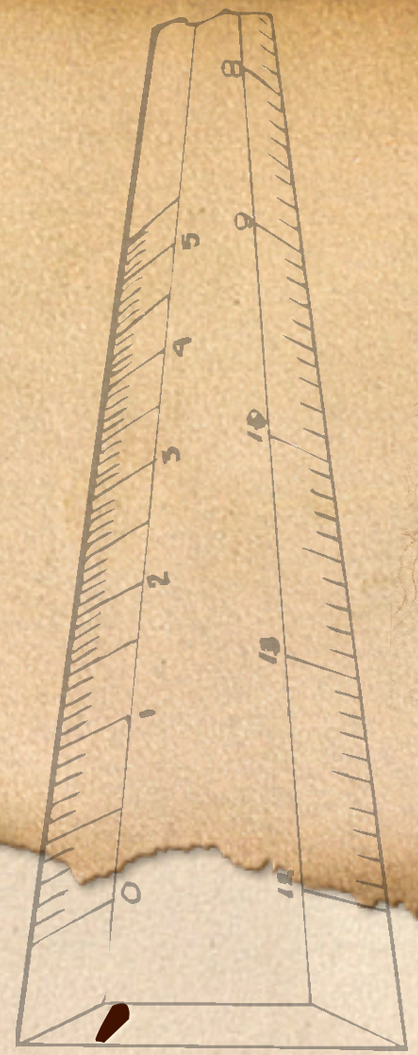


Measuring with a Metric Ruler

Douglas Gilliland

2008 - The Physical Science Series

Known : to recognize with certainty

Unknown : unidentified, nameless, not known

Estimate : to judge an approximate value

Calibration : smallest space on an instrument

Vocabulary

Knowns

Gender

Race

Estimates

Age

Plants

Mood

Unknowns

Name

Country

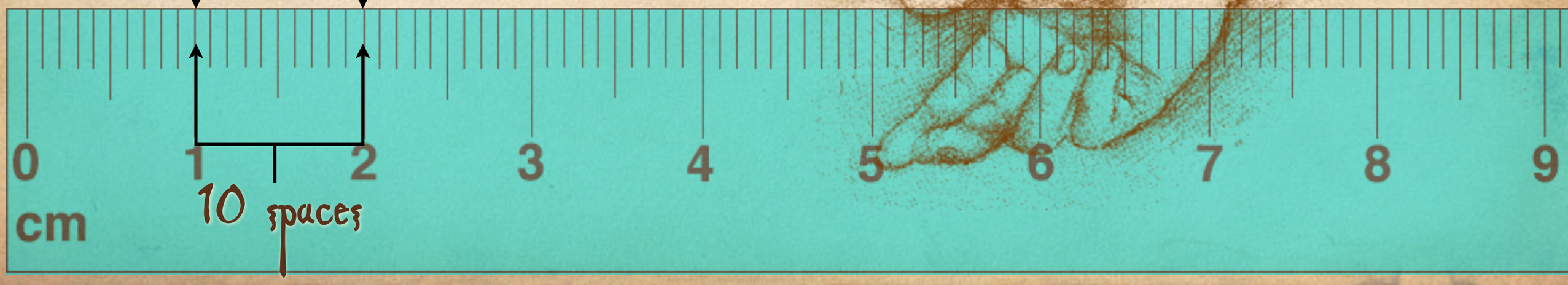
Photo date

Classify her:

How to Calibrate a Ruler

1. find two numbered lines on the ruler and subtract their values.
2. Count the number of spaces that separate them.
3. To calibrate simply divide #1 by #2.

$$\frac{1\text{ cm}}{10\text{ spaces}} = \boxed{\frac{0.1\text{ cm}}{\text{space}}}$$



Simple Rule of Measuring:

