# Unit 5 pt 1 Measurement, Data, \& Geometry <br> Content Area: Math <br> Course(s): Sample Course <br> Time Period: Length: Status: <br> AprMay <br> 4 weeks \& Grade 4 <br> Published 

## Title Section



Belleville Public Schools
Curriculum Guide

Math, Fourth Grade<br>Unit 5: Part 1 - Measurement, Data, \& Geometry

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## Unit Overview

Lessons within the units, "Measurement, Data, and Geometry" have been sequenced to assure students' exposure to selected topics prior to the PARCC Exam. The following is recommended for Unit 5
"Measurement, Data, and Geometry", Part 1.

- Read Line Plots (T.11-1)
- Make Line Plots (T.11-2)
- Equivalence with customary units of length (T.13-1)
- Equivalence with customary units of capacity (T.13-2)
- Equivalence with customary units of weight (T.13-3)
- Lines, Rays, and Angles (T.15-1)
- Understand angles and unit angles (T.15-2)
- Measure with unit angles (T.15-3)
- Lines (T.16-1)
- Classify triangles (T.16-2)
- Classify Quadrilaterals (T.16-3)
- Use extra week to build in Assssment for each Topic and or Unit, as well as Re-teaching and Enrichment.


## NJSLS

| MA.4.G.A.1 | Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular <br> and parallel lines. Identify these in two-dimensional figures. |
| :--- | :--- |
| MA.4.G.A.2 | Classify two-dimensional figures based on the presence or absence of parallel or <br> perpendicular lines, or the presence or absence of angles of a specified size. Recognize <br> right triangles as a category, and identify right triangles. |
| MA.4.G.A.3 | Recognize a line of symmetry for a two-dimensional figure as a line across the figure such <br> that the figure can be folded along the line into matching parts. Identify line-symmetric <br> figures and draw lines of symmetry. |
| Mnow relative sizes of measurement units within one system of units including km, m, cm, |  |

## Exit Skills

By the end of Grade 4 Mathematics, students in the Belleville Public Schools will be able to:

- Develop an understanding and fluency with multi-digit multiplication and develop an understanding of dividing to find quotients involving multi-digit dividends. Students will also work toward fluency in addition and subtraction within $1,000,000$ using the standard algorithm: Students generalizetheir understanding of place value to $1,000,000$, understanding the relative sizes of numbers in each place. They apply their understanding of modelsfor multiplication (equal-sized groups, arrays, and area models), place value, and properties of operations, in particular the distributive property, as they develop, discuss, and use efficient, accurate, and generalizable methodsto compute products of multi-digit whole numbers. Depending on the numbers and the context, they select and accurately apply appropriate methods to estimate or mentally calculate products. They develop fluency with efficient
procedures for multiplying whole numbers; understand and explain whythe procedures work based on place value and properties of operations; and use them to solve problems. Students apply their understanding of models for division, place value, properties of operations, and the relationship of division to multiplication as they develop, discuss, and use efficient, accurate, and generalizable procedures to find quotients involving multi-digit dividends. They select and accurately apply appropriate methods to estimate and mentally calculate quotients, and interpret remainders based upon the context.
- Develop an understanding of fraction equivalence, addition and subtraction of fractions with like denominators, and multiplication of fractions by whole numbers:
Students develop understanding of fraction equivalence and operations with fractions. They recognize that two different fractions can be equal (e.g., $15 / 9=5 / 3$ ), and they develop methods for generating and recognizing equivalent fractions. Students extend previous understandings about how fractions are built from unit fractions, composing fractions from unit fractions, decomposing fractions into unit fractions, and using the meaning of fractions and the meaning of multiplication to multiply a fraction by a whole number.
- Understand that geometric figures can be analyzed and classified based on their properties, such as having parallel sides, perpendicular sides, particular angle measures, and symmetry: Students describe, analyze, compare, and classify two-dimensional shapes. Through building, drawing, and analyzing two-dimensional shapes, students deepen their understanding of properties of twodimensional objects and the use of them to solve problems involving symmetry.


## Enduring Understanding

- A line plot organizes data on a number line and is useful for showing how data are distributed.
- To convert from a larger unit of length to a smaller unit of length, multiply the number of larger units by the conversion factor, that is, the number of smaller units in each larger unit.
- To convert from a larger unit of capacity to a smaller unit of capacity, multiply the number of larger units by the conversion factor, that is, the number of smaller units in each larger unit.
- To convert from a larger unit of weight to a smaller unit of weight, multiply the number of larger units by the conversion factor, that is, the number of smaller units in each larger unit.
- Line segments and rays are sets of points that describe parts of lines and angles.
- Angles are classified by their measure
- The measure of an angle depends upon the fraction of a circle that the angle turns through.
- The unit for measuring angles is 1 degree, the unit angle.
- Lines can be classified as parallel, intersecting, and perpendicular.
- Triangles are classified by their sides and by their angles
- Quadrilaterals are classified by their sides and by their angles.


