Elementary Math Content Standards with Related GAISE II Concepts

Kindergarten

CCSS.MATH.CONTENT.K.MD.B.3: Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.

Related GAISE II concepts that can be addressed while focused on this math standard:

- Formulate Statistical Investigative Questions I.A.1: Understand when a statistical investigation is appropriate
- Formulate Statistical Investigative Questions I.A.3: Pose summary (or descriptive) statistical investigative questions about one variable regarding small, well-defined groups (e.g., subset of a classroom, classroom, school, town) and extend these to include comparison and association statistical investigative questions between variables
- Collect Data/ Consider Data II.A.2: Understand how to collect and record information from the group of interest using surveys and measurements collected from observations and simple experiments

CCSS.MATH.CONTENT.K.MD.A.1: Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.

Related GAISE II concepts that can be addressed while focused on this math standard:

- Collect Data/ Consider Data II.A.2 Understand how to collect and record information from the group of interest using surveys and measurements collected from observations and simple experiments
- Collect Data/ Consider Data II.A.3 Understand that a variable measures the same characteristic on several individuals or objects and results in data values that may fluctuate
- Analyze the Data III.A.2 Represent the variability of categorical variables or quantitative variables using appropriate displays (e.g., tables, picture graphs, dotplots, bar graphs)

CCSS.MATH.CONTENT.K.MD.A.2: Directly compare two objects with a measurable attribute in common, to see which object has "more of"/"less of" the attribute, and describe the difference. ***For example, directly compare the heights of two children and describe one child as taller/shorter*.**

Related GAISE II concepts that can be addressed while focused on this math standard:

- Analyze the Data III.A.2 Represent the variability of categorical variables or quantitative variables using appropriate displays (e.g., tables, picture graphs, dotplots, bar graphs)

Grade 1

Standards

CCSS.MATH.CONTENT.1.MD.C.4: 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.

Related GAISE II concepts that can be addressed while focused on this math standard:

- Formulate Statistical Investigative Questions I.A.2 Pose statistical investigative questions of interest to students where the context is such that students can collect or have access to all required data
- Statistical Investigative Questions I.A.3 Pose summary (or descriptive) statistical investigative questions about one variable regarding small, well-defined groups (e.g., subset of a classroom, classroom, school, town) and extend these to include comparison and association statistical investigative questions between variables
- Formulate Statistical Investigative Questions I.B.1 Recognize that statistical investigative questions can be used to articulate research topics and that multiple statistical investigative questions can be asked about any research topic
- Collect Data/ Consider Data II.A.1 Understand that data are information; recognize that to answer a statistical investigative question, a person may collect data themselves specifically for that purpose, or a person may use data that have been collected by other people for another purpose
- Collect Data/ Consider Data II.A.2 Understand how to collect and record information from the group of interest using surveys and measurements collected from observations and simple experiments
- Analyze the Data III.A.2 Represent the variability of categorical variables or quantitative variables using appropriate displays (e.g., tables, picture graphs, dotplots, bar graphs)
- Interpret Results IV.A.1 Use statistical evidence from analyses to answer the statistical investigative questions and communicate results through structured answers with teacher guidance

Grade 2

Standards

CCSS.MATH.CONTENT.2.MD.D.9: Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Show the measurements by making a line plot, where the horizontal scale is marked off in whole-number units.

Related GAISE II concepts that can be addressed while focused on this math standard:

- Formulate Statistical Investigative Questions I.A.2 Pose statistical investigative questions of interest to students where the context is such that students can collect or have access to all required data
- Collect Data/ Consider Data II.A.2 Understand how to collect and record information from the group of interest using surveys and measurements collected from observations and simple experiments
- Collect Data/ Consider Data II.A.3 Understand that a variable measures the same characteristic on several individuals or objects and results in data values that may fluctuate

CCSS.MATH.CONTENT.2.MD.D.10: 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

Related GAISE II concepts that can be addressed while focused on this math standard:

- Analyze the Data III.A.1 Understand that the distribution of a categorical variable or quantitative variable describes the number of times a particular outcome occurs
- Analyze the Data III.A.2 Represent the variability of categorical variables or quantitative variables using appropriate displays (e.g., tables, picture graphs, dotplots, bar graphs)

Grade 3

Standards

CCSS.MATH.CONTENT.3.MD.A.1: Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.

and

CCSS.MATH.CONTENT.3.MD.A.2: Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l).[1] Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem.

and

CCSS.MATH.CONTENT.3.MD.B.4: Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units— whole numbers, halves, or quarters.

Related GAISE II concepts that can be addressed while focused on these math standards:

- Formulate Statistical Investigative Questions I.A.2 Pose statistical investigative questions of interest to students where the context is such that students can collect or have access to all required data
- Collect Data/ Consider Data II.A.2 Understand how to collect and record information from the group of interest using surveys and measurements collected from observations and simple experiments

CCSS.MATH.CONTENT.3.MD.B.3: 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. *For example, draw a bar graph in which each square in the bar graph might represent 5 pets*.

Related GAISE II concepts that can be addressed while focused on this math standard:

- Analyze the Data III.A.2 Represent the variability of categorical variables or quantitative variables using appropriate displays (e.g., tables, picture graphs, dotplots, bar graphs)
- Interpret Results IV.A.1 Use statistical evidence from analyses to answer the statistical investigative questions and communicate results through structured answers with teacher guidance

Grade 4

Standards

CCSS.MATH.CONTENT.4.MD.B.4: Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Solve problems involving addition and subtraction of fractions by using information presented in line plots. *For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection*.

Related GAISE II concepts that can be addressed while focused on this math standard:

- Formulate Statistical Investigative Questions I.A.2 Pose statistical investigative questions of interest to students where the context is such that students can collect or have access to all required data
- Formulate Statistical Investigative Questions I.A.3 Pose summary (or descriptive) statistical investigative questions about one variable regarding small, well-defined groups (e.g., subset of a classroom, classroom, school, town) and extend these to include comparison and association statistical investigative questions between variables
- Analyze the Data III.A.1 Understand that the distribution of a categorical variable or quantitative variable describes the number of times a particular outcome occurs
- Analyze the Data III.A.2 Represent the variability of categorical variables or quantitative variables using appropriate displays (e.g., tables, picture graphs, dotplots, bar graphs)
- Analyze the Data III.B.1 Represent the variability of quantitative variables using appropriate displays (e.g., dotplots, boxplots)

Grade 5

Standards

CCSS.MATH.CONTENT.5.MD.B.2: Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Use operations on fractions for this grade to solve problems involving information presented in line plots. ***For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally*****.**

Related GAISE II concepts that can be addressed while focused on this math standard:

- Formulate Statistical Investigative Questions I.A.2 Pose statistical investigative questions of interest to students where the context is such that students can collect or have access to all required data
- Analyze the Data III.A.2 Represent the variability of categorical variables or quantitative variables using appropriate displays (e.g., tables, picture graphs, dotplots, bar graphs)
- Analyze the Data III.A.3 Describe key features of distributions for quantitative variables, such as: °Center: mean as the equal share, and median as the middle-ordered value of the data °Variability: range as the difference between the greatest and least value, and dispersion as how many units from the equal share value °Shape: number of clusters, symmetric or not, and gaps
- Analyze the Data III.B.1 Represent the variability of quantitative variables using appropriate displays (e.g., dotplots, boxplots)
- Analyze the Data III.B.2 Learn to use the key features of distributions for quantitative variables, such as: ° center: mean as a balance point, and median as the middle-ordered value ° variability: interquartile range and mean absolute deviation (MAD) ° shape: symmetric or asymmetric and number of modes