Unit 4: Measurement and Data

Content Area: **Mathematics**
Course(s): **Mathematics - Grade K**
Time Period: **March**
Length: **6 weeks**
Status: **Published**

Unit Overview

This unit includes measuring objects by length and weight as well as comparing those attributes to determine which object has more/less of that attribute. Students will also classify objects into categories and sort those objects to find groups and record data. Within the unit there will be a focus on visual tools and problems solving as students touch on cross curricular connections in Chapter 8 outdoor nature activities and camping and Chapter 9 taking care of the environment and limiting waste.

At the end of Chapter 8, the middle of Unit 4 (mid-March), the second benchmark, Benchmark 3, should be administered. This benchmark includes Chapters 6-8. See attachment in summative assessment.

Transfer

Students will be able to independently use their learning to...

- group objects by similarities in size, shape, and color
- determine groups with larger or smaller quantities to sort in order
- examine objects to determine if the length or weight is more or less

Apply this in the real world setting as students may examine lines to determine which line is a longer or shorter wait based on length.

Apply this in organizational skills for sorting objects.

Apply this in the real world so they can link objects to previously developed schemata.

For more information, read the following article by Grant Wiggins.

http://www.authenticeducation.org/ae_bigideas/article.lasso?artid=60

Meaning

Understandings

Students will understand that all objects have attributes that can help you compare and contrast, sort, and record information about those objects in an organized way that can be used as an easy reference.

Essential Questions

Students will keep considering...

- How do I describe objects and compare objects by length, height, weight, and capacity?
- What are different ways to sort objects?

Application of Knowledge and Skill

Students will know...

- how to compare length, height, weight and capacity using objects or pictures.
- how to visually sort objects that are the same/different.
- how to categorize objects.
- how to sort by size, shape and count

Students will be skilled at...

- comparing objects by length.
- use pictures or models to determine height, weight and/or capacity.
- observe a group of objects and decide which are alike/different.
- observe objects or pictures and put objects in groups based on given attributes (size, shape, count).

Academic Vocabulary

Chapter 8:

- capacity
- heavier
- height
- holds less
- holds more
- length
- lighter
- longer
- shorter
- taller
- weight

Chapter 9:

- alike
- different
- shape
- size
- sort

Chapter 8 (L 1, 2, 4, 6) [Level of Difficulty 2]

Daily Target: SWBAT use direct comparrison to compare the ___*_____ of objects.

*Insert appropriate attribute based on lesson (see below)

- Chapter 8 Lesson 1: Length
- Chapter 8 Lesson 2: Height
- Chapter 8 Lesson 4: Weight
- Chapter 8 Lesson 6: Capacity

MA.K-12.1	Make sense of problems and persevere in solving them.
MA.K-12.2	Reason abstractly and quantitatively.
MA.K-12.3	Construct viable arguments and critique the reasoning of others.
MA.K-12.4	Model with mathematics.
MA.K-12.5	Use appropriate tools strategically.
MA.K-12.6	Attend to precision.
MA.K-12.7	Look for and make use of structure.
MA.K-12.8	Look for and express regularity in repeated reasoning.
MA.K.MD.A	Describe and compare measurable attributes.
MA.K.MD.A.1	Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.
MA.K.MD.A.2	Directly compare two objects with a measurable attribute in common, to see which object has “more of”/“less of” the attribute, and describe the difference.

Chapter 8 (L 3) [Level of Difficulty 3]

Daily Target: SWBAT use the guess, check, and revise method of problem solving to solve critical thinking problems.

MA.K-12.1	Make sense of problems and persevere in solving them.
MA.K-12.3	Construct viable arguments and critique the reasoning of others.
MA.K-12.5	Use appropriate tools strategically.
MA.K.MD.A	Describe and compare measurable attributes.
MA.K.MD.A.1	Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.
MA.K.MD.A.2	Directly compare two objects with a measurable attribute in common, to see which object has “more of”/“less of” the attribute, and describe the difference.

Chapter 8 (L 5) [Level of Difficulty 3]

Daily Target: SWBAT describe measurable attributes of a given object.

MA.K-12.1	Make sense of problems and persevere in solving them.

