

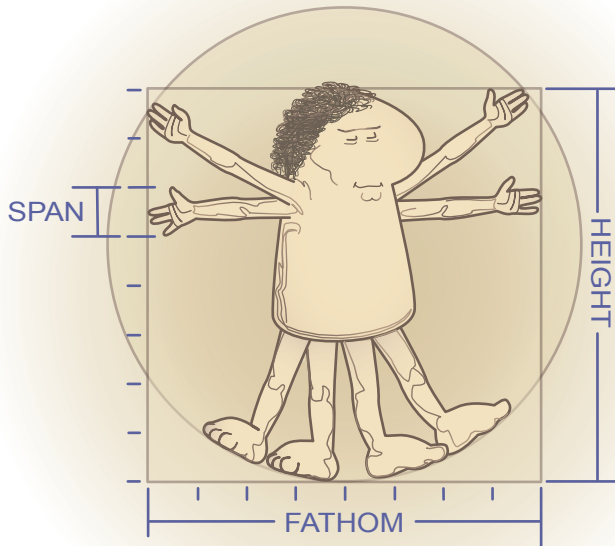
Another FREE SAMPLE LAB from TOPS LEARNING SYSTEMS!

This TOPS Idea is taken from an original series of black-and-white line masters, adapted to stand alone as an independent mini-lesson. Please purchase our original book to get the whole in-depth program.

body measure

...adapted from **MORE METRICS #36**
by TOPS Learning Systems

A very famous artist and scientist, Leonardo da Vinci, found that 8 times an adult man's span equals both his height and his fathom!



1. Measure your height, span, and fathom with a meter stick or metric tape.

2. How closely do you fit da Vinci's artistic ideal?

© 2008 by TOPS Learning Systems. Photocopies permitted if this notice appears. All rights reserved.

OBJECTIVES

To verify "ideal" body proportions by accurately measuring with a meter stick or tape.

LAB NOTES

Photocopy the lab above for each student or team.

Step 3. Kids know height, but spans and fathoms may need explanation. Have students stretch arms to the sides; this is a fathom. Then spread thumbs and little fingers wide; this is a span. The numerical relationships, which are classical averages, work best if students stretch when making their measurements.

Students should work in pairs to make measuring easier. Younger kids may need to make pencil marks on a wall (protect with paper), and measure those.

ANSWERS

2. Students who are capable should express measuring uncertainty to the nearest tenth cm. Otherwise round to the nearest whole cm. A sample calculation:

height = 135.2 cm
fathom = 131.1 cm
span = 17.0 cm
8 spans = $8 \times 17.0 = 136.0$ cm
 $136.0 \text{ cm} \approx 131.1 \text{ cm} \approx 135.2 \text{ cm}$

EVALUATION

Q: Is the peoplet in this activity proportional to Leonardo da Vinci's equation? Explain.

A: Yes. The peoplet's fathom and height both extend across a square that measures 8 spans on each side. *This peoplet has an absolutely classically proportioned body! Except for his nose...*

EXTENSION

✓ Is this equation true for you?

4 bracelet sizes = 1 hat size

Some bodies, yes, other bodies, no.

✓ How long is a cubit? How do you figure feet in terms of hand spans? What's an ell, and are there different kinds? How is a yard defined in body measure? Research and report on unusual measurements.

MATERIALS

- A meter stick or meter tape.
- Paper and masking tape (to protect wall, optional).
- String and scissors (to measure circumferences in the extension if a meter tape is not available).

Find more at www.TOPScience.org!

- 01 PENDULUMS (gr 8-12)
- 02 MEASURING LENGTH (gr 6-10)
- 03 GRAPHING (gr 6-10)
- 04 BALANCING (gr 6-11)
- 05 WEIGHING (gr 5-10)
- 06 METRIC MEASURE (gr 8-12)
- 07 MATH LAB (gr 7-12)
- 08 PROBABILITY (gr 6-10)
- 09 FLOATING & SINKING (gr 7-12)
- 10 ANALYSIS (gr 5-10)
- 11 OXIDATION (gr 6-10)
- 12 SOLUTIONS (gr 6-10)
- 13 COHESION/ADHESION (gr 6-10)
- 14 KINETIC MODEL (gr 7-12)
- 15 HEAT (gr 8-12)
- 16 PRESSURE (gr 7-12)
- 17 LIGHT (gr 6-11)
- 18 SOUND (gr 7-12)
- 19 ELECTRICITY (gr 8-12)
- 20 MAGNETISM (gr 8-12)
- 21 MOTION (gr 7-12)
- 22 MACHINES (gr 7-12)
- 23 ROCKS & MINERALS (gr 6-12)
- 31 PERFECT BALANCE (gr K-12)
- 32 ELECTRICITY (gr 3-8)
- 33 MAGNETISM (gr 3-8)
- 34 PENDULUMS (gr 4-9)
- 35 METRIC MEASURING (gr 5-9)
- 36 MORE METRICS (gr 6-10)
- 37 ANIMAL SURVIVAL (gr 3-8)
- 38 Green Thumbs: RADISHES (gr 3-8)
- 39 Green Thumbs: CORN & BEANS (gr 4-12)
- 40 EARTH, MOON & SUN (gr 7-12)
- 41 PLANETS & STARS (gr 7-12)
- 42 FOCUS POCUS (gr 5-10)
- 43 FAR OUT MATH (gr 9-12)
- 44 SCALE THE UNIVERSE (gr 5-12)
- 45 PI IN THE SKY (gr 5-12)
- 61 A SUMMER START (gr 1-8)
- 62 Intermediate ABC SOUP (gr 4-8)
- 63 PEACEFUL PROCEDURES (gr 1-8)
- 64 Primary ABC SOUP (gr 1-3)
- 71 Primary LENTIL SCIENCE (gr K-3)
- 72 Intermediate LENTIL SCIENCE (gr 3-6)
- 73 GET A GRIP Workstation (gr K-6)
- 91 GLOBAL TOPS (gr 3-10)
- 100 TRIPLE MAGNIFIER (gr 3-12)
- 200 CARTESIAN DIVER (adapts K-12)

Change happens!

Check our home page for the latest update to our product list.



More science with simple things at www.topscience.org