

# The Solar System, to scale, for a school yard

Julian D. A. Wiseman, of [www.jdawiseman.com](http://www.jdawiseman.com)

On the highest-resolution printer you can, print pages, twice. (On low-resolution printers some moons disappear.)  
Print pages at 100% (some printer drivers default to 96%). Do not print duplex.

Affix pages to cards; string together pairs of cards such that they can be draped over the back of a chair.

Put Sun cards over a chair in corner of playground, and 'planet'-chairs at correct distance from the Sun.

Sun-Saturn distance set to be 120 metres, which determines the scaling of 11,950,000,000 to 1.

At 1200 dots per inch, one printer pixel is about 253 km.

At this scale, the nearest star, Proxima Centauri, would be about 3,360 km away.

At this scale, the nearest major galaxy, Andromeda, would be about 13.4 A.U. away.

Sun-asteroid distance proxied by Sun-Ceres.

All asteroid-asteroid distances are huge and vary as they orbit.

So obviously portrayed asteroid-asteroid distances are nonsensically not to scale.

(But everything else to scale: planet sizes; moon sizes; planet-moon distances; sun-planet distances.)

## Links:

Author, Julian D. A. Wiseman

<http://www.jdawiseman.com/author.html>

English

[http://www.jdawiseman.com/papers/schools/solar\\_system\\_to\\_scale.html](http://www.jdawiseman.com/papers/schools/solar_system_to_scale.html)

[http://www.jdawiseman.com/papers/schools/solar\\_system\\_to\\_scale\\_a4.pdf](http://www.jdawiseman.com/papers/schools/solar_system_to_scale_a4.pdf)

[http://www.jdawiseman.com/papers/schools/solar\\_system\\_to\\_scale\\_usl.pdf](http://www.jdawiseman.com/papers/schools/solar_system_to_scale_usl.pdf)

Português = Portuguese

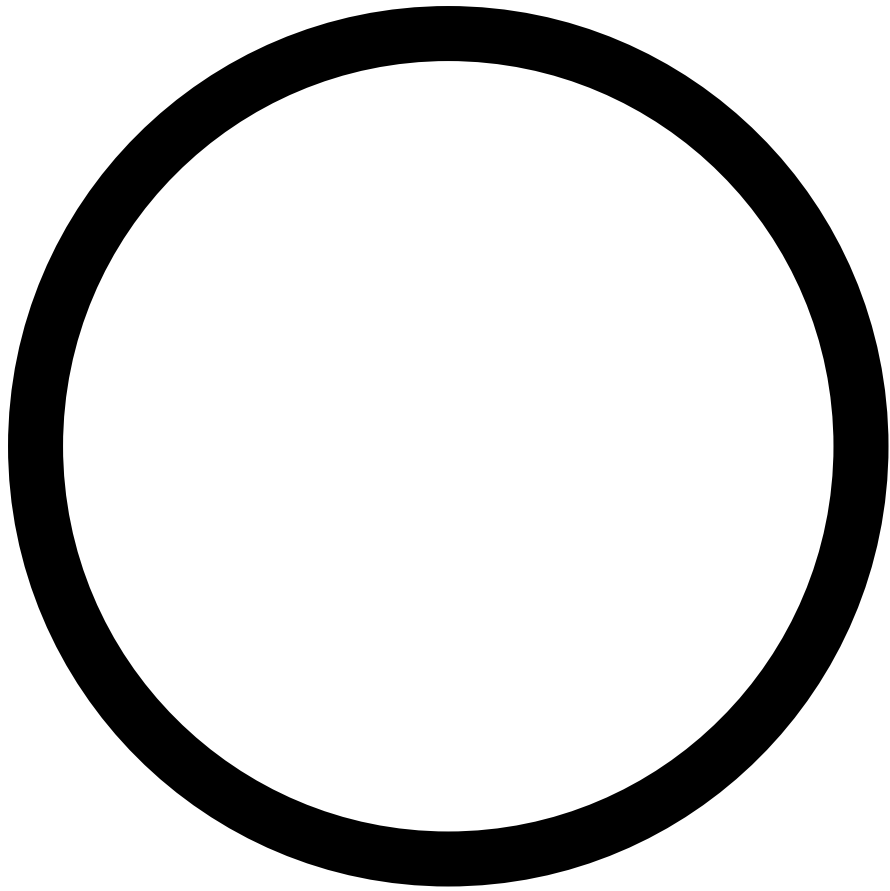
[http://www.jdawiseman.com/papers/schools/solar\\_system\\_to\\_scale\\_PT.html](http://www.jdawiseman.com/papers/schools/solar_system_to_scale_PT.html)

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For changing of scale and of language

[http://www.jdawiseman.com/papers/schools/solar\\_system\\_to\\_scale.ps](http://www.jdawiseman.com/papers/schools/solar_system_to_scale.ps)



# **The Sun**

The equatorial diameter of the Sun is about 1,391,400 km.

**Mercury**

**To sun, average: 58,000,000 km**

**Scaled: 4.86 metres**

.

## **Venus**

**To sun, average: 108,000,000 km**

**Scaled: 9.04 metres**

**Earth**

**To sun, average: 149,600,000 km**

**Scaled: 12.5 metres**

At this scale the moon is  $\approx 32$  mm from the earth, and that is the furthest humans have travelled.

**Mars**

**To sun, average: 228,000,000 km**

**Scaled: 19.1 metres**

# **Asteroids**

**To sun, average: 413,900,000 km**

**Scaled: 34.6 metres**

**As Ceres is largest asteroid, and about 31% of mass of all asteroids, uses average Sun-Ceres distance.  
Obviously asteroid-asteroid distances huge and hugely variable, so portrayed gaps are nonsense.**



## **Jupiter**

**To sun, average: 778,500,000 km**

**Scaled: 65.2 metres**





# Saturn

**To sun, average: 1,433,000,000 km**

**Scaled: 120 metres**

Rings shown to size of A and B rings. Stripes are schematic not actual.



## **Uranus**

**To sun, average: 2,938,000,000 km**

**Scaled: 246 metres**



## **Neptune**

**To sun, average: 4,499,000,000 km**

**Scaled: 377 metres**

# Pluto

**To sun, average: 5,907,000,000 km**

**Scaled: 495 metres**

Dwarf planet. Distance is average of aphelion (49.319 AU) and perihelion (29.656 AU).

**Eris**

**To sun: 14,410,000,000 km**

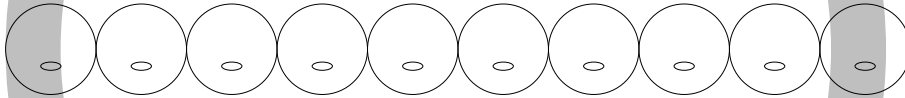
**Scaled: 1,206 metres**

Dwarf planet. Distance as of May 2016.

# Size comparisons

Sun versus Jupiter; gas giants versus Earth

The Sun



Mercury



Venus



Earth



Mars



Asteroids



Jupiter



Saturn



Uranus



Neptune



Pluto



Eris

