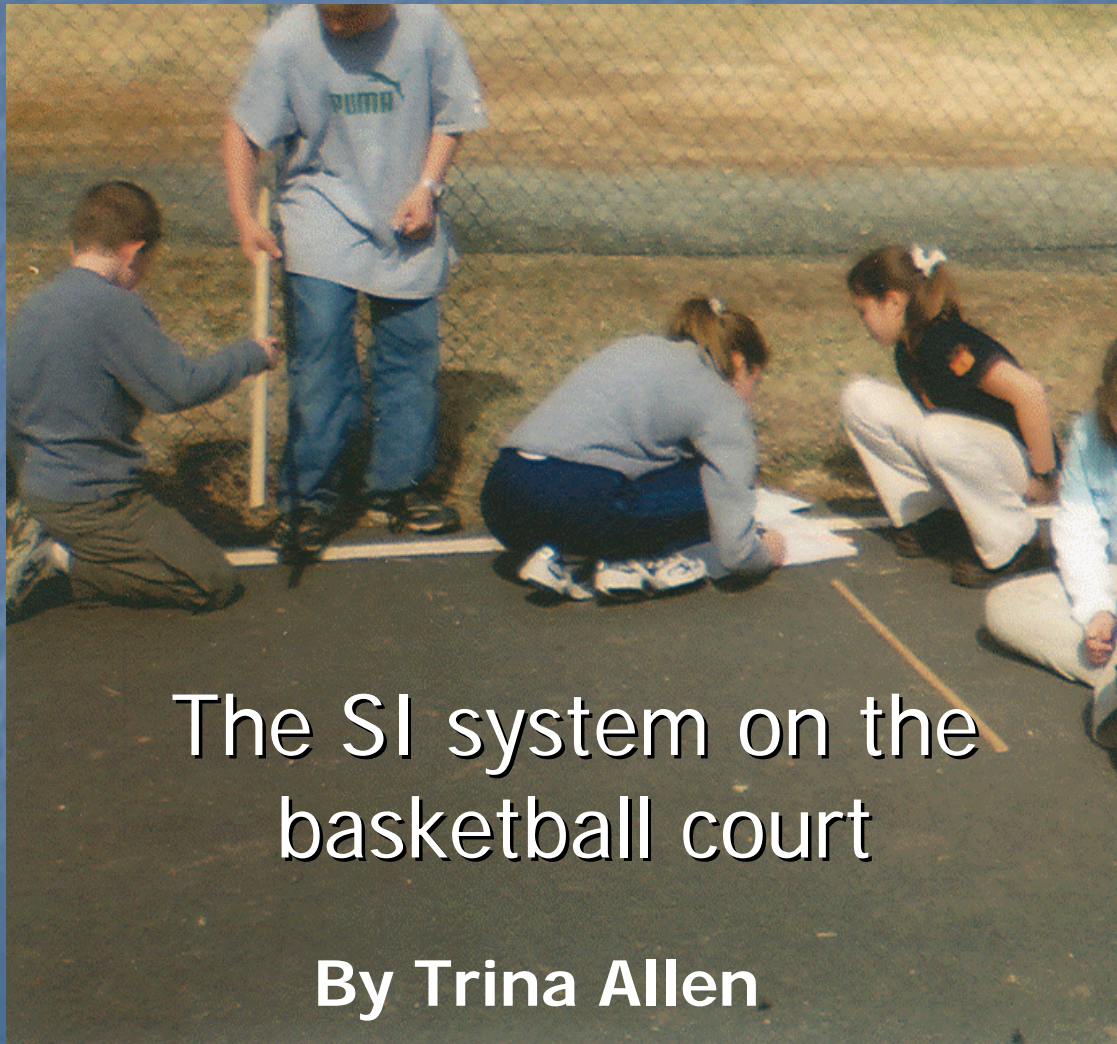


Background for Interdisciplinary Science Experience



The SI system on the
basketball court

By Trina Allen

Nonstandard Units

Before we had customary and metric units people measured various things with their body parts.

Examples:

How many **hands** tall is the horse you are buying?

One yard of fabric is the distance from your thumb to your nose.

Nonstandard Units

- **finger**- the width across your first finger
- **hand**- the width across your hand with your fingers together.
- **cubit**- length of your arm from the end of your middle finger to your elbow

Nonstandard Units

- **pace**- length of a step or stride
- **fathom**- distance from fingertips of left hand to right hand with arms outstretched
- **inch**- distance from the tip of your thumb to the first knuckle.

Nonstandard Units

- **yard**- distance between thumb and nose with hand extended (stretched out)
- **span**- distance between the tips of the thumb and little finger with hand extended (spread apart)

Procedure

- Measure the classroom objects and record on the class data table.



Prediction

- Will each student's measurements of classroom objects be the same?



