

Linking Contexts of Crosscutting Concepts to Mathematical and Statistical Practices Cluster from *High School Mathematics Reimagined, Revitalized, and Relevant*

| Contexts of Crosscutting Concepts | Mathematical and Statistical Practices Primary Cluster |
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| <i>Patterns and Generalizations</i> | |
| Statistics and Data Science Contexts | |
| Describing patterns and trends in distributions of data, including bivariate | Modeling and using tools and representations |
| Making inferences from sample data to a population | Explaining, reasoning, and proving |
| Looking for structures within data and developing models to represent data to make predictions | Modeling and using tools and representations |
| Algebra and Functions Contexts | |
| Generating equations and inequalities to describe patterns, contexts, and/or data | Modeling and using tools and representations |
| Developing functional models to represent data | Modeling and using tools and representations |
| Geometry and Measurement Contexts | |
| Analyzing and comparing characteristics of two- and three-dimensional shapes | Habits of productive mathematical and structural thinking |
| Identifying properties that hold between and within shapes | Seeing, describing, and generalizing structure |
| Developing equations and inequalities to represent patterns in figures | Modeling and using tools and representations |

| Variability and Change | |
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| Statistics and Data Science Contexts | |
| Making decisions based on data requires understanding, explaining, and quantifying variability | Explaining, reasoning, and proving |
| Interpreting the predictability of the slope of a line of best fit within a context | Modeling and using tools and representations |
| Algebra and Functions Contexts | |
| Estimating average rates of change | Modeling and using tools and representations |
| Developing relationships between distance, velocity, acceleration, and associated rates of change. | Modeling and using tools and representations |
| Geometry and Measurement Contexts | |
| Calculating scale for geometric figures | Habits of a productive mathematical and statistical thinker |
| Adapting the ratio for scale for use in linear, planar, and solid contexts, including using trigonometric ratios | Habits of a productive mathematical and statistical thinker |
| Functional and Structural Thinking | |
| Statistics and Data Science Contexts | |
| Generating a functional equation of best fit (the structure) to model a data set, taking into account variability | Modeling and using tools and representations |
| Algebra and Functions Contexts | |
| Describing functional behavior within a functional family | Seeing, describing, and generalizing structure |

Comparison, Difference, and Equivalence

Statistics and Data Science Contexts

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| Comparing distributions of variables with respect to variability and measures of what is typical and plausible | Habits of a productive mathematical and statistical thinker |
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| Comparing lines/curves of best fit for bivariate data | Modeling and using tools and representations |
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| Designing studies to compare two or more groups for statistical differences in their distributions | Habits of a productive mathematical and statistical thinker |
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Algebra and Functions Contexts

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| Comparing how and where different functions support and do not support a specific context | Modeling and using tools and representations |
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| Comparing function families in regard to behaviors and qualities | Seeing, describing, and generalizing structure |
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| Analyzing and comparing the utility of equivalent forms of equations | Seeing, describing, and generalizing structure |
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Geometry and Measurement Contexts

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| Comparing angles and figures | Seeing, describing, and generalizing structure |
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| Comparing transformed figures to their preimage | Seeing, describing, and generalizing structure |
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| Identifying congruence of angles or figures and as a 1:1 case of similarity. | Explaining, reasoning, and proving |
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| <i>Making and Interpreting Predictions</i> | |
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| Statistics and Data Science Contexts | |
| Assessing the reasonableness of a model and estimating errors in conclusions | Modeling and using tools and representations |
| Using such measures as margin of error to quantify variability in order to be more precise with predictions | Habits of a productive mathematical and statistical thinker |
| Estimating probabilities and using probabilities to evaluate outcomes of decisions | Explaining, reasoning, and proving |
| Algebra and Functions Contexts | |
| Modeling a scenario with a function and determining the reasonableness and/or limitations of the model | Modeling and using tools and representations |
| Geometry and Measurement Contexts | |
| Determining reasonableness for measurement changes between a preimage and an image | Seeing, describing, and generalizing structure |