

GUIDE TO THE STAR DECK

Introduction

As an introduction to astronomy, you cannot go wrong by first learning the night sky. You only need a dark night, your eyes, and a good guide. This set of cards is not designed to replace an atlas, but to engage your interest and teach you the patterns, myths, and relationships between constellations. They may be used as “field cards” that you take outside with you, they may be played in a variety of games, and they can be used by teachers as an educational aide.

The cultural and historical story behind the constellations is a subject all its own, and there are numerous books on the subject for the curious. These cards show the modern 88 constellations as designated by the International Astronomical Union. Many of them have remained unchanged since antiquity, while others have been added in the past century or so. The majority of these constellations are Greek or Roman in origin and often have one or more myths associated with them. Many of these myths are summarized in the accompanying Constellation Guide.

I have often followed convention, or at least the majority, in the patterns I have drawn for each constellation. In some cases, I have diverged from convention and drawn the pattern that I myself see. I have attempted to limit each constellation to stars of 4th magnitude or brighter, so that they are visible from most suburban viewing locations. In a few rare cases, dimmer stars are required. In some instances, I have left out easily seen stars because they do not contribute directly to the pattern, and may even detract from it.

Many people make the mistake of trying to “see” the shape of the constellation in each pattern of stars. I say mistake, because often the pattern bears little resemblance to the name. In my experience, it is better to develop some mnemonic between the pattern and the name. In many cases, the name is appropriate for the mnemonic – Delphinus looks like a dolphin. In others, one’s imagination must be employed a bit more rigorously. Under each description, I have given the mnemonic that I use. You may find it helpful, or you may find one better for you.

For users in the northern mid-latitudes (N. America, Europe, Asia), a 52 card subset of this deck is sufficient to cover every constellation that can be easily seen, happily corresponding to a standard 52 card deck for playing card games.

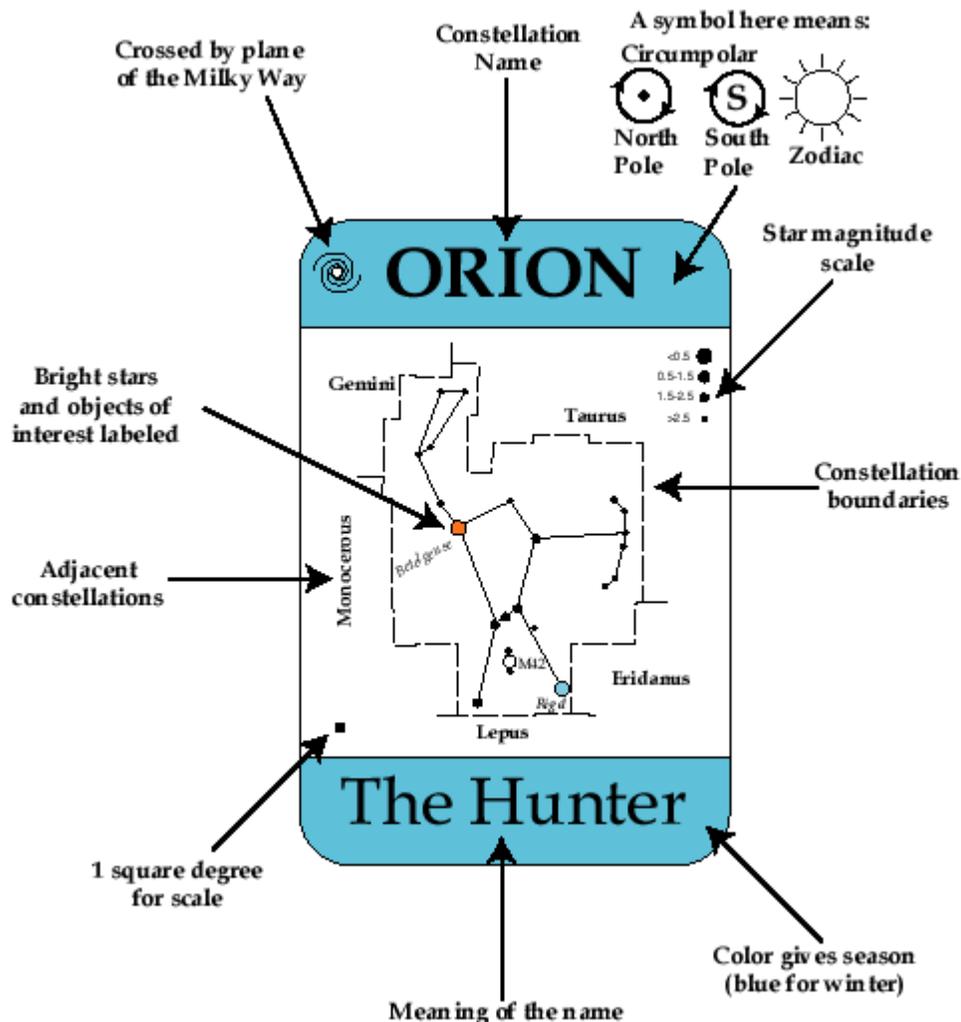
Features of the Cards

There are four card “suits” corresponding to the four seasons; green for northern spring (March-May), yellow for northern summer (June-August), red for northern autumn (September-November), and blue for northern winter (December-February). The season of each card indicates the best time of year to see the associated constellation. Each season has three zodiac cards (12 total), corresponding to “face cards” in a standard playing deck. These are noted with a sun symbol to the right of the constellation name.

If the constellation is mostly circumpolar from mid-latitudes, a circular symbol is placed to the right of the name; those circumpolar about the southern celestial pole have a similar symbol with an “S” in the middle. If a constellation falls along the plane of the Milky Way (the galactic equator), a pinwheel symbol is placed to the left of the name. The meaning of the constellation is located along the bottom of the card. In some cases, a constellation may have several meanings. For example, Boötes is sometimes referred to as the “bear driver”, “herdsman”, “ox driver”, “ploughman”, or “hunter”! One of these is chosen for the card, and the others are listed in the Constellation Guide.

In order to keep the star symbols simple, I have shown only four star magnitude categories; brighter than 0.5, 0.5-1.5, 1.5-2.5, and dimmer than 2.5. As noted earlier, I have tried to keep the limiting magnitude to 4, however in a few cases stars as dim as 5th magnitude are shown (naked eye limitations are ~4-5 in suburban locations and ~6 under dark skies). The key to the star magnitude is shown in the upper left or right corner.

Each constellation boundary as defined by the IAU is drawn using dashed lines. Any star within these boundaries, whether illustrated on the cards or not, belongs to that constellation. The adjacent constellations are listed outside of the boundary to help keep the position of each constellation in perspective. In addition, a small square symbol is shown in the bottom left or right of each card; this square represents one square degree of the sky (roughly equivalent to placing four touching full moons in square shape) and is used to give one a sense of scale. If the constellation is relatively small, it is enlarged to fill the card space – so the square degree symbol is enlarged as well. The brighter stars have been named and colored to show their approximate true color. Finally, prominent galaxies, nebula, and star clusters are shown. Their common name is given, or their designation in the Messier catalog of deep sky objects. For example, the Great Nebula in the sword of Orion is Messier 42, abbreviated M42. Brief descriptions of these objects are given in the Constellation Guide.



STAR DECK CONSTELLATION GUIDE

In the following descriptions, I have briefly summarized one or more of the myths associated with the constellation, where appropriate. In some cases, there is no mythology associated with the constellation. Roman and Greek names for the Olympians and Titans are used interchangeably since the stories are often told in both forms. Table I lists the Roman name and equivalent Greek name for each character discussed.

Table I

Roman and Greek gods

<u>Roman</u>	<u>Greek</u>
Jupiter	Zeus
Juno	Hera
Mercury	Hermes
Venus	Aphrodite
Mars	Ares
Saturn	Chronos
Neptune	Poseidon
Pluto	Hades
Hercules	Heracles
Ceres	Demeter
Cupid	Eros

Following each description, there is a summary of astronomical features if there are any of interest. Finally, there is a brief description of how to remember the constellation (or at least how I remember it).

References

I can recommend two excellent books and one web site with additional information.

Patterns in the Sky by Julius D. W. Staal. 1988. The McDonald and Woodward Publishing Company, Blacksburg, VA.

