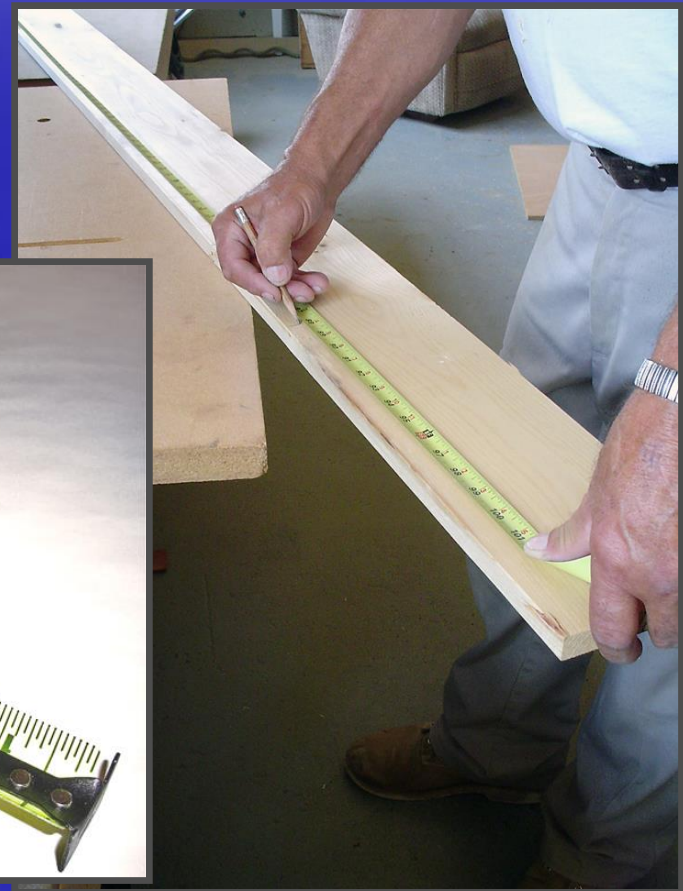# Strategies for Reading the Ruler

Background – World Wide

- Two main systems of measurement

  - Metric System
    - Based on the number 10

  - U.S. Customary System
    - Based on halving or doubling units

Background – World Wide

- **What countries besides the U.S. have not adopted the metric system?**

  - *All* countries have adopted the metric system, including the United States. However, in nearly all countries people still use traditional units. For a country to switch to metric is a process that happens over time. Only 3 countries in the world, have <u>not officially adopted metric as their primary system of measuring.</u>
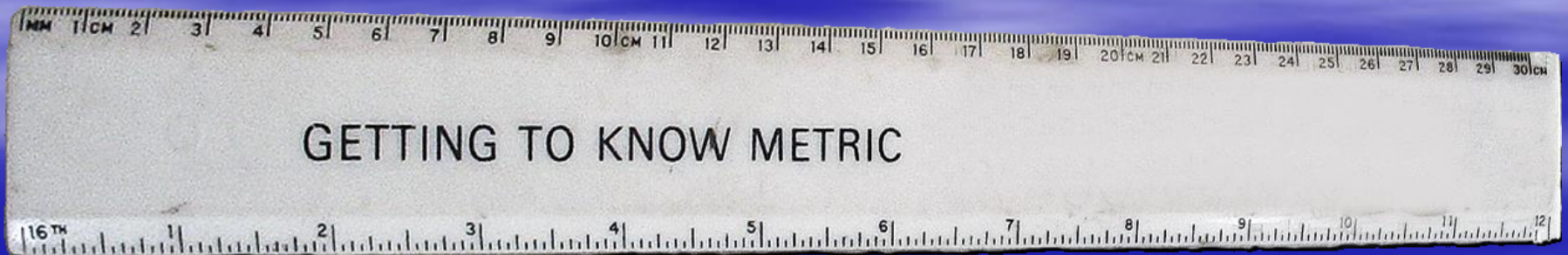
Background – World Wide

Myanmar
(formly known
as Burma)

United States

Liberia (Settled by
free-men and former
enslaved blacks after
America's Civil war.

Three countries have not officially adopted the International System of Units as their primary or sole system of measurement: Liberia, Myanmar, and the United States.