MA.K-12.3	Construct viable arguments and critique the reasoning of others.
MA.K-12.4	Model with mathematics.
MA.K-12.5	Use appropriate tools strategically.
MA.K-12.6	Attend to precision.
MA.K-12.7	Look for and make use of structure.
MA.K.MD.A	Describe and compare measurable attributes.
MA.K.MD.A.1	Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.
MA.K.MD.A.2	Directly compare two objects with a measurable attribute in common, to see which object has “more of”/“less of” the attribute, and describe the difference.

Chapter 9 (L 3, 4, 5) [Level of Difficulty 2]

Daily Target: SWBAT sort objects into groups by ____*___.

*Insert appropriate sorting category (see below).

- Chapter 9 Lesson 3: Size
- Chapter 9 Lesson 4: Shape
- Chapter 9 Lesson 5: Count

MA.K-12.1	Make sense of problems and persevere in solving them.
MA.K-12.2	Reason abstractly and quantitatively.
MA.K-12.3	Construct viable arguments and critique the reasoning of others.
MA.K-12.4	Model with mathematics.
MA.K-12.5	Use appropriate tools strategically.
MA.K-12.6	Attend to precision.
MA.K-12.7	Look for and make use of structure.
MA.K-12.8	Look for and express regularity in repeated reasoning.
MA.K.MD.B	Classify objects and count the number of objects in each category.
MA.K.MD.B.3	Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.

Chapter 9 (L 1) [Level of Difficulty 1]

Daily Target: SWBAT identify objects that are alike and objects that are different.

MA.K-12.1	Make sense of problems and persevere in solving them.
MA.K-12.3	Construct viable arguments and critique the reasoning of others.
MA.K-12.4	Model with mathematics.
MA.K-12.6	Attend to precision.

MA.K.MD.B	Classify objects and count the number of objects in each category.
MA.K.MD.B.3	Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.

Chapter 9 (L 2) [Level of Difficulty 3]

Daily Target: SWBAT use logical reasoning to solve problems.

MA.K-12.1	Make sense of problems and persevere in solving them.
MA.K-12.3	Construct viable arguments and critique the reasoning of others.
MA.K-12.5	Use appropriate tools strategically.
MA.K-12.6	Attend to precision.
MA.K.MD.B	Classify objects and count the number of objects in each category.
MA.K.MD.B.3	Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.

Formative Assessment and Performance Opportunities

- Check my progress assessment
- Homework
- On My Own LEVELED
- Problem Solving Pages
- Reteach
- Enrich
- Center Work
- Math Meeting

Chapter 8 Performance Task: **Let's Go to the County** DOK 2, DOK 3 - SW compare objects by height, length, capacity, and weight (Rubric in TM pg. 530PT2)

Chapter 9 Performance Task: **A Visit to the Garden Center** DOk2, DOK3, DOK4 - SW describe and compare objects by height, length, and weight (Rubric in TM pg. 574PT2)

Chapter 10 Performance Task: **Animals Everywhere Around Us** DOK 2, DOK 3, DOK4- SW use related terms like "above," "below," "behind," "in front of," "next to," "beside," to describe positions of objects (Rubric in TM pg. 612PT2)

Chapter Projects Available in Student Book:

Chapter 8 Project: Measuring Me (pg. 480)

Chapter 9 Project: Sort Classroom Objects (pg. 532)

Chapter 10 Project: My Position Book (pg. 576)