Star Names: Their Lore and Meaning by Richard Hinckly Allen. 1963. Dover Publications, Inc. New York, NY.

Wikipedia (on-line).

Andromeda – The Princess

Daughter of King Cepheus and Queen Cassiopeia of Ethiopia, the Princess Andromeda became a pawn in Olympic chess. Cassiopeia was vain, and boasted that she was more beautiful than the Nereids, sea nymphs that inhabited the oceans. Upon hearing the boast, the Nereids complained to their father, Poseidon, Lord of the Seas. To punish Cassiopeia, Poseidon created Cetus, a sea monster (also referred to as a whale) which ravaged the coastline of Ethiopia, killing everyone and everything in its path. Upon consulting an oracle, King Cepheus learned that the only way to appease Cetus would be to sacrifice of his daughter, Andromeda, to the monster. She was chained to the coast to await her fate, when out the clouds swooped Perseus, mounted on the winged horse Pegasus and carrying the head of Medusa, the snake-haired Gorgon. Anyone or anything that looked directly at Medusa turned instantly to stone, which is the fate that befell Cetus. Perseus then freed Andromeda and married her.

Within this constellation is the largest nearby galaxy, Andromeda galaxy. This is a large spiral galaxy that is the twin of our own. Its fuzzy glow can easily be glimpsed under dark skies with the unaided eye, but may prove difficult in the suburbs without binoculars. You will note that Andromeda is adjacent to or nearby the key players in the legend above: Perseus, Pegasus, Cepheus, Cassiopeia, and Cetus.

How to remember Andromeda: Two legs trailing off behind Pegasus as the unsuspecting Andromeda is plucked from the shore.

Antlia – The Air Pump

Many of the southern constellations were named for the instruments and tools that helped usher in the age of scientific exploration. An air pump is useful for generating pressurized gasses and for drawing a vacuum.

How to remember Antlia: With only four dim stars, one might be convinced that you can see an old fashion pump handle and piston. Alternatively, a modern air pump is often in a box which is more like the shape drawn on the card.

Apus – Bird of Paradise

Circumpolar (South Pole)

Those southern constellations not named for instruments of science and exploration were often named for the exotic discoveries noted by European explorers when they visited tropical or southern lands (of course they weren't that exotic to the natives who lived there!). This is one such constellation, named for the colorful and richly plumed birds of many south Pacific lands.

How to remember Apus: With only three faint stars shown, I see the body and long tail of a bird fluttering endlessly around the south celestial pole.

Aquarius – The Water Bearer*Zodiac Sign*

Water is necessary for life. In ancient times, when the constellations were originally depicted and named, the wet season began about the same time that the sun entered this constellation (in the Mediterranean, there are essentially two seasons: cool and wet, and hot and dry). Thus, it was natural that this group of stars should somehow be connected with water. You will find that Aquarius is surrounded by other water-related signs: Pisces the fish, Eridanus the river, Cetus the sea monster, Capricorn the sea goat, Delphinus the dolphin, and Pisces Australis, the southern fish. According to several authors, this entire region of the sky is referred to as “The Sea”.

The Water Bearer is often depicted as a man pouring water from an urn. However, this constellation is also sometimes referred to as the Cup Bearer, a person who waited upon important people and brought them water. In the past, this sign has been associated with Ganymede, a young mortal boy kidnapped by Jupiter to wait on him at Olympus. Aquila the Eagle, Jupiter’s bird, performed the actual kidnapping.

How to remember Aquarius: The asterism of four stars near the top reminds one of the water faucet handle on those old-fashioned bathtubs or sinks. The group of stars below makes a fine bucket to pour in the water.

Aquila – The Eagle*Milky Way*

This constellation was said to represent the Eagle of Jupiter, a regal symbol appropriate for the king of the gods. He performed many unpleasant tasks for Jupiter, including the kidnapping of Ganymede (see Aquarius), and the punishment of Prometheus for giving fire to mankind.

The bright star in Aquila is Altair, and is one of the brightest stars in the sky. Together with Deneb (Cygnus) and Vega (Lyra), it makes up the Summer Triangle. The Milky Way travels in spectacular fashion through this constellation in the summer.

How to remember Aquila: Altair is bright like an eagle’s eye, and there are obvious wings and the trunk and tail of the main body.

Ara – the Altar*Milky Way*

An altar is a place where fires are stoked and sacrifices are made to the gods. According to Staal, this one might represent an altar built by the Greek gods after defeating the Titans. Wikipedia states that it refers to the sacrifice of Lycaon which resulted in the formation of a wolf and the constellation Lupus. There are numerous other possibilities. The nearby Milky Way has even been invoked as smoke issuing from the altar.

How to remember Ara: I see a charcoal grill – that’s kind of like an altar, especially when I’m barbecuing chicken or ribs on a peaceful summer evening.

Aries – The Ram*Zodiac Sign*

This is the first zodiac sign, and there are many stories of its origin. One story is that this is the Ram with the Golden Fleece that Jason and the Argonauts were sent to recover. Another story is that this represents the rams which Odysseus and his men hid under to escape from the blinded Cyclops. This story has the additional appeal in that the Sun is in Aries at the beginning of spring. The analogy is that Odysseus hid under a ram to escape from the dark cave of the Cyclops into the bright outdoors, while in the Ram the sun returns from the dark of winter into the light of spring.

Thousands of years ago, the sun entered Aries on the first day of spring, or the Spring Equinox. In consequence, the Spring (or Vernal) Equinox is sometimes called the First Point of Aries. However, the precession of the equinoxes (due to the slow wobble of the Earth's spin axis) has shifted the equinoxes so that it is now in the constellation Pisces. Many cultures celebrated the Spring Equinox since it heralded the arrival of warmer weather and the growing season. At least some aspects of our modern Easter derive from these celebrations.

How to remember Aries: A curved ram's horn.

Auriga – The Charioteer*Milky Way*

This constellation has also been referred to as the Ploughman. The bright star Capella represents a she-goat. One responsibility of ploughman and charioteers was the care of livestock, and Capella represents this. In some stories, Capella represents the she-goat that nursed or provided milk for the infant Jupiter when he was being hidden from the wrath of his father Saturn.

The corner star in this constellation is also one of the horns of Taurus, the Bull. The Milky Way goes through Auriga, and there are several star clusters in the center that can just be glimpsed by eye in dark skies and are easily seen in binoculars.

How to remember Auriga: I see a pentagon, and remember it's Auriga.

Boötes – The Bear Driver

This constellation has also been referred to as the Ox Driver, the Ploughman, the Hunter, and the Herdsman! There are interesting stories behind each name. However, I have chosen to refer to it as the Bear Driver, a man who, with his two hunting dogs (Canes Venatici), drives the two bears (Ursa Major and Minor) around the pole.

The star Arcturus is one of the brighter stars in the sky.

How to remember Bootes: Most depictions of Bootes show him wielding a club of some kind. I see the entire constellation as one gigantic club. However, one should think twice before going after a bear with a club and two dogs.

Caelum – The Chisel

Two faint stars make up this constellation, named for the tool used by a sculptor to create wonderful works of art. Interestingly, there is another meaning for caelum – “the sky”.

How to remember Caelum: Two stars make a straight line and resemble a chisel.

Camelopardus – The Giraffe

Circumpolar

The name is said to derive from “camel-leopard” or spotted camel, which is what one might call a giraffe if confronted with it for the first time. All of the stars in this constellation are faint and require dark skies to see.

How to remember Camelopardus: I have a tough time with this faint constellation. One can, with some imagination, see the a giraffe in profile, with two long, skinny legs, and a long neck.

Cancer – The Crab

Zodiac

The classical story is that the crab was sent by Juno (Hera) to distract Hercules while he was trying to kill the Hydra, one of his twelve labors. You’ve got to wonder what she was thinking – Hercules simply smashed it with his foot, and went on to kill the Hydra. This is the faintest constellation in the zodiac, but it does contain the Praesepe, or Beehive. This star cluster can just be seen as a fuzzy patch with the naked eye, and is spectacular in binoculars and small telescopes.

