UNIT OF STUDY

Title: Unit 2	**Subject/Course**: Math	**Length:** 2 ½ weeks
Topic: Data Analysis	**Grade:** 5	**Designer:** O'Cain, Smith

UNIT GOALS AND EXPECTATIONS

IMPORTANT CONCEPTS:
•Data can be collected from experiments and surveys.
•Data are gathered for the purpose of explaining characteristics of the sample from which the data were collected.
•There are various ways to display data; the most appropriate way should be determined by the type of data collected.
•Sample size determines the accuracy of population representation.
•A complete circle graph must contain the sum of 100%.

ESSENTIAL QUESTIONS:
•How is data collected?
•How do I conduct a survey?
•How do I determine who should take my survey and what my survey should be about?
•What is a sample?
•How do I determine the most appropriate graph to use?
•How will I interpret a set of data?
•Are there patterns in a set of data?
•How do graphs help to explain real-world situations?

STUDENT LEARNING EXPECTATIONS:
DAP.14.5.1 Develop appropriate questions for surveys
DAP.14.5.2 Collect numerical and categorical data using surveys, observations and experiments that would result in bar graphs, line graphs, line plots and stem-and-leaf plots
DAP.14.5.3 Construct and interpret:
 A.   frequency tables, charts, line plots, bar graphs
 B.   stem-and-leaf plots

DAP.15.5.1 Interpret graphs such as:
   A.   line graphs
   B.   double bar graphs
   C.   circle graphs
DAP.15.5.2 Determine, with and without appropriate technology and explain what each indicates about the set of data:
   A.   range, median and mode
   B.   mean

SPECIFIC DECLARATIVE KNOWLEDGE – What I know
Explain vocabulary terms:

Survey	data
bar graph	line graph
line plot	stem-and-leaf plots
intervals	increments
increase	decrease
relationship	interpret
key	legend
frequency table	double bar graphs
circle graphs	prediction
justify	data
conclusion	range
mean	median
mode	average

SPECIFIC PROCEDURAL KNOWLEDGE – What I need to do
*Select appropriate survey topic
*Write questions with limited answer choices to develop surveys
*Collect numerical and categorical data using surveys, observations or experiments
*Determine the appropriate graph for data
A
*Draw an axis and choose proper increments or intervals
*Find appropriate labels for both axis (x-axis and y-axis)
*Construct a frequency table
*Select an appropriate title
*Make a key (legend)
*Construct line plots
*Construct stem-and-leaf plots
*Construct bar graphs
B
*Interpret graphs and use information to draw appropriate conclusions
*Utilize information to draw conclusions (change over time, comparisons, part of a whole)
*Make predictions based on data
*Justify conclusions based on data
*Apply algorithms with and without appropriate technology
*Solve problems in relation to real-world problems
*Differentiate among range, mean, median, and mode

UNIT ASSESSMENTS
(Include tasks related to Dimensions 3 and 4 and Bloom's Taxonomy)

1. Open-response prompt requiring students to interpret circle graphs
2. Open-response prompt requiring students to collect numerical and categorical data using surveys, observations, and experiments that would result in bar graphs, line plots, line graphs, and stem-and-leaf plots.
3. **"Weathering the Data"**

    Collect the temperatures for your city for one week and complete the following:
    •Record the data on your own chart.
    •Create at least two different graphs (one being a line graph)
    Write a paragraph that:
    •demonstrates your data collection process
    •presents information you gathered from the data
    •explains why the graphs you chose are appropriate to display your data

Traditional Assessments:	Other Evidence of Learning:
Teacher constructed quiz over frequency tables, line plot, and stem-and-leaf plot	Classwork practice.
Teacher constructed over line graphs, bar graphs, double bar graphs, and circle graphs.	Weekly homework
Teacher made test over mean, median, mode, and range.	

ACTIVITIES AND LEARNING EXPERIENCES	Resources
1. Use <u>Tiger Math:</u> "Learning to Graph from a Baby Tiger" read aloud to introduce the concept of graphing. 2. Use the 4-step vocabulary process to introduce key words from the unit. 3. Use the smart board to display BrainPop.com to introduce graphing.	Marilyn Burns www.brainpop.com Graphing: "Envisioning Information:
4. Discuss the purpose of using the skill of collecting data by using surveys and organizing data in frequency tables and line plots: to conduct surveys for a science project, to collect and organize data, and to present the results to others.	Harcourt Ch. 5 Lesson 1
5. Model using a stem-and –leaf plot to solve problems and compare to a line plot.	Harcourt Ch. 5 Lesson 4
6. Model choosing appropriate scales and intervals for graphs using a variety of sets of data	Harcourt Ch. 6 Lesson 1
7. Construct single and double-line graphs to show temperature changes over a period of time.	Harcourt Ch. 6 Lesson 3
8. Use the smart board the Mrs.Glosser's Math Goodies (website) to reinforce graphs.	www.mathgoodies.com Graphs
9. Discuss using appropriate graphs for a variety of situations and sets of data.	Harcourt Ch. 5 Lesson 5 Harcourt Ch. 6 Lesson6
10. Model computing the mean, median, mode, and range for sets of data.	Harcourt Ch. 5 Lesson 2 Harcourt Ch. 5 Lesson 3
11. Use the smart board and internet to reinforce the process of finding the mean, median, mode, and range for sets of data	www.bbc.co.uk/schools/revisewise/maths
Career Connections	

Discuss how coaches and any other sports related career relies on graphs constructed from statistics.