## Essential Questions

- How can you read data on a line plot?
- How can you make a line plot?
- How can you convert from one unit to another?
- How can you be precise when solving math problems?
- What are some common geometric terms?
- How can you measure angles?
- How can you classify triangles and quadrilaterals?


## Learning Objectives

## After learning how to recognize the relative size of units, students will be able to:

- Recognize the relative size of a unit, indicate the the length and explain the process.
- Once the conversion is complete, illustrate the larger unit against the smaller unit, and determine if the answered generated is correct.

| Remember | Understand | Apply | Analyze | Evaluate | Create |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Choose | Classify | Choose | Categorize | Appraise | Combine |
| Describe | Defend | Dramatize | Classify | Judge | Compose |
| Define | Demonstrate | Explain | Compare | Criticize | Construct |
| Label | Distinguish | Generalize | Differentiate | Defend | Design |
| List | Explain | Judge | Distinguish | Compare | Develop |
| Locate | Express | Organize | Identify | Assess | Formulate |
| Match | Extend | Paint | Infer | Conclude | Hypothesize |
| Memorize | Give Examples | Prepare | Point out | Contrast | Invent |
| Name | Illustrate | Produce | Select | Critique | Make |
| Omit | Indicate | Select | Subdivide | Determine | Originate |
| Recite | Interrelate | Show | Survey | Grade | Organize |
| Select | Interpret | Sketch | Arrange | Justify | Plan |
| State | Infer | Solve | Breakdown | Measure | Produce |
| Count | Match | Use | Combine | Rank | Role Play |
| Draw | Paraphrase | Add | Detect | Rate | Drive |
| Outline | Represent | Calculate | Diagram | Support | Devise |
| Point | Restate | Change | Discriminate | Test | Generate |
| Quote | Rewrite | Classify | Illustrate |  | Integrate |
| Recall | Select | Complete | Outline |  | Prescribe |
| Recognize | Show | Compute | Point out |  | Propose |
| Repeat | Summarize | Discover | Separate |  | Reconstruct |
| Reproduce | Tell | Divide |  |  | Revise |
|  | Translate | Examine |  |  | Rewrite |
|  | Associate | Graph |  |  | Transform |
|  | Convert |  |  |  |  |
|  | Discuss | Modify |  |  |  |
|  | Estimate | Operate |  |  |  |
|  | Extrapolate | Subtract |  |  |  |
|  | Generalize |  |  |  |  |
|  | Predict |  |  |  |  |



## Interdisciplinary Connections

LA.K-12.NJSLSA.R
LA.K-12.NJSLSA.W
PFL.9.1.4.A. 2
PFL.9.1.4.B. 3
SOC.6.1.4.B.CS1

SOC.6.1.4.C.CS2

SOC.6.1.4.C.CS5

TECH.8.1.5.A.CS1
TECH.8.1.5.A.CS2

Reading
Writing
Identify potential sources of income.
Explain what a budget is and why it is important.
Spatial thinking and geographic tools can be used to describe and analyze the spatial patterns and organization of people, places, and environments on Earth.
Economics is a driving force for the occurrence of various events and phenomena in societies.
Understanding of financial instruments and outcomes assists citizens in making sound decisions about money, savings, spending, and investment.

Understand and use technology systems
Select and use applications effectively and productively.

## Alignment to 21st Century Skills \& Technology

- English, reading or language arts
- World languages
- Arts
- Mathematics
- Economics
- Science
- Geography
- History
- Government and Civics


## 21st Century/Interdisciplinary Themes

- Civic Literacy
- Environmental Literacy
- Financial, Economic, Business and Entrepreneurial Literacy
- Global Awareness
- Health Literacy


## 21st Century Skills

- Communication and Collaboration
- Creativity and Innovation
- Critical thinking and Problem Solving
- ICT (Information, Communications and Technology) Literacy
- Information Literacy
- Life and Career Skills
- Media Literacy


## Technology Infusion

- Smart Board
- Student Lap-top

Utilize Quick Check in order to determine differentiation of instruction. Assess and differentiate page will prescribe the differentiated instruction activity.

- Intervention activity.
- Reteach.
- Technology center.
- On-level and advanced activity center.
- Leveled Assignment.


