

Astro Adventures

The STARLAB News Kid's & Teacher's Page

Astro Astronomy
is brought to you by



Steve "The Dirtmeister"
Tomecek

Greetings and welcome to this new feature of the STARLAB News. This insert is designed to be a fun activity page for kids and teachers including games, puzzles and a few astro facts. Feel free to copy and use this material, or share it with a friend!

Steve "The Dirtmeister" Tomecek is a geologist and science educator who currently serves as a science consultant and writer for the Discovery Channel, National Geographic, Scholastic Inc., and The Jason Academy. He has written over a dozen science books for kids and teachers and is one of the stars of the WNYC New York Kids radio show. His most recent book entitled *Sun* is available from National Geographic. If you would like to find out more about the Dirtmeister and try some more of his "dirt cheap" science experiments, log onto:
<http://www.dirtmeister.com>

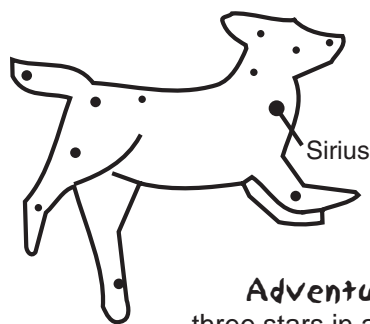
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Astro Try-It! Star Light, Star Bright!

Spring evenings are a great time to do some good old-fashioned star watching because it still gets dark relatively early yet some of winter's chill is gone from the air. If you have a relatively dark sky with no street lights around, or if you have a STARLAB at your disposal, you might want to try the following activity.

Long before there were telescopes and binoculars, people were looking up at the stars, and it didn't take them long to notice that not all stars look the same. Some were so bright that they shined like jewels, but others were barely visible. While many people noticed these differences, it was an ancient Greek philosopher named Hipparchus who tried to make some sense out of these differences in brightness. He began to catalog different stars and assign them brightness classifications ranging from 1-6. The brightest stars he called "first class" and assigned them the number 1. Those that were slightly dimmer were second class and assigned the number 2. He continued doing this until he was left with stars that were just barely visible. These he assigned the number 6. Even though he did his work over 2000 years ago, astronomers today still use this simple classification scheme to measure the "apparent magnitude" of stars.

Of course, over the years there have been some significant changes in the way the numbers are assigned. In the beginning, they had no real way of measuring how bright a star really was, so the number value that a star was assigned was purely subjective. In modern times, things like light meters have helped astronomers to "quantify" the scale, so today, the number values are much more precise. In fact, once brightness measurements became quantified, astronomers ran into a little problem — the brightest stars were actually brighter than 1. As a result, the modern scale of apparent visual magnitude starts with negative numbers and includes a 0 class too.



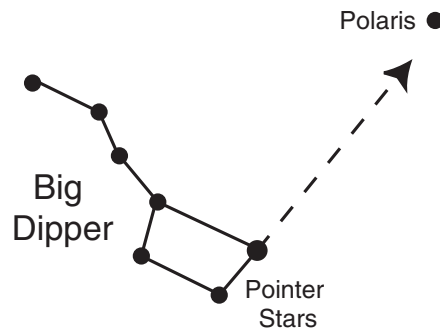
Early spring evenings are a great time to try comparing the brightness of different stars because there are some real standouts, including Sirius, the brightest star in the night sky. If you head out in late March or early April around 8:00 PM, you'll see Sirius low in the southern sky. With a magnitude of -1.43 , the only thing brighter is one of the planets or the full moon.

(We'll cover them in our next issue of **Astro Adventures!**) You can easily find Sirius by looking for the three stars in a row that make up Orion's belt and following the line down toward the horizon. Sirius is often called the "dog star" because it's found in the constellation Canis Major, the big dog.