Background – United States

- The U. S. has switched to Metric with
  - Sporting Events - Olympics
  - Military
  - Medicine
  - Scientific studies

GETTING TO KNOW METRIC

Background – United States

- At this time, Manufacturing; Transportation; and Construction Industries; are primarily using the U.S. Customary system. In certain sectors, the conversion is obvious (i.e. – Automobiles). However, in these industry areas the changes have not been as complete.

- This is the reasoning for studying both measurement systems used in the United States.

Background – United States

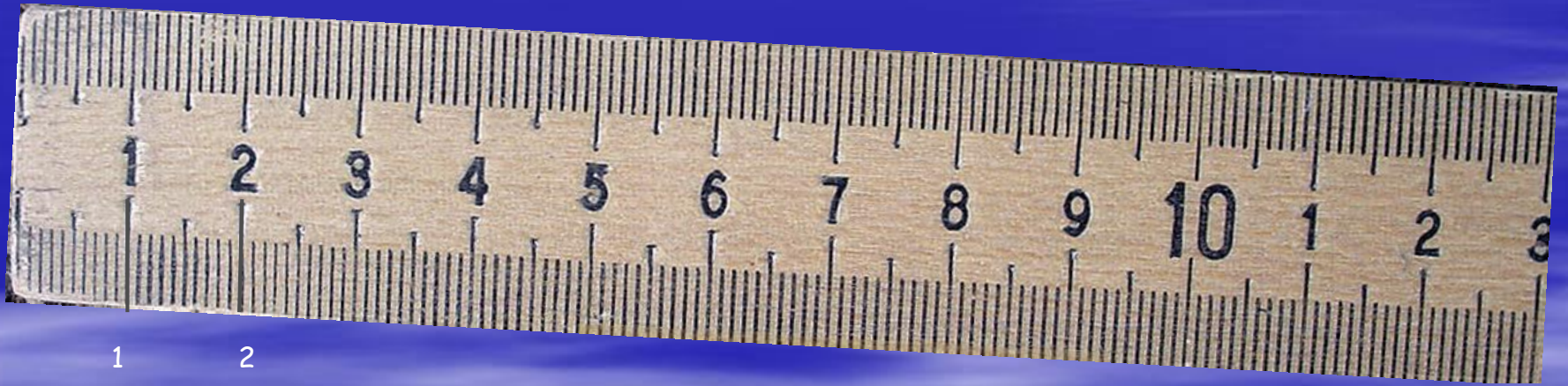- Devices that you can measure with- such as a ruler…….

