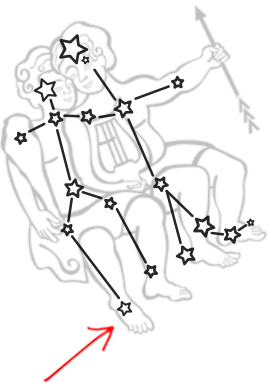


## Cadette Space Science Researcher Badge

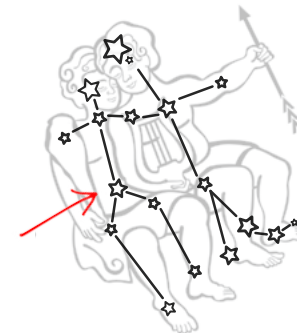
### Among the Stars Cards

Cut out and paste each card to a piece of construction paper matching the star's peak color.

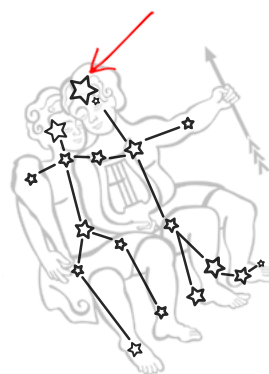
**Star name:** Xi Geminorum  
**Identification:** Alzirr  
**Distance from Earth:** 57 light years  
**Peak color:** yellow-white  
**Temperature:** 6666 K  
**Luminosity class:** Subgiant  
**Luminosity:** 847 times the Sun  
**Apparent Magnitude:** 3.35  
**Absolute Magnitude:** 2.13  
**Spectral Type:** F5IV  
**Diameter:** 2 times the diameter of the Sun  
**Constellation:** Gemini



**Star name:** Delta Geminorum  
**Identification:** Wasat  
**Distance from Earth:** 59 light years  
**Peak color:** yellow-white  
**Temperature:** 7080 K  
**Luminosity class:** Subgiant  
**Luminosity:** 12 times the Sun  
**Apparent Magnitude:** 3.5  
**Absolute Magnitude:** 2.22  
**Spectral Type:** F2IV  
**Diameter:** 2 times the diameter of the Sun  
**Constellation:** Gemini



**Star name:** Alpha Geminorum  
**Identification:** Castor  
**Distance from Earth:** 52 light years  
**Peak color:** white  
**Temperature:** 8884 K  
**Luminosity class:** Main sequence  
**Luminosity:** 25 times the Sun  
**Apparent Magnitude:** 1.58  
**Absolute Magnitude:** 0.59  
**Spectral Type:** A1V  
**Diameter:** 2 times the diameter of the Sun  
**Constellation:** Gemini



**Star name:** Gamma Geminorum  
**Identification:** Alhena  
**Distance from Earth:** 105 light years  
**Peak color:** white  
**Temperature:** 9372 K  
**Luminosity class:** Subgiant  
**Luminosity:** 53 times the Sun  
**Apparent Magnitude:** 1.93  
**Absolute Magnitude:** -0.6  
**Spectral Type:** A0IV  
**Diameter:** 3 times the diameter of the Sun  
**Constellation:** Gemini

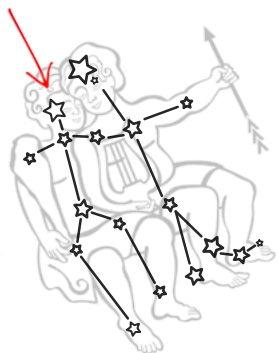


## Cadette Space Science Researcher Badge

### Among the Stars Cards

Cut out and paste each card to a piece of construction paper matching the star's peak color.

**Star name:** Beta Geminorum  
**Identification:** Pollux  
**Distance from Earth:** 34 light years  
**Peak color:** orange  
**Temperature:** 4650 K  
**Luminosity class:** Giant  
**Luminosity:** 71 times the Sun  
**Apparent Magnitude:** 1.14  
**Absolute Magnitude:** 1.07  
**Spectral Type:** K0III  
**Diameter:** 9 times the diameter of the Sun  
**Constellation:** Gemini



**Star name:** Eta Geminorum  
**Identification:** Propus  
**Distance from Earth:** 350 light years  
**Peak color:** red  
**Temperature:** 3247 K  
**Luminosity class:** Giant  
**Luminosity:** 1600 times the Sun  
**Apparent Magnitude:** 3.31v  
**Absolute Magnitude:** -1.84v  
**Spectral Type:** M3III  
**Diameter:** 34 times the diameter of the Sun  
**Constellation:** Gemini



