

The Solar System, to scale, for a school yard

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On the highest-resolution printer you can, print pages, perhaps 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 stiff cards; affix cards to sticks; assign a child to each card.
If it is possible to affix to both sides of the cards, print two copies and affix to both sides.

Stand Sun-child in corner of playground, and other 'planet'-children at correct distance from the 'Sun'.

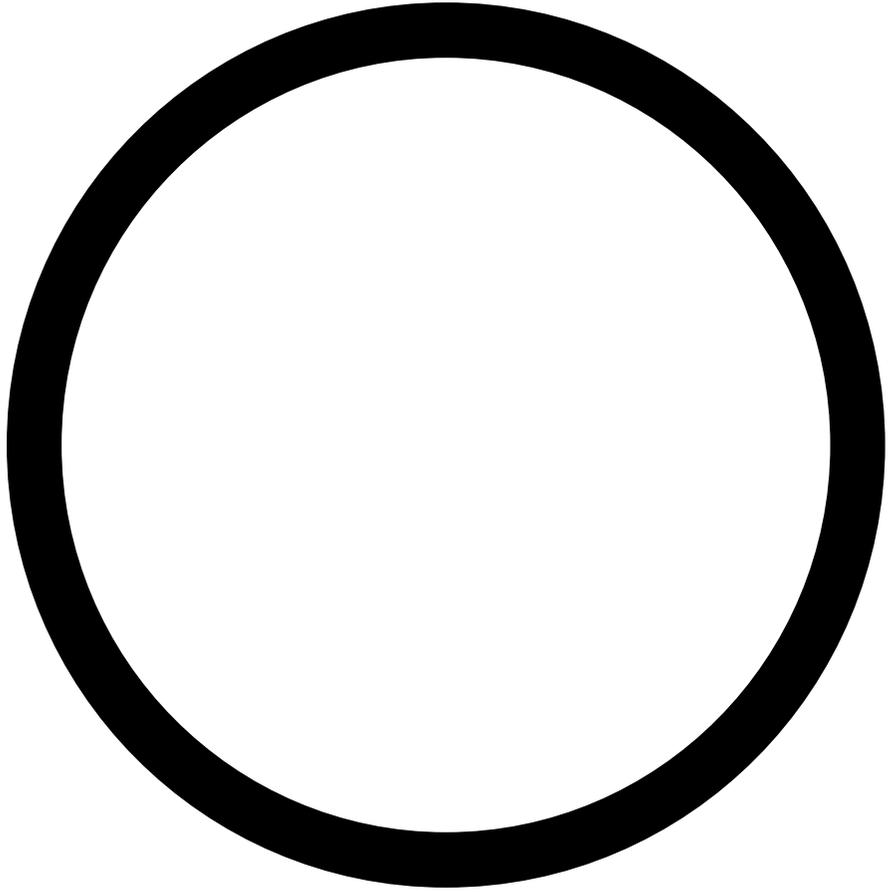
Sun-Saturn distance set to be 120 metres, which determines the scaling.
At this scale, the nearest star, Proxima Centauri, would be about 3,360 km away.
One printer pixel, assuming 1200 dots per inch, is about 253 km.

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.)

Scaling is approximately 11,950,000,000 to 1.

Links:

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_usl.pdf
http://www.jdawiseman.com/papers/schools/solar_system_to_scale.ps for scale changing.



The Sun

The diameter of the Sun is about 1,393,000 km.

Mercury

To sun: 58,000,000 km

Scaled: 4.86 metres

Earth

To sun: 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: 228,000,000 km

Scaled: 19.1 metres

Asteroids

To sun: 413,900,000 km

Scaled: 34.6 metres

**As Ceres is largest asteroid, and about a third 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: 778,500,000 km

Scaled: 65.2 metres



Saturn

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

Scaled: 246 metres



Neptune

To sun: 4,499,000,000 km

Scaled: 377 metres

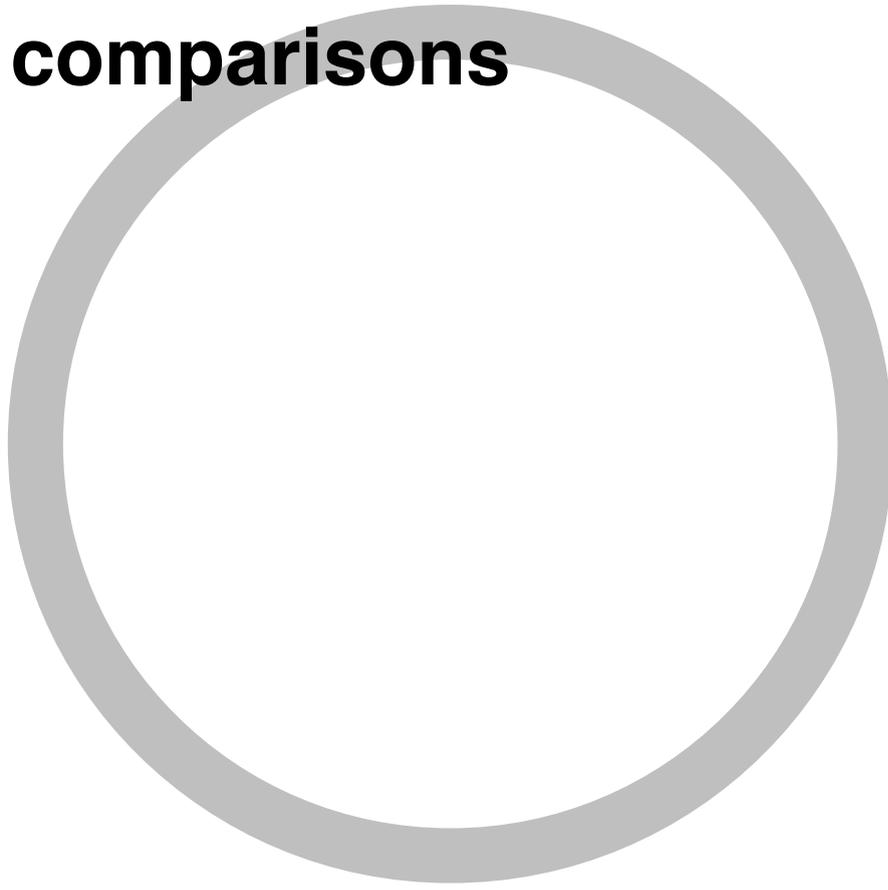
Pluto

To sun: 5,874,000,000 km

Scaled: 492 metres

Size comparisons

The Sun



Mercury



Venus



Earth



Mars



Asteroids



Jupiter



Saturn



Uranus



Neptune



Pluto

