

Astrology or Astronomy?

I can't tell you how many times I have heard even well educated people confuse these two words. Astronomy, of course, is the science of understanding the universe extending from the Earth outward. Astrology is the pseudo-science of understanding how the heavens affect and control our personalities, our lives, and our fates. However, to the uninitiated there does seem to be some overlap! Both astronomers and astrologers concern themselves with the Sun, the Moon, the planets, and the signs of the zodiac: Aries, Taurus, Gemini, Cancer, Leo, Virgo, Libra, Scorpius, Sagittarius, Capricornus, Aquarius, and Pisces. So what connection is there, if any? To find out complete the following exercise in Astrology.

What's Your Sign?

To an astrologer your "sign" is more specifically your "Sun sign" and it represents the constellation that the Sun was "in" at the moment of your birth. Although you may think you already know your sign, you may be wrong! For example if you were born on Feb. 19, 1989 your sun sign is Pisces but if you were born on Feb. 19, 1990 your sun sign is Aquarius! A professional astrologer would consult you for a fee to determine your correct sun sign but the directions below will give you the result for free!

1. Divide the year of your birth by 4, and take note of the remainder. It will be either 1, 2, 3, or 0. As an example, consider a person born on June 22, 1963. $1963 \div 4 = 490$ with a remainder of 3.
2. Use the remainder to choose the correct column that will give you your sign based on the month and day of your birth. The person in the above example would use the column numbered at the top with the 3 and find the date June 22 which indicates a Sun sign of Gemini (and not Cancer as in some other years).
3. Note: Since the sign Capricorn "straddles" New Year's Day it is shown twice in the table.

	1	2	3	0
Capricorn	Jan 1 – Jan 20	Jan 1 – Jan 20	Jan 1 – Jan 20	Jan 1 – Jan 20
Aquarius	Jan 21 – Feb 18	Jan 21 – Feb 19	Jan 21 – Feb 19	Jan 21 – Feb 19
Pisces	Feb 19 – Mar 20	Feb 20 – Mar 21	Feb 20 – Mar 21	Feb 20 – Mar 20
Aries	Mar 21 – Apr 20	Mar 22 – Apr 20	Mar 22 – Apr 20	Mar 21 – Apr 19
Taurus	Apr 21 – May 21	Apr 21 – May 21	Apr 21 – May 21	Apr 20 – May 20
Gemini	May 22 – June 21	May 22 – June 21	May 22 – June 22	May 21 – June 21
Cancer	June 22 – July 23	June 22 – July 23	June 23 – July 23	June 22 – July 23
Leo	July 24 – Aug 23	July 24 – Aug 23	July 24 – Aug 23	July 24 – Aug 23
Virgo	Aug 24 – Sept 23	Aug 24 – Sept 23	Aug 24 – Sept 23	Aug 24 – Sept 22
Libra	Sept 24 – Oct 23	Sept 24 – Oct 23	Sept 24 – Oct 23	Sept 23 – Oct 23
Scorpio	Oct 24 – Nov 22	Oct 24 – Nov 22	Oct 24 – Nov 22	Oct 24 – Nov 22
Sagittarius	Nov 23 – Dec 22	Nov 23 – Dec 22	Nov 23 – Dec 22	Nov 23 – Dec 21
Capricorn	Dec 23 – Dec 31	Dec 23 – Dec 31	Dec 23 – Dec 31	Dec 22 – Dec 31

Now let's test the validity of the so called Sun signs found in astrology. Read the twelve sentences below and choose the one with which you most identify your self. Although I have greatly simplified things and omitted details, each statement is associated with a particular sign of the zodiac. Note that the statements below are not in the same order as the signs in the table. Do not read past these twelve items until you have made your choice.

1. My main ambition is to be first and to win.
2. The most important thing to me is to be self-fulfilled and secure.
3. I believe in searching for my own way and not conforming to the ways of society.
4. I need a place to call home for myself and my loved ones.
5. The way others regard my appearance and actions is very important to me.
6. I derive the most pleasure from the work that I do.
7. It makes me happy to make others happy.
8. I believe in living life to its fullest whether at work, love, or play.
9. I like to travel whether it is a real journey or an imaginary trip in my mind.
10. I get the most joy from setting goals and then attaining them.
11. I believe that we all should help one another – that we're all in it together.
12. It is most important to me to follow my heart and my conscience.