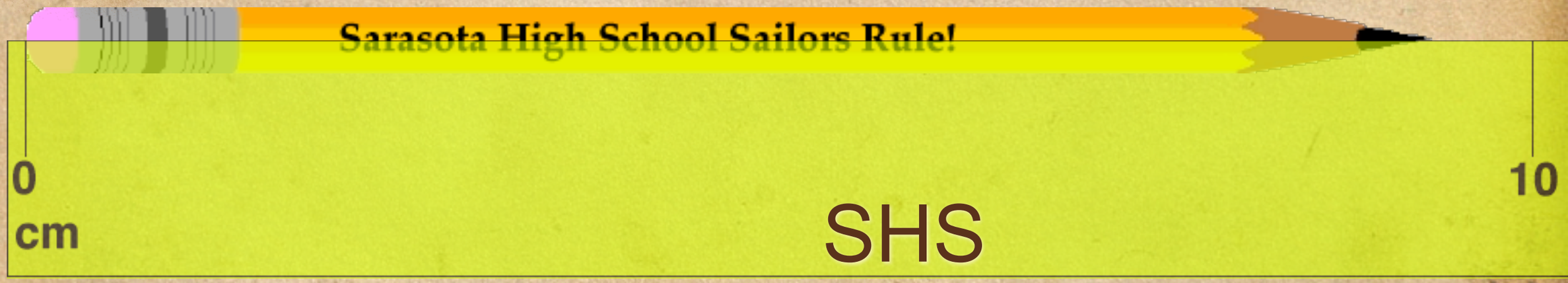
When measuring, always read an instrument out to where the last digit you record is an estimate and all the digits before it are knowns.

What is the length of the pencil?

estimate

9 cm

unit



Calibration = 10 cm per space

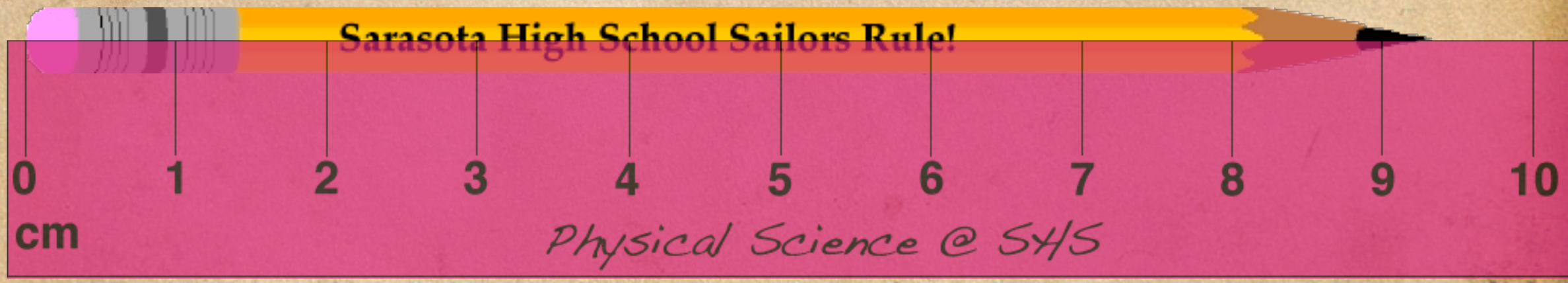
What is the length of the pencil?

estimate

known

9.3 cm

unit



Calibration = 1 cm per space

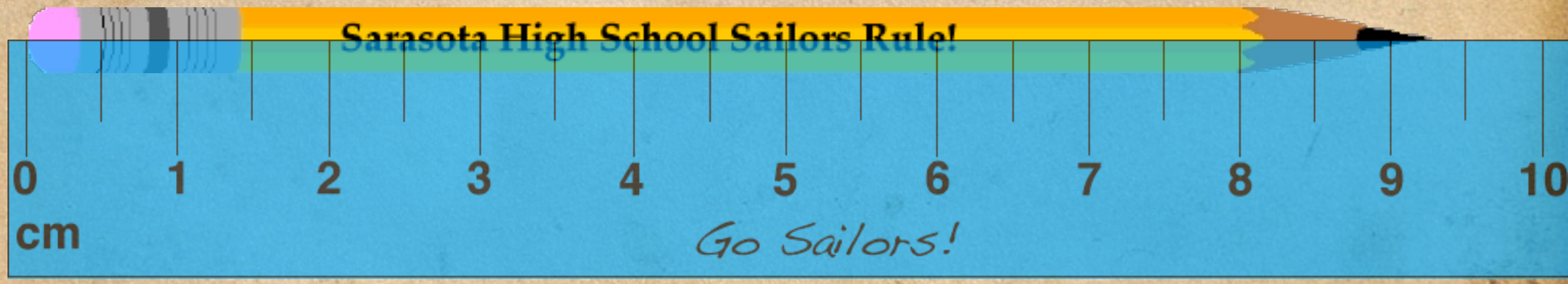
What is the length of the pencil?