**Star name:** Epsilon Geminorum  
**Identification:** Mebsuta  
**Distance from Earth:** 900 light years  
**Peak color:** yellow  
**Temperature:** 3830 K  
**Luminosity class:** Supergiant  
**Luminosity:** 13183 times the Sun  
**Apparent Magnitude:** 3.06  
**Absolute Magnitude:** -4.15  
**Spectral Type:** G8Ib  
**Diameter:** 33 times the diameter of the Sun  
**Constellation:** Gemini



**Star name:** Mu Geminorum  
**Identification:** Tejat  
**Distance from Earth:** 230 light years  
**Peak color:** red  
**Temperature:** 3137 K  
**Luminosity class:** Giant  
**Luminosity:** 2655 times the Sun  
**Apparent Magnitude:** 2.87v  
**Absolute Magnitude:** -1.39v  
**Spectral Type:** M3III  
**Diameter:** 35 times the diameter of the Sun  
**Constellation:** Gemini



## Cadette Space Science Researcher Badge

### Among the Stars Cards

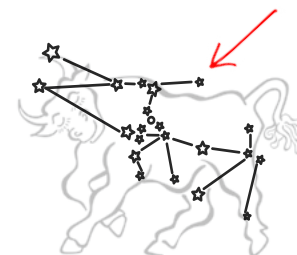
Cut out and paste each card to a piece of construction paper matching the star's peak color.

**Star name:** Sun  
**Identification:** N/A  
**Distance from Earth:** 8.5 light minutes  
**Peak color:** yellow  
**Temperature:** 5778 K  
**Luminosity class:** Main sequence  
**Luminosity:** 1 times the Sun  
**Apparent Magnitude:** -26.72  
**Absolute Magnitude:** 4.74  
**Spectral Type:** G2V  
**Diameter:** 1 times the diameter of the Sun  
**Constellation:** N/A



Credit: nasa.gov

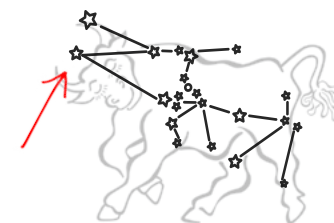
**Star name:** Eta Tauri  
**Identification:** Alcyone  
**Distance from Earth:** 370 light years  
**Peak color:** blue-white  
**Temperature:** 11189 K  
**Luminosity class:** Giant  
**Luminosity:** 625 times the Sun  
**Apparent Magnitude:** 2.85  
**Absolute Magnitude:** -2.41  
**Spectral Type:** B7III  
**Diameter:** 3 times the diameter of the Sun  
**Constellation:** Taurus



**Star name:** Beta Tauri  
**Identification:** Elnath  
**Distance from Earth:** 130 light years  
**Peak color:** blue-white  
**Temperature:** 13820 K  
**Luminosity class:** Giant  
**Luminosity:** 700 times the Sun  
**Apparent Magnitude:** 1.66  
**Absolute Magnitude:** -1.36  
**Spectral Type:** B7III  
**Diameter:** 2 times the diameter of the Sun  
**Constellation:** Taurus



**Star name:** Zeta Tauri  
**Identification:** Alheka  
**Distance from Earth:** 420 light years  
**Peak color:** blue-white  
**Temperature:** 15500 K  
**Luminosity class:** Giant  
**Luminosity:** 4165 times the Sun  
**Apparent Magnitude:** 2.97  
**Absolute Magnitude:** -2.56  
**Spectral Type:** B4III  
**Diameter:** 4 times the diameter of the Sun  
**Constellation:** Taurus

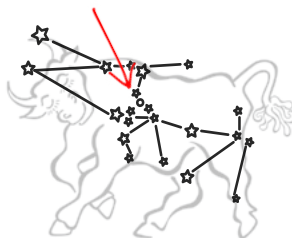


## Cadette Space Science Researcher Badge

### Among the Stars Cards

Cut out and paste each card to a piece of construction paper matching the star's peak color.

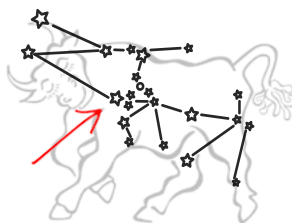
**Star name:** Epsilon Tauri  
**Identification:** Ain  
**Distance from Earth:** 155 light years  
**Peak color:** orange  
**Temperature:** 4630 K  
**Luminosity class:** Giant  
**Luminosity:** 114 times the Sun  
**Apparent Magnitude:** 3.53  
**Absolute Magnitude:** 0.15  
**Spectral Type:** K0III  
**Diameter:** 13 times the diameter of the Sun  
**Constellation:** Taurus



