

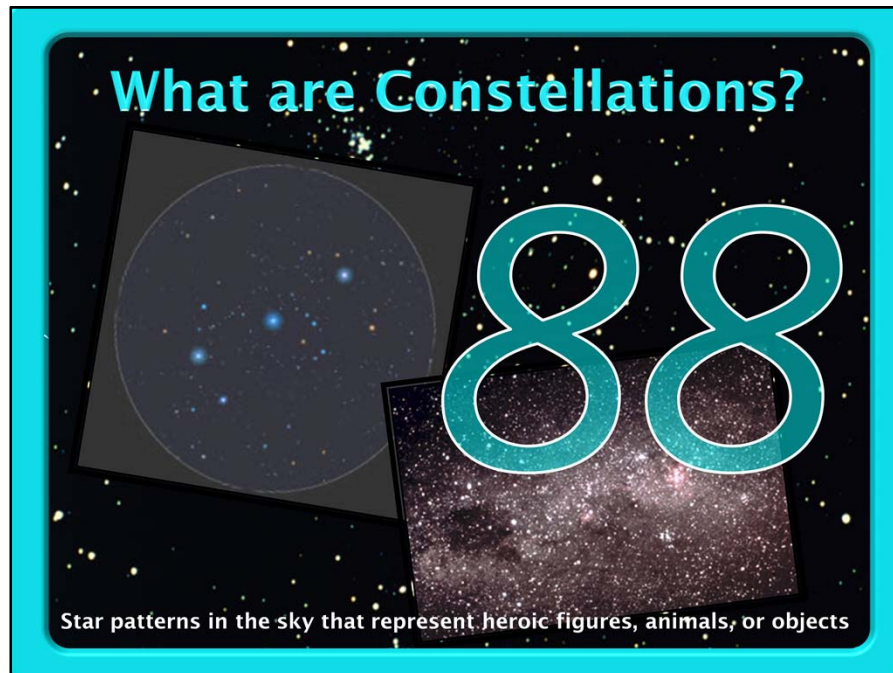
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Constellations



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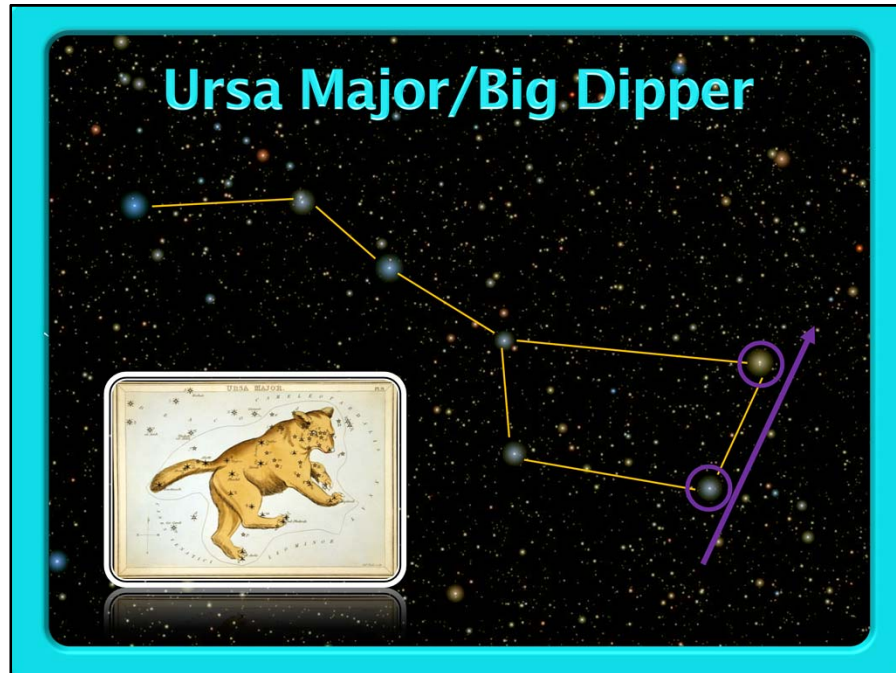


Constellations are star patterns in the sky that represent heroic figures, animals, or objects. Usually the brightest stars make up the majority of the pattern. The brightest stars are given names and are identified with a Greek letter. All visible stars are part of a constellation, whether they are part of the outlining pattern, or lie within the constellation's boundaries. There are 88 constellations across the Northern and Southern Hemispheres.