estimate

known

9.3 cm

unit



Calibration = 0.5 cm per space

What is the length of the pencil?

Known

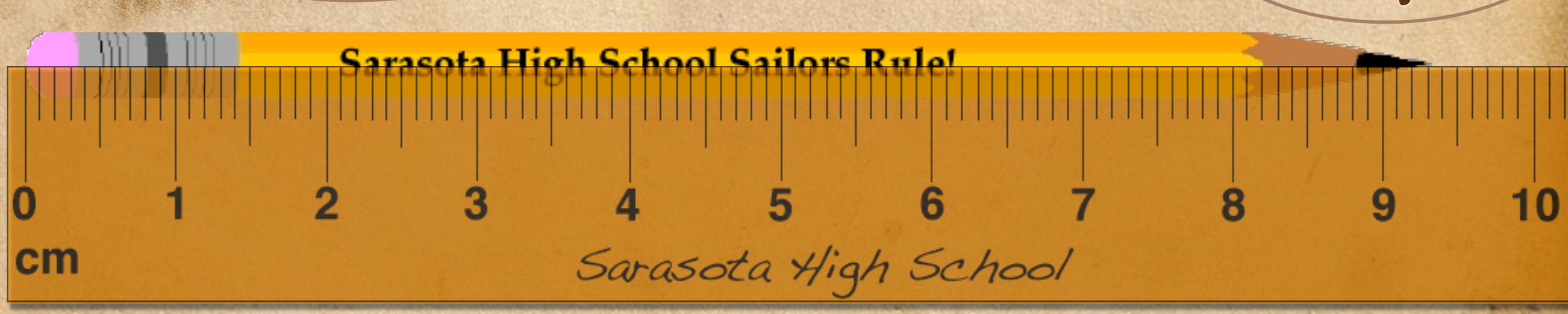
Known

9.29

estimate

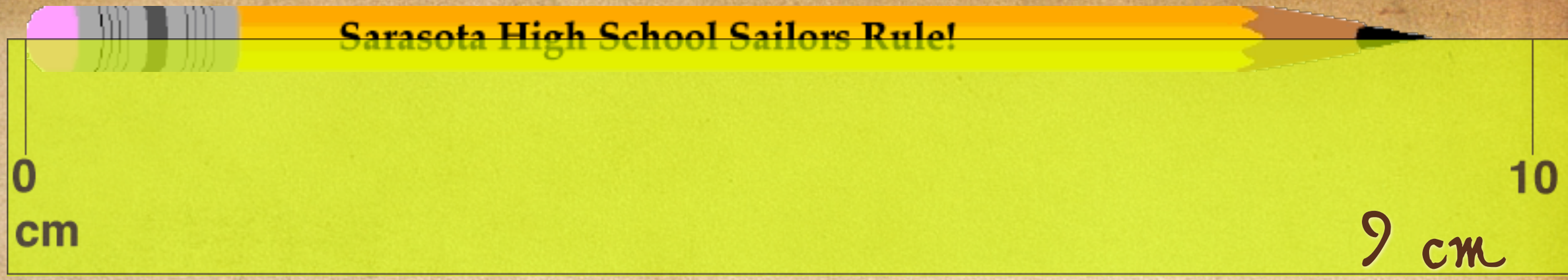
cm

unit

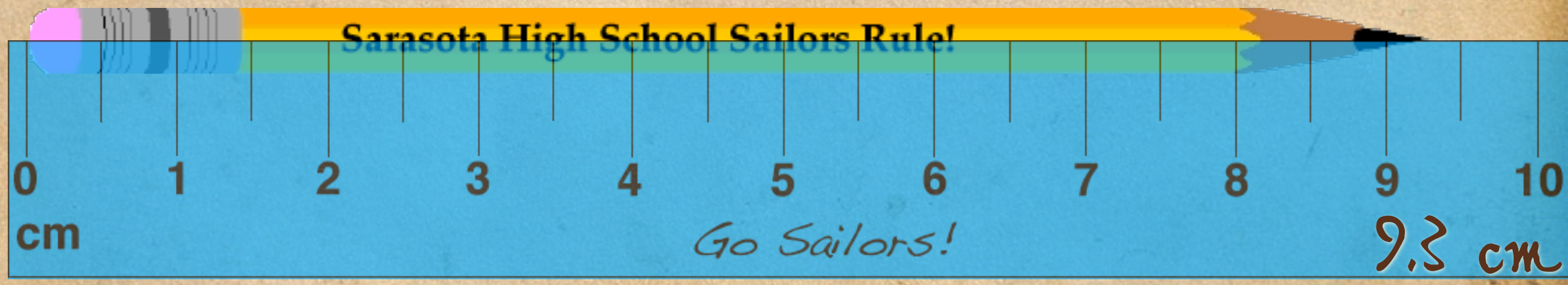


