

Grade 6
Math Unit 8
Canterbury Public Schools

Subject	Math
Grade Level	6
Unit Title	Data Sets and Distribution
Unit Goals	Data, Variability, and Statistical Questions Dot Plots and histograms Measures of Center and variability Median and IQR Review
Pacing (# of weeks)	6 - 8 weeks
Standards	<p>6.SP.A.1 – Recognize a statistical question as one that anticipates variability and accounts for it in the answers.</p> <p>6.SP.B.4 – Display numerical data in plots on a number line, including dot plots, histograms, and box plots.</p> <p>6.SP.B.5 – Summarize numerical data sets in relation to their context, including describing center (median, mean), spread (range, IQR), and overall shape.</p>
Content/Conceptual Knowledge (know)	<p>The definition and purpose of statistical questions.</p> <p>How to identify and describe variability in data.</p> <p>How to construct and interpret dot plots, histograms, and box plots.</p> <p>The difference between measures of center (mean, median) and measures of variability (range, IQR).</p> <p>When to appropriately use mean or median, and range or IQR, depending on the shape and characteristics of a data set.</p>
Skills (be able to do)	<ul style="list-style-type: none"> • Determine whether a question is statistical and explain why. • Collect, organize, and represent data using appropriate visual displays. • Describe and compare data sets using measures of center (mean,

	<p>median) and variability (range, IQR).</p> <ul style="list-style-type: none"> • Interpret dot plots, histograms, and box plots to draw conclusions and support claims. • Analyze a data distribution to describe its shape, center, and spread. • Justify their choice of data representation and measures based on the context of the data.
Essential Questions	<ul style="list-style-type: none"> • What makes a question a statistical question? • How can we describe a data set using center and variability? • Why is it important to consider variability when analyzing data? • How do different data displays help us understand the story the data tells? • When would it be better to use the median and IQR rather than the mean and range?
Enduring Understandings	<ul style="list-style-type: none"> • Data can be collected, organized, and represented in ways that make patterns and variability visible. • Measures of center (mean and median) and spread (range, IQR) provide insights into the characteristics of data sets. • Statistical questions are those that can be answered by collecting data and will yield variability in responses. • Visual representations like dot plots and histograms help us interpret and analyze data effectively.
Vocabulary	<p>Numerical data, categorical data, dot plot, statistical questions, variability, distribution, frequency, typical, center, spread, histogram, symmetrical, peak, cluster, unusual value, average, mean, fair share, measure of center, balance point, mean absolute deviation, measure of spread, median, range, quartile, interquartile range, summary, box plot</p>

<p>Common Learning Experiences</p>	<p>Learning Activities (Common Learning Experiences from IM, adapted into a teacher-friendly plan)</p> <p>Week 1: Introducing Rational Numbers and the Number Line</p> <ul style="list-style-type: none"> • Use vertical and horizontal number lines to represent positive and negative numbers in context (temperature, elevation, money). • Explore zero as the midpoint and reference on the number line. • Interactive activity: "Walk the Line" – Students physically represent numbers on a tape number line in the classroom. • Partner work: Labeling rational numbers on blank number lines. <p>Week 2: Absolute Value and Opposites</p> <ul style="list-style-type: none"> • Number line matching game: Pair values with their absolute values. • Word problems involving temperature, debt, and elevation using absolute value. • Discuss and write journal entries: "What is absolute value and why do we need it?" • Practice comparing rational numbers using inequality symbols and reasoning. <p>Week 3: Rational Numbers in the Real World</p> <ul style="list-style-type: none"> • Real-world scenarios comparing rational numbers: Banking, sports scores, submarine depth. • Small group task: Create their own rational number scenario and explain it using comparison symbols and absolute value. • Graphic organizer: Comparing rational numbers chart. <p>Week 4: Coordinate Plane in All Four Quadrants</p> <ul style="list-style-type: none"> • Guided exploration of coordinate planes and quadrants. • Task: Plotting points based on real-life contexts (e.g., treasure maps, school layouts).
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- Game: “Coordinate Battleship” in pairs or small groups.
- Interactive graphing tool practice (e.g., Desmos or paper-based plotting).

Week 5: Applying GCF and LCM

- Factor trees and area models to explore prime factorization.
- GCF scavenger hunt: Match problems with their GCF.
- Context problems using GCF (e.g., arranging chairs, grouping students).
- LCM in action: Scheduling events or calculating when different timers will go off together.

Week 6: Putting It All Together

- Performance Task 1: Create a real-world rational number scenario and represent it on a number line with explanations.
- Performance Task 2: Design a coordinate plane map using all four quadrants and answer questions about distances and locations.
- Performance Task 3: Solve multi-step GCF/LCM problems and justify reasoning in writing.
- Reflection Journals: “What do I now know about rational numbers that I didn’t before?”

Differentiation Options:

- Scaffolded sentence frames for comparing values (“___ is greater than ___ because...”).
- Color-coding for quadrants and coordinate plotting.
- Anchor charts: Rational numbers vocabulary and coordinate plane visual aids.
- Choice boards for performance tasks (draw, write, present, or build).

Assessments	<p>Analyze a real-world data set and create a dot plot or histogram to represent it.</p> <p>Given a data set, calculate and interpret the mean, median, range, and IQR.</p> <p>Compare two data sets using measures of center and variability to determine which is more consistent or has higher values.</p> <p>Reflective writing: Explain which measure of center and spread is more appropriate and why.</p> <p>End-of-unit assessment from the IM curriculum, including constructed response and multiple-choice items. Mid unit and end of unit tests,</p>
Resources	Deck of playing cards, dot stickers, index cards, measuring tapes, rulers, centimeter rulers, snap cubes
Strategies	Turn and talk, think pair share, number talks