



The flag of Australia

# The Southern Cross

We are not able to see the Southern Cross at night from where we live, because the constellation can only be seen on the southern hemisphere. As the name describes, it is a cross-shaped group of stars on southern end of the Milky Way. Although it is the smallest of the 88 constellations recognized by the International Astronomical Union (IAU), it is easy to identify, because the stars in it are so bright. In fact three of the 92 stars that shine brightest when viewed from earth, are included in the Southern Cross.

Ancient Greeks knew the Southern Cross, but regarded it as part of the constellation Centaurus. According to history, it could be seen as far north as Britain about 5,000 years ago, but the shift in the position of earth's axle sank the stars in the Cross below the European horizon. Finally Europeans just forgot it. The Southern Cross was depicted in its correct position for the first time on the celestial globes by Petrus Plancius, a Flemish astronomer, and Jodocus Hondius, a Flemish cartographer, in 1598 and 1600. It is visible on the southern hemisphere at almost any time of the year and has been used for navigation for ages. Because of the shift in earth's axle, the constellation keeps slowly moving towards the South Pole.

The Southern Cross is important in cultures of many states and nations on the southern hemisphere and can for instance be seen on the right side of the Australian and New Zealand's flag. It was an important symbol for Egyptians and a picture of it has been found engraved on a stone in Macchu Picchu, Peru. It is mentioned in literature and songs, including the Brazilian, Australian and Samoan national anthem. It has also an important place in indigenous cultures and mythologies in Australia and New Zealand, in East Indies, Indonesia, Malaysia as well as Java.

The four main stars in the Southern Cross are Acrux, Mimosa, Gacrux and Imai. All four shine brighter than our sun. It also includes a smaller star called Ginan, but it is not as bright as the others. An international group of scientists has now found out that Mimosa is 14.5 times heavier than our sun, but only about 11 million years old. Earth's sun is estimated to be about 4.5 billion years old and its mass more than 330,000 times of earth's. This makes Mimosa the heaviest of all stars which have been measured by using astroseismology by now. Astroseismology studies the oscillation – regular variation and size, of the stars. Seismic waves that bounce inside the stars, result to changes in their light. It was speculated already in 1979 that the interiors of massive stars could be evaluated by polarimeter – an instrument measuring polarization of light, but it has not been possible until now, says one the scientists. The group has published its results in Nature Astronomy and says that their findings will reveal new details on how stars live and die and how they affect our galaxy's chemical evolution.

*Read the text above and choose the correct **synonym** (a word that means the same) for each of the words below, please.*

- |  |               |                 |
|--|---------------|-----------------|
| 1. A group of stars forming a pattern is a | 4. To engrave | 7. To bounce    |
| a) constitution                            | a) write      | a) run          |
| b) constant                                | b) carve      | b) jump         |
| c) constellation                           | c) tell       | c) walk         |
| 2. In spite of the fact                    | 5. Indigenous | 8. Mythology    |
| a) although                                | a) migrant    | a) books        |
| b) altogether                              | b) original   | b) publications |
| c) absolutely                              | c) expatriate | c) folk tales   |
| 3. A shift                                 | 6. To include | 9. A finding    |
| a) change                                  | a) omit       | a) solution     |
| b) run                                     | b) leave out  | b) guide        |
| c) trip                                    | c) contain    | c) discovery    |