Constellations can be found in the night sky by looking for the patterns that they make; however, if you want to find a particular star within the constellation, you will need to know where to look. That is why the stars are labeled on sky maps with Greek letters, or the brightest few stars found within the constellation may have names.

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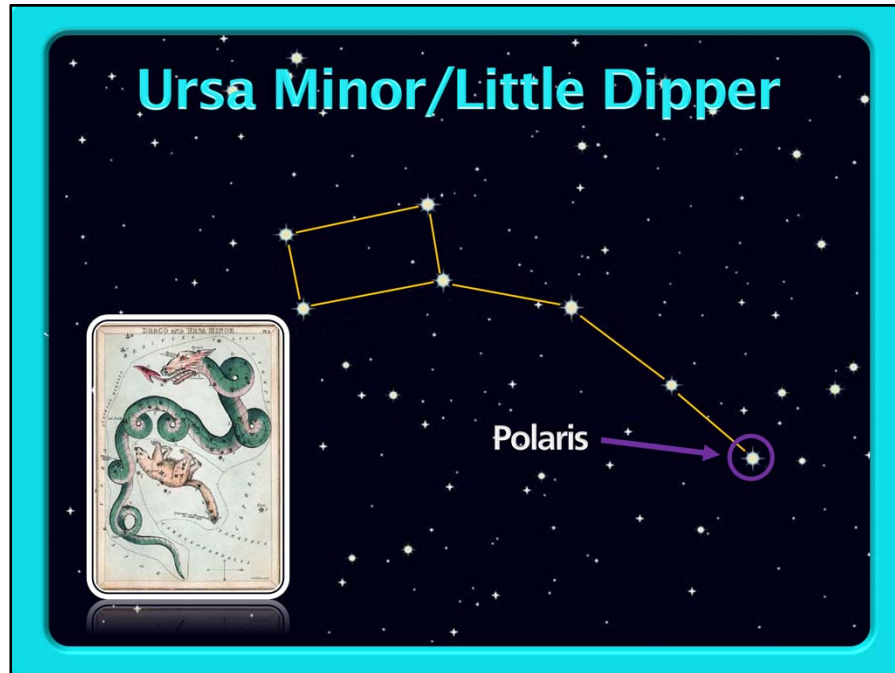
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Do you recognize the constellation shown here? It may be the most famous in the world. If you said the Big Dipper, then you are correct. The Big Dipper is the tail portion of a larger constellation known as Ursa Major, which is Latin for “big bear”. The scoop of the Big Dipper points towards the North Star, or Polaris, which is due north in direction. In addition, several of the stars from this constellation, including Merak and Dubhe, are important for celestial navigation.