Metric Details

Millimeters and Centimeters

10 millimeters = 1 Centimeter
10 Centimeters = 1 Decimeter

2 centimeters

Lets find this point!
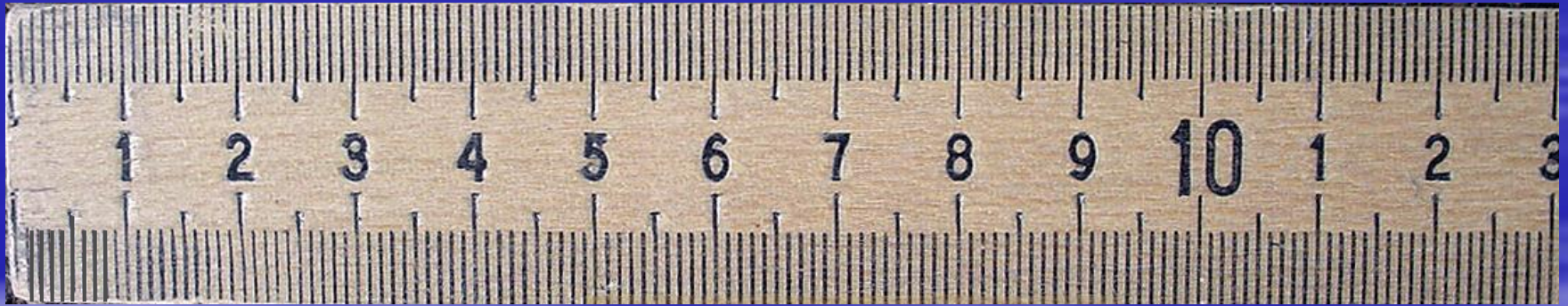
Metric Details

Millimeters and Centimeters

10 millimeters = 1 Centimeter
10 Centimeters = 1 Decimeter

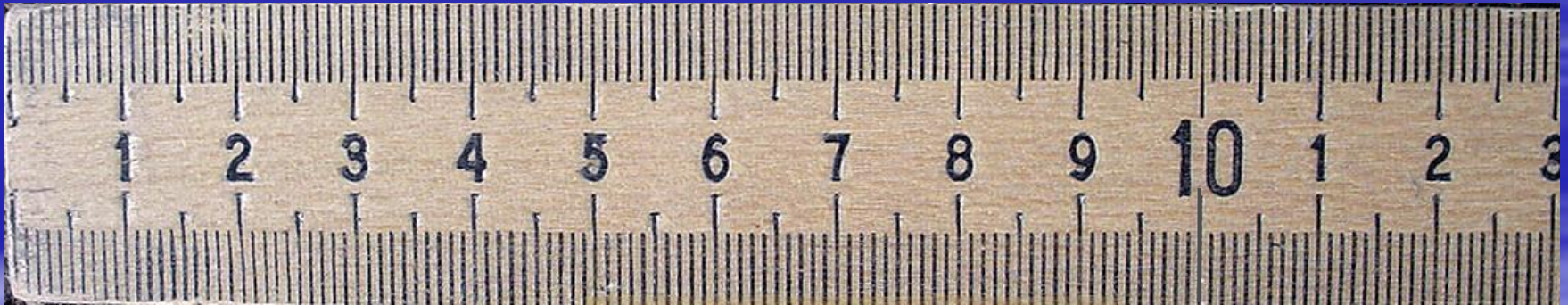

1
2
3   8
  6 7
3
4
5

8 millimeters

Lets find this point!

Metric Details

Millimeters and Centimeters

10 millimeters = 1 Centimeter
10 Centimeters = 1 Decimeter

1

10 Centimeters
or 1 Decimeter

Lets find this point!

U. S. Customary Details

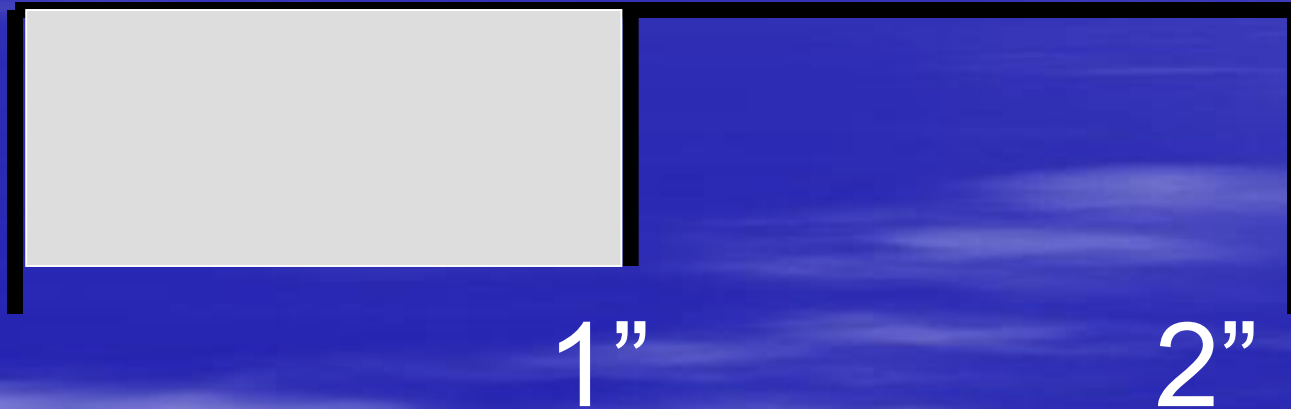- Name – U.S. Customary System
  - 12" in a Ruler
    - 12" = 1 foot

