.6 - Making Inferences and Justifying Conclusions

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