

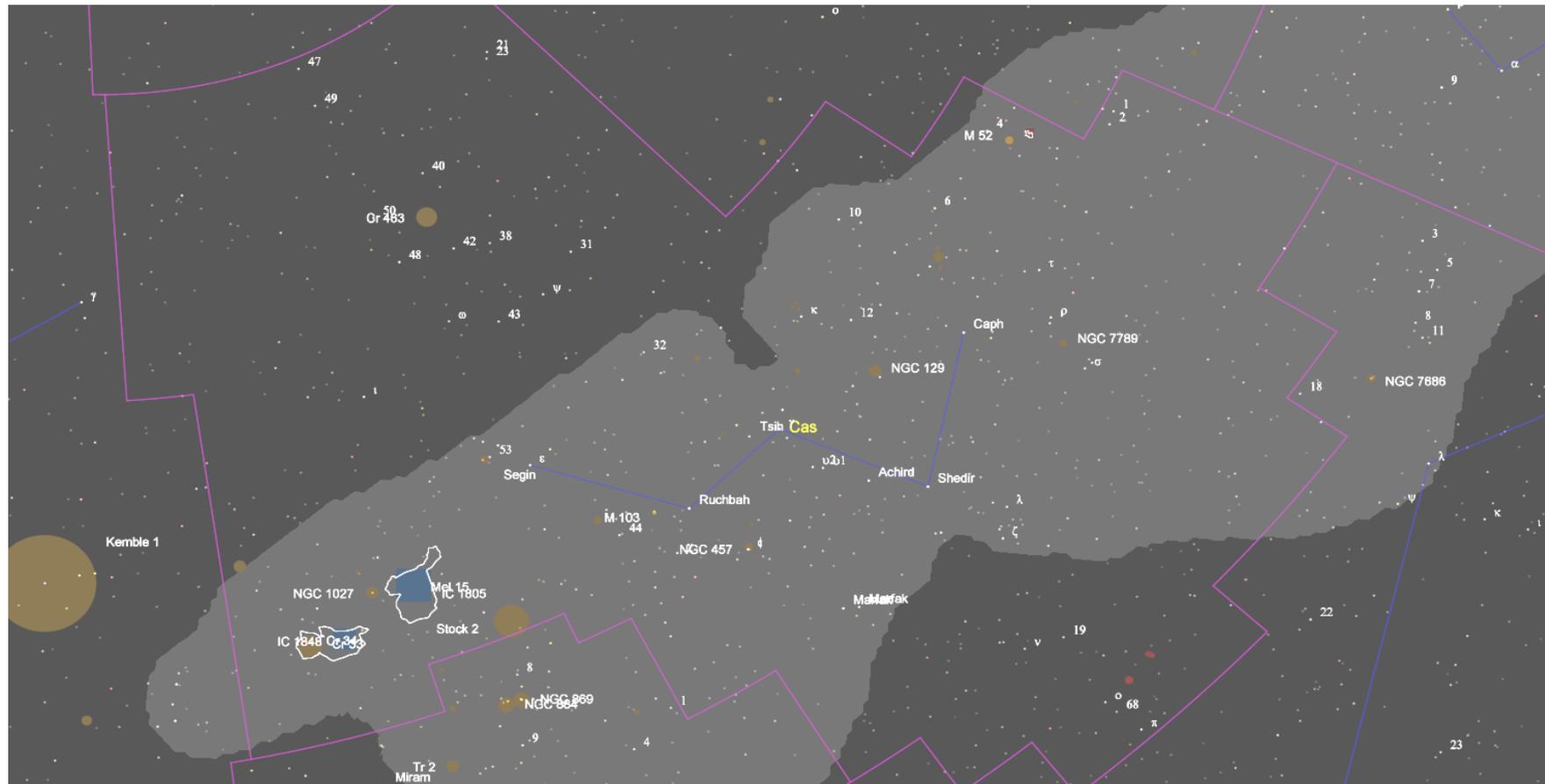
## CASSIOPEIA

Cassiopeia is one of the easiest constellations to spot in northern skies. It is visible at all times of the year, as it is circumpolar – appears to orbit the Pole Star. The main stars within it form a distinctive shape – depending on the time of year and time of night, they appear as a W, an M, an E or as a backward E. Normally it is represented as a W. The stars are visually fairly close together and sit within the main band of the Milky Way as seen from earth.

