**Course Outline: Math 6**

**Content Area:** Math

**Course(s):** 6th grade Math

**Time Period:** Marking Period 4

**Length:**  1

**Status:** Published

**Course Pacing Guide**

**Unit MP WEEKS**

Numerical Expressions and Factors 1

Fractions and Decimals 1/2

Algebraic Expressions and Properties 2

Areas of Polygons 2

Ratios and Rates 2/3

Integers and the Coordinate Plane 3

Equations and Inequalities 3

Surface Area and Volume 3/4

Statistical Measures 4

Data Displays 4

**Unit 9**

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| **Statistical Measures** |

9.1 Introduction to Statistics

9.2 Mean

9.3 Measures of Center

9.4 Measures of Variation

9.5 Mean Absolute Deviation

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| **Description of the Unit** |

This unit allows students to focus on recognizing statistical questions as ones anticipating variability; understanding that data used to answer statistical questions has a distribution that can be described by center and spread; using measures of center to summarize all of the values in a data set with a single number; using measures of variation to summarize how all of the values in a data set vary with a single number.

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| **NJSLA Standards** |

**6.SP.1** Recognize a statistical question as one that anticipates variability in the data related to
 the question and accounts for it in the answers.

**6.SP.2** Understand that a set of data collected to answer a statistical question has a distribution
 which can be described by its center, spread, and overall shape.

**6.SP.3**  Recognize that a measure of center for a numerical data set summarizes all of its values
 with a single number, while a measure of variation describes how its values vary with a
 single number.

**6.SP.4** Display numerical data in plots on a number line, including dot plots, histograms, and box
 plots.

**6.SP.5a**  Reporting the number of observations.

**6.SP.5c** Giving quantitative measures of center (median and/or mean) and variability (interquartile
 range and/or mean absolute deviation), as well as describing any overall pattern and any
 striking deviations from the overall pattern with reference to the context in which the data
 were gathered.

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| **Enduring Understandings** |

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| **Essential Questions** |

* How can you tell whether a question is a statistical question?
* How can you find an average value of a data set?
* In what other ways can you describe an average of a data set?
* How can you describe the spread of a data set?
* How can you use the distances between each data value and the mean of a data set to measure the spread of a data set?

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| **Unit Learning Targets** |

Students will be able to…

* recognize statistical questions
* use dot pots to display numerical data
* understand the concept of the mean of data sets
* find the mean of data sets
* compare and interpret the means of data sets
* understand the concept of measures of center
* find the median and mode of data sets
* find the range of data sets find the interquartile range of data sets
* check for outliers in data sets
* understand the meaning of mean absolute deviation
* find the mean absolute deviation of data sets
* solve real-life problems

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| **Instructional Strategies & Learning Activities** |

* “What You Learned Before” pg. 389
* For each lesson:
	+ inquiry-based activity
	+ direct instruction lesson
	+ guided practice & problem solving exercises
	+ independent practice & problem solving exercises
	+ mini-assessment
* Chapter Review pgs. 425-428
* Cooperative learning
* Direct instruction
* Graphic organizers
* Multiple representations (visuals, modeling, acting out, etc.)
* Games & Puzzles
* Differentiated Instruction:
	+ selected partner or group activities
	+ leveled practice sheets
	+ leveled assignment guides

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| **Differentiated Instruction** |

* Inquiry/Problem-Based Learning
* Learning preferences integration (visual, auditory, kinesthetic)
* Tiered Learning Targets
* Meaningful Student Voice & Choice
* Relationship-Building & Team-Building
* Self-Directed Learning
* Student Data Inventories
* Goal-Setting & Learning Contracts
* Game-Based Learning
* Grouping
* Study Guides
* Jigsaws
* Learning Through Workstations
* Concept Attainment
* Flipped Classroom
* Mentoring
* Assessment Design & Backwards Planning

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| **Assessments** |

* Teacher Observation
* Daily Homework
* Formative Assessments
* Summative Assessments
* Benchmark Assessments
* Alternate Assessments