- The units of the ruler are:
  - 1/16" (smallest distance)
  - 1/8"
  - ¼"
  - ½"
  - One Inch
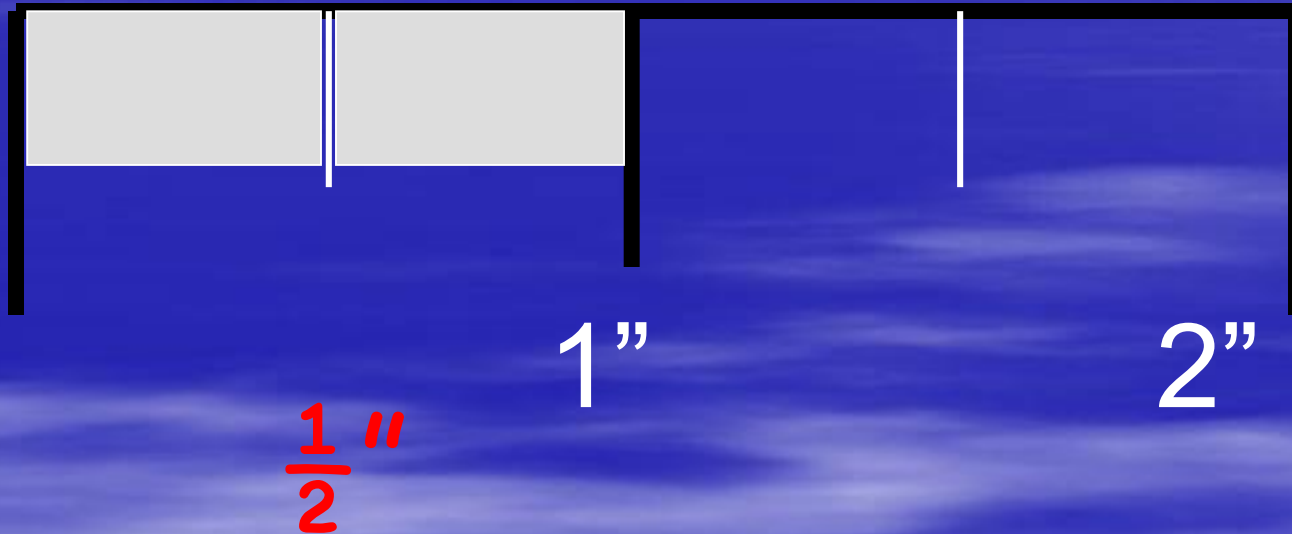 - One Foot (largest distance)

U. S. Customary Details

Inches (1") on a section of the ruler

1"   2"

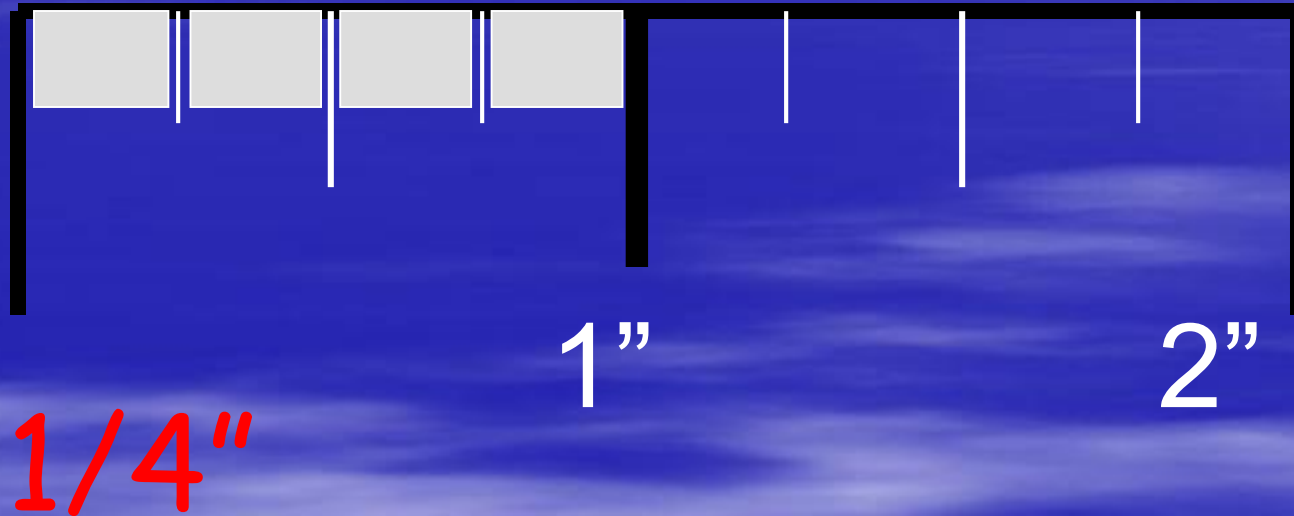Counted the space which equals the inch unit.