**Star name:** Lambda Orionis  
**Identification:** Meissa  
**Distance from Earth:** 1100 light years  
**Peak color:** blue  
**Temperature:** 15130 K  
**Luminosity class:** Giant  
**Luminosity:** 63680 times the Sun  
**Apparent Magnitude:** 3.39  
**Absolute Magnitude:** -4.16  
**Spectral Type:** O8III  
**Diameter:** 3 times the diameter of the Sun  
**Constellation:** Orion



**Star name:** Alpha Tauri  
**Identification:** Aldebaran  
**Distance from Earth:** 65 light years  
**Peak color:** orange  
**Temperature:** 3424 K  
**Luminosity class:** Giant  
**Luminosity:** 817 times the Sun  
**Apparent Magnitude:** 0.86v  
**Absolute Magnitude:** -0.64v  
**Spectral Type:** K5III  
**Diameter:** 34 times the diameter of the Sun  
**Constellation:** Taurus



**Star name:** Gamma Orionis  
**Identification:** Bellatrix  
**Distance from Earth:** 240 light years  
**Peak color:** blue-white  
**Temperature:** 18349 K  
**Luminosity class:** Giant  
**Luminosity:** 16444 times the Sun  
**Apparent Magnitude:** 1.64  
**Absolute Magnitude:** -2.72  
**Spectral Type:** B2III  
**Diameter:** 3 times the diameter of the Sun  
**Constellation:** Orion





## Cadette Space Science Researcher Badge

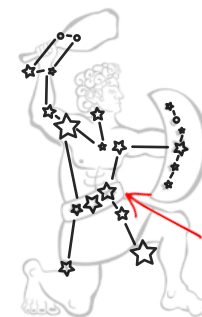
### Among the Stars Cards

Cut out and paste each card to a piece of construction paper matching the star's peak color.

**Star name:** Kappa Orionis  
**Identification:** Saiph  
**Distance from Earth:** 720 light years  
**Peak color:** blue-white  
**Temperature:** 14511 K  
**Luminosity class:** Giant  
**Luminosity:** 175388 times the Sun  
**Apparent Magnitude:** 2.07  
**Absolute Magnitude:** -4.65  
**Spectral Type:** B0.5III  
**Diameter:** 4 times the diameter of the Sun  
**Constellation:** Orion



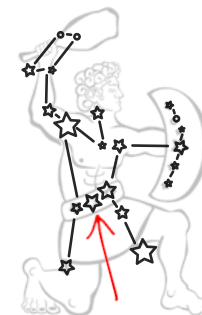
**Star name:** Delta Orionis  
**Identification:** Mintaka  
**Distance from Earth:** 920 light years  
**Peak color:** blue  
**Temperature:** 18349 K  
**Luminosity class:** Bright Giant  
**Luminosity:** 94624 times the Sun  
**Apparent Magnitude:** 2.25e  
**Absolute Magnitude:** -4.99  
**Spectral Type:** O9.5II  
**Diameter:** 13 times the diameter of the Sun  
**Constellation:** Orion



**Star name:** Eta Orionis  
**Identification:** Algebbah  
**Distance from Earth:** 900 light years  
**Peak color:** blue-white  
**Temperature:** 10221 K  
**Luminosity class:** Main sequence  
**Luminosity:** 115 times the Sun  
**Apparent Magnitude:** 3.35  
**Absolute Magnitude:** -3.86  
**Spectral Type:** B1V+  
**Diameter:** 8 times the diameter of the Sun  
**Constellation:** Orion



**Star name:** Epsilon Orionis  
**Identification:** Alnilam  
**Distance from Earth:** 1300 light years  
**Peak color:** blue-white  
**Temperature:** 15815 K  
**Luminosity class:** Supergiant  
**Luminosity:** 210863 times the Sun  
**Apparent Magnitude:** 1.69  
**Absolute Magnitude:** -6.38  
**Spectral Type:** B0Ia  
**Diameter:** 16 times the diameter of the Sun  
**Constellation:** Orion

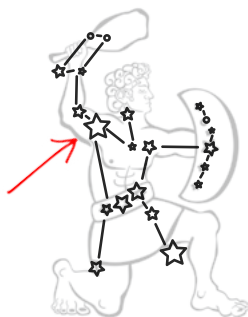


## Cadette Space Science Researcher Badge

### Among the Stars Cards

Cut out and paste each card to a piece of construction paper matching the star's peak color.

