

MEASURING THE CLASSROOM
Math

Grades: K-1

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Acceleration Approach

Standard has been accelerated by moving grade level K/1 up to the standard used for grade level 2.

K	1	2	3	4	5	6	7	8	9	CIM	CRLS/ CAM yes
				→							

Organizing Overarching Concept (e.g. systems, patterns of change, models, scales)
Scale

Organizing Higher Order Skills (e.g. Bloom’s, Paul’s Model of Reasoning)
Paul’s model of Reasoning: Problem Solving/Interpretation of data

Differentiation Features - Students:

- Fewer tasks assigned to master standard of learning
- Use multiple higher-level skills
- Student conducts original research
- Provided alternatives for tasks, products, and assessments

COMMON CURRICULUM GOAL

Math-Units and Tools

Understand measurable attributes of objects and the units, systems and processes of measurement.

GRADE LEVEL STANDARDS

Math-Units and Tools

2nd Grade – Select an appropriate tool and standard unit to measure length, weight and capacity (volume) of objects longer than the unit tool (e.g., ruler, measuring cup, balance.)

10th Grade – Determine the appropriate units, scales, and tools appropriate for problem situations involving measurements.

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Archetypal Model

Using non-standard units of measurement determine the length of _____ (amount of) objects. Student will record, interpret, and make decision concerning approximations of non-standard units of measurement.

After students determine the length of various items, they will explain why all measurements are approximations and why results are different.

TASK DEMAND

Sample Task Activity

- Students will measure the objects listed on the Graphic Organizer *Student Record Sheet* using a meter stick, a shoe length and a unifix cub (or 1 cm cube.)
- Students will record the data on the Graphic Organizer *Student Record Sheet* in the appropriate columns.
- Students will compare and analyze why different units of measure are needed for measuring different objects.
- Students will determine which units of measurement are most accurate for the items they measured through a group discussion.

Note: Students are given an actual a cut-out a child's shoe.

Questions

- How many shoe lengths (meter sticks, unifix cubes) did it take to measure _____?
- Which unit of measure was the easiest to use and why?
- What observations can be made from the results?

Implementation Time

- Two 45- minutes class periods.

Books

Douglas, V. (1993). *Math Grade 2*. Scott Foresman Addison Wesley Pub.

Burns, M. (1993). *About teaching mathematics*. New York: Addison Wesley Longman, Inc.

Head, D, Pollett L, and Arcidiacono, J. *Opening eye to mathematics: grades 3-4*. Salem, OR: Math Learning Center Pub.

Nitschneider, B. (1996) *Weekly puzzlers: grade 3*. Ideal School Supply Co.

Foreman, L. *Starting points visual math*. Salem, OR: Math Learning Center Pub.

CSMP Comprehensives School Math Program, Sopris Institute.

Serra, M. (1997) *Discovering geometry: An inductive approach*. Key Curriculum Press.

Reggio, (1997) *Children's measurement first approach to discovery of measurement*.

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The editor used the internet for many resources listed in this document. The listed books and internet sites should be reviewed and evaluated by the teacher before using.

Scoring Guide	6 Exemplary	5 Proficient	4 Strong	3 Developing	2 Emerging	1 Beginning
Students will be able to:						
Select an appropriate standard unit of measure						
Explain different units of measure that results in different numerical measures.						
Demonstrate the use of a non-standard unit of measure to accurately report the number of units.						

GRAPHIC ORGANIZER
STUDENT RECORD SHEET

Grades: K-1

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Name _____ Date _____

Name of Object	How many meter lengths?	How many shoe lengths?	How many unifix cubes or 1 com wooden block?
1. Math book			
2. Long edge of teacher's desk			
3. Chalk or white board tray			
4. Height of classroom door			
5. Unsharpened pencil			
6. One leg of a student's chair			
7. New piece of chalk			
8. Small paper clip			
9. Longest wall of classroom			
10. 30 cm straightedge			

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TAG NEEDS ADDRESSED

INTELLECTUALLY GIFTED	ACADEMICALLY TALENTED MATH	CAREER RELATED LEARNING STANDARDS FOR CAM - Certificate of Advanced Mastery	TEACHER CHECKS THE BENCHMARK LEVEL STUDENT IS PURSUING
<input type="checkbox"/> Advanced Critical Reasoning <input type="checkbox"/> Scholarly Interaction <input checked="" type="checkbox"/> Continuous Progress for Level and Rate* <input type="checkbox"/> Challenging Resources <input type="checkbox"/> Effecting Change <input type="checkbox"/> Decision Making; Ethical Use of Influence <input type="checkbox"/> Leadership Training/Career <input type="checkbox"/> Realistic Goal Setting <input type="checkbox"/> Regular Interaction with Intellectual Peers <input type="checkbox"/> Social-Emotional Issues; Support; Coping Strategies <input type="checkbox"/> Advanced Academic Planning <input type="checkbox"/> Opportunity for Competition/ Failures/Successes <input type="checkbox"/> Creative Problem Solving with Real Problems/Audience <input type="checkbox"/> Pursuit of Advanced Level Research <input type="checkbox"/> Advanced Vocabulary Development	<input type="checkbox"/> Advanced Creative Thinking in Math <input checked="" type="checkbox"/> Continuous Progress/Level and Rate* in Math <input type="checkbox"/> Challenging Math Resources <input type="checkbox"/> Creative Problem Solving Strategies in Math <input type="checkbox"/> Math Advanced Vocabulary Development <input type="checkbox"/> Leadership Training/Career <input type="checkbox"/> Decision Making; Ethical Use of Influence <input type="checkbox"/> Regular Interaction with Talented Math Peers <input type="checkbox"/> Realistic Goal Setting <input type="checkbox"/> Opportunity for Competition/Failures/ Successes <input type="checkbox"/> Advanced Academic Planning in Math	<input checked="" type="checkbox"/> Personal Management <input checked="" type="checkbox"/> Problem Solving <input checked="" type="checkbox"/> Communication <input type="checkbox"/> Teamwork <input type="checkbox"/> Employment Foundations <input type="checkbox"/> Career Development	<p>Math:</p> <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> CIM <input type="checkbox"/> CAM
<p>* Rate requires monitoring to ensure that the student was allowed to move ahead upon acquiring concepts.</p>			
<p>Student _____ Grade _____</p>			
<p>Teacher _____ School _____</p>			
<p>Date Initiated _____ Date Completed _____</p>			
<p>Check TAG Identification category: <input type="checkbox"/> Intellectual <input type="checkbox"/> Academic Math <input type="checkbox"/> Academic LA</p>			