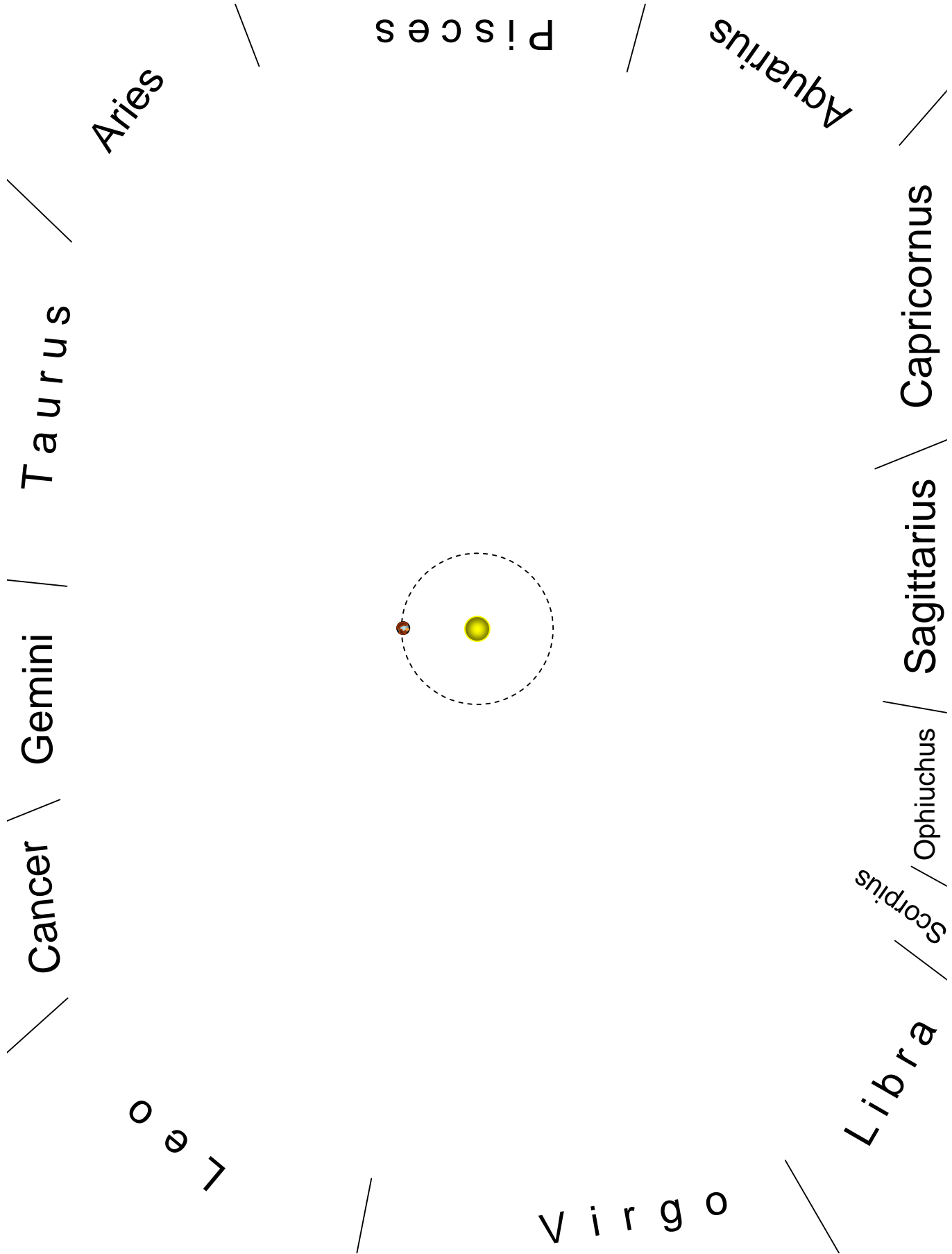
Now let's see if you picked your "correct" sun sign – number one in this list is Ares, number two is Taurus, and so on through number twelve Pisces, in order by date. Did it work?

If this isn't enough, let's look at the real "sun signs". The diagram shows Earth orbiting the Sun. Also shown are approximate borders of constellations intersected by the plane of the Earth's orbit. The position of the Earth shown in the diagram is that for January the first. If you draw a line from the Earth extending through the Sun it will "land" in the constellation Sagittarius. This means that if you are born on January 1 your true "sun sign" is Sagittarius – not Capricorn as in astrology!. Sagittarius is your true sun sign because on January 1 the Sun appears as if it is "in" that constellation based on Earth's position in its orbit relative to the stars and the Sun.

Use the chart to determine your true "sun sign" based on your birth date. To do this you will need to take the following steps:

1. Determine how many days after January 1 you were born.
2. Determine what fraction of a year this is by dividing by 365.
3. Multiply this fraction (or decimal) by 360°.
4. Measure this angle around Earth's orbit counterclockwise from the January 1 position. Mark this position; it shows where in its orbit Earth is on your birthday.
5. Draw a line from the Earth through the Sun and on to the edge of the paper. The constellation in which your line "lands" is your true sun sign – *i.e.* it is the constellation in which the Sun appeared to be on the day you were born.

Note: this is an *approximate* method because the Earth's orbit is shown much too large in the diagram in comparison to the borders of the constellations – the stars are much, much farther away than "the edge of the paper". Also the Earth's exact position on a January 1 varies by a small amount over a four year period.



Here is a table summarizing the location of the Sun by date using the borders of constellations as defined in astronomy:

Capricornus	Jan 23 – Feb 20	Leo	Aug 11 – Sept 16
Aquarius	Feb 21 – Mar 14	Virgo	Sept 17 – Nov 1
Pisces	Mar 15 – Apr 22	Libra	Nov 2 – Nov 24
Aries	Apr 23 – May 17	Scorpius	Nov 25 – Dec 1
Taurus	May 18 – June 22	Ophiuchus	Dec 2 – Dec 20
Gemini	June 22 – July 20	Sagittarius	Dec 21 – Jan 22
Cancer	July 21 – Aug 10		

Note: the exact date of each border crossing can vary by a day depending on what year it is. This occurs in a periodic pattern that repeats every four years, just like in the table shown at the beginning of this exercise.

Summarizing, astrologers choose to ignore the facts! The “constellations” that astrologers use are not based on the actual stars – ironic huh?! The signs as defined in astrology divide the Earth’s orbit into twelve equal sectors – each being 30 degrees wide. As shown by the diagram and the above exercises, the true situation is that the Sun appears to pass through *thirteen* constellations of varying size and duration. It is notable (and hopefully curious) that the astrological signs are basically “off by one” – shifted away from the true constellations of stars by one. For example the astrology Cancer is actually Gemini, the astrology Gemini is actually Taurus, the astrology Taurus is actually Aries, and so on. There IS a logical explanation for this, which we shall see a little later in the course...