**Star name:** Alpha Orionis  
**Identification:** Betelgeuse  
**Distance from Earth:** 430 light years  
**Peak color:** red  
**Temperature:** 2928 K  
**Luminosity class:** Supergiant  
**Luminosity:** 120000 times the Sun  
**Apparent Magnitude:** 0.55v  
**Absolute Magnitude:** -5.04v  
**Spectral Type:** M2Ib  
**Diameter:** 265 times the diameter of the Sun  
**Constellation:** Orion



**Star name:** Zeta Orionis  
**Identification:** Alnitak  
**Distance from Earth:** 820 light years  
**Peak color:** blue  
**Temperature:** 17413 K  
**Luminosity class:** Supergiant  
**Luminosity:** 122462 times the Sun  
**Apparent Magnitude:** 1.75  
**Absolute Magnitude:** -5.25  
**Spectral Type:** O9.5IbI  
**Diameter:** 80 times the diameter of the Sun  
**Constellation:** Orion



**Star name:** Beta Orionis  
**Identification:** Rigel  
**Distance from Earth:** 770 light years  
**Peak color:** blue-white  
**Temperature:** 9842 K  
**Luminosity class:** Supergiant  
**Luminosity:** 66000 times the Sun  
**Apparent Magnitude:** 0.15v  
**Absolute Magnitude:** -6.72v  
**Spectral Type:** B8Ia  
**Diameter:** 58 times the diameter of the Sun  
**Constellation:** Orion



**Star name:** Eta Cassiopeiae  
**Identification:** Achird  
**Distance from Earth:** 19 light years  
**Peak color:** yellow  
**Temperature:** 6028 K  
**Luminosity class:** Main sequence  
**Luminosity:** 1 times the Sun  
**Apparent Magnitude:** 3.46  
**Absolute Magnitude:** 4.59  
**Spectral Type:** G0V  
**Diameter:** 1 times the diameter of the Sun  
**Constellation:** Cassiopeia



## Cadette Space Science Researcher Badge

### Among the Stars Cards

Cut out and paste each card to a piece of construction paper matching the star's peak color.

**Star name:** Beta Cassiopeiae  
**Identification:** Caph  
**Distance from Earth:** 55 light years  
**Peak color:** yellow-white  
**Temperature:** 7080 K  
**Luminosity class:** Giant  
**Luminosity:** 14 times the Sun  
**Apparent Magnitude:** 2.28  
**Absolute Magnitude:** 1.17  
**Spectral Type:** F2III  
**Diameter:** 3 times the diameter of the Sun  
**Constellation:** Cassiopeia



**Star name:** Epsilon Cassiopeiae  
**Identification:** Segin  
**Distance from Earth:** 440 light years  
**Peak color:** blue-white  
**Temperature:** 13439 K  
**Luminosity class:** Giant  
**Luminosity:** 2148 times the Sun  
**Apparent Magnitude:** 3.35  
**Absolute Magnitude:** -2.31  
**Spectral Type:** B2III  
**Diameter:** 9 times the diameter of the Sun  
**Constellation:** Cassiopeia



**Star name:** Delta Cassiopeiae  
**Identification:** Ruchbah  
**Distance from Earth:** 99 light years  
**Peak color:** white  
**Temperature:** 8400 K  
**Luminosity class:** Giant  
**Luminosity:** 63 times the Sun  
**Apparent Magnitude:** 2.66  
**Absolute Magnitude:** 0.24  
**Spectral Type:** A5III  
**Diameter:** 4 times the diameter of the Sun  
**Constellation:** Cassiopeia



**Star name:** Alpha Cassiopeiae  
**Identification:** Schedar  
**Distance from Earth:** 230 light years  
**Peak color:** orange  
**Temperature:** 4336 K  
**Luminosity class:** Bright giant  
**Luminosity:** 319 times the Sun  
**Apparent Magnitude:** 2.24  
**Absolute Magnitude:** -1.99  
**Spectral Type:** K0II  
**Diameter:** 40 times the diameter of the Sun  
**Constellation:** Cassiopeia

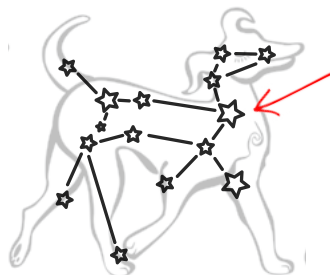


## Cadette Space Science Researcher Badge

### Among the Stars Cards

Cut out and paste each card to a piece of construction paper matching the star's peak color.