The five stars forming the W are as follows (in order as if you were drawing the W):

1. Segin (Epsilon Cas)
2. Ruchbah (Delta Cas)
3. Tsih (Gamma Cas). This name is slightly unusual, being Chinese, because there does not seem to be any western (Arabic, Latin, Greek) name for the star.
4. Shedir (Alpha Cas). There is also a fairly bright nearby star called Achird (Eta Cas) but this is not usually confused with Shedir
5. Caph (Beta Cas)

Note that I am following the convention of showing "Bayer Designations" for the stars using an abbreviation for the constellation name, but the full name of the Greek letter as most people don't know the Greek alphabet. Where there is a common name, I always place the Bayer Designation in brackets, as I think common names are more memorable. However as many of the common names are Greek or Arabic in origin and derive from a different alphabet their spelling is not standardised.



Images from [Cartes Du Ciel](http://CartesDuCiel.com) with some additions of my own e.g. the star names Tsih and Segin.

## USING CASSIOPEIA TO FIND OTHER STARS

We can use this constellation to find stars in other constellations. I have based these on my own observations. Because the sky is curved rather than flat, a "straight" line actually follows a curve. However, I have used what I see as a normal straight line for most of these "star hops", unless otherwise indicated. When viewing charts of the night sky, the star hops might not appear obvious because of the varying ways of representing the night sky on a flat surface, and also my inability to draw curved lines via a computer!! (art was never my strong point).

We can use Cassiopeia to find Perseus, which I see as a beautiful constellation - at certain times of the year appears to fall out of the "bottom" of the Milky Way, like a beads of pearls running down in lines at various angles, at one end culminating in the beautiful star cluster of the Pleiades (though this is not part of Perseus). The mythology behind Perseus is not so pretty, but visually it is quite stunning. We can also use Cassiopeia to locate Cepheus, which although faint, has quite a distinctive shape - rather like the gable end of a house. The Great Square of Pegasus, a famous asterism, can also be found via Cassiopeia, and Andromeda. The Great Square of Pegasus is composed of relatively faint stars and is not quite a perfect square (!) but it does stand out because there are so few bright stars within the "square". It is often seen as a diamond shape because of its angle in the sky at various times of the year, making a bit tricky to locate at first. It is also possible to follow a kind of square of similar size and shape (slightly larger and slightly less square-shaped) adjacent to it, connecting Alpheratz (Alpha And), Mirach (Beta And), Sharatan (Beta Ari) and Algenib (Gamma Peg) so this can cause confusion.

There are other star hops that you can do from Cassiopeia. For example you can take a line from Ruchbah (Delta Cas) and Tsih (Gamma Cas), plus Tsih (Gamma Cas) and Caph (Beta Cas) following the Milky Way in the general direction of Deneb (Alpha Cyg) in Cygnus, going either side of Deneb. If you curve these two lines towards each other then you can point them at Deneb.

Another interesting star hop is to follow a slightly curved arc from Caph (Beta Cas) through Errai / Alrai (Gamma Cep) towards Polaris (Alpha UMi) and on towards Dubhe (Alpha UMa) and Merak (Beta Uma), the famous pointers of Ursa Major to the Pole Star in Ursa Minor.

However due to my lack of drawing skills I will only illustrate the simpler straight star hops towards the adjacent constellations of Perseus (Per), Cepheus (Cep), Pegasus (Peg) and Andromeda (And).

Take a line from Tsih (Gamma Cas) and Ruchbah (Delta Cas) following the Milky Way to Miram (Eta Per) at the top of Perseus (taking a slight curve, not shown on the diagram as I am not very good at drawing curves). Shown in light blue.

Follow the direction of Tsih (Gamma Cas) as if it were a pointer into the "gable end" of Cepheus. (green)  
Take a line from Shedir (Alpha Cas) and Caph (Beta Cas) across Cepheus towards Alderamin (Alpha Cep). (green)

Take a line from Segin (Epsilon Cas) and Ruchbah (Delta Cas) and/or from Tsih (Gamma Cas) and Shedir (Alpha Cas) across the Great Square of Pegasus towards Markab (Alpha Peg) (both lines shown in yellow)

Follow the direction of Shedir (Alpha Cas) as if it were a pointer to Delta And. (pink)  
Take a line from Caph (Beta Cas) and Shedir (Alpha Cas) to Almaak (Gamma And). (pink)

