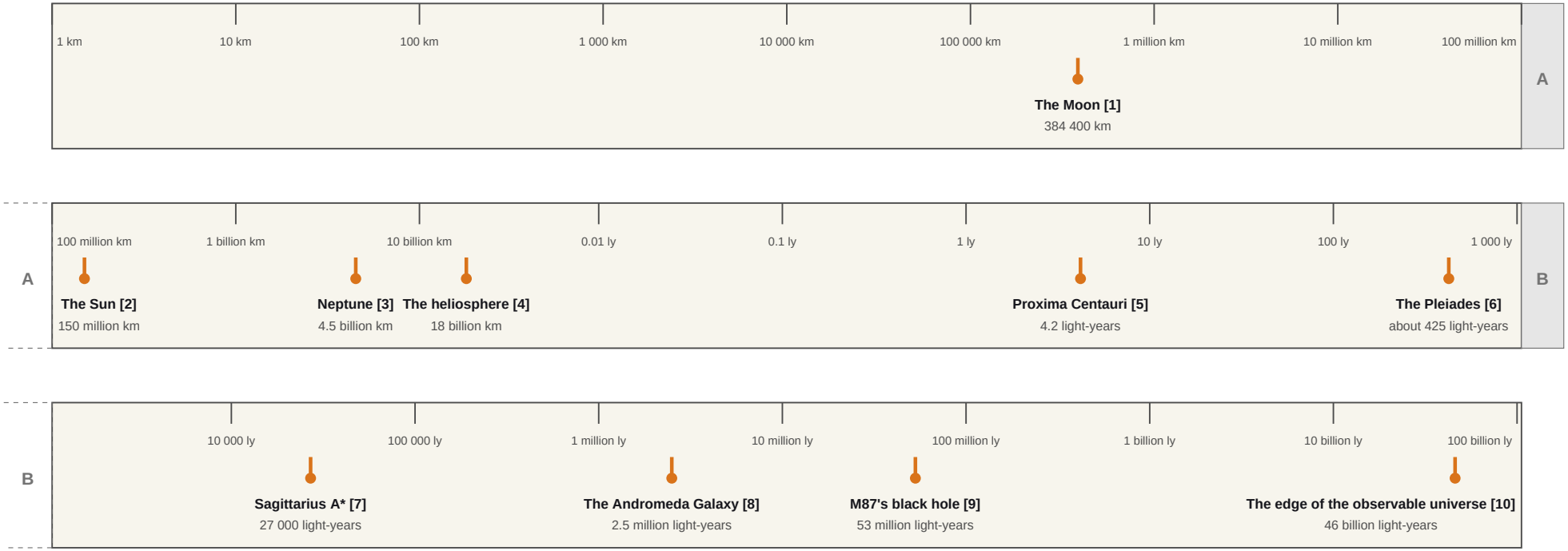
The distance ladder: from a kilometre to the edge of what we can see

Cut out the three strips and glue them end to end (A on A, B on B): one strip about 75 cm long. Each step from one black tick to the next is ten times farther than the one before (9.5 times where kilometres turn into light-years), so the whole of space fits on a table. Each orange mark is a place you can fly to in Space Radar.



Where each distance comes from (registry/ladder.yaml, as the app shows them)

[1] The Moon, 384 400 km: mean Earth-Moon distance, astronomy-engine; NASA NSSDCA Moon Fact Sheet, https://nssdc.gsfc.nasa.gov/planetary/factsheet/moonfact.html (read 2026-10-11)

[2] The Sun, 150 million km: one astronomical unit, IAU 2012; NASA NSSDCA Earth Fact Sheet, https://nssdc.gsfc.nasa.gov/planetary/factsheet/earthfact.html (read 2026-10-11)

[3] Neptune, 4.5 billion km: 30 au, mean orbital radius; NASA NSSDCA Neptune Fact Sheet, https://nssdc.gsfc.nasa.gov/planetary/factsheet/neptunefact.html (read 2026-10-11)

[4] The heliosphere, 18 billion km: Voyager 1 crossed the heliopause on 2012-08-25 (NASA, https://science.nasa.gov/mission/voyager/voyager-1/, read 2026-10-09); 121.6 AU that day from the JPL Horizons track site/data/eph/deep-voyager-1.bin, as scene/heliosphere.js HELIO.crossings; 121.6 x 149 597 871 km = 18.2 billion km

[5] Proxima Centauri, 4.2 light-years: HYG v4.4 (Gaia parallax)

[6] The Pleiades, about 425 light-years: Wikipedia, List of Messier objects (0.39-0.46 kly); List of Messier objects, https://en.wikipedia.org/wiki/List_of_Messier_objects (read 2026-10-11)

[7] Sagittarius A*, 27 000 light-years: registry/exotics.yaml, Wikipedia infobox

[8] The Andromeda Galaxy, 2.5 million light-years: Wikipedia, List of Messier objects (2 430-2 650 kly), https://en.wikipedia.org/wiki/List_of_Messier_objects (read 2026-10-11)

[9] M87's black hole, 53 million light-years: registry/exotics.yaml, Wikipedia infobox

[10] The edge of the observable universe, 46 billion light-years: site/js/data/cosmology.js horizonLy(): the particle horizon of Planck 2018 (Planck Collaboration 2020, A&A 641, A6, Table 2, as astropy.cosmology.Planck18), 46.2 billion light-years now, comoving

Measured distances, each from the source named. The spacing is logarithmic: equal lengths are equal factors, not equal distances.