

Solar System Stroll: Tour Book

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A walk through a 1 kilometer scale model of the Solar System



The scale model activity “Solar System Stroll” is also available.

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Web Site: www.mmsd.org/planetarium/

Sun

The center of our Solar System

Medium-sized star

One of more than 100 billion stars in our galaxy

Diameter: 1,390,000 km

Temperature: 5800 °K (surface) 15,600,000 °K (core)

Contains more than 99.8% of the total mass of the Solar System

Contains 75% hydrogen and 25% helium

Rotation rate = 25.4 days (equator), 36 days (poles)

Has 9 planets, many asteroids, and many comets orbiting around it

Note: you are welcome to copy these cards for your students and for other teachers. Permission for other forms of distribution can be requested by contacting the MMSD Planetarium & Observatory office: 608-663-6102.

Note: the Sun is too large on this scale to include on the back of this card. It would be approximately 9 inches (23 centimeters in diameter).

Mercury

Closest Planet to the Sun

Solid rocky surface

Very little atmosphere

Rotation Rate = once per 59 days

Revolution Rate = once per 88 days

Maximum Temperature = 425 degrees C (800 degrees F)

Minimum Temperature = -180 degrees C (-300 degrees F)

No moons

Average Distance to Sun: 58,000,000 km

Scaled Distance in a 1km Model: 9.7 m

Venus

2nd planet from the Sun

Very thick atmosphere

Electrical storms, sulfuric acid rain

Atmospheric pressure = 90 times Earth's

Rotation Rate = once per 243 days

Revolution Rate = once per 225 days

Surface Temperature = 480 degrees C (900 degrees F)

No moons

Average Distance to Sun: 108,000,000 km

Scaled Distance in a 1km Model: 18 m

MERCURY



VENUS



Earth

3rd planet from the Sun
75% covered with water
Atmosphere 76% Nitrogen, 21% Oxygen
Rotation Rate = once per 24 hours
Revolution Rate = once per 365 days (one year)
Plant and animal life
1 moon

Average Distance to Sun: 150,000,000 km
Scaled Distance in a 1km Model: 25 m

Mars

4th planet from the Sun
Solid rocky surface: dust soil, contains iron oxide (rust)
Very thin atmosphere: mostly carbon dioxide
Rotation Rate = once per 24.6 hours
Revolution Rate = once per 687 days
Maximum Temperature = 27 degrees C (80 degrees F)
Minimum Temperature = -133 degrees C (-207 degrees F)
2 moons

Average Distance to Sun: 228,000,000 km
Scaled Distance in a 1km Model: 38 m

EARTH & MOON



MARS



Asteroids

Most orbit in a belt between Mars and Jupiter (asteroid belt)

Irregular-shaped rocky hunks

Most asteroids in the stone and carbon categories

Less than 5% in metallic category

Largest (named Ceres) is one third the size of the moon

Over several hundred thousand discovered so far

All known asteroids lumped together = less than our moon

Range for Asteroid Belt:

Distance to Sun: 299,000,000 to 599,000,000 km

Middle of the Range: 449,000,000 km

Scaled Range for Asteroid Belt: 50 to 100 m

Middle of the Range: 75 m

Jupiter

5th planet from the Sun

Largest planet

One of the four "Gas Giants"

Simple, thin ring system

Rotation Rate = once per 10 hours

Revolution Rate = once per 10 years

Great Red Spot: giant storm

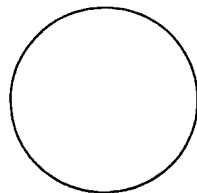
at least 28 moons

Average Distance to Sun: 778,000,000 km

Scaled Distance in a 1km Model: 130 m

THE ASTEROIDS

JUPITER



Saturn

6th planet from the Sun
Second of the four "Gas Giants"
Second largest planet
Atmosphere: turbulent, storms
Rotation Rate = once per 10.25 hours
Revolution Rate = once per 29 years
Rings: made of silica rock, iron oxide, ice
at least 30 moons

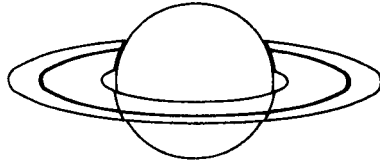
Average Distance to Sun: 1,430,000,000 km
Scaled Distance in a 1km Model: 238 m

Uranus

7th planet from the Sun
Third "Gas Giant" planet
Third largest planet
Atmosphere: hydrogen, helium
Rotation Rate = once per 17 hours
Revolution Rate = once per 84 years
Rings: thin, dark
at least 20 moons

Average Distance to Sun: 2,870,000,000 km
Scaled Distance in a 1km Model: 478 m

SATURN



URANUS



Neptune

8th planet from the Sun
Last of the "Gas Giants"
Fourth largest planet
Atmosphere: hydrogen, helium; light and dark markings
Rotation Rate = once per 16 hours
Revolution Rate = once per 165 years
Rings: thin, dark
at least 8 moons

Average Distance to Sun: 4,500,000,000 km
Scaled Distance in a 1km Model: 750 m

Pluto

9th planet from the Sun
Smallest planet (smaller than our moon)
Receives very little light or heat
Atmosphere: freezes in winter
Rotation Rate = once per 153 hours (over 6 days)
Revolution Rate = once per 248 years
1 moon ("Charon", half the size of Pluto)

Average Distance to Sun: 5,900,000,000 km
Scaled Distance in a 1km Model: 983 m

NEPTUNE



PLUTO & CHARON

