Bridging for Math Strength Resources

Standards of Learning Curriculum Framework

Standard of Learning (SOL) 7.9

a) Represent data in a histogram;

c) Compare histograms with the same data represented in stem-and-leaf plots, line plots, and circle graphs.

Student Strengths	Bridging Concepts	Standard of Learning
Students can create and interpret data in a variety of representations (ie: line plot, line graph, bar graph, stem and leaf plot, circle graph, etc.)	The student, given a practical situation, will make observations and inferences about the data. The student can compare multiple data representations and describe similarities and differences between different data representations.	Students can a) represent data in a histogram; and c) compare histograms with the same data represented in stem-and-leaf plots, line plots, and circle graphs.
Prerequisite SOLs: 5.16a, b, c, & 6.10b c		

Understanding the Learning Trajectory

Big Ideas:

- Histograms use bin size to display data in meaningful ways.
- Histograms, similar to bar graphs, use rectangular bars whose heights correspond to frequency. However, bar graphs plot categorical data and have gap between each bar, whereas histograms plot numerical data and are **continuous** (no gaps).
- The student can represent data through frequency intervals in a histogram

Formative Assessment:

- VDOE Just in time Quick Check SOL 7.9a (Word) / PDF / Desmos
- VDOE Just in time Quick Check SOL 7.9c (Word) / PDF / Desmos

Important Assessment Look Fors:

- (7.9a)-The student can display data in a histogram given data in a table format or list format
- (7.9a) The student can display data frequency accurately with given intervals in a histogram
- (7.9c) The student can make conclusions regarding information that can be inferred from different graphical representations of the same data.

Purposeful Questions:

- How did you decide to use this bin size?
- How does the stem and leaf plot look similar and different to the histogram?
- What information can the stem-and-leaf graph [circle graph, line plot] provide you that the histogram cannot?

Bridging Activity to Support Standard	Instructional Tips
Routine **Data Questions**	Students will be given a slide showing a histogram and are asked to draw conclusions and create their own questions regarding the data displayed. (Henrico County Virginia Math, Henrico County Website)
Rich Tasks **Building Graphs** **Celebrity Histograms**	Building Graphs: Students are asked to use real world data (Henrico County Math Henrico County Website) This activity could be scaffolded by starting with the hands on approach to building the histogram. Celebrity Histograms: Students use the ages of celebrities to create a histogram and answer questions specific to their histogram following. The students create their own bin size for the histogram. (Henrico County Math Henrico County Website)
Games/Tech Desmos 7.9ab Histograms! **Create Histograms** **Interpret Histograms**	Students will be more comfortable with sorting and analyzing data through the use of histograms. Students will build histograms through this interactive website Students will answer questions regarding data from a given histogram

Other Resources:

- VDOE Mathematics Instructional Plans (MIPS)
  - 7.9abc - Numbers in a Name (Word) / PDF Version
  - 7.9c - All Graphs are Not the Same (Word) / PDF Version
- VDOE Algebra Readiness Remediation Plans
  - Histograms (Word) / PDF
- VDOE Word Wall Cards: Grade 7 (Word) | (PDF)
  - Histogram
  - Comparing Graphs: Histogram and Stem and Leaf Graph
  - Comparing Graphs: Histogram and Circle Graph
  - Comparing Graphs: Histogram and Line Plot
- Desmos Activity

- Histograms

Learning Trajectory Resources:

Charles, R. (2005). Big ideas and understandings as the foundation for elementary and middle school mathematics. *Journal of Mathematics Education Leadership*, *7*(3), NCSM.

Clements, D. H., & Sarama, J. (2019). Learning and teaching with learning trajectories [LT]2. Marsico Institute, Morgridge College of Education, University of Denver. https://www.learningtrajectories.org/

Common Core Standards Writing Team. (2019). Progressions for the Common Core State Standards for Mathematics. Tucson, AZ: Institute for Mathematics and Education, University of Arizona.

Richardson, K. (2012). How Children Learn Number Concepts: A Guide to Critical Learning Phases. Bellingham: Math Perspectives Teacher Development Center.

Van De Walle, J., Karp, K. S., & Bay-Williams, J. M. (2018). *Elementary and Middle School Mathematics: Teaching Developmentally.* (10th edition) New York: Pearson (2019:9780134802084)

VDOE Curriculum Framework for All Grades - Standard of Learning Curriculum Framework (SOL)