In ancient times, the sun was in the constellation Cancer on the Summer Solstice (first day of summer, around June 21st). This coincides with the sun being at its highest point in the sky all year (for the northern hemisphere, lowest point for those in the southern hemisphere). Many cultures celebrate some form of summer festival commemorating this day. If you look on a globe, you find the Tropic of Cancer to be a circle above the equator at a latitude of 23.5° North. Everywhere on this line, the sun is directly overhead at noon on the Summer Solstice. Because of the precession of the Equinoxes, however, the sun is now in the constellation Taurus on the Summer Solstice. (Should we change this circle name to the Tropic of Taurus?)

How to remember Cancer: The Praesepe is relatively easy to see in moderately dark skies and appears brighter to me than the rest of the constellation. In my view, the Praesepe is the head with two beady eyes projecting from it, and claws or legs on either side of these. My crab has only a single leg.

Canes Venatici – The Hunting Dogs

This rather unremarkable constellation represents the two hunting dogs of Boötes, the Bear Driver. The brightest star in this constellation is named “Cor Caroli”, or the “Heart of Charles II”, and is a colorful (orange and blue) double star in small telescopes.

How to remember Canes Venatici: Two stars, two dogs.

Canis Major – the Great Dog

This constellation represents the larger of two hunting dogs belonging to Orion, and can be seen to be sitting at his master's feet, or in hot pursuit of Lepus, the Hare.

Sirius, also known as the "Dog Star", is the brightest star in this constellation and, in fact, is the brightest star in the sky. Sirius was of great importance to ancient Egypt. In the early days of Egypt (~3000 B.C.E.), it was observed to rise just before the sun (heliacal rising) on the summer solstice (see Cancer). Thus it marked the new year for the Egyptians, and coincidentally signaled the beginning of the Nile's annual flooding. Nowadays, the heliacal rising occurs later in the summer (mid-August) when the weather can be overbearingly hot and uncomfortable. As a result, we refer to these as "Dog Days".

Sirius is also of interest because it has a companion star which is a white dwarf. These stars are incredibly dense; a teaspoon of them would weigh tons.

How to remember Canis Major: Sirius is the gleam in the dog's eye, and it sits at its master's feet.

Canis Minor – the Lesser Dog

This constellation represents the smaller of Orion's hunting dogs. There is little to note about it except the bright star Procyon. Interestingly, Procyon, like Sirius, has a white dwarf companion.

How to remember Canis Minor: It rises a bit earlier than Canis Major. A playful young dog (with another bright eye) that is always up before its elder.

Capricornus – the Sea Goat

Zodiac

This constellation represents a frightening episode in the history of the Olympian gods. The Titans were the predecessors of the Olympians, but were put down in a fierce battle by Jupiter (Zeus) and company. In one of several attempts at revolt, a powerful and demonic monster, Typhon, was created by Earth and sent against the gods. It came upon them swiftly and without warning. In their fear, they changed into animal shapes to escape. Jupiter took the form of a Ram (another story for Aries). The satyr (goat-man) Pan was drinking at the shore when Typhon appeared. He literally "pan-icked" and tried to escape using the form of a fish. In his rush though, he only got it half-right and ended up with the upper body of a goat and lower body of a fish.

In ancient times, the sun was in the constellation Capricornus on the Winter Solstice (first day of winter, around Dec 21st). This coincides with the sun being at its lowest point in the sky all year (for the northern hemisphere, highest point for those in the southern hemisphere). Festivals commemorating the event were common in all cultures since from this point on, the sun would rise a little higher in the sky every day. If you look on a globe, you find the Tropic of Capricorn to be a circle below the equator at latitude 23.5° south. Everywhere on this line, the sun is directly overhead at noon on the Winter Solstice. Because of the procession of the Equinoxes, the sun is now in the constellation Sagittarius on the Winter Solstice.

How to remember Capricornus: It looks like a toy boat, but it's really a sea goat.

Carina – The Argo’s Keel*Circumpolar (South Pole), Milky Way*

In ancient times, the Argo was a truly gargantuan constellation named for the ship that carried Jason and the “Argo”nauts on their quest to capture the Golden Fleece. The story of that adventure is far too long to summarize – it rivals the Odyssey in famous characters (Hercules, Castor, Pollux, Atalanta, and Medea, among others) and adventures. Because the constellation Argo took up so much sky, it was split into three separate constellations – the keel, sail, and stern. It contains the second brightest star in the sky, Canopus, which is where the rudder of the ship was located. Under good conditions, this star can be just glimpsed rising above the horizon from the southern U.S., Europe, and Asia (basically anywhere below 35 degrees latitude).

How to remember Carina: It looks like an upside-down Viking long boat to me, with a curled prow.

Cassiopeia – the Queen*Circumpolar, Milky Way*

The constellation represents the Queen sitting on her throne. The story of Cassiopeia is really the story of her daughter, Andromeda, which was set in motion by the vanity of Cassiopeia. As punishment for her bragging, it was said the sea nymphs had Cassiopeia placed in the heavens destined to go around and around the pole. Half of the time she was upright, the other half she was tipped over in a very un-regal fashion.

The Milky Way is not particularly evident during the Northern Winter months. However, one exception to this is the region around Cassiopeia where it is splendid.

How to remember Cassiopeia: Some see a throne. I see a giant M when above the pole, or W when below. Since the M is more often and easily seen, think of it as the first letter of Cassiopeia’s motto: ME, ME, ME!

Centaurus – The Centaur*Milky Way*

Centaurus are four-legged creatures that on the bottom are horse, and their neck and head replaced by the torso, arms, and head of a man. They are usually depicted as wild and savage creatures. The centaur most familiar to modern students is Firenze, an ally of Harry Potter in the series by J.K. Rowling. The most famous centaur of mythology was Chiron, who was known as an educator and scholar. He was the teacher of many mythological men and gods, including Apollo and Achilles.

Centaurus is notable because its brightest star, Alpha Centauri, is the closest star system (it’s actually a triple star!) to the Earth. It’s a little over four light-years away, meaning that if you shined a light or beamed a radio transmission toward it, the light beam or radio wave would take over four years to reach it. If you work out the math, it’s about 26 trillion (26 followed by 12 zeros) miles or 42 trillion kilometers. Another name for Alpha Centauri is Rigel Kent, short for Rigel Kentaurus. You can see where the Kentaurus part comes from (hint: change the K to a C), but what is Rigel? It’s derived from Arabic and means “the foot”. So Rigel Kent means the foot of the centaur. We’ll see the name Rigel again for a star in the constellation Orion.

How to remember Centaurus: As often depicted, the shape appears to be the profile of a centaur with both front legs visible, one hind-leg, and arms outstretched from the torso.

Cepheus – the King*Circumpolar*

The story of Cepheus is, like that of Cassiopeia, the story of his daughter Andromeda. Cepheus is the one who consults the oracle to find out why the sea monster (Cetus) is tearing up his country and killing his subjects. And, it's Cepheus who ultimately makes the decision to sacrifice his daughter for the sake of his kingdom. I say Cassiopeia would have been a more appropriate choice. Luckily, Perseus got him off the hook.

How to remember Cepheus: A great and empty house turned upside down represents the palace (and life) of this unfortunate king.

Cetus – the Sea Monster (or Whale)

This constellation is quite spread out, and none of the stars are particularly bright. As told in the story of Andromeda, this represents the monster sent to punish the Ethiopians for the boasting of their Queen Cassiopeia. Various stories have various monsters, but at least some of the myth may have originated from early glimpses of or stories about whales. It is no coincidence that the order of mammals to which whales belong is the “cetaceans”. Note that this constellation is in the middle of the larger region sometimes referred to as the “Sea” (see Aquarius).

Cetus is home to one of the more famous variable stars, Mira, which means “wonderful”. Mira has a long period of approximately 330 days. For five months or so, it is so dim it cannot be seen without a telescope. Then it slowly increases in brightness until it is second magnitude – about as bright or brighter than any star in this constellation. After about two weeks at its peak, it slowly fades to invisibility before repeating the cycle.

How to remember Cetus: I see the head and body of some type of monster.

Chamaeleon – The Chameleon*Circumpolar (South Pole)*

One of the many marvelous and exotic creatures discovered during the sea voyages of discovery, the chameleon must have made quite an impression with its remarkable ability to camouflage itself. Its name is apt since its brightest star is around 4th magnitude, making this one of the more difficult constellations to pick out.

How to remember Chamaeleon: A faint and long and narrow lizard that endlessly skirts around the south celestial pole.