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| **Formative Assessment** |

* Prior knowledge checks
* Notebook & practice problem checks
* Homework checks
* Lesson mini-assessments
* Exit tickets
* Review games

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| **Summative Assessment** |

* Mid-chapter quiz
* End-of-chapter quiz
* Chapter tests
	+ Open-ended in A or B forms
	+ Standards assessment with gridded, short, and extended responses
	+ Alternative assessment & rubric

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| **Benchmark Assessments** |

Students will take the LinkIt Data Assessment

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| **Alternate Assessments** |

* Modified homework
* Modified quizzes
* Modified tests
* Modified projects

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| **Resources & Technology** |

* BIG Ideas Math Textbook
* Record and Practice Journal
* Google Docs, Spreadsheets, and Slides
* ST Math- Class Path and Personalized Path
* Promethean Board
* Chromebooks
* Google Classroom
* Games and Manipulatives
* Websites: Flocabulary, IXL Math

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| **Modifications for Special Needs Students** |

Modifications: ELL, At-Risk, Special Education

1. Audio Books; accessibility features used on Chromebooks

2. Adapted texts

3. Graphic Organizers

4. Assessment modifications

5. Differentiated instruction

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| **Closure** |

* Low-Stakes Quizzes - Give a short quiz using technologies like Kahoot or a Google form.
* Have students write down three quiz questions (to ask at the beginning of the next class).
* Have students dramatize a real-life application of a skill.
* Ask a question. Give students ten seconds to confer with peers before you call on a random student to answer. Repeat.
* Have kids orally describe a concept, procedure, or skill in terms so simple that a child in first grade would get it.
* Direct kids to raise their hands if they can answer your questions. Classmates agree (thumbs up) or disagree (thumbs down) with the response.
* Have kids create a cheat sheet of information that would be useful for a quiz on the day's topic.
* Kids write notes to peers describing what they learned from them during class discussions.
* Have students fill out a checklist with the objectives for the day.
* Have students complete an exit ticket without putting their name on it. Hand back exit tickets the next day in class and have students correct as a warm up.
* Ask students to write what they learned, and any lingering questions on an "exit ticket". Before they leave class, have them put their exit tickets in a folder or bin labeled either "Got It," "More Practice, Please," or "I Need Some Help!"
* After writing down the learning outcome, ask students to take a card, circle one of the following options, and return the card to you before they leave: "Stop (I'm totally confused. Go (I'm ready to move on.)" or "Proceed with caution (I could use some clarification on . . .)"

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| **Special Education** |

* Shorten assignments to focus on mastery of key concepts.
* Specify and list exactly what the student will need to learn to pass.
* Evaluate the classroom structure against the student’s needs (flexible structure, firm limits, etc.).
* Keep workspaces clear of unrelated materials.
* Keep the classroom quiet during intense learning times.
* Reduce visual distractions in the classroom (mobiles, etc.).
* Provide a computer for written work.
* Seat the student close to the teacher or a positive role model.
* Provide an unobstructed view of the whiteboard, teacher, movie screen, etc.
* Keep extra supplies of classroom materials (pencils, books) on hand.
* Maintain adequate space between desks.
* Give directions in small steps and in as few words as possible.
* Number and sequence the steps in a task.
* Have student repeat the directions for a task.
* Provide visual aids.
* Go over directions orally.
* Provide a vocabulary list with definitions.
* Permit as much time as needed to finish tests.
* Allow tests to be taken in a room with few distractions (e.g., the library).
* Have test materials read to the student, and allow oral responses.
* Divide tests into small sections of similar questions or problems.
* Allow the student to complete an independent project as an alternative test.
* Allow take-home or open-book tests.
* Show a model of the end product of directions (e.g., a completed math problem or finished quiz).
* Stand near the student when giving directions or presenting a lesson.
* Mark the correct answers rather than the incorrect ones.
* Permit a student to rework missed problems for an additional credit grade.
* Average grades out when assignments are reworked, or grade on corrected work.

