Measurement
Activity 1: Dinner Time

Learning Objectives related to Curriculum: Understand the concept of time, order events, and solve problems using time M-47, M-50, M-53	Number of Students: 1 or small group working together
Resources/Materials: Pencil and paper for recording times Clock Measurement Task Card	Activity Description: A task card gives the description of a meal that is to be prepared and the cooking time for each food. If all the foods are supposed to be ready at the same time, when does each food need to be started?
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CELS: Numeracy, Critical and Creative Thinking, Communication if working in a group	Adaptation/Variation/Extension: To make this activity more difficult, a question could be designed where foods are supposed to be ready at different times, rather than the same time. Another possibility to make it more difficult would be to do the activity WITHOUT a clock.
Evaluation: self assessment anecdotal records performance assessment - notebook	Reflection/Additional Comments This may be a good activity to work in as a pair or small group, perhaps with one student reading the question, one recording, and one using the given clock.

Measurement
Activity 2: Body Parts

Learning Objectives related to Curriculum:	Number of Students: Measure alone, compare with classmates
Length: Measuring length of body parts in centimeters and making comparisons of length	
Resources/Materials: Pencil and paper for recording lengths String Source Acknowledgment: Adapted from Cathcart, W., Pothier, Y., James, H. Learning Mathematics in Elementary and Middle Schools, Second Edition, 1997. All rights reserved. Used by permission of Allyn & Bacon. Reproduction of material without written permission from the publisher is prohibited.	Activity Description: 1. Use string to measure around your waist, your neck, and your wrist. Cut pieces of string matching these lengths. 2. Compare the pieces of string. How many wrist lengths are as long as a neck length? How many wrists make a waist? 3. Now measure the pieces of string with a meter stick and record your findings on the paper provided. Try to get the measurements from a number of classmates. 4. Can you see a relationship among these measurements for people?
CELS: Numeracy, Critical and Creative Thinking, Personal and Social Skills	Adaptation/Variation/Extension: If it is difficult to do the measuring alone, work with a partner. * Have a partner measure your height and your arm span. If the measurements are equal, you are a square. If they are not equal you are a rectangle!
Evaluation: self assessment anecdotal records performance assessment - notebook	Reflection/Additional Comments If a number of people do this activity, the results could be displayed and analyzed using graphing techniques.

Measurement
Activity 3: Perimeter and Area

Learning Objectives related to Curriculum: Perimeter, Area: Use blocks to design shapes according to the specifications for area and perimeter. M-8, M-13	Number of Students: One or small group working together

Resources/Materials: Task card showing designs to build Blocks	Activity Description: 1. Look at the designs (task card) and build them with the blocks. 2. Change each one to make a new one with the same area, but a shorter perimeter. 3. Change each to make a new design that has the same area and perimeter but a different shape. 4. Remove a block so that each perimeter is greater than it was. 5. Make a design that has an area of 6 square units and:
	      a) and a perimeter of 14 units
	      b) a perimeter of 12 units
	      c) a perimeter of 10 units.
	6. Which of your designs would you recommend for the shape of a swimming pool?

CELS: Numeracy, Critical and Creative Thinking, Personal and Social Skills, Communication (if working in a group)	Adaptation/Variation/Extension: Have students work with a partner to give each other area and perimeter problems to solve using the blocks.
Evaluation: self assessment anecdotal records performance assessment - notebook learning contract	Reflection/Additional Comments This activity should be used after the concepts and terms of area and perimeter have been introduced. The block activity would reinforce learning and increase understanding of these concepts.