## Resources:

- NJDOE: Instructional Supports and Scaffolds for Success in Implementing the Common Core State Standards http://www.state.nj.us/education/modelcurriculum/success/math/k2/


## Special Education

- printed copy of board work/notes provided
- additional time for skill mastery
- assistive technology
- behavior management plan
- Center-Based Instruction
- check work frequently for understanding
- computer or electronic device utilizes
- extended time on tests/ quizzes
- have student repeat directions to check for understanding
- highlighted text visual presentation
- modified assignment format
- modified test content
- modified test format
- modified test length
- multiple test sessions
- multi-sensory presentation
- preferential seating
- preview of content, concepts, and vocabulary
- reduced/shortened reading assignments
- Reduced/shortened written assignments
- secure attention before giving instruction/directions
- shortened assignments
- student working with an assigned partner
- teacher initiated weekly assignment sheet
- Use open book, study guides, test prototypes


## ELL

- teaching key aspects of a topic. Eliminate nonessential information
- using videos, illustrations, pictures, and drawings to explain or clarif
- allowing products (projects, timelines, demonstrations, models, drawings, dioramas, poster boards, charts, graphs, slide shows, videos, etc.) to demonstrate student's learning;
- allowing students to correct errors (looking for understanding)
- allowing the use of note cards or open-book during testing
- decreasing the amount of workpresented or required
- having peers take notes or providing a copy of the teacher's notes
- modifying tests to reflect selected objectives
- providing study guides
- reducing or omitting lengthy outside reading assignments
- reducing the number of answer choices on a multiple choice test
- tutoring by peers
- using computer word processing spell check and grammar check features
- using true/false, matching, or fill in the blank tests in lieu of essay tests


## Intervention Strategies

- allowing students to correct errors (looking for understanding)
- teaching key aspects of a topic. Eliminate nonessential information
- allowing products (projects, timelines, demonstrations, models, drawings, dioramas, poster boards, charts, graphs, slide shows, videos, etc.) to demonstrate student's learning
- allowing students to select from given choices
- allowing the use of note cards or open-book during testing
- collaborating (general education teacher and specialist) to modify vocabulary, omit or modify items to reflect objectives for the student, eliminate sections of the test, and determine how the grade will be determined prior to giving the test.
- decreasing the amount of workpresented or required
- having peers take notes or providing a copy of the teacher's notes
- marking students' correct and acceptable work, not the mistakes
- modifying tests to reflect selected objectives
- providing study guides
- reducing or omitting lengthy outside reading assignments
- reducing the number of answer choices on a multiple choice test
- tutoring by peers
- using authentic assessments with real-life problem-solving
- using true/false, matching, or fill in the blank tests in lieu of essay tests
- using videos, illustrations, pictures, and drawings to explain or clarify


## Evidence of Student Learning-CFU's

- Admit Tickets
- Anticipation Guide
- Choral response
- Common benchmarks
- Compare \& Contrast
- Create a Multimedia Poster
- Define
- Describe
- Evaluate
- Evaluation rubrics
- Exit Tickets
- Explaining
- Fist- to-Five or Thumb-Ometer
- Illustration
- Journals
- KWL Chart
- Newspaper Headline
- Outline
- Question Stems
- Quickwrite
- Quizzes
- Red Light, Green Light
- Self- assessments
- Socratic Seminar
- Study Guide
- Teacher Observation Checklist
- Think, Pair, Share
- Think, Write, Pair, Share
- Thumbs up
- Top 10 List
- Unit tests
- envision-Vision 2.0
- envision-Vision 2.0 Digital Resources


## Ancillary Resources

New Jersey Center for Teaching and Learning: www.njctl.org

PARCC site: $\quad$ www.parcconline.org

Khan Academy:
www.khanacademy.org
http://www.mathworksheets4kids.com/activities/4th-grade.html
http://www.education.com/worksheets/fourth-grade/math/
http://www.math-drills.com/privacy.php
http://www.internet4classrooms.com/printables/common_core/math_mathematics_4th_fourth_grade/
http://imathworksheets.com/geometry-worksheets-2complementary-angles-worksheets/volume-worksheets/volume-of-a-rectangular-prism/
http://illuminations.nctm.org/Search.aspx?view=search\&type=1s\&gr=3-5
http://www.math-aids.com/
http://www.mathworksheetsland.com/
http://www.mathsisfun.com/worksheets/multiplication.php
http://www.softschools.com/mathg.jsp
http://interactivesites.weebly.com/addition.html
http://www.worksheetworks.com/math/geometry/measuring-figures/volume.html
http://www.math-salamanders.com/equivalent-fractions-worksheet.html
http://www.printable-math-worksheets.com/multiplication-array.html