Once you've located Sirius, go back up to Orion's belt and find the bright star above it and to the left. It should have a reddish glow. This is the star Betelgeuse. Its magnitude is listed at 0.7. Even though it's still a bright star, it's quite a bit dimmer than Sirius. Now if you continue to the left in a straight line from Betelgeuse, you'll come to a slightly brighter star called Procyon in the constellation

Canis Minor, the little dog. Procyon's magnitude is 0.4, and if you connect it, to Sirius and Betelgeuse using three imaginary lines, you'll form the "winter triangle".

Okay, now it's time to look for the 'north star'. Turn around and look for the "big dipper" in the sky. The 'big dipper' is an asterism made up of 7 stars in the shape of a giant ladle or spoon. During the early spring, it appears to be turned upside down emptying its contents to the ground. If you follow the last two stars in the bowl of the dipper, they point straight to Polaris, which is also called the 'north star'.



Over the years Polaris has gotten the reputation for being a bright star. In fact many popular books and television shows actually say that it is the brightest star! This would have Hipparchus throwing fits! Polaris has a magnitude of 2.2. If you were to put it on a list of the brightest stars of the night sky, it wouldn't even make it in the top 10! It's number 47!

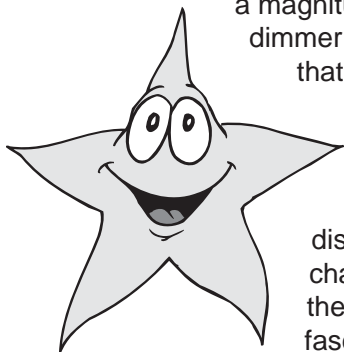
The thing that sets Polaris apart from the other stars is that it never appears to move in the night sky. It stays fixed in the north because it's directly over Earth's north pole, which earned it the name Polaris, which means 'Pole Star'.

As you scan around the night sky, see how many other bright stars you can find. You might even want to try and make up your own classification scheme for ranking their brightness. To get a list of the 26 brightest stars as seen from Earth, log onto: <http://www.astro.wisc.edu/~dolan/constellations/extra/brightest.html>

One of the best sources for simple star maps to help you find these stars is the Abrams Planetarium. You can get an annual subscription to their Sky Calendar by sending \$10.00 to Abrams Planetarium, Michigan State University, East Lansing, MI 48824-1324.

Fascinating Facts!

Most of the brighter stars actually have two different names. They have a proper name that is often Latin, Greek or Arabic, and they have a second name that is based on their brightness and which constellation they are in. For example, the name *Polaris* is Latin for 'pole star', but the same star is also called *Alpha Ursae Minor* because it's the brightest star in the constellation *Ursa Minor*, the little bear. Alpha (α) is the first letter in the Greek alphabet and the brightest star in a particular constellation is given this designation. The second brightest star is called Beta (β) and as the stars get dimmer, each one is labeled with the next letter in the Greek alphabet. For most constellations, the sequence is simple, but not for Orion the hunter. In Orion, the alpha star is Betelgeuse and its magnitude is 0.7. The beta star is Rigel, the bluish star in Orion's foot. Rigel has a magnitude of 0.3. In this case the Alpha star is actually dimmer than the beta star! How can this be? Well it turns out that to the naked eye, the two appear very similar in



brightness but since Betelgeuse has a distinctively reddish orange color, it seemed to stand out more so it was given the alpha designation. When the true brightness was finally measured, astronomers discovered that a mistake had been made. Rather than change the names after the fact, they kept the names as they were and the error is now considered one of the fascinating facts of astronomy.

Astro Trivia

Bright Makes Might!

Rank the following famous stars in descending order of brightness as viewed from Earth. Start with the brightest star first.

1. Capella
2. Rigel
3. Betelgeuse
4. Antares
5. Deneb
6. Regulus
7. Procyon
8. Sirius
9. Spica
10. Vega

Word Scramble

Unscramble the names of these five famous stars.

1. LARPISO
2. TURCARSU
3. PANSUCO
4. TORSAC
5. LOPLUX



Answers to Astro Trivia
8, 10, 1, 2, 7, 3, 4, 9, 5, 6
Answers to Word Scramble
1. Polaris 2. Arcturus 3. Canopus 4. Castor 5. Pollux