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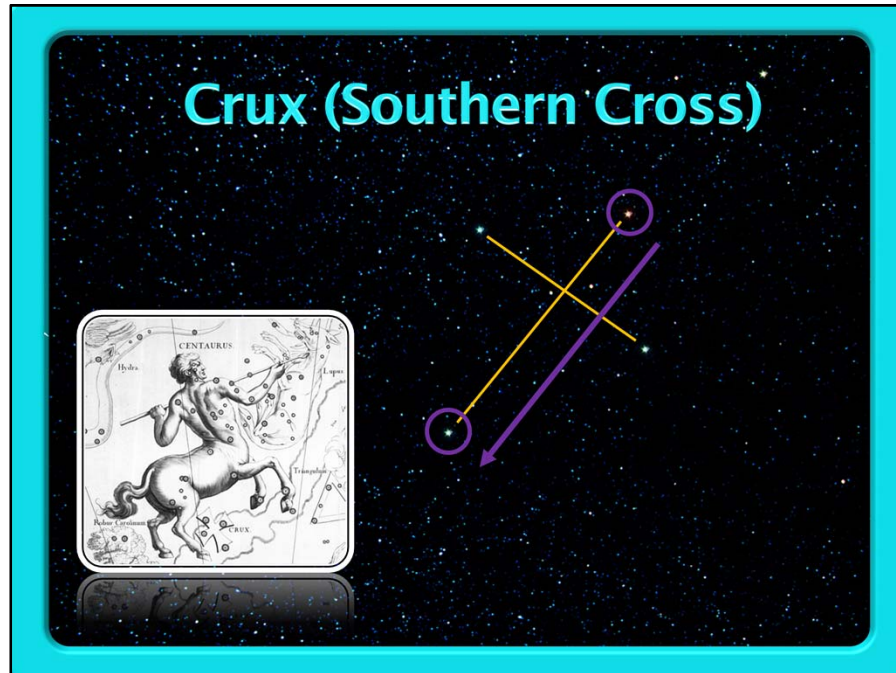
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Similar to the shape of Ursa Major, is Ursa Minor, or “little bear”. Ursa Minor is a constellation in the northern sky. The tail of Ursa Minor contains the Little Dipper, at the end of which lies Polaris, or the North Star. Because Polaris appears motionless in the sky, it seems like all of the other stars seen in the Northern Hemisphere revolve around it. Polaris has been used for celestial navigation as far back as the Roman Empire.

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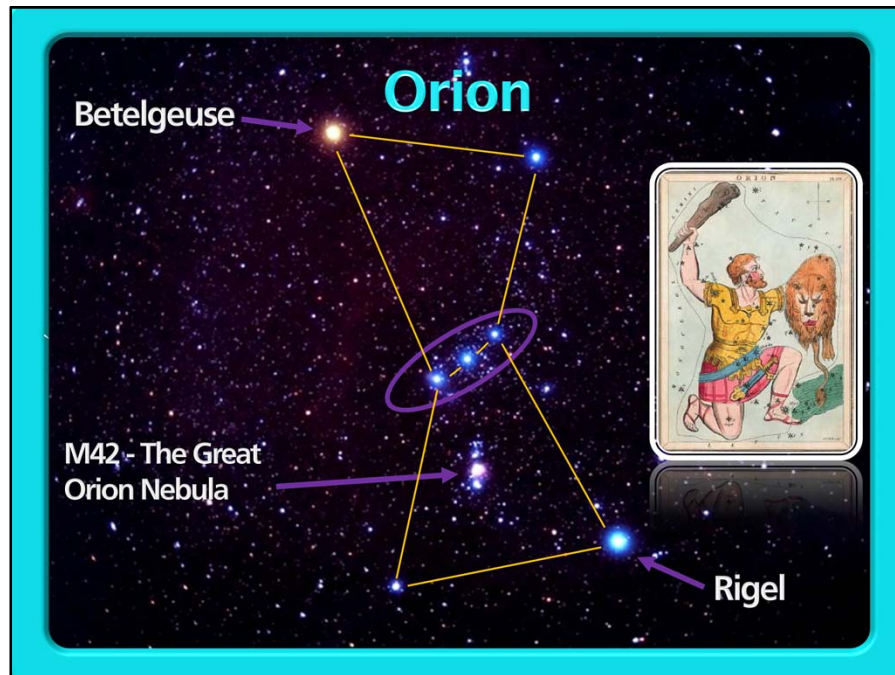
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The constellation Crux is visible in the Southern Hemisphere throughout the year. Four of the main stars in this constellation form the Southern Cross. Unlike the Northern Hemisphere, the southern sky does not have a pole star. Instead, the stars Acrux and Gacrux loosely trace a line towards the Southern Celestial Pole and assist with celestial navigation for sailors in the Southern Hemisphere.

