**TEACHER RESOURCE LIBRARY**

Grade 6 ~ ***Statistics and Probability (6.SP.1-5)***

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|  | **Develop understanding of statistical variability.** | **Summarize and describe distributions.** |
| **Resources** | **1. Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers.** *For* *example, “How old am I?” is not a statistical question, but “How old are the students in my school?” is a statistical question because one anticipates variability in students’ ages.* | **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.** | **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.** | **4. Display numerical data in plots on a number line, including dot plots, histograms, and box plots.** | **5. Summarize numerical data sets in relation to their context, such as by:**a. Reporting the number of observations.b. Describing the nature of the attribute under investigation, including how it was measured and its units of measurement.c. Giving quantitative measures of center (median and/or mean) and variability (inter-quartile 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.d. Relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered. |
| **My Stuff** |  |  |  |  |
| **Resource Books** | **What Does it Mean to do Statistics****Elementary & Middle School Mathematics (VanDeWalle, 7th Ed.)** * TEACHER CONTENT
	+ What Does it Mean to do Statistics: p. 437-439

**Statistical Questions and Collecting Data****Elementary & Middle School Mathematics (VanDeWalle, 7th Ed.)** * TEACHER CONTENT
	+ Formulating Questions: p. 439
	+ Data Analysis – Classification: p. 441-442

**Elementary & Middle School Mathematics (VanDeWalle, 6h Ed.)** * TEACHER CONTENT
	+ Gathering Data to Answer Questions: p. 453-454
	+ Data Analysis – Classification: p. 454-458

**Elementary Geometry for Teachers (Parker, Baldridge, 2008) ISBN 9780974814056*** TEACHER CONTENT
	+ Data-gathering Activities: p. 227

**Data Displays****Elementary & Middle School Mathematics (VanDeWalle, 7th Ed.)** * TEACHER CONTENT
	+ Data Analysis – Graphical Representations: p. 443-449

**Elementary & Middle School Mathematics (VanDeWalle, 6h Ed.)** * TEACHER CONTENT
	+ Graphical Representations: p. 458-464

**Elementary Geometry for Teachers (Parker, Baldridge, 2008) ISBN 9780974814056*** TEACHER CONTENT
	+ Data Displays: p. 223-227

**Measures of Center, Measures of Variability and Shape of Data****Elementary & Middle School Mathematics (VanDeWalle, 7th Ed.)** * TEACHER CONTENT
	+ Data Analysis – Measures of Center: p. 449-453
* STUDENT ACTIVITIES
	+ Leveling the Bars (Activity 21.5): p. 450
	+ Finding the Balance Point (Activity 21.7): p. 451

**Elementary & Middle School Mathematics (VanDeWalle, 6h Ed.)** * TEACHER CONTENT
	+ Descriptive Analysis: p.464-468
* STUDENT ACTIVITIES
	+ Finding the Balance Point (Activity 22.6): p. 466

**Elementary Geometry for Teachers (Parker, Baldridge, 2008) ISBN 9780974814056*** TEACHER CONTENT
	+ Center and Dispersion of Data Sets: p. 229-232

**Mean Absolute Deviation****Elementary Geometry for Teachers (Parker, Baldridge, 2008) ISBN 9780974814056*** TEACHER CONTENT
	+ Standard Deviation: p. 233-234
 |
| **Web**  | **Statistical Questions and Collecting Data**TEACHER CONTENT* **How to Create Misleading Statistics in 6 Easy Steps - Teacher Background Information** -

 <http://blog.makingitclear.com/2010/03/25/statistics/>STUDENT ACTIVITIES/LESSONS* **Illuminations - Numerical and Categorical Data - Unit of Lessons** - <http://illuminations.nctm.org/LessonDetail.aspx?ID=U116>

**Dot Plots (Line Plots)**STUDENT ACTIVITIES/LESSONS* **IXL - “Create Line Plots” - Interactive Applet** - <http://www.ixl.com/math/grade-6/create-line-plots>
* **UEN - “The Human Line Plot” Lesson** - <http://www.uen.org/Lessonplan/preview?LPid=15238>
* **LearnAlberta - Displaying Data - Video Tutorial**  - <http://www.learnalberta.ca/content/me5l/html/math5.html?goLesson=21>

**Histograms**STUDENT ACTIVITIES/LESSONS* **Illuminations - Histogram Tool - Interactive Applet** - <http://illuminations.nctm.org/ActivityDetail.aspx?ID=78>
* **Illuminations - “There is a Difference: Histograms vs. Bar Graphs” Lesson** –