Circinus – The Drawing Compass*Circumpolar (South Pole), Milky Way*

In an age of rapid invention and nautical exploration, the drawing or drafting compass was invaluable for drawing precise circles and measuring distances between objects on schematics and places on maps. This constellation commemorates its importance.

How to remember Circinus: As drawn, it greatly resembles a drawing compass.

Columba – The Dove

In Greek mythology, Jason (of the Argonauts) used the flight of a dove to help chart a safe course between clashing rocks. Perhaps more famous to westerners is the dove sent out by the biblical Noah to determine when the great flood had receded, or the dove that descended onto Jesus after his baptism. The Islamic prophet Mohammed is also reported to have had a dove, symbolizing the favor of heaven, which would light on his shoulder.

How to remember Columba: I see a dove in profile with tail up (part toward Canis Major), head level (pointing toward Caelum), and wing at full down stroke (toward Pictor).

Coma Berenices – the Hair of Berenice

A king of Egypt, Ptolemy 2nd, went to battle against the Assyrians. His wife and Queen, Berenice, offered her hair as a sacrifice to Venus (Aphrodite) if she would bring him safely home. He came home safely and she did as promised. However, the locks were stolen from the altar and the king became incensed. Thinking quickly, the court astronomer (who may have been the culprit) told the king and queen that Venus herself had placed the shorn hair in the heavens, and pointed out the region of the sky known now as Coma Berenices. The constellation itself is not much to brag about, but under dark skies, the area literally sparkles with closely spaced stars.

From an astronomical standpoint, this constellation is home to many star clusters, galaxies, and nebulae. Perhaps more interesting, the North Pole of the Milky Way Galaxy (or North Galactic Pole) can be found in this constellation.

How to remember Coma Berenices: The group of three stars isn't much, but under dark skies, it is not difficult to imagine that this area contains the highlights of dark and lustrous hair.

Corona Australis – The Southern Crown

Milky Way

This constellation is thought to represent a crown put in the heavens by Bacchus, the god of wine and revelry, to honor his mother, Semele. Interestingly, Bacchus is involved in the other crown constellation, Corona Borealis (see below). An alternative story says that it is the crown of Sagittarius.

How to remember Corona Australis: Although faint, the curve of stars in this constellation could resemble a crown.

Corona Borealis – the Northern Crown

This constellation is also referred to as Ariadne's Crown. Ariadne was the mortal daughter of King Minos of Crete and was said to be very beautiful. She fell in love with and married Theseus, a Greek hero, after he slew the Minotaur on the island of Crete. However, she also caught the eye of the god Bacchus (god of wine and revelry) who, some say, ordered Theseus to abandon her. Whatever the reason, Theseus did abandon Ariadne and she became the Bride of Bacchus, and an immortal. The crown in the sky signifies her betrothal and marriage to the god.

How to remember Corona Borealis: It appears to be a tiara, with the brightest star in the fore.

Corvus – the Crow

The Crow (also called the Raven in earlier references) was the bird of Apollo. One story has that Apollo changed into a crow to escape the Typhon. Another says that the crow was originally a different color (some say snow white, others silver) and had a beautiful voice. He was once sent on an errand by Apollo to fetch a cup of water (Crater). Along the way, the crow was distracted by food and returned much later than he should have. As punishment, Apollo turned him black and gave him the terrible voice we know the crow by today. In addition, he set both the crow and cup near the Hydra with the order that the Hydra prevent Corvus from drinking (from the cup) forever. Finally, a third story says Apollo turned the crow black for being the bearer of bad news – in this case, it was the impending marriage of the woman Coronis to another man. Coronis was carrying Apollo's child at the time (see Ophiuchus).

How to remember Corvus: A trapezium of stars with a short “tail”, it sits adjacent to Crater, and on the back of the Hydra.

Crater – the Cup

One story has this constellation to be the cup for which Apollo sent his crow (see Corvus). Other stories present it as the cup (or goblet) of Bacchus, Achilles, Hercules, among others! Another interesting story, attributed to the Hebrews, is that it represents the story of the stolen (planted) cup found in the grain sack of Benjamin in the story of Joseph. Yet another story, attributed to early Christians, is that represents the cup of Christ, or Holy Grail.

How to remember Crater: Another trapezium of stars, it sits next to Corvus and on the back of the Hydra. In darker skies, a grouping of faint stars in the shape of a bowl can be seen connected to the trapezium, making it appear more like a goblet.

Crux – The Southern Cross

Circumpolar (South Pole), Milky Way

Originally part of the constellation Centaurus, the stars in the Crux were later separated to form this small but easy-to-see constellation near the south celestial pole. The significance of this constellation to western Christianity is obvious. Other cultures have attributed this group of stars to objects as disparate as ducks (Tonga) and anchors (Maori) (see Wikipedia for an extensive list of other cultural interpretations).

How to remember Crux: Probably one of the easiest southern constellations to see and pick out. Be careful not to mix it up with the “False Cross” (see Vela).

Cygnus – the Swan

Milky Way

This group of stars has been called one type of bird or another by many cultures, although it is also commonly referred to as the Northern Cross. There are two major myths associated with the swan designation. One myth is that Jupiter changed himself into a swan (the bird of Venus, goddess of love) in order to first attract Leda, the mother of Pollux and Helen of Troy by Jupiter. A second story is that this represents the devotion of Cynus (later changed to Cygnus) to his friend Phaethon. Phaethon was the son of Helios, the sun god (also Apollo in some stories). One day he drove the chariot of the sun across the sky, but lost control, was killed by Jupiter, and landed in the river Eridanus. Cynus dove over and over into the river until he recovered the body of his friend. For his faithfulness, he was transformed into a swan (with a slight name change) and placed in the sky.

Cygnus lies along a beautiful stretch of the Milky Way. The brightest star, Deneb, is one of three stars (along with Altair and Vega) that make up the Summer Triangle. Its name means “tail of the hen” and not surprisingly forms the tail of the swan. The head of the swan is Albireo and is noteworthy as perhaps the most beautiful double star in the sky. One only needs binoculars or a small telescope to observe the beautiful golden yellow and azure blue pair.

How to remember Cygnus: It is easy to see a large cross or a swan flying along the course of the Milky Way.

Dorado – The Dolphin

Circumpolar (South Pole)

Named for a large and colorful species of fish (one of which is the more familiar Mahi-mahi) observed by European sailors during their southern voyages. These fish are not dolphins (which are mammals) but often behave like them, swimming very quickly and leaping out of the water. One of their favorite foods is flying fish which is the adjacent constellation, Volans.

Astronomically, Dorado is notable because it contains part of the Large Magellanic Cloud (LMC), one of two dwarf companion galaxies to our own larger Milky Way.

How to remember Dorado: Look up a picture of a dolphinfish – you’ll notice it has a compressed head and body shape very similar to the drawn outline. You can think of the fuzzy patch (the LMC) as foam kicked up by the leaping fish.

Delphinus – the Dolphin

This is a beautiful constellation, simple and compact. It represents a dolphin that Poseidon employed to help win the amours of Amphitrite, daughter of Oceanus. The dolphin was successful, Amphitrite became the wife of Poseidon, and the dolphin was rewarded by being placed forever in the skies. Note that this constellation is on the boundary of the region referred to earlier (see Aquarius) as the “Sea”.

How to remember Delphinus: The perfect diamond shaped group of stars is the body, and the trailing star is the tail of a dolphin leaping out of the sea.

Draco – the Dragon*Circumpolar*

This constellation wraps nearly the entire way around the northern celestial pole. One story says that the dragon was one of the monsters fighting with the Titans against the Olympians for ultimate control of the world (see Capricornus). Some even associate it with Typhon. In any event, it engaged Minerva (Athena) and she hurled it into the sky where it became hopelessly twisted and snared.

From an astronomical perspective, Draco is interesting because its brightest star (Thuban) was the pole star some 5000 years ago when the Egyptians were building the pyramids. Because of the precession of the Equinoxes (see Aries), it has slowly drifted away from the pole and Polaris, our current North Star, resides there.

How to remember Draco: A tortuous winding of stars around the pole, none of which are particularly bright.

Equuleus – the Foal

This constellation represents a young horse, or foal. Some say it's the offspring of Pegasus; otherwise, its origin is somewhat obscure.

