



ASTRONOMY CARDS 9 GRADES 4-9 AND SPACE CONTENT EXTENSION ACTIVITIES

This learning resource consists of:

- A** A set of 16 Astronomy Cards for Grades 4 – 9
- B** Space Content Extended Activities, available on the web.

A Astronomy Cards for grades 4 – 9

The Astronomy Cards are an introduction to the new content area in the Natural Sciences curriculum, called 'Planet Earth and Beyond'. The Astronomy Cards have been written in the Southern African context as a foundation for Grades 4 – 9 as this is new content for all grades.

The Astronomy Cards are designed to excite learners and stimulate them as they begin their study of our Solar System and beyond.

The activities can be used in different learning areas. Teachers need to select the content and activities to suit their grades and to adapt the activities to address the Assessment Standards of that grade.

We would like to recommend that, if learners have not dealt with 'Planet Earth and Beyond' before, teachers start working with these Astronomy Cards in the number order given. See overleaf.

Many of the activities are designed to be used out of the classroom and for observing the night sky.

These Astronomy Cards should be used as resource materials together with textbooks and other learning materials.

B The Space Content Extended Activities

This resource consists of a set of activities which extend the concepts dealt with in the Astronomy Cards with further activities. They are arranged by learning area and learning outcomes. The concepts are also indexed. This resource is available on the web at www.thutong.org.za. See below for other relevant websites.

These Astronomy Cards were developed in partnership with the South African Astronomical Observatory (SAAO) and The Shuttleworth Foundation.



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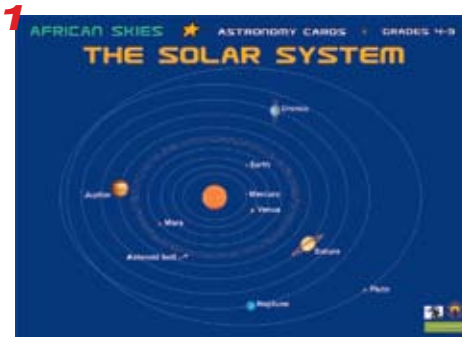