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The constellation Orion is seen here. This constellation is located on the celestial equator, which means that it can be seen throughout the world. The three stars that comprise his belt are easily identified in the winter sky. Notice that not all of the stars are white. Did you know that stars are different colors? The bright red star in the upper left is the Alpha star named Betelgeuse. The bright blue star in the lower right is the Beta star named Rigel. Below the belt, in the sword part of the constellation, is the famous Messier object M42 – the Great Orion Nebula. Messier objects are deep sky objects such as nebulae, galaxies, or star clusters.

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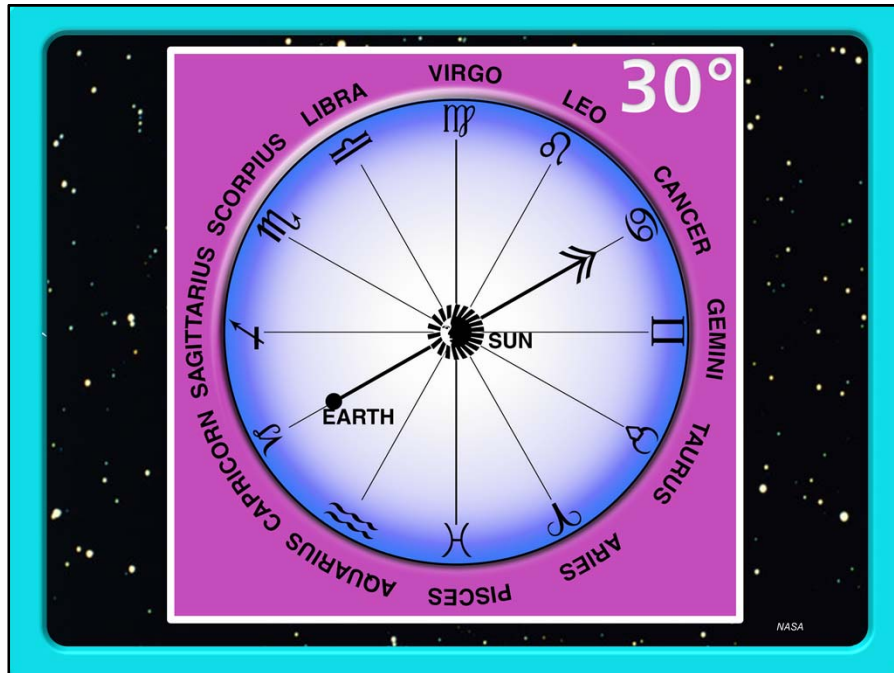
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Forming a noticeable “w” shape, the constellation Cassiopeia is a northern sky pattern. This constellation is named after a queen from Greek mythology who was punished by the gods after she made claims about the beauty of her daughter, as well as her own beauty. The constellation of Cassiopeia is directly opposite from the Big Dipper traveling across Polaris.

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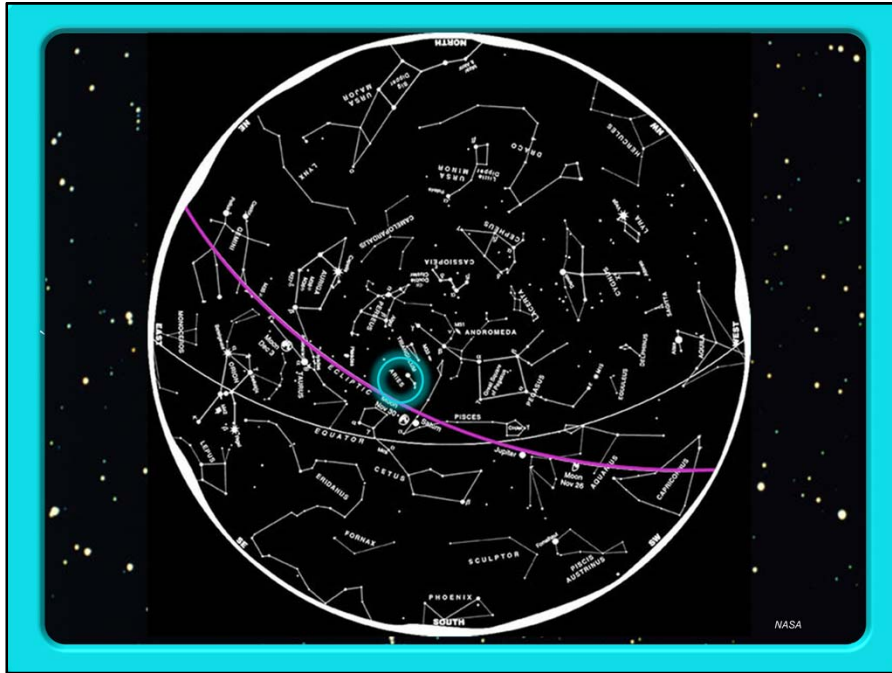
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In ancient times, the Sun appeared to move in front of a different constellation nearly every thirty days. The zodiac is comprised of twelve divisions along the ecliptic, the apparent path of the Sun around the sky. Notice that each division has a sign and is equal in size, with each arc measuring thirty degrees. Actually, it is the Earth that moves, but the ancients did not realize this. Instead, they focused on how the Sun moved across the ecliptic throughout the year.