Summative Assessment

- Leveled Chapter Assessment
- E-assessment
- Oral Assessment

21st Century Life and Careers and Technology

CRP.K-12.CRP1	Act as a responsible and contributing citizen and employee.
CRP.K-12.CRP1.1	Career-ready individuals understand the obligations and responsibilities of being a member of a community, and they demonstrate this understanding every day through their interactions with others. They are conscientious of the impacts of their decisions on others and the environment around them. They think about the near-term and long-term consequences of their actions and seek to act in ways that contribute to the betterment of their teams, families, community and workplace. They are reliable and consistent in going beyond the minimum expectation and in participating in activities that serve the greater good.
CRP.K-12.CRP2	Apply appropriate academic and technical skills.
CRP.K-12.CRP2.1	Career-ready individuals readily access and use the knowledge and skills acquired through experience and education to be more productive. They make connections between abstract concepts with real-world applications, and they make correct insights about when it is appropriate to apply the use of an academic skill in a workplace situation.
CRP.K-12.CRP4	Communicate clearly and effectively and with reason.
CRP.K-12.CRP4.1	Career-ready individuals communicate thoughts, ideas, and action plans with clarity, whether using written, verbal, and/or visual methods. They communicate in the workplace with clarity and purpose to make maximum use of their own and others' time. They are excellent writers; they master conventions, word choice, and organization, and use effective tone and presentation skills to articulate ideas. They are skilled at interacting with others; they are active listeners and speak clearly and with purpose. Career-ready individuals think about the audience for their communication and prepare accordingly to ensure the desired outcome.
CRP.K-12.CRP5	Consider the environmental, social and economic impacts of decisions.
CRP.K-12.CRP5.1	Career-ready individuals understand the interrelated nature of their actions and regularly make decisions that positively impact and/or mitigate negative impact on other people, organization, and the environment. They are aware of and utilize new technologies, understandings, procedures, materials, and regulations affecting the nature of their work as it relates to the impact on the social condition, the environment and the profitability of the organization.
CRP.K-12.CRP6	Demonstrate creativity and innovation.
CRP.K-12.CRP6.1	Career-ready individuals regularly think of ideas that solve problems in new and different ways, and they contribute those ideas in a useful and productive manner to improve their organization. They can consider unconventional ideas and suggestions as solutions to issues, tasks or problems, and they discern which ideas and suggestions will add greatest value. They seek new methods, practices, and ideas from a variety of sources and seek to apply those ideas to their own workplace. They take action on their ideas and understand how to bring innovation to an organization.

CRP.K-12.CRP8	Utilize critical thinking to make sense of problems and persevere in solving them.
CRP.K-12.CRP8.1	Career-ready individuals readily recognize problems in the workplace, understand the nature of the problem, and devise effective plans to solve the problem. They are aware of problems when they occur and take action quickly to address the problem; they thoughtfully investigate the root cause of the problem prior to introducing solutions. They carefully consider the options to solve the problem. Once a solution is agreed upon, they follow through to ensure the problem is solved, whether through their own actions or the actions of others.
CRP.K-12.CRP12	Work productively in teams while using cultural global competence.
CRP.K-12.CRP12.1	Career-ready individuals positively contribute to every team, whether formal or informal. They apply an awareness of cultural difference to avoid barriers to productive and positive interaction. They find ways to increase the engagement and contribution of all team members. They plan and facilitate effective team meetings.
CAEP.9.2.4.A.4	Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success.
TECH.8.1.2.D	Digital Citizenship: Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.
TECH.8.1.2.D.CS1	Advocate and practice safe, legal, and responsible use of information and technology.
TECH.8.1.2.E	Research and Information Fluency: Students apply digital tools to gather, evaluate, and use information.
TECH.8.1.2.E.1	Use digital tools and online resources to explore a problem or issue.

Accommodations & Modifications

- preteach and/or reteach
- small group instruction or one-on-one (parent volunteer)
- manipulatives whenever necessary (hands-on approach)
- using real-life objects (ruler, scale, objects to measure, connecting cubes)

- "act it out" approach
- allow a student to use a highlighter to trace larger numbers
- sing songs/dance to reinforce or introduce skills
- For vocabulary reinforce, have students "choral respond" (for ex: teacher says sentence aloud; students repeat it to a peer)

Unit Resources

McGraw-Hill: My Math Teacher Manual

McGraw-Hill: My Math Student Edition and student resources

McGraw-Hill: My Math Center cards and manipulatives

McGraw-Hill Website

Illustrative Mathematics

ST Math Puzzles: Measurable Attributes, Reasoning with Attributes

Interdisciplinary Connections

Real-World Problem Solving Readers

- *Bigger or Smaller?* (Teacher Edition pages 3, 17-18) - Presents understanding in describing and comparing measurable attributes in the real-world (K.MD.2)
- *Our Country* (Teacher Edition pages 8, 27-28) - Presents understanding in describing and comparing measurable attributes while learning about our country (K.MD.1)

K-ESS3-1.2	Modeling in K–2 builds on prior experiences and progresses to include using and developing models (i.e., diagram, drawing, physical replica, diorama, dramatization, storyboard) that represent concrete events or design solutions.
K-ESS3-1.2.1	Use a model to represent relationships in the natural world.