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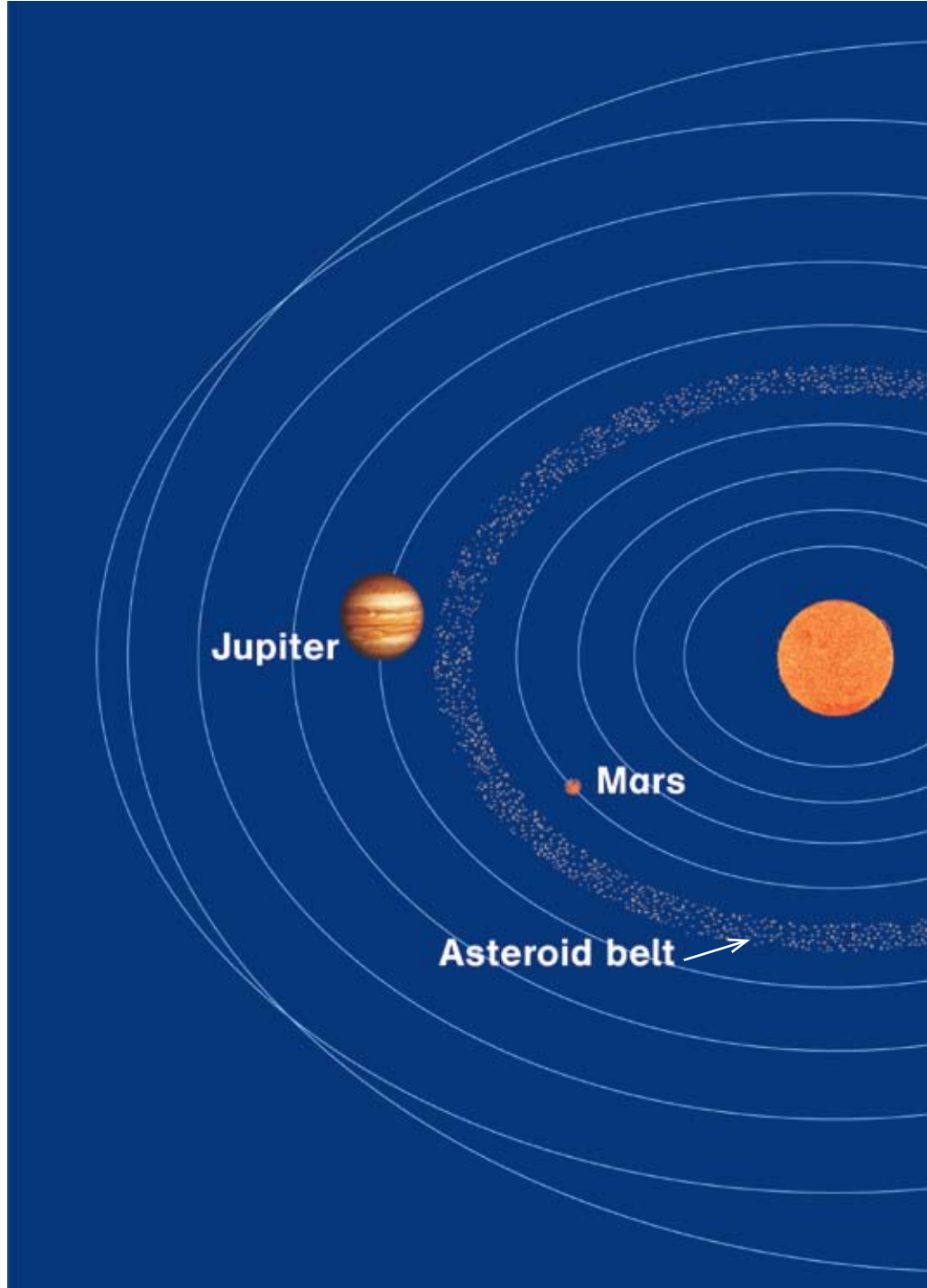
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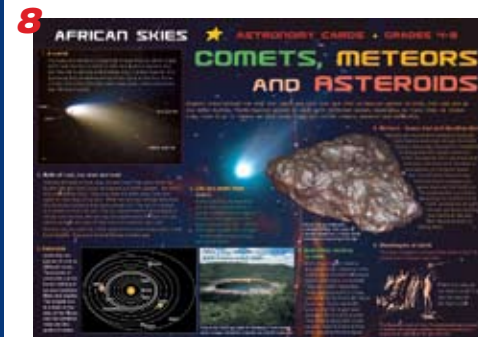
