

Another FREE SAMPLE LAB from TOPS LEARNING SYSTEMS!

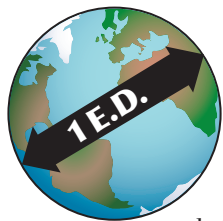
This TOPS Idea is taken from an original series of black-and-white line masters, adapted to stand alone as an independent mini-lesson. Please purchase our original book to get the whole in-depth program.

scale solar system

adapted from **Planets and Stars #41** by
TOPS Learning Systems

1. One Earth Diameter (E.D.)

equals the diameter of our earth.



Imagine Earth as only 1 cm across.

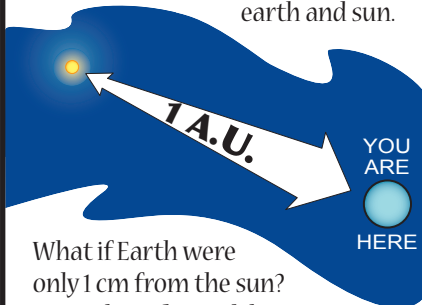
Draw the size of the sun and planets to this scale:

Earth diameter:  1 cm

scale: 1 cm = 1 E.D.

2. One Astronomical Unit (A.U.)

equals the distance between our earth and sun.



What if Earth were only 1 cm from the sun? Draw the orbits of the planets to this scale:

Earth orbit:  1 cm

scale: 1 cm = 1 A.U.

Use data below for your scale drawings.
(Orbit distances are averages.)



sun mercury venus earth mars jupiter saturn uranus neptune pluto
now Minor Planet 134340

E.D.	108	0.4	0.9	1.0	0.5	11.2	9.4	4.0	3.8	0.2
A.U.	0	0.4	0.7	1.0	1.5	5.2	9.5	19	30	39

* Research and color your drawings for bonus points.

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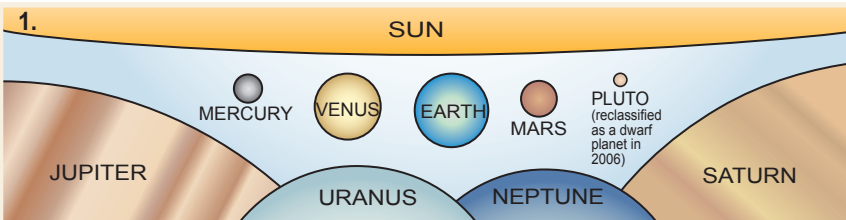
- 01 PENDULUMS (gr 8-12)
- 02 MEASURING LENGTH (gr 6-10)
- 03 GRAPHING (gr 6-10)
- 04 BALANCING (gr 6-11)
- 05 WEIGHING (gr 5-10)
- 06 METRIC MEASURE (gr 8-12)
- 07 MATH LAB (gr 7-12)
- 08 PROBABILITY (gr 6-10)
- 09 FLOATING & SINKING (gr 7-12)
- 10 ANALYSIS (gr 5-10)
- 11 OXIDATION (gr 6-10)
- 12 SOLUTIONS (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)

OBJECTIVE

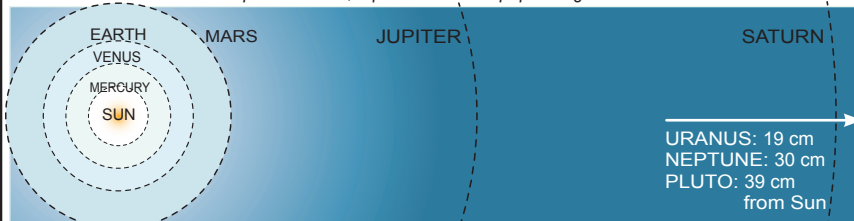
To draw the relative sizes of the sun and planets to scale; to draw planetary distances from the sun to scale.

MODEL ANSWERS

Illustrations are to scale. Draw large circles by anchoring one end of measured thread on surface. Hold other end to pencil, and sweep an arc. All planets and part of sun will fit on notebook paper.



2. To draw Uranus' and Neptune's orbits, tape on notebook paper lengthwise.



MATERIALS: circle compass, thread, tape, notebook paper, colored pencils (optional)

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