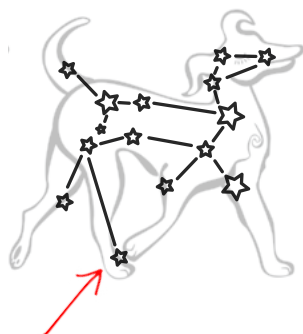
**Star name:** Alpha Canis Majoris  
**Identification:** Sirius  
**Distance from Earth:** 9 light years  
**Peak color:** white  
**Temperature:** 9372 K  
**Luminosity class:** Main sequence  
**Luminosity:** 28 times the Sun  
**Apparent Magnitude:** -1.46  
**Absolute Magnitude:** 1.43  
**Spectral Type:** A1V  
**Diameter:** 2 times the diameter of the Sun  
**Constellation:** Canis Major



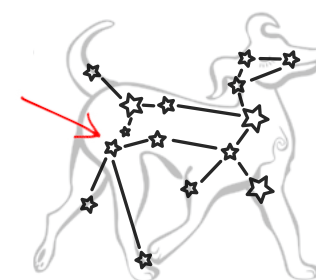
**Star name:** Beta Canis Majoris  
**Identification:** Mirzam  
**Distance from Earth:** 500 light years  
**Peak color:** blue-white  
**Temperature:** 23000 K  
**Luminosity class:** Giant  
**Luminosity:** 26600 times the Sun  
**Apparent Magnitude:** 1.98  
**Absolute Magnitude:** -3.95  
**Spectral Type:** B1III  
**Diameter:** 4 times the diameter of the Sun  
**Constellation:** Canis Major



**Star name:** Zeta Canis Majoris  
**Identification:** Furad  
**Distance from Earth:** 340 light years  
**Peak color:** blue-white  
**Temperature:** 18700 K  
**Luminosity class:** Main sequence  
**Luminosity:** 3600 times the Sun  
**Apparent Magnitude:** 3.02  
**Absolute Magnitude:** -2.05  
**Spectral Type:** B2.5V  
**Diameter:** 2 times the diameter of the Sun  
**Constellation:** Canis Major



**Star name:** Epsilon Canis Majoris  
**Identification:** Adhara  
**Distance from Earth:** 430 light years  
**Peak color:** blue-white  
**Temperature:** 17413 K  
**Luminosity class:** Bright giant  
**Luminosity:** 33729 times the Sun  
**Apparent Magnitude:** 1.5  
**Absolute Magnitude:** -4.1  
**Spectral Type:** B2II  
**Diameter:** 5 times the diameter of the Sun  
**Constellation:** Canis Major



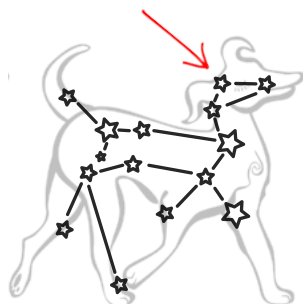


## Cadette Space Science Researcher Badge

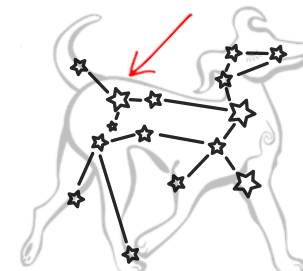
### Among the Stars Cards

Cut out and paste each card to a piece of construction paper matching the star's peak color.

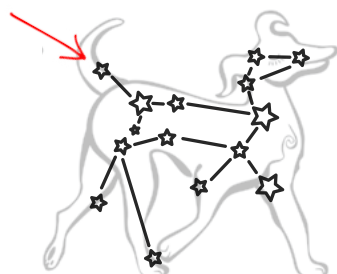
**Star name:** Gamma Canis Majoris  
**Identification:** Muliphen  
**Distance from Earth:** 1000 light years  
**Peak color:** blue-white  
**Temperature:** 14000 K  
**Luminosity class:** Supergiant  
**Luminosity:** 1800 times the Sun  
**Apparent Magnitude:** 4.11  
**Absolute Magnitude:** -3.4  
**Spectral Type:** B8III  
**Diameter:** 5 times the diameter of the Sun  
**Constellation:** Canis Major



**Star name:** Delta Canis Majoris  
**Identification:** Wezen  
**Distance from Earth:** 1800 light years  
**Peak color:** yellow-white  
**Temperature:** 5569 K  
**Luminosity class:** Supergiant  
**Luminosity:** 82000 times the Sun  
**Apparent Magnitude:** 1.83  
**Absolute Magnitude:** -6.87  
**Spectral Type:** F8Ia  
**Diameter:** 365 times the diameter of the Sun  
**Constellation:** Canis Major



**Star name:** Eta Canis Majoris  
**Identification:** Aludra  
**Distance from Earth:** 3000 light years  
**Peak color:** blue-white  
**Temperature:** 10916 K  
**Luminosity class:** Supergiant  
**Luminosity:** 92897 times the Sun  
**Apparent Magnitude:** 2.45  
**Absolute Magnitude:** -7.51  
**Spectral Type:** B5Ia  
**Diameter:** 37 times the diameter of the Sun  
**Constellation:** Canis Major



**Star name:** Beta Aurigae  
**Identification:** Menkalinan  
**Distance from Earth:** 82 light years  
**Peak color:** white  
**Temperature:** 8993 K  
**Luminosity class:** Subgiant  
**Luminosity:** 70 times the Sun  
**Apparent Magnitude:** 1.9  
**Absolute Magnitude:** -0.1  
**Spectral Type:** A2IV  
**Diameter:** 2 times the diameter of the Sun  
**Constellation:** Auriga



## Cadette Space Science Researcher Badge

### Among the Stars Cards

Cut out and paste each card to a piece of construction paper matching the star's peak color.