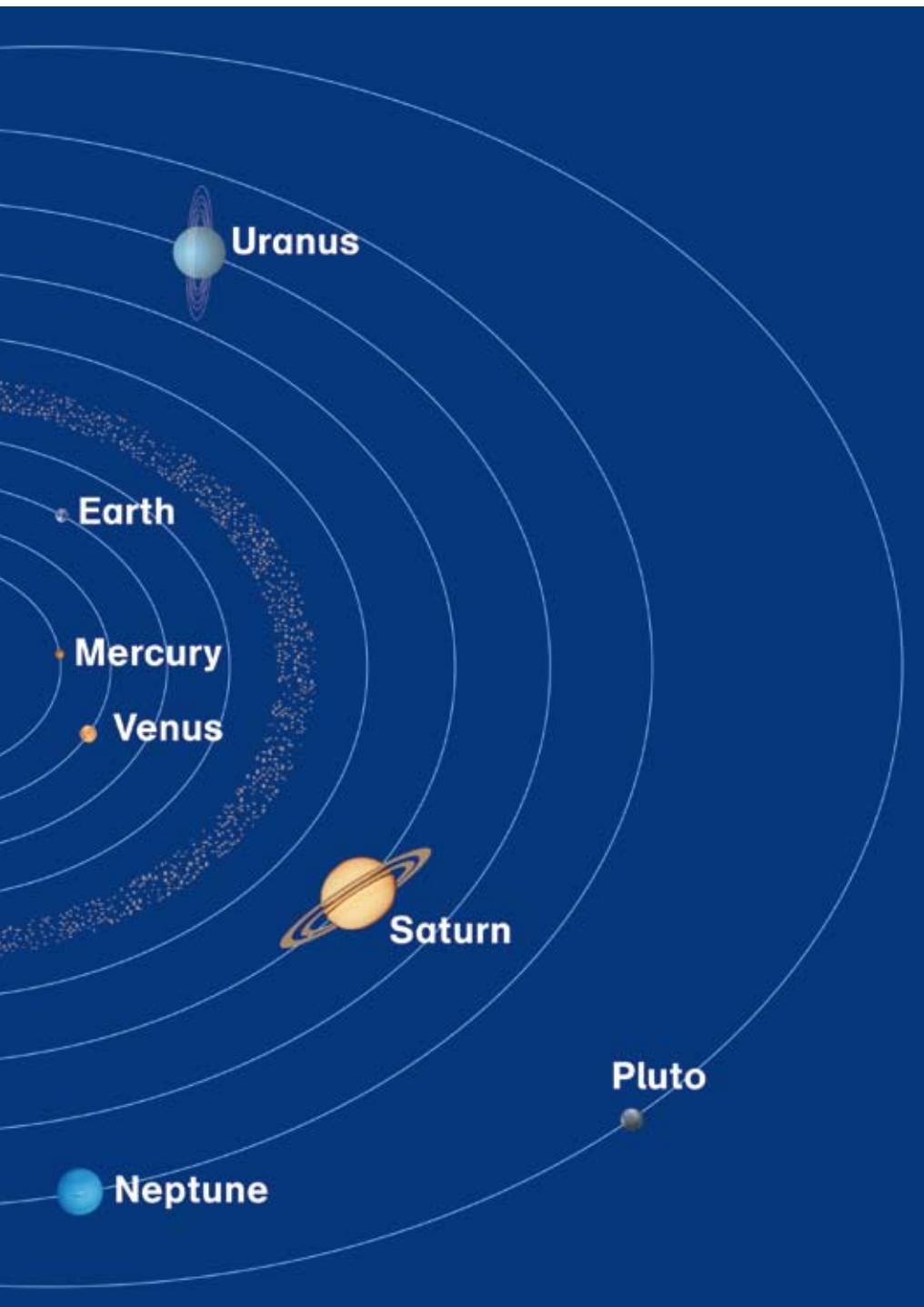
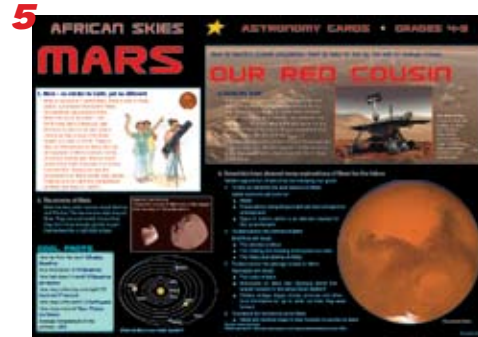
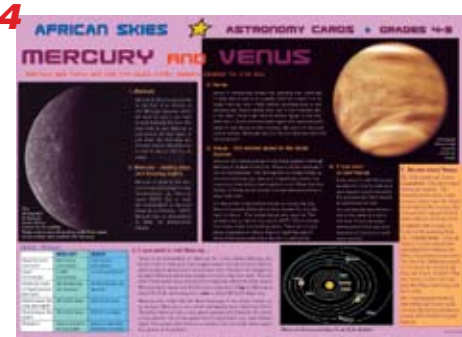
The Shuttleworth Foundation:
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Key to the cards

