

The brightest light



Background knowledge

Earth's brightest light source is the *Sun*. The *Sun* is a *star*. All stars are composed of gases that are constantly undergoing powerful reactions. When they do, very bright light is produced. There are billions and billions of stars, and even if you counted one star every second for 8 hours a day, after 100 years you would only have counted about a billion! Other stars don't seem as bright as the *Sun* because they are very far away. Astronomers use numbers called *magnitude numbers* to describe how bright stars look from Earth. Bright stars have low numbers, and faint stars have high numbers. We can see stars with a brightness between magnitudes 1 and 6.

Science activity

Here are some stars with measures of their brightness. Can you place them in order, with the brightest first and the faintest last?



Star	Magnitude
Eri	3.2
Canopus C	11.0
Ros 780	10.2
Procyon A	0.3
Kapteyn's Star	8.8
Sirius B	7.2
Polaris	2.0

Correct order of brightness

- 1 _____ (brightest)
- 2 _____
- 3 _____
- 4 _____
- 5 _____
- 6 _____
- 7 _____ (faintest)

Science investigation

Ⓜ **Take extra care - ask an adult to supervise you.**

Suppose you are a scientist studying three stars of different sizes. Make these "stars" by covering a flashlight with a piece of black paper in which you have made three pinholes of different sizes. Predict which star will be hardest to see as its distance from you increases. Test this out by having a friend shine the flashlight toward you. As your friend walks away from you, is there a distance from which you can no longer see any of the stars? What do you conclude? Explain.

