THE SIZES OF THE SOLAR SYSTEM and UNIVERSE VISUALIZATION SCALES

(1) THE RELATIVE DIAMETERS OF THE PLANETS

Assuming the Sun (1,392,000 km) to be 1 meter in diameter:

Object	Actual (km)	Scale
Mercury	4,878	4 mm
Venus	12,104	9 mm
Earth	12,756	9 mm
Moon	3,476	3 mm
Mars	6,787	5 mm
Jupiter	142,800	103 mm
Saturn	120,000	86 mm
Uranus	50,800	37 mm
Neptune	48,600	35 mm

Assuming the Earth to be 100 mm in diameter:

Sun	1,091 cm (10.9 m)
Mercury	38 mm
Venus	95 mm
Moon	27 mm
Mars	53 mm
Jupiter	112 mm
Saturn	94 mm
Uranus	40 mm
Neptune	38 mm

(2) THE RELATIVE DISTANCES OF THE PLANETS

Scale: 25 cm = 150 million km (average distance from Earth to Sun)

This scale is selected because the Sun and the known planets can be plotted on a roll of adding machine tape.

On this scale 1 cm = 6 million km; the Sun is 3 mm in diameter, the Earth .02 mm and the distance from Earth to the Moon is 64 mm.

The average distances of the planets from the Sun:

Planet	Actual (mil. km)	Actual (AU*)	Scale
Mercury	57.9	0.39	10 cm
Venus	108.2	0.72	18 cm
Earth	149.6	1.00	25 cm
Mars	227.9	1.52	38 cm
Jupiter	778.3	5.20	1.3 m
Saturn	1,429.4	9.56	2.4 m
Uranus	2,875.0	19.22	4.8 m
Neptune	4,504.0	30.11	7.4 m

* Astronomical Unit 1 AU = Average Earth to Sun distance

(3) RELATIVE DISTANCES IN THE UNIVERSE

On the scale used in example 2, 1 light year (the distance light travels in one year -- 9 trillion km) would be 12 km, the distance to the nearest star other than the Sun would be 64 km, the distance to the center of our galaxy would be 480,000 km, the distance to the Andromeda galaxy would be 35 million km and the distance to the farthest known object (a quasar) would be about 200 billion km.