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| **504** |

* Preferential seating
* Extended time on tests and assignments
* Reduced homework or classwork
* Verbal, visual, or technology aids
* Modified textbooks or audio-video materials
* Behavior management support
* Adjusted class schedules or grading
* Verbal testing
* Excused lateness, absence, or missed classwork
* Pre-approved nurse's office visits and accompaniment to visits
* Occupational or physical therapy

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| **At Risk**  |

* Have student restate information
* Provision of notes or outlines
* Concrete examples
* Assistance in maintaining uncluttered space
* Weekly home-school communication tools (notebook, daily log, phone calls or email messages)
* Peer or scribe note-taking
* Lab and math sheets with highlighted instructions
* Graph paper to assist in organizing or lining up math problems
* Use of manipulatives
* No penalty for spelling errors or sloppy handwriting
* Follow a routine/schedule
* Teach time management skills
* Verbal and visual cues regarding directions and staying on task
* Adjusted assignment timelines
* Visual daily schedule
* Immediate feedback
* Work-in-progress check
* Pace long-term projects
* Preview test procedures
* Cue/model expected behavior
* Use peer supports and mentoring
* Chart progress and maintain data

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| **Gifted and Talented** |

* Offer the Most Difficult First
* Pretest for Volunteers
* Offer choice
* Speak to Student Interests
* Allow G/T students to work together
* Tiered learning
* Focus on effort and practice
* Encourage risk taking

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| **ELL** |

* Alternate Responses
* Advance Notes
* Extended Time
* Teacher Modeling
* Simplified Written and Verbal Instructions
* Frequent Breaks
* E-Dictionaries
* Google Translate

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| **Amistad Integration** |

SOC.9-12.1.1.1 Compare Present and Past events to evaluate the consequences of past
 decisions and to apply lessons learned.

SOC.9-12.1.3.3 Gather relevant information from multiple sources representing a wide
 range of views (including historians and experts) while using the date, context,
 and corroborative value of the sources to guide the selection.

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| **Holocaust/Genocide Education** |

SOC.9-12.1.1.1 Compare present and past events to evaluate the consequences of past
 decisions and to apply lessons learned.

SOC.9-12.1.3.3 Gather relevant information from multiple sources representing a wide range of
 views (including historians and experts) while using the date, context, and
 corroborate value of the sources to guide the selection.

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| **Primary Interdisciplinary Connections** |

SCI.HS-ETS1-2 Design a solution to a complex real-world problem by breaking it down into
 smaller, more manageable problems that can be solved through engineering.
LA.W.9-10.6 Use technology, including the Internet, to produce, share, and update individual
 or shared writing products, taking advantage of technology’s capacity to link to
 other information and to display information flexibly and dynamically.
TECH.8.1.12.C.CS4 Contribute to project teams to produce original works or solve problems.

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| **Technology Standards** |

TECH.8.1.12.D.CS3 Exhibit leadership for digital citizenship.

TECH.8.1.12.F.CS3 Collect and analyze data to identify solutions and/or make informed decisions.

TECH.8.1.12.E.CS4 Process data and report results.

TECH.8.1.12.C.CS4 Contribute to project teams to produce original works or solve problems.

TECH.8.2.12.C.CS2 The application of engineering design.

TECH.8.1.12.F.CS4 Use multiple processes and diverse perspectives to explore alternative solutions.

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| **21st Century Skills/Themes** |

CAEP.9.2.12.C.3 Identify transferable career skills and design alternate career plans.

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| **Financial Literacy Integration** |

PFL.9.1.12.C.1 Compare and contrast the financial benefits of different products and services
 offered by a variety of financial institutions.

PFL.9.1.12.C.3 Compute and assess the accumulating effect of interest paid over time when
 using a variety of sources of credit.

PFL.9.1.12.C.2 Compare and compute interest and compound interest and develop an
 amortization table using business tools.