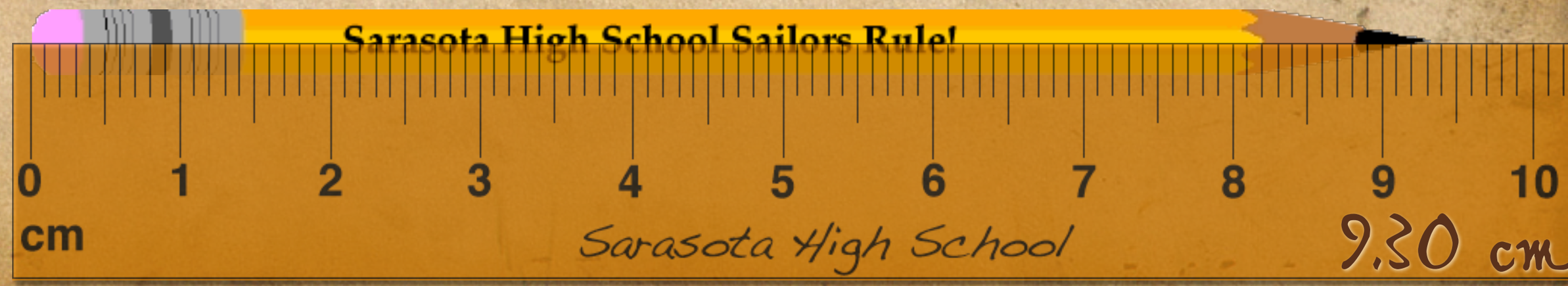
Calibration = 0.1 cm per space

Summary


Sarasota High School Sailors Rule!
0
cm
10
9 cm


Sarasota High School Sailors Rule!
0 1 2 3 4 5 6 7 8 9 10
cm
Physical Science @ SHS
9.3 cm