How to remember Equuleus: One can imagine the shape indicated to be the head and neck of a small horse.

Eridanus – the River

The longest constellation in the sky, Eridanus starts near the foot of Orion and sinuously continues south until it stops near the southern pole. Only the northern part of this constellation is and was visible to Europeans and N. Americans, while it is and was fully visible to those living near the equator or “down under”. Most cultures associate it with their major river, the Nile and Euphrates being two of the more well-known. In mythology, this is the river into which Phaethon (see Cygnus) fell after an unsuccessful attempt to drive the sun across the sky.

In another story, Hercules is given the unpleasant task of cleaning out the stables of Augeas in a single day. The stables held thousands of cattle and hadn't been cleaned in years. To accomplish his task, he diverts two rivers into the stables to wash them clean, and then restores them to their normal course.

There are two notable stars in Eridanus. Achernar, ninth brightest star in the sky, means “end of the river”, and it is not visible from the mid-latitudes of the north. Epsilon Eridani (ϵ) is an extremely close star, 10 light-years away, and is a frequent guest in science fiction stories.

How to remember Eridanus: Long and sinuous, it starts near Rigel (Orion) and heads south.

Fornax – The Furnace

Every metallurgical and chemical laboratory has a furnace of some type. This modern constellation pays tribute to the importance of the furnace in the laboratory.

How to remember Fornax: Another very faint constellation requiring imagination to see anything resembling a furnace.

Gemini – the Twins

This constellation represents two fraternal twin brothers born of the same mother, Leda, but different fathers! The father of Castor was the mortal King of Sparta, while the father of Pollux was Jupiter (Zeus). They were considered warlike heroes and were members of the crew of the Argonaut on the quest for the Golden Fleece, among other adventures. Castor was killed in a dispute, and Pollux, who was immortal, was so disconsolate that he begged Jupiter to kill him as well. Immortals can't be killed, but Jupiter had pity and placed both of them in the sky together.

How to remember Gemini: Castor and Pollux are similar in brightness, and form the heads of two lines representing two figures. These two stars are joined in the constellation to represent their inseparability.

Grus – The Crane

Grus is a modern constellation also sometimes known as the flamingo, another long-necked bird. It may be thought of as hunting the adjacent fish (Piscis Austrinus).

How to remember Grus: The four stars shown resemble a long necked bird with outstretched wings (not unlike Cygnus, its northern cousin).

Hercules – the Strong Man

Hercules was the immortal son of Jupiter (Zeus) and a mortal mother, Alcmena. Hercules personality could be summarized as good to the core but unusually rash. However, even as a baby, Hercules displayed incredible strength and courage. It is said that, still in his crib, he wrung the neck of a serpent sent by Juno (Hera) to kill him. His feats are too numerous to even summarize here, except to mention that the better known stories about him involve his Twelve Labors which were performed as a penance. Many of these Labors involve or overlap the stories of other constellations including the Hydra, Eridanus, Cancer, and Leo, and are mentioned under those constellations.

How to remember Hercules: A large standing man with two upraised arms (probably in battle) but no head to speak of.

Horologium – The Clock

This constellation commemorates the invention of the pendulum clock, the first clock capable of keeping accurate time. In both science and exploration, the invention and continual improvement of our ability to measure time has revolutionized our understanding of the Earth and universe.

How to remember Horologium: I don't see a clock, but rather a scythe. This is the symbol of the Grim Reaper or Death, who collects souls when their time is over.

Hydra – the Sea Serpent

This is one of the foes that Hercules had to overcome in his Twelve Labors. The Hydra was said to have nine heads, one of which was immortal. If you cut off any head, two were said to grow in its place. Hercules finally overcame the Hydra by burning the neck stump after cutting off a head, thereby cauterizing it and preventing new heads from growing. The immortal head was disposed of by burying it under a huge rock, effectively removing it as a threat.

The Hydra is a huge constellation, stretching over a significant fraction of celestial real estate. Unfortunately, it is also rather unremarkable and contains only one brighter star. Although the story gives it nine-heads, there is no equivalent in the shape of the constellation.

How to remember Hydra: It's long – like a giant snake should be. The head is a relatively easy asterism to pick out, just below Cancer and Leo. Interestingly, it is NOT located in the "Sea", or even next to Hercules.

Hydrus – the Sea Serpent

Circumpolar (South Pole)

This is another sea serpent. The first, Hydra, ends in "-a", which indicates a female in Latin. The Hydrus ends in "us", indicating a male. Hydrus is much smaller than Hydra. Very close to Hydrus is the Small Magellanic Cloud (SMC), the second dwarf galaxy which is a nearby companion of the Milky Way.

How to remember Hydrus: I've drawn a triangle which could be seen (if you squint really hard) as a snake wrapped around itself.

Indus – The Indian

This constellation commemorates the European "discovery" of natives in the Americas (originally thought to be from India, or Indians).

How to remember Indus: As drawn, I see a simple stick figure.

Lacerta – the Lizard*Milky Way*

This rather faint and inconspicuous constellation was formed from “left-over” stars between Pegasus and Cygnus in the 17th century. There is little or no mythological background for the constellation, and equally little to say about it from a naked-eye astronomical perspective.

How to remember Lacerta: The zig-zag nature of stars in this constellation reminds me of the way in which the lizards (or newts) of my youth were capable of running, just staying out of hands reach.

Leo – the Lion*Zodiac*

The first of Hercules’ Twelve Labors was to rid the earth of the Nemean Lion, a beast that no weapon could harm. Hercules strangled it, and wore its skin as a trophy. The brightest star, Regulus, is one of the brighter in the sky and is sometimes referred to as “Cor Leonis”, the Heart of the Lion.

How to remember Leo: The backward question mark is easily seen and forms the head and mane of the lion. The stars behind it form the body and haunches of a reclined, but alert lion.

Leo Minor – the Lion Cub

This is another constellation, like Lacerta, created from “left-over” stars with no classical mythology.

How to remember Leo Minor: An inconspicuous grouping sitting near (actually above) the parent Leo.

Lepus – the Hare

There is little classical mythology associated with this constellation except as a potential hunting target for Orion and Canis Major.

How to remember Lepus: I see a rather cartoonish looking rabbit head, with two long and floppy ears.

Libra – the Scales*Zodiac*

The only non-animal in the zodiac, the stars in Libra used to be part of Scorpius. In fact, the Arabic names of the two brighter stars in this constellation actually mean the northern and southern claw. Sometime later, this grouping of stars was recognized as a separate constellation. The scales are said to represent the equal length of days and nights around the equinoxes. At least one writer has noted that some 4000 years ago the Autumnal equinox was in this constellation, one of two dates when days and nights are equal lengths.

How to remember Libra: I don’t see scales, but a kite with a long tail.

Lupus – The Wolf*Milky Way*

Many cultures see this faint group of stars as simply a wild animal of some indeterminate type. However, the name Lupus means wolf – a creature that, until recently, struck fear into the hearts of most living in the wilds.

How to remember Lupus: I see a torso and the large, open jaws of Canis Lupus, the wolf.

Lynx – the Wildcat

This is a very inconspicuous grouping of stars – only one brighter than 4th magnitude. One story says this is the remains of a certain King Lyncus who angered the goddess Ceres. She turned him into a lynx and made him difficult to see. Others say that at least part of the reason for the name of this grouping is that one needs the eyes of a lynx to see them.

How to remember Lynx: A long chain of fainter stars, it is adjacent to the other “cats” in the sky, Leo and Leo Minor.

Lyra – the Harp

The best known myth about this constellation is that of Orpheus. He was said to be an extremely gifted player of the harp, better than even his father Apollo, and capable of rendering docile the most savage beast. He was a member of the crew of the Argonaut, and once saved them from the intoxicating sounds of the Sirens by playing his lyre. His wife, Eurydice, was killed by a snake on their wedding day, and Orpheus went to Hades (the Underworld) and asked Pluto to release her back to the living. Pluto was persuaded by the magical music Orpheus played, and agreed to let her go back under the condition that neither looked back before reaching the surface. Unfortunately, Orpheus himself looked back and lost Eurydice forever. He was so melancholy that he roamed the world playing sad but beautiful music. It is said he was killed by a group of women who fell in madly love with him (and his music) but were enraged when he rebuffed them.