Measurement
Activity 4: Play Dough Measuring

Learning Objectives related to Curriculum:	Number of Students: Small groups of 2 or three (could also work alone)
Length, volume, review of perimeter Use play dough to estimate and check volume; measure lengths of various shapes and volumes of playdough; recognize relationships between length, width, area and volume. M-38	

Resources/Materials:	Activity Description:
Task cards Play dough or Plasticine	TASK 1 -Estimate 15 ml of playdough. Press it into a measure spoon to check. Form the dough into a cube. Measure the length of each edge of the cube.
	TASK 2 - Use 15 ml piece of play dough to form "snakes" of: 5 cm, 1.5 dm, 22 mm. Which snake is the fattest?
Source Acknowledgment: Reprinted with permission from <i>The Arithemic Teacher</i>, Volume 28, Number 7, copyright 1981 by the National Council of Teachers of Mathematics. All rights reserved.	TASK 3 - Draw two rectangles of a piece of scrap paper. Make one 6 cm x 4 cm and the other 7 cm by 2 cm. Mold a 15 ml piece of play dough to cover each of the rectangles. Which rectangle has the thickest covering?
	TASK 4 - Measure 30 ml of play dough. Make a "snake or rope" with the play dough, then bend it to form a square that is 4 cm on each side. What is the perimeter of the square?
	Make a rope and bend it into the shape of a triangle that is 6 cm on each side. What is the perimeter of the triangle?

CELS: Numeracy, Critical and Creative Thinking, Personal and Social Skills, Communication (groups)	Adaptation/Variation/Extension: Have students record more examples of problems for others to work on, or work on new problems themselves
Evaluation: self assessment anecdotal records performance assessment - notebook	Reflection/Additional Comments There may have to be some time allowed for "fun" manipulation of the materials, but after that play dough provides many opportunities for hands-on learning!

Measurement
Activity 5: Comparing Cylinders

<u>Learning Objectives related to Curriculum:</u> Volume: Compare surface area to volume using cylinders M-31	<u>Number of Students:</u> One or small cooperative group
<u>Resources/Materials:</u> Paper Styrofoam packing chips <u>Source Acknowledgment:</u> Adapted from Cathcart, W., Pothier, Y., James, H. Learning Mathematics in Elementary and Middle Schools, Second Edition, 1997. All rights reserved. Used by permission of Allyn & Bacon. Reproduction of material without written permission from the publisher is prohibited.	<u>Activity Description:</u> 1. Cut two pieces of paper 20 cm x 25 cm 2. Roll each sheet to form a cylinder, one 20 cm high and the other 25 cm high. 3. Tape the edges together and stand them on a flat surface. 4. Fill each with "packing popcorn" to compare volumes 5. Repeat with two papers different sizes. Can you figure out a rule?
<u>CELS:</u> Numeracy, Critical and Creative Thinking	<u>Adaptation/Variation/Extension:</u> Have students make shapes other than cylinders to fill with packing chips (or popcorn)
<u>Evaluation:</u> self assessment anecdotal records performance assessment - notebook	<u>Reflection/Additional Comments</u> Although packing chips do not give an accurate measurement of volume, the point of this activity is the relationship between surface area, (length, width, height) and volume.

Measurement
Activity 6: Estimating Length

<u>Learning Objectives related to Curriculum:</u> Estimating Length and deciding which unit of measurement to use and which instrument to measure with to check the estimation. M-9	<u>Number of Students:</u> One or small cooperative group
<u>Resources/Materials:</u> Chart (supplied) to record estimations and measurements Objects to measure Task card with other items to estimate and measure	<u>Activity Description:</u> 1. Beginning with the objects in the bag, complete the chart using estimation and measurement. Decide which units to use (cm, mm, etc.) and use an appropriate measuring device (ruler, classroom meter stick) 2. When you have estimated and measured the items in this bag, think of your own items to add to the chart or use the following: a) the width of your desk b) the height of the teacher's desk c) the width of the doorway d) the height of a locker e) the width of a window frame
<u>CELS</u>: Numeracy, Critical and Creative Thinking, Personal Social Values and Skills	<u>Adaptation/Variation/Extension:</u> Extend by having students make their own list of items to measure and/or estimate more complex measurements (distance around the school, distance across school yard, etc.)
<u>Evaluation:</u> self assessment anecdotal records performance assessment - notebook	<u>Reflection/Additional Comments</u> An additional activity would be to estimate types of measurement other than length as well - volume, angles, area, etc. - and then find the actual measurements.