Curriculum Sample Template
Max. 8 Pages

Grade Level	6th Grade	**Content Area**	Math
Course Title (grades 9-12 Only)	Mathematics 6		
Expected Prior Knowledge *The knowledge/skills mastered earlier in the year foundational to the mastery of the required Standard in the current sample.*	• Students understand how to work in precision partnerships effectively. • Students know how to use their math journals effectively. • Students are familiar with, and have used, the 8 CCSS mathematical practices.		
Alignment to Program of Instruction *Briefly outline methods of instruction found in this sequence of lessons that align to the Program of Instruction described in A.3.*	This unit is built on the framework of the SIOP Model and incorporates all 8 of the SIOP Model components. Sentence framing and precision partnering are instructional strategies which promote the use and mastery of academic language. Instructional technology is incorporated by teacher and students. The core curriculum is implemented with fidelity. All teachers also actively engage in rigorous questioning that uses the answer as the starting point, requiring students to use evidence and reasoning to justify how they found their answers and why they believe they are correct. A wide variety of algorithms and methods are honored, and process is highly valued. All math instruction grades K-8 explicitly teaches, models, and honors the 8 CCSS mathematical practices: 1. Make sense of problems and persevere in solving them. 2. Reason abstractly and quantitatively. 3. Construct viable arguments and critique the reasoning of others. 4. Model with mathematics. 5. Use appropriate tools strategically. 6. Attend to precision. 7. Look for and make use of structure. 8. Look for and express regularity in repeated reasoning		
Standard Number and Description *List the Number* and the full description for the Required Standard or Science Performance Objective listed in section A.6.*	Domain: Statistics & Probability Cluster: Develop understanding of statistical variability Standard: #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.		

Materials/Resources Needed	• SMART Board

* ***Standard Number****: For English Language Arts (Reading and Writing), use Grade, Strand, Standard (e.g., 3.RI.2). For K-8 Math, use Grade, Domain, Standard (e.g., 6.EE.7). For HS Math, use Conceptual Category-Domain, Standard (e.g., A-REI.6). For Science, use Grade, Strand, Concept, PO (e.g., 4.1.3.1).*

Lesson (add as needed)	Instructional Strategies	Student Activities
1	**Vocabulary:** **mean** **median** **mode** **range** **random** **systematic** **trend** **outlier** 1.Introduce the concepts of mean, median, mode, and range to students. Share definitions, examples, and illustrations. 2. Sing the Mean/Median/Mode song as a memory strategy. 3.Project a series of five charts on the SMART Board (bar graph, line graph, line plot, histogram, and scatter plot) and prompt students partnerships to identify mean, median, mode, and range. 4. Solicit conversation, slide by slide, about mean, median, mode, and range and engage students in justifying their answers.	1. Take vocabulary notes in vocabulary journals. 2. Learn the Mean/Median/Mode song: http://www.youtube.com/watch?v=oNdVynH6hcY 3. In partnerships, students identify mean, median, mode, and range on a series of five graphs/charts. 4. Participate in a whole-group review of potential answers, offer critiques, and listen to justifications. Come to consensus about correct answers.
2	1.Break students into two sides of the room. On the left side, every student has a coin and they need to record results from 30 coin tosses (heads vs. tails). On the right side, every student has to 'fake' coin tossing and try to create results that are random. 2.The teacher designates a student 'recorder' to match each numbered lab sheet with either 'coin' or 'simulation' 3. In front of the whole class, the teacher looks at student data	1. Students flip a coin (or fake it) 30 times and record data on a numbered lab sheet. 2. Students provide their lab sheet number to the student 'recorder' and reveal whether they have a coin or a simulation. 3. Students wonder 'HOW does the teacher know this?" 4. In partnerships, students write a short explanation of the difference between random and systematic data? Why are humans so awful at 'faking' random data?

	sheets and is able to determine whether or not the student had a coin based on flip patterns. 4. Teacher screens Dan Meyer's video about random light switch flipping: http://blog.mrmeyer.com/?p=12356. 5. Teacher facilitates group chart creations	5. In small groups, students will create two charts: one for actual coin data and one for 'faked' data. 6. Students write comparison/contrast descriptions of their two data charts.
3	1.Facilitate the 'Data Tour' station activity for twelve total stations (6 stations duplicated) and provide data analysis lab sheets. 2. Break students into partners/trios to rotate through the 'Data Tour' activity. 3. Facilitate a whole-class debrief where two of the most troublesome data stations are reviewed, discussed.	1. Participate in the 'Data Tour' with a partner or two. 2. Analyze/Evaluate six different data representations and make determinations about the question being researched and the results found. Compare and contrast similar data. 3. Participate in a class discussion about two data stations. Offer ideas and critique the peer ideas. Revise own thinking.
4	1. Give summative assessment.	1.Take summative assessment independently

Statistics & Probability: Understanding Statistical Variability Quiz

Domain: Statistics & Probability

Cluster: Develop Understanding of Statistical Variability

Standard: 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.