U. S. Customary Details

Half - Inches(1/2") on a section of the ruler

1"   2"

$\frac{1}{2}$ "

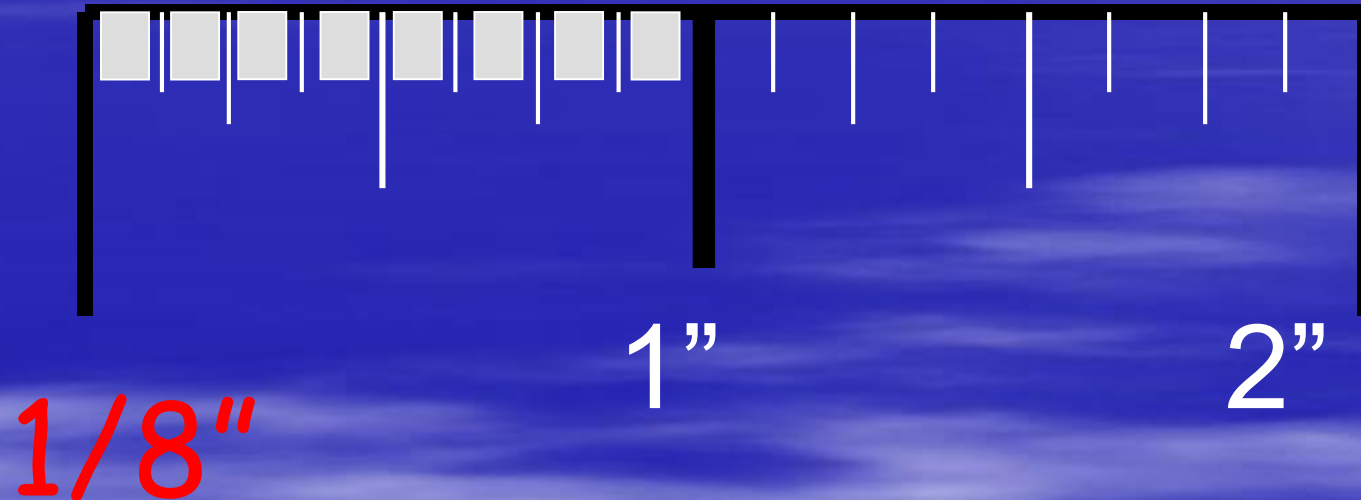1 of 2 parts in an inch

U. S. Customary Details

Fourth – (1/4") on a section of the ruler

1"   2"

1/4"