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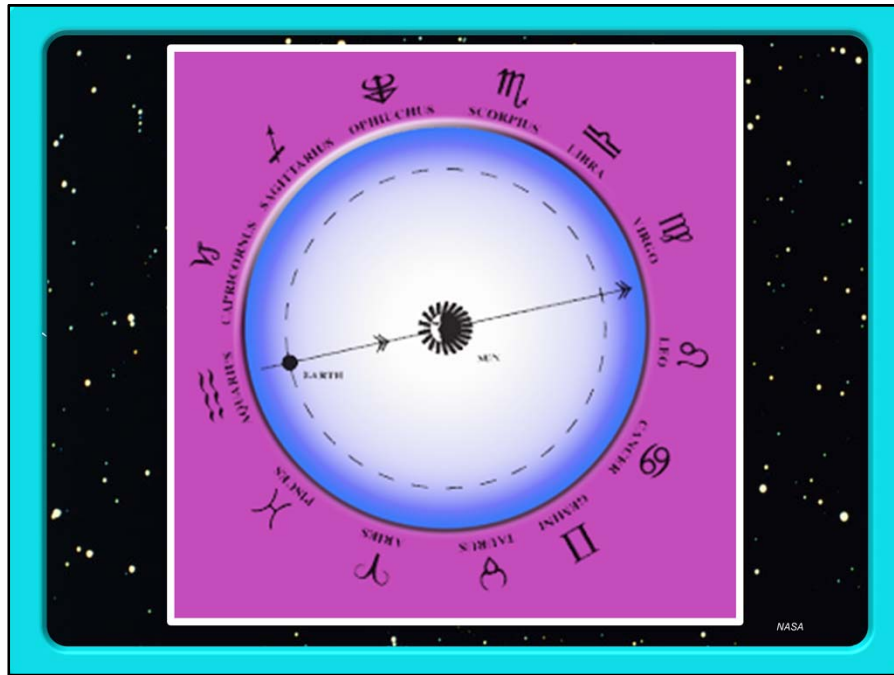
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Each sign of the modern zodiac rests on a point along the ecliptic longitude. Aries, the beginning of the zodiac, rests at zero degrees longitude. The signs of the zodiac also have corresponding constellations; however, the constellations of the zodiac are generally unrelated to the divisions, and may span more than one division of the zodiac along the ecliptic. The constellations no longer align with the zodiac divisions of the same names, since the Earth's precession causes a small variance in time. That variance adds up over hundreds and thousands of years; therefore, the zodiac sign under which you were born based on the calendar may not be where the sun actually sat along the ecliptic and the zodiac divisions on the day you were born.

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Did you know that there are actually thirteen constellations associated with the zodiac? You may recognize the most famous twelve, but the little-known constellation Ophiuchus rests between Sagittarius and Scorpio. The ancients chose to remove one since it did not fit within their yearly calendar of twelve months. Still, at one point during the year, the sun aligns with Ophiuchus for almost eighteen days.