1. The Solar System
2. Mother Earth
3. The Moon
4. Mercury and Venus
5. Mars
6. The Gas Giants
7. The Faraway Planets
8. Comets, Meteors and Asteroids
9. The Sun
10. The Birth, Life and Death of Stars
11. Stories from the Stars
12. Our Place in Space
13. Travelling into Space
14. Working in Space
15. Looking at our Southern Skies
16. Discovering New Planets





Suggestion for teachers

There isn't only one correct way to work with these cards. However, we have numbered these cards so as to make up a narrative (a story that can make sense for learners). We suggest that teachers introduce the cards to their learners in the order of the numbers given. We hope you have fun with your learners!



GLOSSARY OF TERMS

| | | | |
|----------------------|--|---------------------|--|
| Ammonia | A colourless gas (NH ₃) which has a strong smell | NASA | National Aeronautics and Space Administration. NASA is in the United States of America. NASA trains astronauts and organises space exploration. |
| Astronaut | A person specially trained to travel into space, in order to explore and work in space | Observatory | A place where astronomers observe the night sky |
| Astronomer | A scientist who studies the stars | Oort cloud | The large cloud of space dust and gas that surrounds the Solar System and the Kuiper Belt |
| Atmosphere | The mixture of gases that surrounds the Earth or other planets | Orbit | The almost circular path that a planet takes as it travels around the Sun. The path that the Moon or a satellite or spaceship takes as it travels around the Earth or another planet. |
| Compound | A chemical substance | Ozone | A poisonous gas (O ₃) that is found in a layer in Earth's upper atmosphere called the ozone layer. Ozone protects the Earth from the Sun's dangerous rays (called ultraviolet rays). |
| Crater | Dents or hollows made by huge space rocks that crash into planets or other space objects, like moons | Planet | A ball of rock or gas that orbits around a star just like Earth orbits around the Sun |
| Constellation | A group of stars that form a pattern in the sky | Satellite | Any object such as a moon or a spaceship or a man-made instrument (such as a telescope) that is in space and in orbit around a planet. |
| Double star | Two stars that appear very close together in the sky | Solar System | Our Sun together with the planets and their moons, and the asteroids, all revolving around the Sun make up the Solar System |
| Galaxy | Huge areas in space made up of millions of stars and clouds of space dust, all rotating around a central area | Spacecraft | Usually carries instruments / machines into space. It can be called a space probe. |
| Geologist | A person who studies rocks, what they are made of and where they are found | Space junk | The remains of old spacecraft and instruments that people have left behind in space and which cannot be used again. The space junk continues to orbit around the Earth and can sometimes fall back to Earth. |
| Gravity | The force of attraction (pulling force) that all objects have for each other merely because they have mass. The bigger the mass, the greater the pull of gravity. | Spaceship | Usually carries people into space |
| Habitat | The area or natural environment where a plant or animal usually lives | Star/Sun | A huge ball of burning gas in space giving off huge amounts of light and energy. |
| Helium | A gas (He) with no colour or smell. Helium is made in huge amounts, when stars burn | Supernova | A huge star that suddenly explodes as it reaches the end of its life. |
| Hydrogen | A gas (H ₂) lighter than air. It has no colour or smell, but is flammable. Stars are made of hydrogen gas. | Telescope | An instrument for looking at the skies. A telescope makes faraway objects look clearer and bigger. |
| Kuiper Belt | The area in space just beyond our Solar System. There are rocks, dust and icy comets in the Kuiper Belt. | Universe | The whole of everything. The whole of space and everything in it including matter and energy, the Earth, moons, the stars and galaxies. |
| Light years | The distance that light travels in one year (10 million million kilometres). We use light years as the unit of measurement for large distances in space. | | |
| Methane | A colourless, odourless gas (CH ₄) that occurs naturally. Methane gas is given off when plants or animals decompose, and it is found in coal mines and on certain planets. | | |
| Moon | A ball of rock that orbits around a planet just like the Moon orbits around the Earth | | |

Acknowledgements

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