

Using Astronomy at Exhibitions to Inspire Learners to take up Careers in SET

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Abstract

The night sky can easily inspire wonder and is accessible to most people. This can be used as a starting point at science festivals and exhibitions to introduce learners to the fascinating and exciting world of careers in astronomy and related fields. Methods developed over several years for attracting learners to astronomy exhibits are discussed and evaluated.

Passion for People and Subject



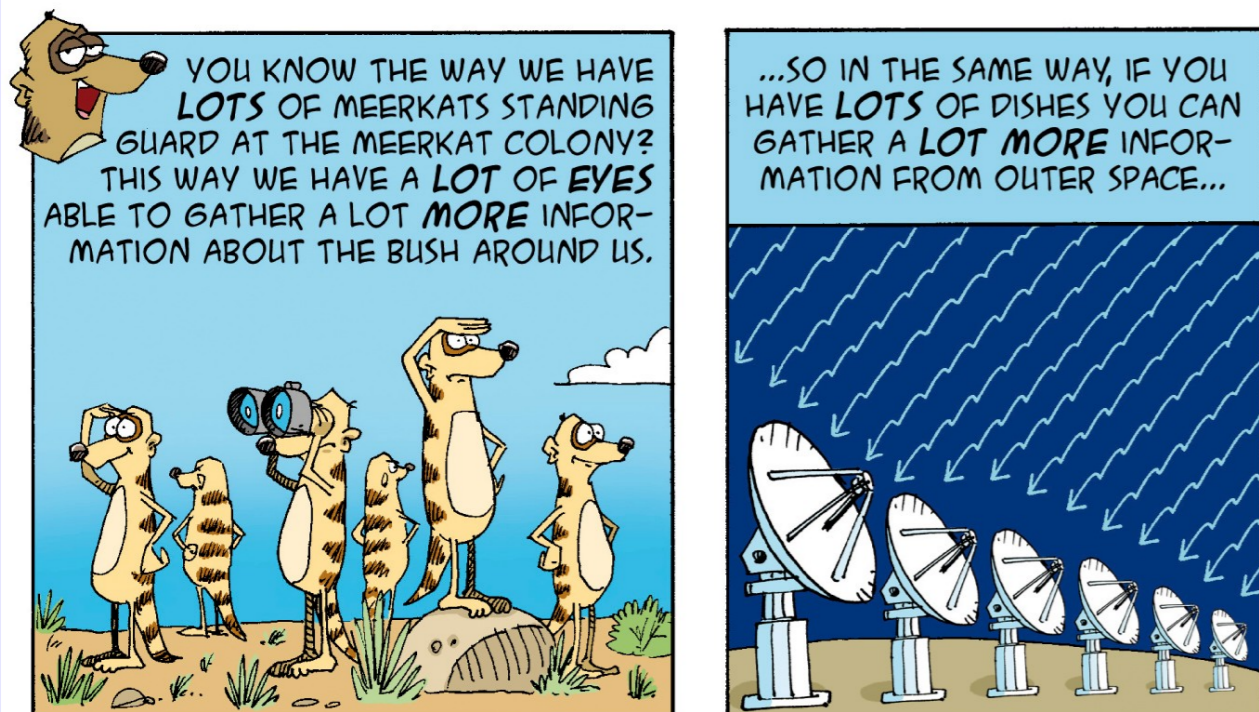
Exhibitions are usually carried out during the day, thus the night sky often cannot be introduced directly. However, it can be enthusiastically introduced by a presenter using an informative poster. On the left I am pointing at the poster I use as a standard introduction. It starts with a person and leads through a village, a country, a continent, to the Earth and Solar System, which provides an ideal opportunity to introduce and discuss our local corner of the universe. It follows through to our Milky Way galaxy and the local group of galaxies, and finishes with the farthest reaches of the universe. In this way, learners can be introduced to the wonder and vastness of the universe starting from familiar beginnings. If the presenter has a passion for both people and the subject matter, then learners are drawn in, enthused and often want to know more.

Colourful Displays and Tantalising Questions



Bright and colourful displays are instrumental in attracting learners at exhibitions. If the display is eye-catching and also informative, learners are drawn by the blaze of colour and held by the fascinating information that they can use to expand their knowledge. Tantalising questions, such as: 'Are we alone in the universe?' and 'How did the universe begin?' also attract learners, as they are curious to know what the answers to such questions may be. In my experience, these questions have drawn learners in and often resulted in them becoming involved in in-depth discussions.

Simple Language helps to Explain Complex Ideas



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Using simple language is very important when introducing learners to complex concepts. Using the familiar as a springboard to the unfamiliar helps learners feel more comfortable with new ideas, and makes unusual concepts easier to absorb. This is particularly important when making display material. The example at left uses the well known behaviour of meerkats in the Karoo semi-desert, to illustrate why many radio telescopes being used together at one time allows humans to discover more about our universe.

Hands-On Activities



Hands-on activities are always a good way of helping learners understand concepts. The **turntable** (left) allows learners to experience the effects of angular momentum. This can then be used to explain why a giant star spins extremely fast after it collapses to become a neutron star.

Cooldrink cans can be weighted to match what full cans would weigh on each planet in our Solar System. These can be used to broaden learners' understanding of the differences between our Earth and the other planets. A drawback is that the cans distort with frequent use. **Bathroom scales**, modified to show what a person would weigh on another planet, can further aid understanding of these concepts. Unfortunately, cheap analog scales tend not to be very robust and generally do not last the length of an exhibition.



2 litre water rockets (right) give learners a fun way of exploring Newton's third law: for every action there is an equal and opposite reaction. This can lead on to deeper discussions of space exploration and rocketry. A small **DSTV antenna and satellite finder** can be used to demonstrate basic radio astronomy by detecting the Sun. A large, but portable, custom-made **Earth globe** is also eye-catching and can be used to illustrate day and night, and seasons. One drawback of these three activities is that they can only be used outdoors.

Evaluation

When interacting with learners at science fairs and exhibitions, interest in the students themselves and a passion for the subject matter is of fundamental importance. Colourful displays, tantalising questions, use of simple language and hands on activities, are all useful aids in getting and holding learners' attention. In my experience these have led students to want to learn more, and to want to embark on studies in astronomy and related fields.