



## LOOKING UP!



### SOUTH AFRICANS KNOW THEIR STARS

The *Mahikeng Astronomical Observatory (MAO)* at the North-West University is the building where the *Mahikeng Astronomical Telescope (MAT)* is housed. The MAT is one of many telescopes in South Africa. Others include the *Southern Africa Large Telescope (SALT)* and the *MeerKAT radio telescope*.

Mahikeng Astronomy Telescope



SOUTH AFRICA IS ONE OF THE BEST PLACES IN THE WORLD TO VIEW SPACE. WE ARE WORLD LEADERS IN ASTRONOMY!



Southern Africa Large Telescope



MeerKAT Radio Telescope

Knowledge is Ncah!



Sourced - North-West University (<http://natural-sciences.nwu.ac.za/mat>)

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# SHOW ME THE WAY, STARS...

DID YOU KNOW YOU CAN USE THE STARS TO FIND OUT WHERE YOU ARE? IN THE SOUTHERN HEMISPHERE, WE HAVE A CONSTITUTION (A GROUP OF STARS) CALLED THE SOUTHERN CROSS WHICH YOU CAN USE TO FIND OUT WHERE THE COMPASS POINT "SOUTH" IS.

**1** CHOOSE A CLEAR NIGHT SO YOU CAN SEE STARS.



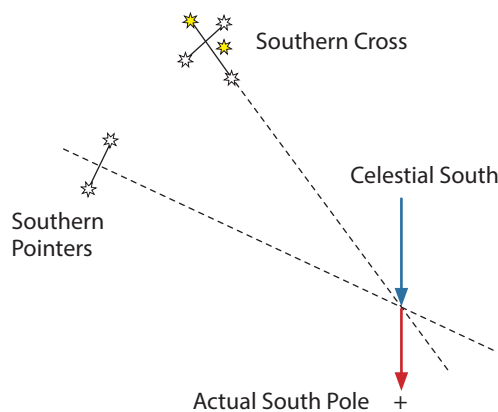
By Skatibler (CC BY-SA 4.0 (https://creativecommons.org/licenses/by-sa/4.0)), from Wikimedia Commons

**2** FIND THE SOUTHERN CROSS - THIS PHOTO AND ILLUSTRATION SHOWS YOU WHAT YOU ARE LOOKING FOR.



Nasktes at en.wikipedia (GFDL (http://www.gnu.org/copyleft/fdl.html) or CC BY-SA 3.0 (https://creativecommons.org/licenses/by-sa/3.0)), from Wikimedia Commons

**3** DRAW AN IMAGINARY LINE IN YOUR MIND FROM THE 2 "POINTER STARS" IN THE SOUTHERN CROSS. THEN DRAW AN IMAGINARY LINE THAT CUTS THE TWO SOUTHERN POINTERS IN HALF. WHERE THESE TWO IMAGINARY LINES MEET IS CALLED "CELESTIAL SOUTH". NOW DROP AN IMAGINARY LINE STRAIGHT DOWN TO THE EARTH FROM CELESTIAL SOUTH. WHERE THAT LINE TOUCHES THE EARTH IS SOUTH.



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## WHAT'S HAPPENING HERE?

When looking up into the night sky you would have seen a number of different *celestial bodies*.

*Galaxies* are made of many billions of stars that are held together by common gravity. Earth is in the Milky Way Galaxy. There are many billions of galaxies in our universe. With our naked eyes we can see only the two nearest ones which are called the Large and Small Magellanic Clouds. ▶



*Planets:* There are 8 planets ▶ that travel around our Sun in what we call the solar system. These are Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, and Neptune.



*The Moon:* The Moon travels around our Earth. Other planets also have moons, some having many moons! ▶



*Stars:* The sun is our closest star, and Alpha Promixa is the next closest star to earth.



Sourced - NASA



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## REACH FOR THE STARS...

The North-West University is the first historically disadvantaged university to have an astronomy observatory - the *Mahikeng Astronomical Observatory (MAO)*.



Not only is it to be used by students of the university to do *bright star research*, but it is also used to show what astronomy is all about to school children and others that have never used a telescope.



IT IS NOW EVEN MORE POSSIBLE FOR YOU TO STUDY ASTRONOMY RIGHT HERE IN SOUTH AFRICA.

## CAREERS:

**Astronomers** study stars, planets and other natural objects in space. They will use telescopes to get images of objects in space and then analyse them to try and understand how our universe works.

**Optical engineers** study and understand how light works and can be used. Telescopes "look at" light from stars, so an optical engineer has an important role in designing them.

**Telescope operators** are trained to work with, and maintain, telescopes. They make sure the telescope is viewing the correct part of the sky for the researcher.