 <http://illuminations.nctm.org/LessonDetail.aspx?id=L812>* **NLVM - Box Plot/Histogram - Interactive Applet**  -

 <http://nlvm.usu.edu/en/nav/frames_asid_145_g_3_t_5.html?open=instructions&from=category_g_3_t_5.html>* **Shodor - Histogram Lesson and Interactive Applet** - <http://www.shodor.org/interactivate/activities/Histogram/>
* **IXL - “Create Histograms” - Interactive Applet** - <http://www.ixl.com/math/grade-6/create-histograms>
* **LearnAlberta - “Interpreting Graphs” Lesson** -

 <http://www.learnalberta.ca/content/mesg/html/math6web/index.html?page=lessons&lesson=m6lessonshell10.swf>**Box Plots (Box-and-Whisker Plots)**TEACHER CONTENT* **Box and Whisker Plot - Teacher Tutorial** - <http://staff.argyll.epsb.ca/jreed/math9/strand4/boxNwhisker.htm>

STUDENT ACTIVITIES/LESSONS* **Illuminations - Food Court “The Clucking Chicken” Lesson** - <http://illuminations.nctm.org/LessonDetail.aspx?ID=L522>
* **Illuminations - Food Court “The Pizza Palace” Lesson** - <http://illuminations.nctm.org/LessonDetail.aspx?ID=L523>
* **Illuminations - “Using NBA Statistics for Box and Whisker Plots” Lesson** - <http://illuminations.nctm.org/LessonDetail.aspx?id=L737>
* **Illuminations - “Bears in a Boat” Lesson** - <http://illuminations.nctm.org/LessonDetail.aspx?id=L856>
* **NLVM - Box Plot/Histogram - Interactive Applet**  -

 <http://nlvm.usu.edu/en/nav/frames_asid_145_g_3_t_5.html?open=instructions&from=category_g_3_t_5.html>* **Shodor -“ Box Plot” Lesson and Interactive Applet** - <http://www.shodor.org/interactivate/activities/BoxPlot/>
* **“Creating Box Plots” Lesson** - <http://math.springbranchisd.com/middle/Middle/7P/Resources/7P-4-CIGDD-Box_Whisker328-333.pdf>

**Measures of Center, Measures of Variability and Shape of Data**TEACHER CONTENT* **Measure of Central Tendency - Teacher Tutorial** - <http://www.regentsprep.org/regents/math/algebra/AD2/measure.htm>

STUDENT ACTIVITIES/LESSONS* **Illuminations - Mean and Median Interactive Applet** - <http://illuminations.nctm.org/ActivityDetail.aspx?ID=160>
* **Online Math Learning - Series of Video Tutorials** - <http://www.onlinemathlearning.com/mode-mean-median.html>
* **Measures of Center and Spread - Student Handout** - <http://westernreservepublicmedia.org/quizbus/images/vid1_measures.pdf>
* **PH - Finding Mean, Median and Mode - Video** - <http://www.phschool.com/atschool/academy123/english/academy123_content/wl-book-demo/ph-022s.html>
* **PH - Finding and Using the Range - Video** - <http://www.phschool.com/atschool/academy123/english/academy123_content/wl-book-demo/ph-148s.html>
* **Education World - “Candy Colors” Lesson** - <http://www.educationworld.com/a_lesson/03/lp293-02.shtml>
* **LearnAlberta - Central Tendency - Student Interactive and Video** - <http://www.learnalberta.ca/content/mejhm/index.html?l=0&ID1=AB.MATH.JR.STAT&ID2=AB.MATH.JR.STAT.CENT&lesson=html/video_interactives/centralTendency/centralTendencyInteractive.html>

**Mean Absolute Deviation**TEACHER CONTENT* **Wiki Answers - Teacher Tutorial** - <http://wiki.answers.com/Q/How_do_you_calculate_mean_absolute_deviation>
* **eHow - Teacher Tutorial** - <http://www.ehow.com/how_4918826_absolute-deviation-average-absolute-deviation.html>
* **YouTube Video - Teacher Tutorial** - <http://www.youtube.com/watch?v=z9AJk7TvdpQ>
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| **Literature Connections** | The Inch Boy by Junko Morimoto (**See VDW 7th Edition - page 455**)Swamp Angel by Anne Isaacs (**See VDW 7th Edition - page 455**)Tikki, Tikki, Tembo by Arlene Mosel |