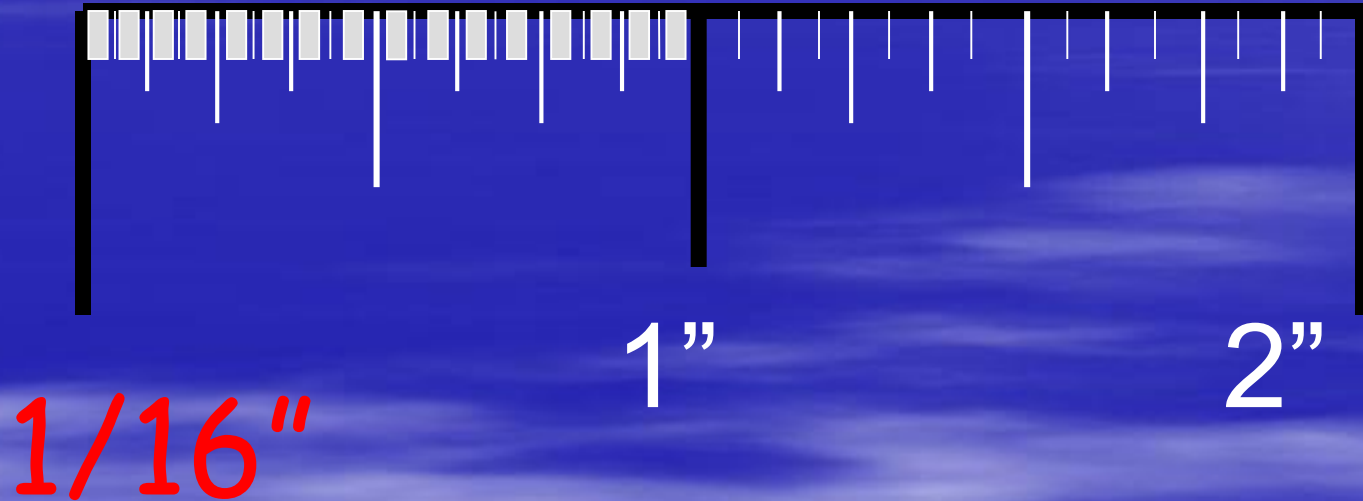1 of 4 parts in an inch

U. S. Customary Details

Eighth – (1/8") on a section of the ruler

1/8"

1"

2"

1 of 8 parts in an inch

U. S. Customary Details

Sixteenths – (1/16") on a section of the ruler

1/16"

1"

2"

1 of 16 parts in an inch

Strategies for reading the ruler

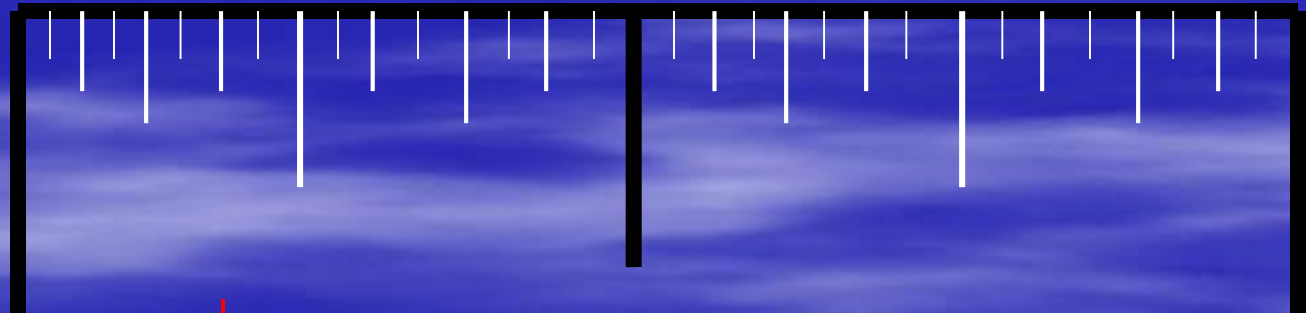- **TWO WAYS OF LEARNING**
  - Traditional & Patterns
  - Traditional
    - Fractions and reducing
    - Example – Count every line to that point then divide by an even number on the top and bottom if it needs reduced

Count to the whole number for the bottom of the fraction

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

$$\frac{6}{16} \div \frac{2}{2} = \frac{3}{8}$$

1"

2"

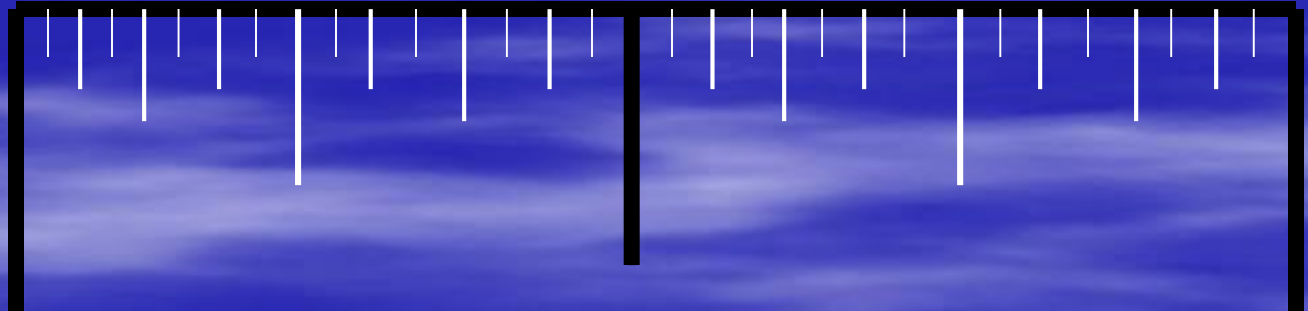Lets find this point!