Essential Student Question: Can you look at data in a chart/graph and see how it tells a story and asks/answers questions?

1. Macy's wanted to know if customer spending increased or decreased depending on the amount of minutes spent in their store. They tracked the following customer data in the table below. What would be the best visual way to display this data to determine if there is, indeed, a connection between time and money spent?

a. a pie chart
b. a stem-leaf plot
c. a line plot
d. a line graph

minutes:	receipt total:	minutes:	receipt total:	minutes:	receipt total:
20	$58.16	75	$350.00	1	$0
95	$520.00	7	$25.55	49	$125.90
62	$315.15	90	$530.00	120	$800.40
5	$10.78	32	$156.78	9	$42.00
89	$15.19	186	$1056.11	82	$412.92

2. How would you identify the median of the Macy's data?
a. add up the receipt totals and divide them by 15
b. put receipt totals in order (smallest to largest) and pick the one in the middle
c. find the smallest and largest receipt total and subtract them
d. scan the table to find the receipt total that occurs the most times.

3. What would be the best thing to do with the data point collected at 89 minutes?
a. absorb it into the overall calculation of the mean
b. don't be concerned with it, as it appears to represent outlier data
c. research the department that customer spent time in to find ways to make it more efficient
d. remove it from determining the median calculation

Read the following paragraph and create a data collection table tally for each time each letter of the alphabet is used and answer the questions that follow:

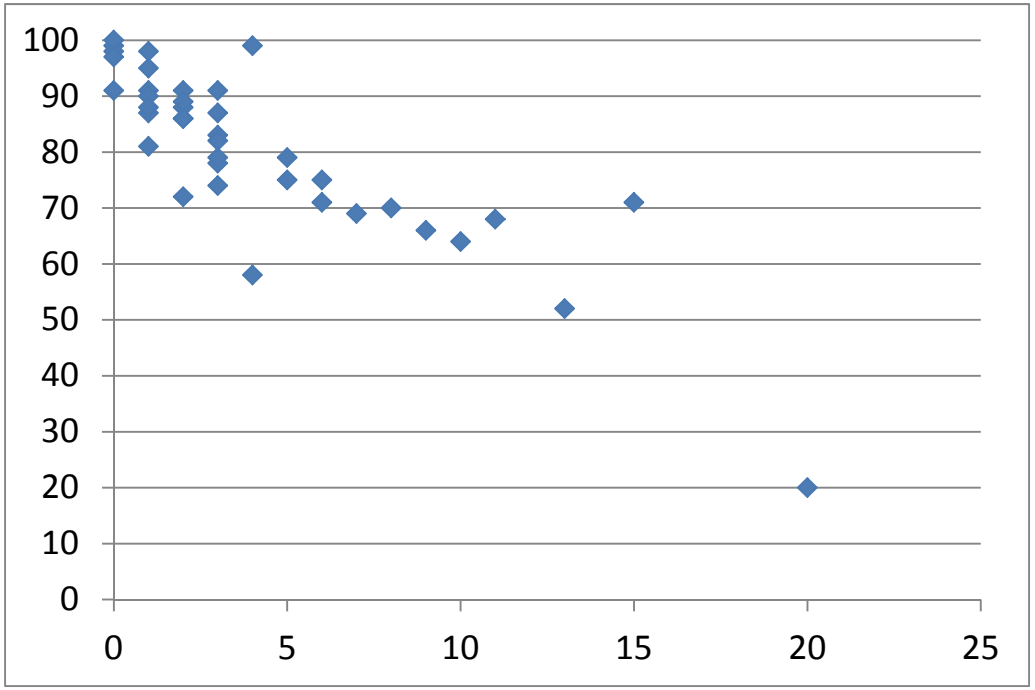
The United States flag is a symbol that is easy for all Americans to recognize. It stands for our country, with one star for each of our 50 states, and 13 stripes to represent each of our original 13 colonies. Those colonies later became states, and 37 more states joined them to make up our country.

	tally		tally		tally		tally
A		H		O		V	
B		I		P		W	
C		J		Q		X	
D		K		R		Y	
E		L		S		Z	
F		M		T			
G		N		U			

4.The letter 'E' is the most frequently occurring letter in the English language. How do your findings compare with this?
a. My findings match this exactly.
b. My findings come close to this, but are not a perfect match.
c. My findings do not match this, with 'T' occurring with the most frequency.
d. My findings are the opposite of this.