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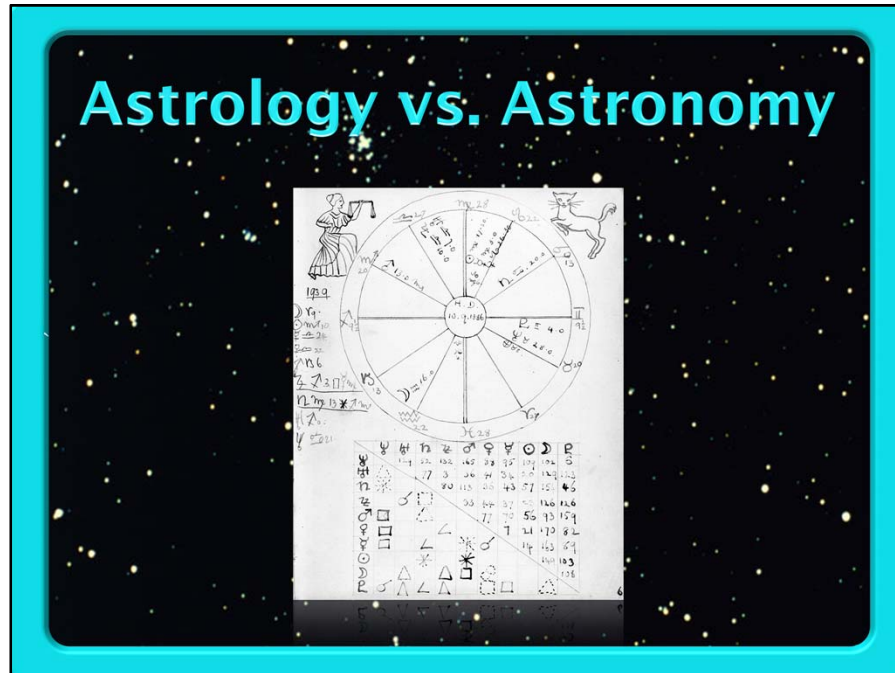
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Sign	Tropical	Sidereal	Astronomical
Aries	March 21- April 19	April 14- May 14	April 19- May 13
Taurus	April 20- May 20	May 15- June 14	May 14- June 19
Gemini	May 21- June 20	June 15- July 16	June 20- July 20
Cancer	June 21- July 22	July 17- August 16	July 21- August 9
Leo	July 23- August 22	August 17- September 16	August 10- September 15
Virgo	August 23- September 22	September 17- October 17	September 16- October 30
Libra	September 23- October 22	October 18- November 16	October 31- November 22
Scorpio	October 23- November 21	November 17- December 15	November 23- November 29
Sagittarius	November 22- December 21	December 16- January 14	December 18- January 18
Capricorn	December 22- January 19	January 15- February 12	January 19- February 15
Aquarius	January 20- February 18	February 13- March 14	February 16- March 11
Pisces	February 19- March 20	March 15- April 13	March 12- April 18

If you were to look up the zodiac calendar, you would see three sets of dates: tropical, sidereal, and astronomical. Western culture uses the tropical dates, which are measured every thirty degrees, or nearly thirty days from the zero point being the vernal equinox, or the first day of spring in the northern hemisphere. Sidereal dates are based on fixed locations of the stars. Astronomical dates are based on the actual sizes or widths of the constellations; therefore, the divisions would be unequal. Notice the gap in the astrological dates between Scorpio and Sagittarius. Those eighteen days are when the sun aligns with Ophiuchus, the thirteenth constellation recognized in the astronomical zodiac.

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A horoscope shows the location of the sun, moon and planets among the zodiacal signs at a particular moment, like the date and time of a person's birth. Astrologists believe that a person's fate can be interpreted through his or her horoscope. However, scientific evidence contradicts these beliefs. Astronomers do not recognize the field of astrology as a science, since it has no links to the physical world.