Strategies for reading the ruler

- **TWO WAYS OF LEARNING**
  - Traditional
    - Fractions and reducing
    - Example – Count the lines then divide by an even number on the top and bottom if it needs reduced.

Count to the whole number for the bottom of the fraction

$$\frac{4}{16} \div \frac{4}{4} = \frac{1}{4}$$

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

1" 2"

Lets find this point!

Strategies for reading the ruler

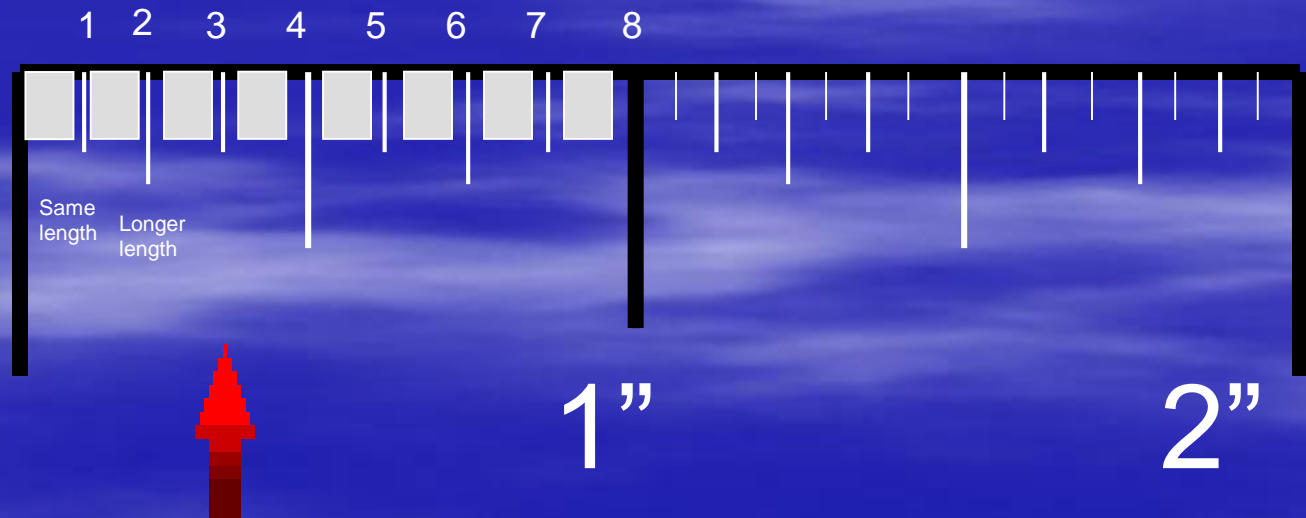- ## SECOND WAY OF LEARNING
  - Non -Traditional
    - Patterns –
    - Example – Count only lines that **are the length or longer** than the destination line.

Count to the whole number for the bottom of the fraction

1 2 3 4 5 6 7 8

Same length

Longer length

$$\frac{3}{8}$$

Three of 8 parts of an inch!

No reducing needed!

Lets find this point!

1"

2"

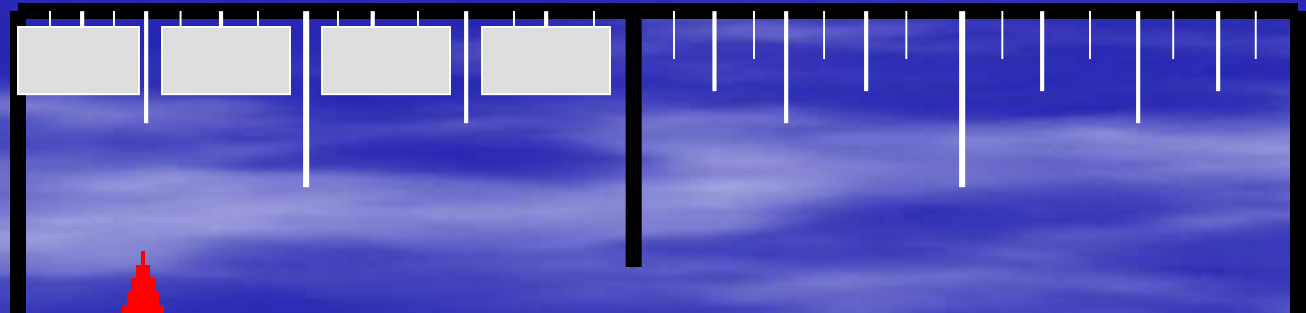# Strategies for reading the ruler

- **SECOND WAY OF LEARNING**
  - Non -Traditional
    - Patterns –
    - Example – Counting patterns will always be in lowest terms. No reducing needed!