**Star name:** Eta Aurigae  
**Identification:** Hoedus II  
**Distance from Earth:** 220 light years  
**Peak color:** blue-white  
**Temperature:** 15130 K  
**Luminosity class:** Main sequence  
**Luminosity:** 1009 times the Sun  
**Apparent Magnitude:** 3.18  
**Absolute Magnitude:** -0.96  
**Spectral Type:** B3V  
**Diameter:** 3 times the diameter of the Sun  
**Constellation:** Auriga



**Star name:** Alpha Aurigae  
**Identification:** Capella  
**Distance from Earth:** 42 light years  
**Peak color:** yellow  
**Temperature:** 5150 K  
**Luminosity class:** Giant  
**Luminosity:** 154 times the Sun  
**Apparent Magnitude:** 0.07  
**Absolute Magnitude:** -0.49  
**Spectral Type:** G5III  
**Diameter:** 11 times the diameter of the Sun  
**Constellation:** Auriga



**Star name:** Theta Aurigae  
**Identification:**  
**Distance from Earth:** 170 light years  
**Peak color:** white  
**Temperature:** 10916 K  
**Luminosity class:** Giant  
**Luminosity:** 147 times the Sun  
**Apparent Magnitude:** 2.65  
**Absolute Magnitude:** -0.98  
**Spectral Type:** A0III  
**Diameter:** 5.0999999999999996 times the diameter of the Sun  
**Constellation:** Auriga



**Star name:** Iota Aurigae  
**Identification:** Hassaleh  
**Distance from Earth:** 510 light years  
**Peak color:** orange  
**Temperature:** 3454 K  
**Luminosity class:** Bright giant  
**Luminosity:** 3698 times the Sun  
**Apparent Magnitude:** 2.69  
**Absolute Magnitude:** -3.29  
**Spectral Type:** K3II  
**Diameter:** 73 times the diameter of the Sun  
**Constellation:** Auriga



## Cadette Space Science Researcher Badge

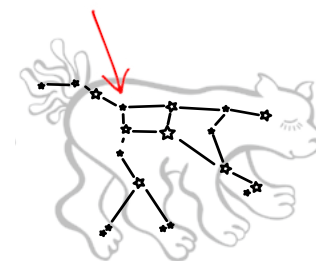
### Among the Stars Cards

Cut out and paste each card to a piece of construction paper matching the star's peak color.

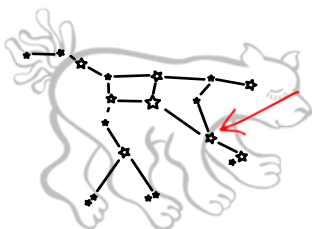
**Star name:** Epsilon Aurigae  
**Identification:** Almaaz  
**Distance from Earth:** 2000 ly  
**Peak color:** yellow-white  
**Temperature:** 7750 K  
**Luminosity class:** Supergiant  
**Luminosity:** 37875 times the Sun  
**Apparent Magnitude:** 3.03e  
**Absolute Magnitude:** -5.95  
**Spectral Type:** F0Ia  
**Diameter:** 365 times the diameter of the Sun  
**Constellation:** Auriga



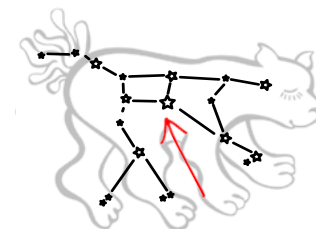
**Star name:** Delta Ursae Majoris  
**Identification:** Megrez  
**Distance from Earth:** 81 light years  
**Peak color:** white  
**Temperature:** 8508 K  
**Luminosity class:** Main sequence  
**Luminosity:** 28 times the Sun  
**Apparent Magnitude:** 3.32  
**Absolute Magnitude:** 1.33  
**Spectral Type:** A3V  
**Diameter:** 2 times the diameter of the Sun  
**Constellation:** Ursa Major