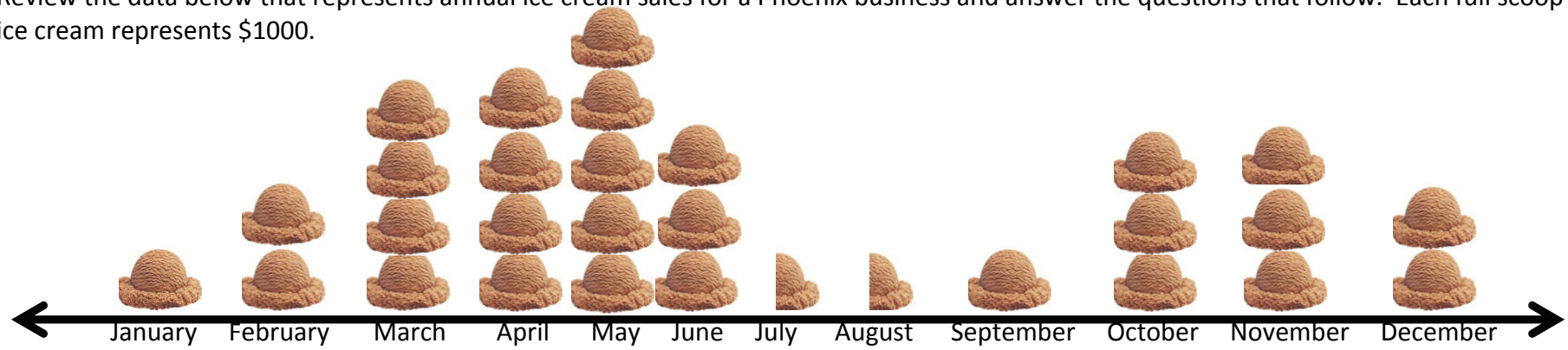
5. What about this exercise may create a result in conflict with findings?
a. The passage is very short, so data would be more representative by including larger samples with more letters.
b. The passage has a large number of unusual words using ‘v’ and ‘j’ that produce outlying data.
c. The passage has skewed content, so it is not a good sample to use for this particular experiment.
d. The passage contains the use of numbers, and this throws off the data collection.

6. Review the data presented in the line plot on the right. If the y axis represents the final grade for a course out of 100 points and the x axis represents the number of student absences for the course, what story does the shape of the data tell about this information?
a. Students with less than five absences passed the course.
b. Students with more than ten absences failed the course.
c. Students with fewer absences tended to perform better.
d. Students only earned an A with less than four absences.



7. What data could we substitute for the absences that would most likely produce a similar chart?
a. hours of TV watching
b. number of missed assignments
c. quiz grades
d. average hours of sleep each night

Review the data below that represents annual ice cream sales for a Phoenix business and answer the questions that follow. Each full scoop of ice cream represents $1000.



8. What is the mode of the ice cream data?
a. 4
b. 3
c. 4.5
d. 2.4

9. Consider the shape of the ice cream data from this Phoenix ice cream store. Most ice cream stores in the country post their highest sales in June, July, August, and September . . . which is a significant deviation from the Phoenix data. What could most likely explain this contrast?
a. Year-round schools in Phoenix reduce the summer ice cream consumption of other regions that have longer summer vacations.
b. Because most customers do not want to wait in long lines, summer sales are lower than the other months.
c. Other regions offer 40% more ice cream flavors for their residents to choose from throughout the year.
d. Because its summers are SO HOT, 30% of customers leave Phoenix and spend their summers in cooler climates.

10. If this store's business owner has decided that the best way to increase revenue is to focus in boosting sales in December, January, and February, what would be a logical strategy for this Phoenix-based business?
a. develop additional desserts (like ice-cream flavored hot chocolates) that appeal to people more than ice cream during colder months.
b. offer fun 'back-to-school' fundraising events to get students, teachers, and their parents to visit the store
c. host a Santa Claus in the store to bring in more holiday traffic
d. begin selling gift items in addition to ice cream, like coffee mugs, books, and candles.

Statistics & Probability: Understanding Statistical Variability Answer Key

1.D
2.B
3.B
4.C
5.A
6.C
7.B
8.B
9.D
10.A

Statistics & Probability: Understanding Statistical Variability Scoring Guide

10 questions weighted at 1 point each **10 points total**

Raw score_____X____10 = _____/100 points

The 100 points possible assessment will reflect the school's grading scale:

90 -100 = A – Mastery

80 – 89 = B - Mastery

70 – 79 = C – Needs Screening for Remediation

60 – 69 = D – Needs Remediation

0 – 59 = F – Needs Intensive Remediation