Count to the whole number for the bottom of the fraction

$$\frac{1}{4}$$

One of 4 parts of an inch!
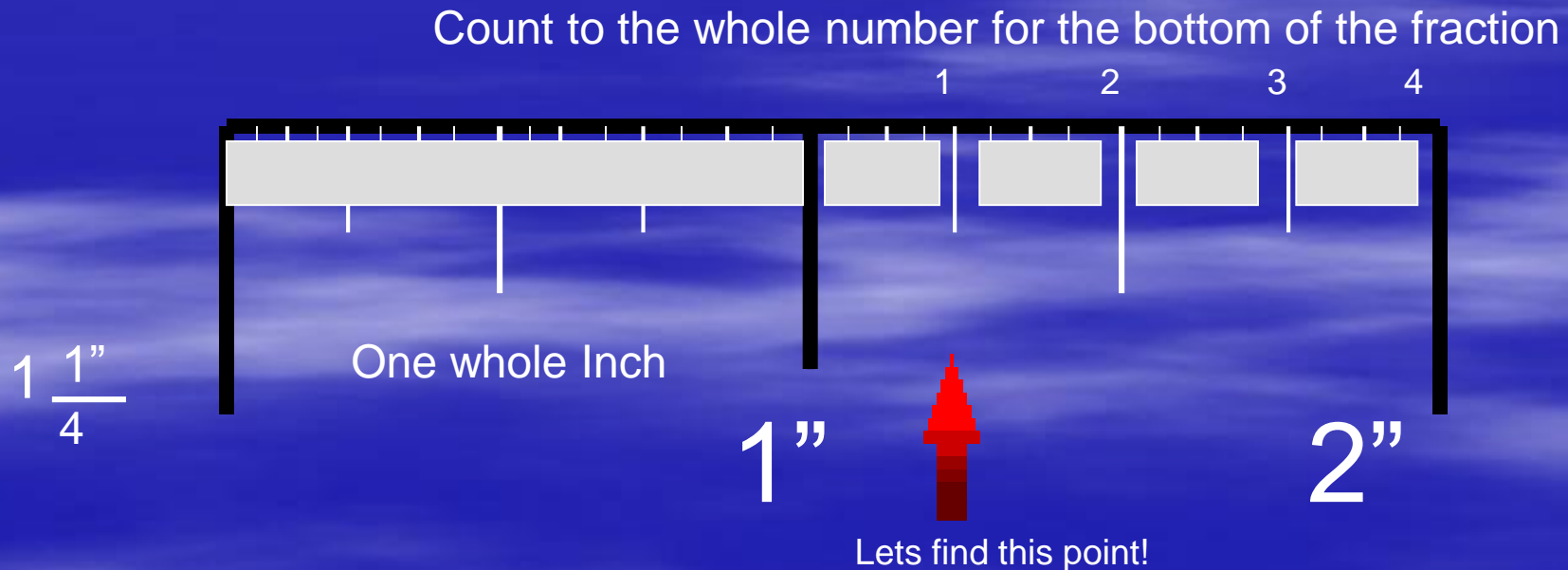
Lets find this point!

1"

2"

Strategies for reading the ruler

- ## Count whole numbers first!
  - Past an inch
    - Count whole numbers then the fraction in either method.
    - Example -

Count to the whole number for the bottom of the fraction

1   2   3   4

One whole Inch

$1\frac{1}{4}''$

1"

2"

Lets find this point!

Summary

- ## TWO Measurement Systems

Metric

Each line is a millimeter and every 10 lines is a centimeter.

U.S. Customary

Halving or doubling units.

Units – 1/16, 1/8, ¼ , ½ or inch

Can count each line & reduce or count patterns.