The brightest star, Vega, is a jewel in the summer sky and passes directly overhead at northern mid-latitudes. It, along with Deneb and Altair, form the Summer Triangle.

How to remember Lyra: Four fainter stars form a parallelogram which is the body of the lyre. Vega and another star sit above the parallelogram and form the head of the lyre.

Mensa – Table Mountain*Circumpolar (South Pole)*

This faint constellation commemorates Table Mountain in South Africa, the observing location of the astronomer (N. de Lacaille) who created and named this modern constellation. A table mountain has a flat top.

The Large Magellanic Cloud (see Dorado) is also partially within this constellation’s boundaries.

How to remember Mensa: I see an upside down flat-topped mountain.

Microscopium – The Microscope

This is a faint modern constellation which pays tribute to the microscope, an invention which has revolutionized our understanding of biology and materials science.

How to remember Microscopium: With some imagination, I see the top of an old-fashioned microscope with a long optical tube pointing down.

Monoceros – the Unicorn

Milky Way

The unicorn is a horse-like creature with a single horn on its head, said to possess magical properties. Some believe the mythology of unicorns to have originated with early sightings of rhinoceros. However, there is no classical mythology associated with this constellation. None of the stars are particularly bright, nor is the Milky Way readily evident.

How to remember Monoceros: This is a tough constellation for me, even with Orion as a guide. All of the stars are difficult to see. When I can glimpse them, however, I see a profile of the unicorn with front and rear legs visible, and a neck and head with a small “horn” projecting from the head. One can also think of it as sneaking up on Orion, something only the most stealthy or magical beasts could accomplish.

Musca – The Fly

Circumpolar (South Pole), Milky Way

Also sometimes referred to as a “bee”, this faint modern constellation has been linked to myths that involve a “gadfly”, a large fly which is particularly pesky and has a painful bite. In the United States, these are often called horse flies and frequently bother both horses and cattle. It is therefore fitting that one reported myth involves a gadfly sent by Jupiter to bite Pegasus, making him throw the riding Bellerophon. The other myth involves a mortal woman, Io, who was turned into a cow by Jupiter to disguise her from the jealous Juno. Once discovered, Juno sent a gadfly to constantly harass the poor girl.

How to remember Musca: With some imagination, I can see a small insect with spread wings.

Norma – The Set Square

Milky Way

A set square is a drafting tool for drawing straight lines and right angles. This constellation joins Circinus (the drawing compass) and Triangulum Australe (the southern triangle) in commemorating the tools used to draw schematics and aid navigators plotting courses on maps.

How to remember Norma: I see a right angle.

Octans – The Octant

Circumpolar (South Pole)

An octant is an optical navigational tool used to measure the position of the Sun or stars. In Latin, octans means the eighth part of a circle (45 degrees). This faint modern constellation lies at the south celestial pole and commemorates the use of such tools and their role in modern navigation, providing information necessary for the exploration of the Earth. Unfortunately, there is no bright star in Octans close to the south celestial pole like Polaris is to the north celestial pole.

How to remember Octans: I see a triangle shaped like an Octant. Its location at the south celestial pole emphasizes its role in navigation.

Ophiuchus – the Healer

The name of this constellation literally means “serpent holder” and it is almost always associated with the constellation Serpens, the Serpent. In antiquity, it is thought that this constellation represented the snake charmer who was also capable of healing snake bites. In latter days, this constellation came to be associated in all but name with Aesculapius (or Ascleios), the son of Apollo. He was borne of a mortal mother Coronis, but she angered Apollo by marrying another mortal just prior giving birth (see Corvus). In his anger, Apollo killed Coronis (and her new husband), only saving the newborn Aesculapius. Some say Apollo himself taught the boy, others say he was put in the care of Chiron the Centaur; in any event he was taught the healing arts. He was said to have learned the secret of raising the dead by careful observation of serpents – thus the snake handler. (Snakes are often found in mythology as symbols of death and rebirth because they shed their skins every year). His efforts to raise the dead, including Orion the Hunter, angered the gods. Pluto, king of the underworld, was especially upset since resurrection was a direct threat to his kingdom. He asked Jupiter for help, and Jupiter killed Aesculapius with a thunderbolt (some say Aquila the Eagle carried it) and placed him in the sky.

Ophiuchus is not the brightest of constellations, but it is rather easily seen. Interestingly, it falls along the ecliptic (next to Scorpius) but has never been part of the zodiac.

How to remember Ophiuchus: I see the large torso of a man standing on Scorpius. This position is symbolic of his power to overcome the poison of the Scorpion when raising Orion from the dead.

Orion – the Hunter

Milky Way

Orion was said to have been the son of Jupiter and a nymph. A huge and powerful hunter, he once boasted that he would kill every beast on the Earth. Gaia, the Earth goddess, overheard the boast and sent Scorpius, the Scorpion, to sting and kill Orion. Later, Aesculapius (see Ophiuchus) resurrected him.

Orion is one of the most recognizable constellations and dominates the winter evening sky. Two of its stars are especially bright. Betelgeuse is in the top left corner, or shoulder, and is a deep orange supergiant star. (Betelgeuse is pronounced a myriad of ways, none of which sound particularly appealing. This is fitting, since the name literally means “armpit of the giant”). Rigel is in the lower right corner and is a hot, blue giant. Below the belt of Orion is a grouping of stars known as the Sword of Orion. The central star has a fuzzy appearance to the naked-eye, but is resolved to be a spectacular gas nebula in small telescopes.

How to remember Orion: If you recognize no other constellation in the winter, you will recognize Orion. It dominates the sky. In keeping with the hunting theme, Orion is surrounded by two hunting dogs, Canis Major and Minor, a unicorn, Monoceros, and a hare, Lepus. He is also on the edge of, or just in, the river Eridanus.

Pavo – The Peacock

Circumpolar (South Pole)

Although a modern constellation, the peacock does appear in mythology. The demon Argus was servant of Juno and had 100 eyes, making it an ideal guardian since, while some eyes slept, others stayed watchful. Jupiter had cheated on his wife Juno with a mortal maiden named Io. To hide her from Juno and her wrath, Jupiter turned her into a cow (a heifer). However, Juno wasn't fooled and had her tied to a tree and then set Argus as a never-sleeping guard. Jupiter sent Mercury to Argus where he lulled the giant to sleep with music and magic, and then killed him. To honor her dead servant, Juno put his eyes on the tail plume of the peacock.

How to remember Pavo: I see a large strutting bird.

Pegasus – the Winged Horse

When Perseus slew the Gorgon Medusa, some of the Gorgon's blood dripped into the sea and formed the winged horse, Pegasus. In classical mythology, this is the end of Perseus' involvement with Pegasus. However, later writers include Pegasus in the story of Perseus, especially in the rescue of Andromeda from the sea monster, Cetus. I prefer the latter stories. In classical mythology and later, Pegasus is most associated with Bellapheron, who like Hercules, was given nearly impossible tasks as penance for earlier wrong doing. He was only able to complete them because Pegasus was sent by Minerva (Athena) to help him. However, Bellapheron is not given a constellation (although some associate him with Auriga).

How to remember Pegasus: Pegasus is a huge constellation and its most prominent feature is the “square” of stars that make up the body of the horse – often referred to as the “great square of Pegasus”. The common view of this constellation is the torso and front half of a great horse, flying upside down. The two front legs are visible, as are the neck and head of the horse. Andromeda is attached to the back corner of the torso, legs flying off behind the steed as she hangs on for dear life.