**Star name:** Theta Ursae Majoris  
**Identification:** Al Haud  
**Distance from Earth:** 44 light years  
**Peak color:** yellow-white  
**Temperature:** 6527 K  
**Luminosity class:** Subgiant  
**Luminosity:** 8 times the Sun  
**Apparent Magnitude:** 3.17  
**Absolute Magnitude:** 2.52  
**Spectral Type:** F6IV  
**Diameter:** 2 times the diameter of the Sun  
**Constellation:** Ursa Major



**Star name:** Beta Ursae Majoris  
**Identification:** Merak  
**Distance from Earth:** 79 light years  
**Peak color:** white  
**Temperature:** 9673 K  
**Luminosity class:** Main sequence  
**Luminosity:** 58 times the Sun  
**Apparent Magnitude:** 2.34  
**Absolute Magnitude:** 0.41  
**Spectral Type:** A1V  
**Diameter:** 2 times the diameter of the Sun  
**Constellation:** Ursa Major

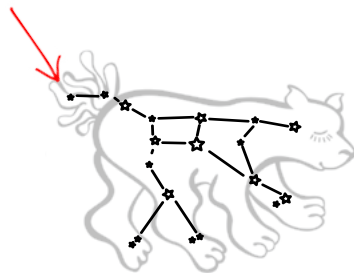


## Cadette Space Science Researcher Badge

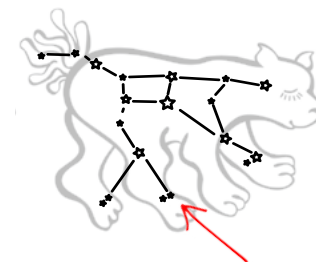
### Among the Stars Cards

Cut out and paste each card to a piece of construction paper matching the star's peak color.

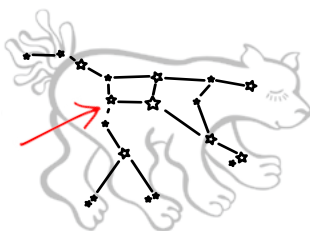
**Star name:** Eta Ursae Majoris  
**Identification:** Alkaid  
**Distance from Earth:** 101 light years  
**Peak color:** blue-white  
**Temperature:** 15815 K  
**Luminosity class:** Main sequence  
**Luminosity:** 1107 times the Sun  
**Apparent Magnitude:** 1.86  
**Absolute Magnitude:** -0.59  
**Spectral Type:** B3V  
**Diameter:** 2 times the diameter of the Sun  
**Constellation:** Ursa Major



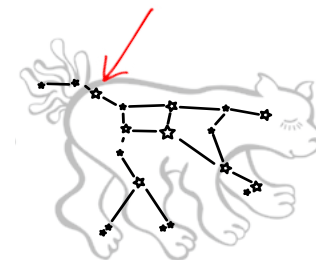
**Star name:** Lambda Ursae Majoris  
**Identification:** Tania Borealis  
**Distance from Earth:** 135 light years  
**Peak color:** white  
**Temperature:** 8993 K  
**Luminosity class:** Subgiant  
**Luminosity:** 37 times the Sun  
**Apparent Magnitude:** 3.45  
**Absolute Magnitude:** 0.38  
**Spectral Type:** A2IV  
**Diameter:** 3 times the diameter of the Sun  
**Constellation:** Ursa Major



**Star name:** Gamma Ursae Majoris  
**Identification:** Phecda  
**Distance from Earth:** 84 light years  
**Peak color:** white  
**Temperature:** 9355 K  
**Luminosity class:** Main sequence  
**Luminosity:** 64 times the Sun  
**Apparent Magnitude:** 2.41  
**Absolute Magnitude:** 0.36  
**Spectral Type:** A0V  
**Diameter:** 2 times the diameter of the Sun  
**Constellation:** Ursa Major



**Star name:** Epsilon Ursae Majoris  
**Identification:** Alioth  
**Distance from Earth:** 81 light years  
**Peak color:** white  
**Temperature:** 9673 K  
**Luminosity class:** Subgiant  
**Luminosity:** 83 times the Sun  
**Apparent Magnitude:** 1.77  
**Absolute Magnitude:** -0.2  
**Spectral Type:** A0IV  
**Diameter:** 4 times the diameter of the Sun  
**Constellation:** Ursa Major



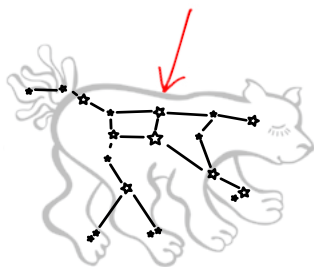


## Cadette Space Science Researcher Badge

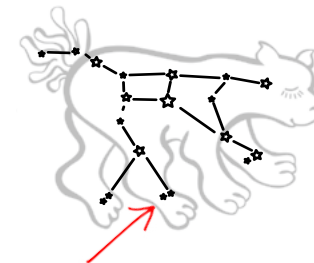
### Among the Stars Cards

Cut out and paste each card to a piece of construction paper matching the star's peak color.