Table 1. Class Data from Nonstandard Units

Object	Unit	My measurement	Class Data
Textbook	Fingers		
Table	Hands		
Chair	Cubits		
Width of Classroom	Pace		
Length of classroom	Fathom		
Length of notebook paper	Inch		

Analyze

- 1. Was the class data the same as yours? Why?
- 2. Were the units chosen appropriate for each object you measured?
- 3. When might you use one of these units to take a measurement?
- 4. State one problem you found using these nonstandard units in measuring classroom objects.
- 5. Draw a diagram of yourself or your partner taking the measurements.

The International System of Units

Abbreviated SI



The International System of Units, or SI

The metric system is a nickname for the International System of Units, or SI.

The International System of Units, or SI

The name comes from the French *Systeme International d'Unites*.

The International System of Units or SI

The United States is one of the only nations that still uses the customary system.

WHY do you think we don't use the SI or metric system?



For each quantity you measure
there is a basic unit.

- When you measure **length** the unit is a **meter**.
- This is the length of a baseball bat.

Mass

- When you measure **mass** the unit is a **gram**.
- This is the **mass** of one paper clip.

SI units are related by
powers of ten.

LARGER THAN ONE METER

- 10 meters
- 100 meters
- 1 000 meters
- 10 000 meters
- 100 000 meters
- You could go on and on.

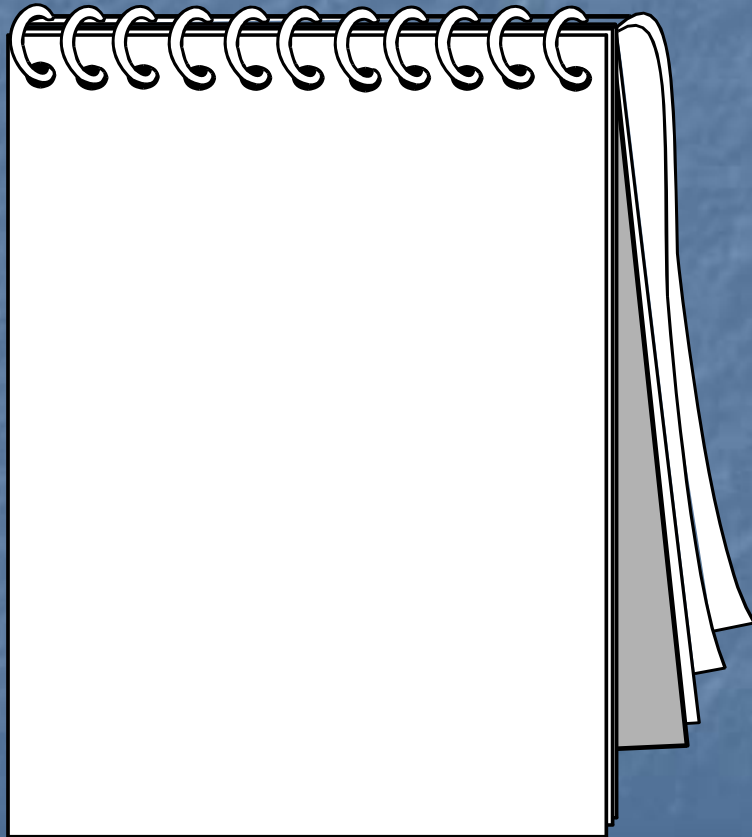
SMALLER THAN ONE METER DIVIDE BY TEN

- 0.1meter
- 0.01 meter
- 0.001 meter
- 0.0001 meter
- and so forth

You change the size of your unit by adding a prefix.

prefix	root word
centi	meter
milli	meter

List some words you know that have a prefix.



- mis spell
- re do
- pre test
- pre view
- re write

You want to measure something
smaller than a meter.



DECI

- decimeter

- dm

- $1/10$ or 0.01
of a meter

- size of a
crayon

Centi

- centimeter
- cm
- $1/100$ or 0.01 of a meter
- length of a staple
- Length of your fingernail

Milli

- millimeter
- mm
- $1/1000$ or 0.001 of a meter
- size of the tip of a sharpened pencil lead

What if you want to measure something bigger than one meter?



Deka

- dekameter

- 10 meters

- dkm

Hecto

- hectometer

- 100 meters

- hm

Kilo

- kilometer
- km
- length of nine football fields
- 1.61km ~ about 1 and $\frac{1}{2}$ km = 1 mile

Here are some conversions

- 1 000 mm = 1m
- 100 cm = 1 m
- 10 dm = 1m
- 10 m = 1 dam
- 100 m = 1 hm
- 1 000 m = 1 km

Here's a mnemonic device to help you.

KILO	HECTO	DEKA	UNIT	DECI	CENTI	MILLI
I	E	I		R	H	I
N	N	E		I	O	L
G	R	D		N	C	K
	Y			K	O	
				I	L	
				N	A	
				G	T	
					E	