Perseus – the Hero

Milky Way

Perseus was the grandson of King Acrisius of Argos and son of Jupiter (Zeus), but didn't know it. His mother, Danae, had been banished by the king because a prophet had told him his grandson would one day kill him. Fortunately, both Danae and Perseus were taken in by a kind fisherman named Dictys. The brother of Dictys, named Polydectes, was the ruler of the island where they lived and a very unsavory sort. Polydectes was attracted to Danae and became engaged to her. Perseus was poor and embarrassed because he had nothing to give Polydectes and his mother as a wedding gift. Polydectes, not really wanting Perseus around, tricked the young man into offering the head of the Gorgon, Medusa as a gift. There were three Gorgons, each with wings and hair of snakes. It was said that whoever looked at them directly was turned to stone. Fortunately for Perseus, he was aided by two gods, Athena (Minerva) and Hermes (Mercury); otherwise, he was surely doomed. Athena loaned him her shield (which she had on loan from Zeus), and Hermes loaned him a sword; they also arranged for three other gifts – winged sandals, a pouch that would hold anything no matter its size, and a helmet that rendered the wearer invisible. In some versions, Perseus is also given, or loaned, the services of Pegasus, the flying horse. After several intermediate adventures, Perseus locates the Gorgons. Using the shield of Athena as a mirror to look at the Gorgons indirectly, he kills Medusa as they sleep. On the way back, he runs across Andromeda, chained to the Ethiopian coastline as a sacrifice to Cetus. Some accounts say he slays Cetus with the sword of Hermes, others say he turns it to stone by showing it the head of Medusa. Whatever the means, the outcome is the same – Andromeda is saved, Perseus marries her, and they live happily ever after. Except that this is Greek mythology we're talking about, and they don't really live happily ever after, but that's another story.

Perseus is a rich constellation and contains numerous star clusters visible in small telescopes. The famed “Double Cluster” of Perseus is faintly visible to the unaided eye in darker skies. In addition, this constellation contains the variable star “Algol” which means “demon-star”. Appropriately, this star represents the head of Medusa.

How to remember Perseus: I see a distorted Greek letter π , for Perseus.

Phoenix – The Fire Bird

Named for the mythical creature that is consumed in fire and then reborn from the ashes, this modern constellation has only one moderately bright star. While there are mythological references to the phoenix, most modern readers are more likely to be familiar with the phoenix “Fawkes” in the Harry Potter stories.

How to remember Phoenix: I see a coat hanger.

Pictor – The Artist's Easel

This is a faint and modern constellation. Its astronomical claim to fame is that its second brightest star (Beta Pictoris) appears to be surrounded by a disk of dark dust.

How to remember Pictor: It is easiest to find if you remember it is between Canopus, the second brightest star in the sky (See Carina), and the Large Magellanic Cloud (see Dorado).

Pisces – the Fish*Zodiac*

When the demon-monster Typhon was unleashed in the battle between the Titans and Olympians, the Olympians changed into different creatures to escape (see Capricornus). Venus and her son Cupid both changed into fish to escape, and to keep from losing one another in the water, tied themselves together with a cord.

Pisces is quite extended and generally faint. It lies in the celestial “Sea” adjacent to the Water Bearer (Aquarius) and the sea monster (Cetus). The First Point of Aries, or Vernal Equinox, used to lie in Aries. It now lies in Pisces.

How to remember Pisces: If one has darker skies, this constellation has two polygonal shaped asterisms – “fish” – at the ends of the cord. However, in most skies, I see little more than the cord and one fish at the southern end.

Piscis Austrinus – The Southern Fish

A southern counterpart to its northern cousin, Pisces, this fish sits below Aquarius and can be thought of as swimming in the water poured out by the water bearer. All of its stars are dim with the exception of Fomalhaut, one of the brightest stars in the sky. Fomalhaut is derived from Arabic and means “mouth of the whale” or “mouth of the fish”. Fomalhaut is interesting because it is surrounded by a disk of debris and has at least one planet orbiting it.

How to remember Piscis Austrinus: Find Fomalhaut – that’s the mouth. The rest of the stars make a fish-like shape.

Puppis – The Argo’s Stern*Milky Way*

One of three constellations derived from the much larger Argo, Puppis represents the stern (rear) of the ship. This part of a ship was frequently higher than the rest of the superstructure and is where the captain would stand to oversee operations, navigation, and steering.

How to remember Puppis: I see box-like shape between (and a little left or east) of Sirius and Canopus.

Pyxis – The Mariner’s Compass*Milky Way*

Like the octant (Octans), the compass helped modernize the science of navigation and made long ship exploration possible. However, this faint constellation is difficult to see, especially in the background of the Milky Way.

How to remember Pyxis: I see a compass needle pointed north.

Reticulum – The Net*Circumpolar (South Pole)*

A reticle is a mesh of cross-hairs in special eye-pieces previously used by astronomers to measure the distances between objects in the field of view – like two double stars, or a moon orbiting another planet. You can also think of it as a net for fishing, especially since it sits right next to Dorado, the dolphinfish.

How to remember Reticulum: I see a parallelogram.

Sagitta – the Arrow*Milky Way*

In one of his many exploits, Hercules is said to have helped free Prometheus from punishment. Prometheus was the Titan responsible for giving fire to humans. The other gods, especially Jupiter, were angry with him for this and other deeds, and sentenced him to be chained to the Caucasus Mountains. There he could not rest and was tortured daily by the eagle, Aquila. Hercules shot and killed the eagle with an arrow. Another story says that this is the arrow of Cupid.

Sagitta is a small constellation, but easily picked out among the stars of the Milky Way.

How to remember Sagitta: It looks like a small arrow or dart and is above Aquila and adjacent to Hercules.

Sagittarius – the Archer*Zodiac, Milky Way*

This constellation is a warlike archer, oftentimes depicted as a centaur (half-man/half-horse). It is also referred to in some literature as the centaur; this is unfortunate, however, because there is another constellation called Centaur (which represents Chiron) visible in the southern hemisphere.

Astronomically, this region is rich with dark and bright nebulae and star clusters. In fact, the center of the Milky Way lies in this direction.

How to remember Sagittarius: Ever since the “teapot” was pointed out to me, that’s all I’ve ever seen.

Scorpius – the Scorpion*Zodiac, Milky Way*

The scorpion was sent by Gaia, the Earth Goddess, to kill Orion, a great hunter (see Orion) who once threatened to hunt the Earth to extinction. The scorpion succeeded. However, Aesculapius (see Ophiuchus) brought Orion back from the dead using medicinal herbs.

Antares, a bright red star in the head of the scorpion, is a red supergiant and several hundred times the size of our own sun. Its name literally means “Rival of Mars” (Ares is the Greek name for Mars). This part of the sky also contains a rich portion of the Milky Way with numerous star clusters visible to small telescopes.

Also of interest are two fairly bright stars just west of the head of the scorpion in the constellation Libra. These stars are named “Zubenelgenubi” and “Zubeneschamali” (quite a mouthful) which literally mean the “northern claw” and “southern claw”, referring to the time when they both were once part of the constellation Scorpius.

How to remember Scorpius: In the northern midlatitudes, this constellation is on or near the southern horizon. However, it is a jewel and you will have no difficulties seeing the shape of the scorpion, from the lovely Antares in the head, to the tip of the stinger at the tail.

Sculptor – The Sculptor

A faint and modern constellation represents a sculptor – an artist that makes shapes from stone, wood, metal, and other materials. One might expect it to be near Caelum – the chisel, but that is not the case. This constellation is in a part of the sky near the south pole of our galaxy, so there are not very many stars visible in the region. It’s probably easiest to find by first locating Fomalhaut (see Piscis Austrinus).

How to remember Sculptor: It would be a reach to say that I see anything resembling a sculptor in this group of stars, although one might see a stooped figure at work with some imagination. It’s easiest to find by noting its location relative to Fomalhaut.

Scutum – the Shield*Milky Way*

This obscure constellation has no mythological history. Instead, it is a memorial to John Sobieski, a 17th century Polish king, placed in the sky by the astronomer Hevelius. The shield symbolizes the king’s coat-of-arms.

Although the constellation itself is not particularly noteworthy, this portion of the sky is rich with the Milky Way.

How to remember Scutum: I see a thin, elongate shield.

Serpens – the Serpent

This constellation is closely linked to Ophiuchus, the Healer. To ancient cultures, the serpent represented immortality since it is observed to be “reborn” every year with the shedding of old skin. It was often associated with the healing arts, and even today the symbol of modern medicine consists of a single serpent wrapped around the Staff of Aesculapius.

Another symbol, the Caduceus, consisting of two snakes intertwined about the Wand of Hermes, is also occasionally used to represent the healing arts, but is more appropriate as a symbol for commerce since Hermes (Mercury) was the patron of commerce (and, unfortunately, thieves).

Serpens is a split constellation, one portion each to the west and east of Ophiuchus. Serpens Caput is the western portion and translates as “Head of the Serpent”. Serpens Cauda, the eastern portion, means “Tail of the Serpent”. The body of the serpent is incorporated into the stars of Ophiuchus.

