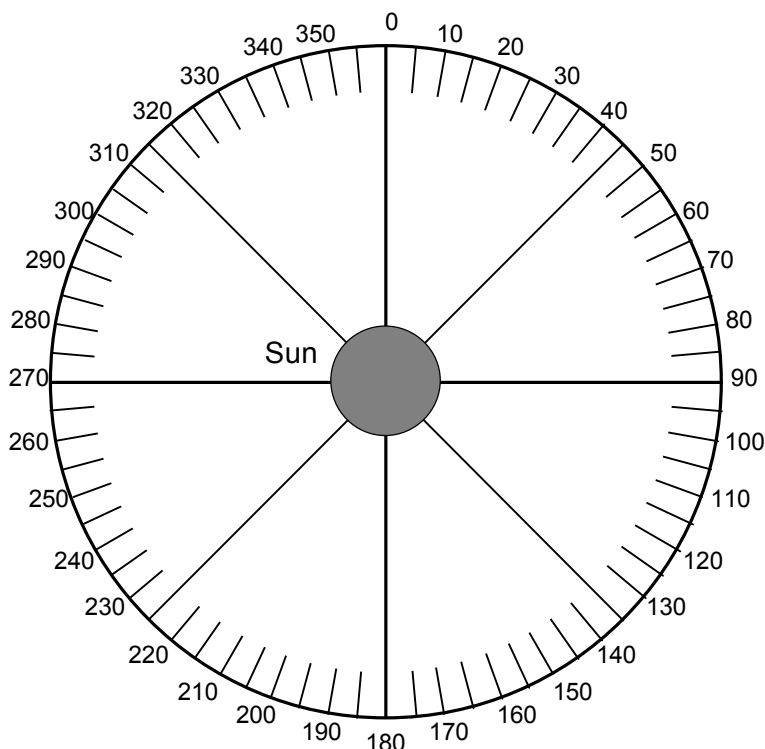


Setting Planet positions on the Orbit™ Orrery

The positions of the planets relative to each other and to the Sun are constantly changing. To set up an orrery, Heliocentric (Sun-centred) Longitudes are most useful. Monthly positions are given below.

To position your planets cut out the degree scale printed opposite and place it on your orrery. Then align the planets with the Longitudes given.

N.B. The direction of zero degrees is not important for the activities in this leaflet. It is important if one wants to consider the positions of the stars relative to the planets or the height of the planets above the horizon due to the Earth's tilt at different times of the year. More detailed models such as the Helios Planetarium cover these topics.