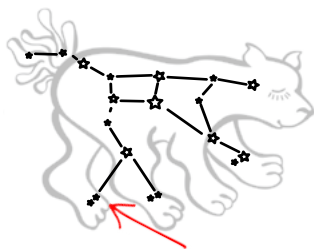
**Star name:** Alpha Ursae Majoris  
**Identification:** Dubhe  
**Distance from Earth:** 124 light years  
**Peak color:** orange  
**Temperature:** 4517 K  
**Luminosity class:** Giant  
**Luminosity:** 299 times the Sun  
**Apparent Magnitude:** 1.8  
**Absolute Magnitude:** -1.09  
**Spectral Type:** K0III  
**Diameter:** 16 times the diameter of the Sun  
**Constellation:** Ursa Major



**Star name:** Mu Ursae Majoris  
**Identification:** Tania Australis  
**Distance from Earth:** 250 light years  
**Peak color:** red  
**Temperature:** 3275 K  
**Luminosity class:** Giant  
**Luminosity:** 1528 times the Sun  
**Apparent Magnitude:** 3.06e  
**Absolute Magnitude:** -1.35  
**Spectral Type:** M0III  
**Diameter:** 62 times the diameter of the Sun  
**Constellation:** Ursa Major



**Star name:** Nu Ursae Majoris  
**Identification:** Alula Borealis  
**Distance from Earth:** 420 light years  
**Peak color:** orange  
**Temperature:** 3830 K  
**Luminosity class:** bright giant  
**Luminosity:** 275 times the Sun  
**Apparent Magnitude:** 3.49  
**Absolute Magnitude:** -2.07  
**Spectral Type:** K3II  
**Diameter:** 60 times the diameter of the Sun  
**Constellation:** Ursa Major





## Cadette Space Science Researcher Badge Among the Stars Cards Glossary

Cut out and paste each card to a piece of construction paper matching the star's peak color.

**Star Names:**

The names of stars are very old and often refer to significant rising and setting times, seasonal and meteorological events, as well as to imaginary figures.

**Identification:**

The common name of the star.

**Distance:**

Distance in space is measured in light-years. One light-year is the distance light travels in a year, about 9.5 trillion kilometers or about 6 trillion miles.

**Peak Color:**

Depending on how hot a star is, the light emitted from the star shines brightest in certain wavelengths. Stars whose spectral peak in the red are cooler than stars whose spectral peak in the blue.

**Temperature in Kelvins:**

Astronomers use the Kelvin scale to measure the surface temperature of a star. Scale changes in Kelvin (K) are the same as those in Celsius; the difference is the placement of zero. Absolute zero in Kelvin is 0 K; absolute zero in Celsius is -273.150 degrees. Freezing in Kelvin is 273.150 K; freezing in Celsius is 0 degrees. Boiling in Kelvin is 373.150 K; boiling in Celsius is 100 degrees. One reads the temperature in the Kelvin scale as so many Kelvins rather than using the word degrees as with the Celsius or Fahrenheit scales.

**Star's Class (called Luminosity Class by astronomers):**

This describes the stage of the star's life cycle. Most stars spend the majority of their existence in the main sequence phase, later enlarging dramatically to become giant or supergiant stars. In their final stage of 'life,' most stars shrink to become white, red, or black dwarfs, but some stars explode as supernovae and their cores collapse into extremely dense neutron stars or black holes.

**Diameter:**

Width of the star, as compared to the Sun.

**Luminosity:**

Total light energy emitted by the star, as compared to the Sun.

**Magnitude Scales:**

A measure of the brightness of a star. The magnitude scale is logarithmic (2.5 times the brightness between consecutive numbers). Magnitudes describe brightness inversely so that smaller numbers indicate brighter stars; zero and negative numbers indicate still greater brightness.

**Apparent Magnitude:**

How bright the star appears to be as we observe it from the Earth. This system was first set up with a scale of one to six—one was for the brightest stars and six was for the faintest stars. The scale has evolved and we can now measure the brightness more accurately, including negative numbers for the very brightest stars.

**Absolute Magnitude:**

True or intrinsic brightness of a star; this scale measures the stars as if they were all the same distance away (about 32.6 light years).

**Spectral Type:**

Spectral classifications are O, B, A, F, G, K and M—O stars are the hottest and M stars are the coolest. Luminosity class is indicated by Roman numerals. I is supergiant; II is bright giant; III is giant; IV is subgiant; and V is main sequence. Spectral and luminosity classes are further subdivided with numbers and letters.