How to remember Serpens: It is wrapped around Ophiuchus, head to the west, tail to the east.

Sextans – the Sextant

The astronomer Hevelius, responsible for many of our modern constellations, is also responsible for this one, which commemorates an exquisite sextant he used for his work but lost in a fire. It is a very dim constellation, the brightest star just brighter than the 5th magnitude.

How to remember Sextans: A dim triangle with which to measure the heavens.

Taurus – the Bull

Zodiac

This constellation is a bull (or related animal) to a great many cultures, and traces its origins into deep antiquity. Interestingly, some 6000 years ago, the Vernal (or Spring) Equinox was in Taurus and many ancient cultures began their new year with this sign. Today the procession of the Equinoxes (see Aries) has moved the Vernal Equinox into Pisces and the Summer Solstice into Taurus.

In classical mythology, this constellation is most associated with Jupiter (Zeus) and Europa. Europa was a beautiful mortal maiden, and Jupiter was smitten with her. He changed himself into a great white bull and enchanted Europa. She moved close and found the bull so docile that she climbed onto its back. At once Jupiter took off, and she became the mother, by Jupiter, of King Minos of Crete.

Astronomically, there are several interesting objects in this constellation. Aldebaran, the brightest star, is of reddish hue and makes one eye of the bull. It is internal to, though not related to the **Hyades**, a loose cluster of five or six stars said to be seven (!?) daughters of Atlas. They are said to have raised Bacchus, the god of wine and merrymaking, who is also associated with the bull. The Hyades are also associated with rain and storms, although the reasons for this association are obscure.

The **Pleiades**, or Seven Sisters, are also daughters of Atlas and half-sisters of the Hyades. There are more than seven stars in this beautiful cluster, but only six are easily seen. An entire volume of history could be written about the Pleiades; they have been observed and revered by every civilization for which records remain. Among my favorite anecdotes is that the midnight culmination (reaching its highest point) of the Pleiades marked the beginning of the new year for several ancient societies. Today, that event falls around mid-November. In the ancient past, however, it was earlier in the autumn and would have been associated with the Celtic festival of Samhain, the precursor of our modern Halloween.

How to remember Taurus: The V-shaped is easily imagined to be the head of a great bull with long and pointy horns. The Hyades fall around the face of the bull and surround its red-eye, Aldebaran. The Pleiades rise just before the head of the bull and appear to be a miniature dipper – in fact, many people refer to them as “the little dipper”, not to be confused with the little dipper of Ursa Minor.

Telescopium – The Telescope

This is another modern constellation paying tribute to the inventions that ushered in the age of science. Despite its name, there is little of astronomical interest found in this constellation.

How to remember Telescopium: I can see a (bent) telescope sitting on a single leg stand.

Triangulum – the Triangle

A minor but very old constellation. There is no specific mythology associated with it, but it has represented at various times and to various peoples the Greek letter Delta, the mathematical accomplishments of the Greeks, the delta of the Nile river, the island of Sicily, and the Trinity of the Christian church.

How to remember Triangulum: The name says it all.

Triangulum Australe – The Southern Triangle*Circumpolar (South Pole), Milky Way*

Along with Norma and Circinus which it borders, this constellation commemorates the tools used by carpenters, draftsmen, and navigators. It also mirrors its northern cousin, Triangulum.

How to remember Triangulum Australe: It looks much like an equilateral triangle.

Tucana – The Toucan*Circumpolar (South Pole)*

Like Apus, this modern constellation commemorates an exotic bird encountered by European explorers. The Small Magellanic Cloud (SMC), a dwarf galaxy with is a companion to our Milky Way, is within its borders.

How to remember Tucana: I've drawn it as a stick bird with a large beak. You can think of the fuzzy SMC as debris from all the nuts that large beak cracks.

Ursa Major – the Great Bear*Circumpolar*

This is one of the oldest constellations in the sky, at least in its more familiar guise of the “Big Dipper”. The classical story of this constellation is that it represents another of Jupiter’s amorous conquests, or more truthfully one of his many amorous disgraces. Callisto was the daughter of the King of Arcadia, a beautiful maiden who joined company with Diana, the virgin goddess of the Moon and the Hunt. One day in the forests of Arcadia, she was spied by Jupiter. He changed into human form and took advantage of the girl. Nine months later, a son, Arcas, was borne to Callisto. Hera, Jupiter’s wife, eventually found out, of course, and was livid. She couldn’t punish Jupiter so, as usual, she took her anger out on the poor maiden and turned her into a bear. When her son Arcas was grown, he came upon his mother while hunting. Not knowing it was her, he was about to attack when Jupiter, having pity, turned him into a smaller bear and placed them both in the sky. Some versions of the story turn Arcas into Boötes, the bear driver.

One can always find Polaris, the North Star, by sighting along the two stars of the edge of the dipper.

How to remember Ursa Major: I always look for the Big Dipper and fill in the remainder of this large constellation: a snout, legs, and claws.

Ursa Minor – the Small Bear

Circumpolar

Analogous with Ursa Major, this constellation is more commonly known as “The Little Dipper”. The mythological origin of this constellation is related to Ursa Major; it represents the Arcas, son of Callisto. Several of the stars in the dipper are quite faint and require rather dark skies to be seen.

Astronomically, Ursa Minor’s main claim to fame is Polaris, the North Star. Polaris lies less than a degree from true celestial north, and has been used for centuries as a guiding beacon. However, it was not always so. The slow wobble of the Earth known as precession slowly moves the celestial pole in a giant circle, once every 26,000 years. Some 5000 years ago when the Egyptians were building the pyramids at Giza, the star Thuban, in Draco, was the North Star. In some 12,000 years, Vega, in Lyra, will be close to celestial North.

How to remember Ursa Minor: Unlike Ursa Major, the only stars of significant brightness in this constellation form the Little Dipper. Polaris is the tail of the bear, or endpoint on the handle of the dipper.

Vela – The Argo’s Sail

Milky Way

This constellation, along with Carina and Puppis, was split off of the larger Argo, the ship of the Argonauts. Using two stars from Carina (south of Vela), people commonly see another cross-shaped constellation. This asterism (a grouping of stars) is apparently often confused with the constellation Crux, and so is referred to as the “False Cross”.

How to remember Vela: It looks like a billowing sail and is next to Puppis and Carina.

Virgo – the Maiden

Zodiac

Although a literal translation of Virgo is “The Virgin”, this term in Latin only means young girl or maiden. The rest of the meaning is inferred. Virgo was a goddess that represented grain and the harvest – literally “food”, a very important concept when a poor harvest meant famine, starvation, and death. In many cases, the constellation was identified with the goddess Ceres, goddess of the hearth and home; in other cases, she was identified with Persephone, the daughter of Ceres and Queen of the Underworld. In other cultures, she was associated with Ishtar, Astarte, (both cultural ancestors of Aphrodite or Venus) and the Saxon goddess of spring Eostre. This last name is interesting because our festival of Easter may have originally derived from it, and Virgo is seen during spring evenings. Perhaps not surprisingly, the Autumn Equinox falls in Virgo, a traditional time for celebrating the harvest. The star Spica, one of the brightest in the sky, means “Ear of Grain”, and is usually represented as wheat or corn.

How to remember Virgo: Spica makes a good guide-star, the remainder of the constellation appears to be a woman in a long dress or robe with outstretched arms.

Volans – The Flying Fish*Circumpolar (South Pole)*

Another modern constellation named for the unusual fish first widely observed by European explorers in the tropical seas. These fish have large pectoral (chest) fins which enable them to leap out of the water and glide up to several hundred meters. This is a great escape strategy and is apparently necessary to flee from the very quick dolphinfish (Dorado) which love to dine of them.

How to remember Volans: I see a large paddle, or wing if you prefer. It is adjacent to Dorado which is chasing it.

Vulpecula – the Fox

Hevelius created this obscure constellation. Originally, it was to be both a fox and a goose, but common usage has dropped the goose and retained the fox. There is little of naked-eye interest here. There is, however, a famous planetary nebula, the Dumbell (from its shape) that is lovely in small telescopes.

How to remember Vulpecula: This is one of the more challenging constellations to see, and it may be easier to remember it by position – its brightest stars are directly above Sagitta.