Heliocentric longitudes for setting up the Orbit™ orrery

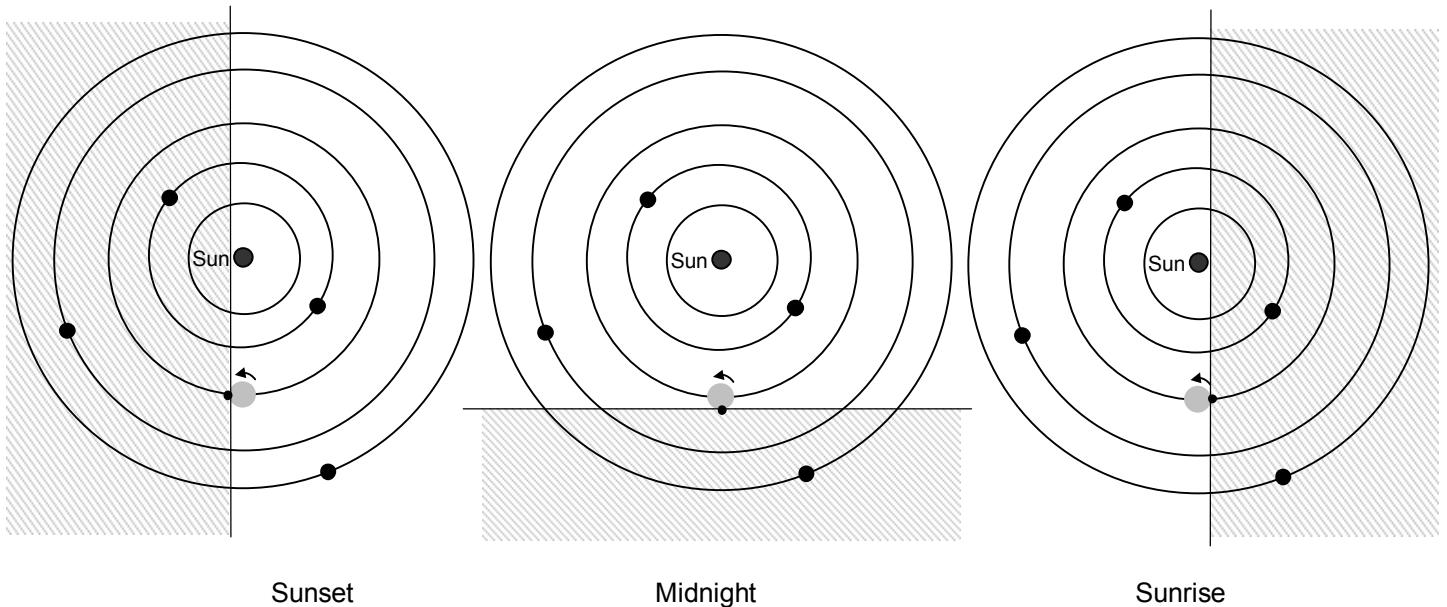
	Jan 1 st	Feb 1 st	Mar 1 st	Apr 1 st	May 1 st	Jun 1 st	Jul 1 st	Aug 1 st	Sep 1 st	Oct 1 st	Nov 1 st	Dec 1 st
2007												
Mercury	269	25	179	275	30	194	283	54	208	295	79	218
Venus	318	7	52	101	150	200	249	298	347	35	84	133
Earth	100	131	160	191	220	250	279	309	338	8	38	68
Mars	245	261	277	296	315	334	353	12	31	48	65	81
Jupiter	243	245	247	250	252	255	257	259	262	264	267	269
Saturn	140	141	142	143	144	146	147	148	149	150	151	152
Uranus	344	344	345	345	345	346	346	346	347	347	347	348
Neptune	319	319	320	320	320	320	320	321	321	321	321	321
Pluto	267	267	267	267	267	268	268	268	268	268	268	269
2008												
Mercury	308	104	227	319	116	238	330	138	250	347	158	258
Venus	183	233	279	329	16	66	114	164	214	262	311	359
Earth	100	131	161	191	221	251	280	309	339	8	39	69
Mars	96	111	124	138	151	164	178	191	206	220	236	251
Jupiter	272	274	277	279	282	284	287	289	292	295	297	300
Saturn	153	154	155	156	157	159	160	161	162	163	164	165
Uranus	348	348	349	349	349	350	350	350	351	351	351	352
Neptune	321	322	322	322	322	322	323	323	323	323	323	324
Pluto	269	269	269	269	270	270	270	270	270	270	271	271

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N.B. If the date is in the middle of a month, position the planets between the two numbers given.

Which planets can I see when?

The diagram below shows why you can see different planets at different times. The diagram shows the positions of a person on the equator at evening sunset, midnight and morning sunrise as viewed from north of the ecliptic. The straight lines represent where the observer's horizon cuts through the ecliptic (the plane of the planets' orbits) to the East and West. The shaded area is the visible sky.



The two inner planets, Mercury and Venus, can only be seen close to Sunrise and Sunset and not at Midnight. When planets are only visible in the morning or evening they are called "morning stars" or "evening stars" respectively. The outer planets (those farther from the Sun than Earth) may be seen at different times depending on their position.

If used with the orrery set up with today's longitudes, this method gives an approximate guide to which planets one could see tonight. This method is only approximate as the distances between the different planets and the Sun are not to scale.

Looking at the Orbit Orrery lit up, two other factors that determine how easily a planet is seen are visible:

- The larger planets reflect more light
- The planets closer to the sun reflect more light.

With the naked eye one can see the planets Mercury, Venus, Mars, Jupiter and Saturn.

Other factors affecting visibility include the proximity of the planet to Earth at the time, cloud cover, physical obstructions and light pollution.