

Tips for Helping at Home

- Questions to ask:

What is it that you don't understand (have the student be specific)?

What about putting things in order?

Could you try it with simpler numbers?

Can you guess and check?

Does this make sense?

What can you do to explain your answer to show others what you are thinking?

Does your answer seem reasonable?

- Encourage your child to estimate and measure distances. Typical questions that might come up at home include these:

How far is it across our kitchen table - and can we reach that far?

How many children can sit comfortably on our couch? How many adults?

Will the extra bookcase really fit in the kids' bedroom?

- Here's how you can help during this unit:

Listen to your child's strategies for measuring.

Involve your child in your own measuring activities - hobbies like sewing, or carpentry are natural for this.

Work together on the measurement activities your child brings home.

Mathematical Emphasis

Investigation 1: Measuring with Paces and Steps

- Using a non-standard unit to measure a distance
- Estimating length in "paces" by visualizing the unit "pace" repeated over a distance
- Comparing the effects of measurement using units of different size
- Analyzing data by describing their shape and pattern; interpreting the meaning of certain landmarks in the data (e.g., "what is typical?")
- Writing and following instructions that specify the number of paces and the direction of turns

Investigation 2: From Paces to Feet

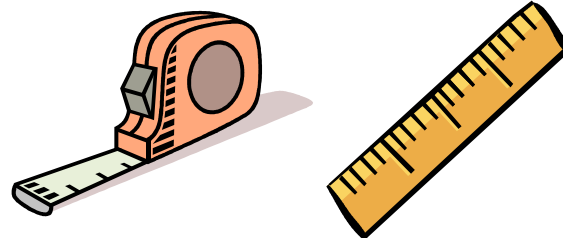
- Understanding the rationale for a standard measure
- Developing competence at measuring with inches, feet, and yards
- Developing familiarity with centimeters and meters
- Representing the data that involve measurements

Investigation 3: Measuring Project: Do Our Chairs Fit Us?

- Using standard measures (either metric or U.S. Standard) in more complex situations in order to gather and analyze data concerning size and proportions
- Collecting, organizing, representing, and analyzing data

Websites

<http://cms.everett.k12.wa.us/math/Third Grade>



Grade 3

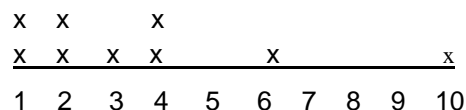
From Paces to Feet

Measuring and
Data



Vocabulary

Line plot - quick way to show the shape of data



Non-standard unit - using paces, paper clips, pencils, etc.

Standard U.S. units - inch, foot, yard

Metric units - centimeter, meters

Conversions:

12 inches = 1 foot

36 inches = 3 feet = 1 yard

100 centimeters = 1 meter

Abbreviations:

inch - in.

foot - ft.

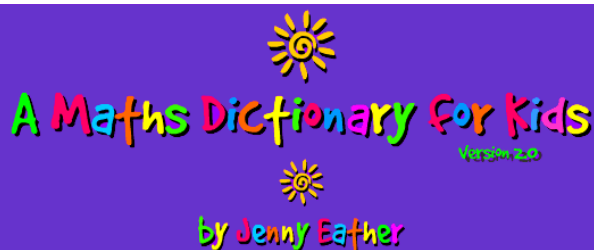
yard - yd.

centimeter - cm



Glossary

<http://www.amathsdictionaryforkids.com/>



Using Measuring Tools

Measuring seems simple enough, but for elementary students it can pose a real challenge. Even though students can do measurement worksheets and manipulate measurement data on paper, they may not have had much experience using rulers and other measuring tools. Students who have done wood-working, who have built things at home, who have played with and built models (including dollhouses) will be the most expert at these activities. They have some physical experience to draw from - they are familiar with tools and know how to use them, and they may have internalized the sizes of the measurement units.

Some predictable mechanical and conceptual problems can arise. For example:

- The need to line up the ruler at zero is not always obvious.
- Students may start from the wrong end when they pick up and move a ruler.
- They may combine units, using both metric and U.S. Standard systems.
- They may not notice that their "yardstick" is in fact a meter stick.

All these depend to some degree on prior measurement experience.

A vital part of their learning is the opportunity to discuss reasonableness of their measurements, to measure several times, and to correct their measuring mistakes. When students feel the results matter, they become much more precise.



Economopoulos, K. Investigations in Number, Data, and Space: From Paces to Feet. Dale Seymour Publications, 1998.

Game

Cover 50

Materials: 2 -100 charts

Make one set of number squares, 2 - 50, by cutting one of the 100 charts (remove the 1 and underline the 6 and 9)

Place squares in an envelope or plastic bag

Players - 2, 3, or 4

How to Play:

1. Place the game board in the center of play. Each player draws ten number squares out of the envelope or bag
2. Players arrange the number squares face up in front of them. Each player should be able to see everyone's number squares.
3. The player with the smallest number begins. This player calls out any factor.
4. Players search their number squares for multiples of the named factor. Players then place these number squares over the same number on the board.
5. Players take turns calling out factors and placing multiples of that factor on the game board.
6. The game ends when a player has no more number squares.