Sarasota High School Sailors Rule!
0 1 2 3 4 5 6 7 8 9 10
cm
Go Sailors!
9.3 cm

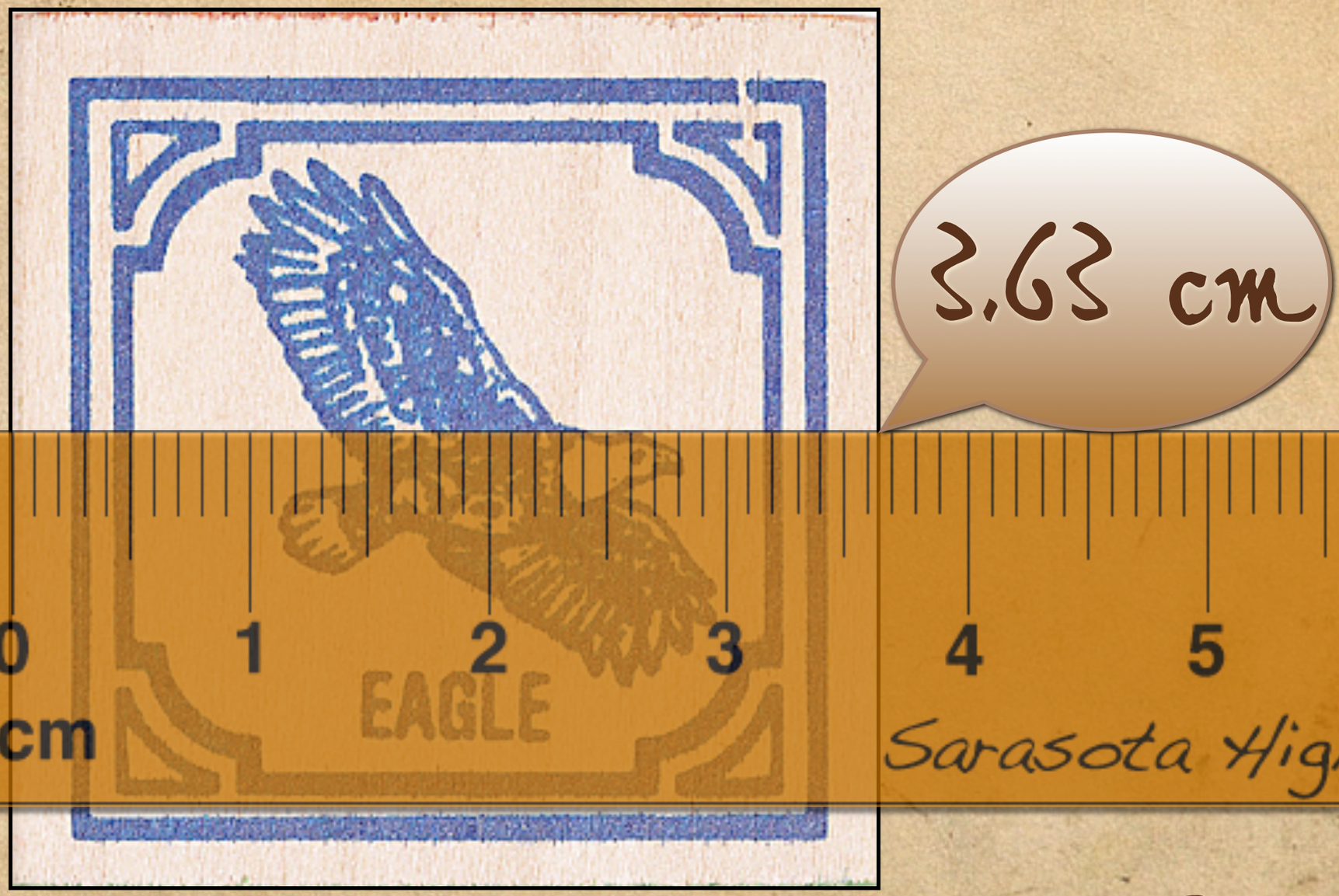

Sarasota High School Sailors Rule!
0 1 2 3 4 5 6 7 8 9 10
cm
Sarasota High School
9.30 cm

Measuring:
Distance - 1 dimensional

Djameter of Coin

Measuring:
Area - 2 dimensional

Area of a Square



$3.63\ cm \times 3.63\ cm = 13.2\ cm^2$

Measuring:

