

STAR DECK

GUIDE TO THE CONSTELLATIONS

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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, or they may be played in a variety of card games.

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 52 of 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), this 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 (Mar-May), yellow for northern summer (June-Aug), red for northern autumn (Sept-Nov), and blue for northern winter (Dec-Feb). 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 the word “Zodiac” under the constellation name.

If the constellation is circumpolar from mid-latitudes, a circular symbol is placed to the right of the name; if it falls along the plane of the Milky Way (the galactic equator), a pinwheel symbol is placed to the left of the name. In a few cases, both symbols are needed. The meaning of the constellation is located along the bottom of the card. In some cases, a constellation may have several meanings. For example, Bootes 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.

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. Finally, there is a brief description of how to remember the constellation (or at least how I remember it).

CONSTELLATIONS BY SEASONS**Spring (Green)**

1. Bootes
2. Cancer
3. Canes Venatici
4. Coma Berenices
5. Corvus
6. Crater
7. Hydra
8. Leo
9. Leo Minor
10. Sextans
11. Ursa Major
12. Ursa Minor
13. Virgo

Summer (Yellow)

1. Aquila
2. Corona Borealis
3. Cygnus
4. Draco
5. Hercules
6. Libra
7. Lyra
8. Ophiuchus
9. Sagitta
10. Sagittarius
11. Scorpius
12. Scutum
13. Serpens

Autumn (Red)

1. Andromeda
2. Aquarius
3. Capricornus
4. Cassiopeia
5. Cepheus
6. Cetus
7. Delphinus
8. Equuleus
9. Lacerta
10. Pegasus
11. Pisces
12. Triangulum
13. Vulpecula

Winter (Blue)

1. Aries
2. Auriga
3. Camelopardus
4. Canis Major
5. Canis Minor
6. Eridanus
7. Gemini
8. Lepus
9. Lynx
10. Monoceros
11. Orion
12. Perseus
13. Taurus

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.

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.

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 is 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 Boötes: Most depictions of Boötes 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.

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 Big 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 Little 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.

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!

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.

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 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.

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 Cyncus (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. Cyncus 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.

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.

Achernar, ninth brightest star in the sky, means “end of the river”, and it is not visible from the mid-latitudes of the north.

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

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.

Hercules – the Strong Man

Hercules was the immortal son of Jupiter (Zeus) and a mortal mother, Alcmene. Hercules personality could be summarized as good to the core but unusually rash. 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 with no head to speak of.

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.

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.

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.

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.

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.

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 that 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.

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.

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.

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.

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.

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.

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.

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.

Additional References

I've drawn upon many sources in putting together this guide, but I highly recommend the books below for additional reading.

Star Names: Their Lore and Meaning by Richard Hinckley Allen (1963) and published by Dover Publications, Inc., New York, NY. (ISBN 0-486-21079-0).

The New Patterns in the Sky. Myths and Legends of the Stars by Julius D. W. Staal (1988) and published by The McDonald and Woodward Publishing Company, Blacksburg, VA. (ISBN 0-939923-04-1).

Burnham's Celestial Handbook. An Observers Guide to the Universe Beyond the Solar System (in 3 volumes) (1978) by Robert Burnham Jr. and published by Dover Publications, Inc., New York, NY. (ISBN 0-486-23673-0).