**Olorato Mosiane** has an honours degree from the University of Cape Town in astrophysics and space science. He is now working towards his MSc Qualification at the North-West University, Mahikeng campus. His research involves using machine learning (artificial intelligence) to get clearer results from radio telescopes. He finds working in this cutting edge field of science interesting and enjoys working in this field of artificial intelligence because it has so much potential to solve other problems.

## CURRICULUM LINKS

- **Grade 8: Natural Sciences – Planet Earth and Beyond (The Solar System).**
- **Grade 9: Natural Sciences – Planet Earth and Beyond (Beyond the Solar System, Looking into space).**

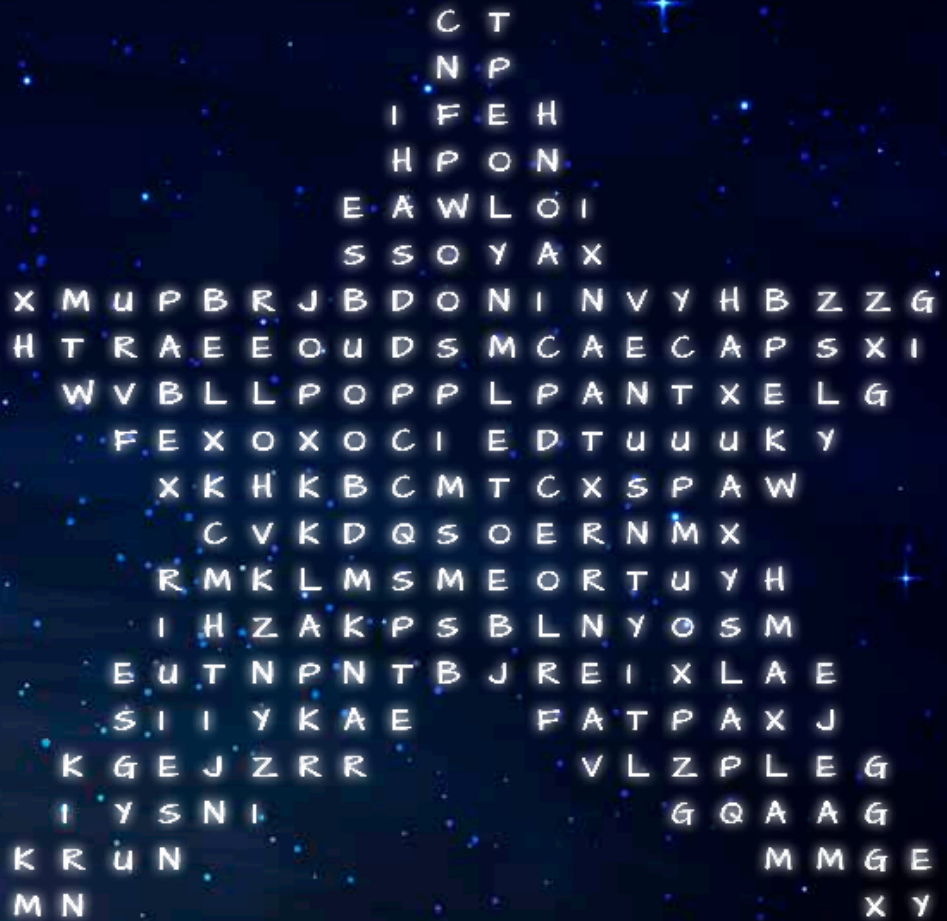
Knowledge is NCAH!



# ALL ABOUT SPACE!

FIND THE FOLLOWING WORDS ABOUT **SPACE** IN THE WORDSEARCH:

- \* STAR
- \* PLANET
- \* SUN
- \* TELESCOPE
- \* GALAXY
- \* SPACE
- \* MOON
- \* EARTH
- \* VENUS
- \* JUPITER



## START YOUR OWN SCIENCE SPAZA

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School: \_\_\_\_\_

Name: \_\_\_\_\_

Telephone number: \_\_\_\_\_

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Visit [www.sciencespaza.org](http://www.sciencespaza.org), email [info@sciencespaza.org](mailto:info@sciencespaza.org), sms or WhatsApp us on 076 173 7130 or write to us at PO Box 22106, Mayor's Walk, 3208.

WE WANT YOUR FEEDBACK!

TELL US WHAT ELSE YOU KNOW ABOUT STARS SO THAT WE CAN POST IT ON OUR FACEBOOK PAGE TO INSPIRE OTHER LEARNERS TO LEARN MORE ABOUT OUR UNIVERSE.



The Department of Science and Technology contributes to increased well-being and prosperity through science, technology and innovation. For more information visit: [www.dst.gov.za](http://www.dst.gov.za).

The NWU was formed in 2004, in a symbolic act of reconciliation and nation building, by the merger of the historically black University of North-West and the historically white Potchefstroom University for Christian Higher Education. The Centre for Space Research at the University gives the opportunity for all South Africans to participate in this field of science.



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