Volume - 3 dimensional

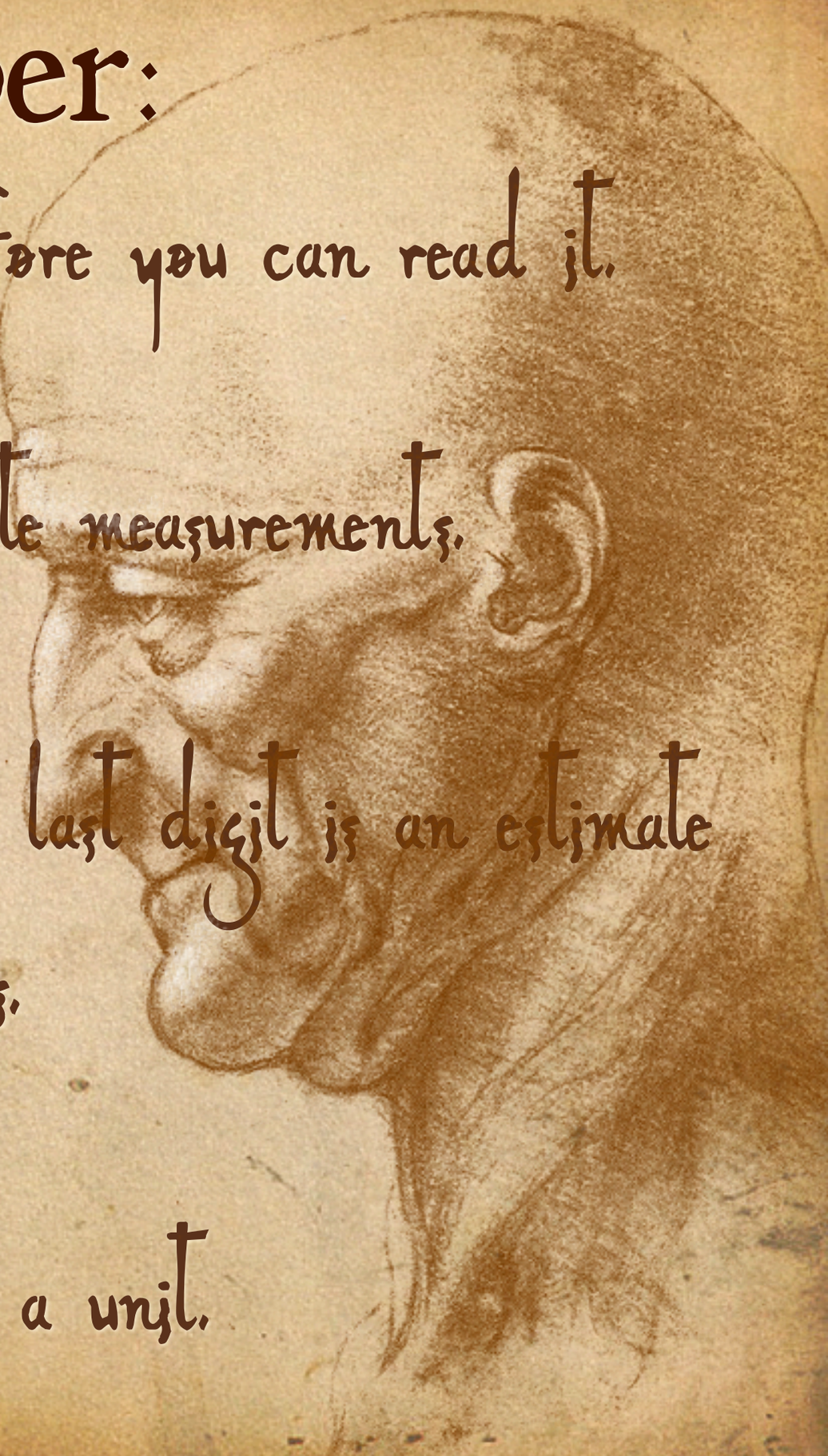
Volume of a Cube

$1.70cm \times 1.70cm \times 1.70cm = 4.91\ cm^3$

Remember:

You must Calibrate an instrument before you can read it.

Smaller calibrations = more accurate measurements.



Read an instrument out to where the last digit is an estimate and all digits to the left are knowns.

Always end your measurement with a unit.