

## HERMANUS ASTRONOMY CENTRE OUTREACH ACTIVITIES

The Hermanus Astronomy Centre (“HAC”) has executed the outreach (“OR”) activities summarised below. The initial focus was on “Sidewalk Astronomy” but at the request of an HAC member, who happened to be the Overberg (schools) Circuit Manager, contact was made with particularly the less resourced schools in the Overberg.

In a different type of OR the HAC also constructed permanent astronomy education displays at tourist hotspots in the town, which required substantial intellectual and physical energy.

**1.Sunspot Counting.** We found this to be the quickest way of exposing school learners to Astronomy and stimulate their desire to know or experience more.

Different schools prefer different methodologies:

- a. During long break for the group/class(es) of the school's choice.
  - b. Specific classes accompanied by the relevant teacher during successive periods, which gives better control.
- Afocal photographs of the Sun (taken with a cell phone fitted to the eyepiece with an appropriate adaptor) sent to the Teacher for further dissemination adds significant value and interest.
  - Sufficient time must be allowed for learners to familiarise themselves with what they're looking at and seeing, plus 15+seconds integration time and counting (a slab of chocolate for the winner[s]). Ideally 2 -3 minutes for each learner.



*Counting Sunspots at Likhanyo*



*Sunspots imaged at Lukhanyo*

**2. Moon Gazing.** Ideally 1<sup>st</sup> quarter, but definitely in the waxing crescent phase. Several telescopes. Each telescope operator to focus on different targets and ensure that the learners DO *actually* identify and describe the correct target objects. Hand-outs strongly recommended. Less weather-dependent than stargazing.



*Afocal Moon by Lukhanyo teacher*



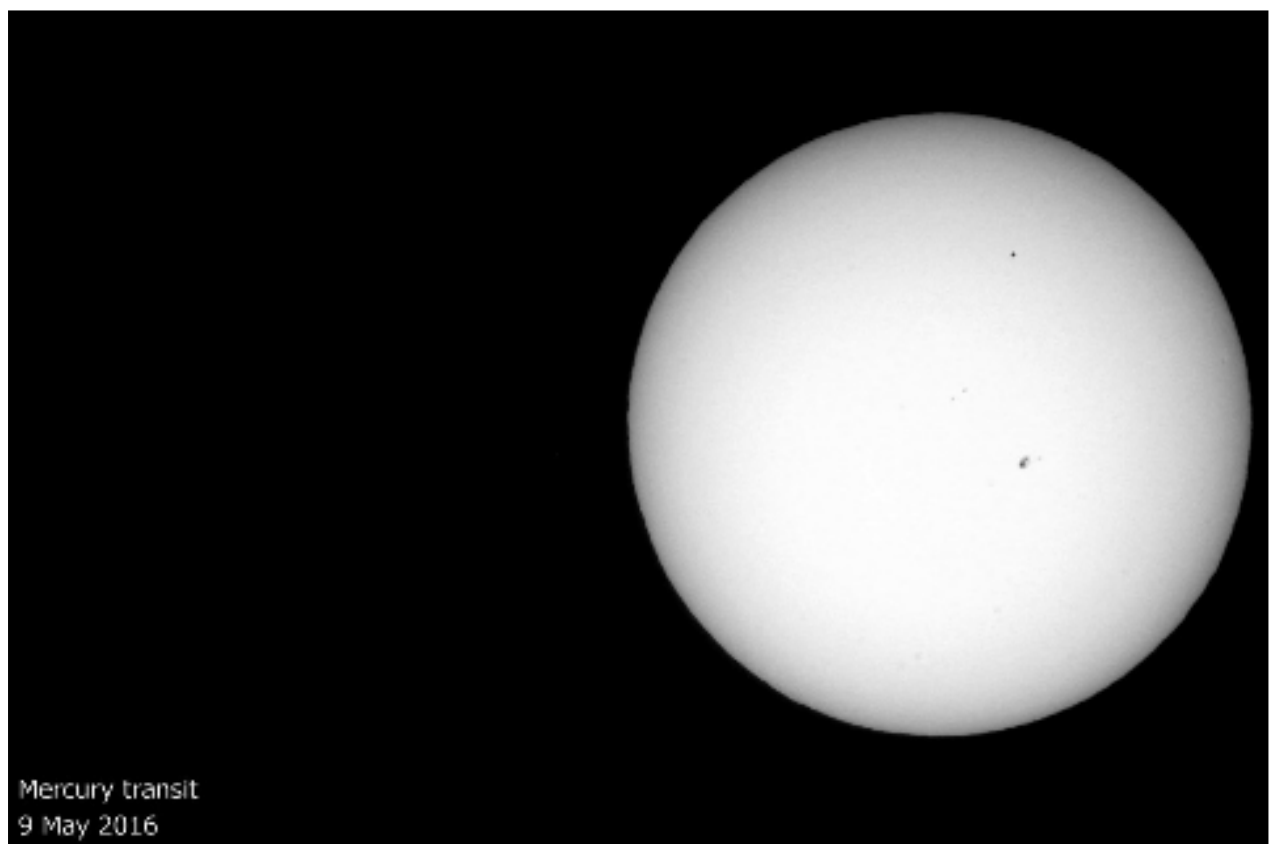
*Moon gazing at Gearings Point*

See [Moon Observing Targets 20230727 page](https://www.hermanusastronomy.co.za/wp-content/uploads/2024/03/MOON-OBSERVING-TARGETS-20230727.pdf) <https://www.hermanusastronomy.co.za/wp-content/uploads/2024/03/MOON-OBSERVING-TARGETS-20230727.pdf>

**3. Star Gazing.** Very weather dependent. Good for involving several schools. Several telescopes, with each focusing on different targets. Telescope operators to ensure that the learners DO *actually* identify and describe the correct target objects. Allow sufficient eye-piece time for each learner (the eye's integration time of 15 s is a given at night). Hand-outs strongly recommended. Big 5 hand-outs would be a big bonus for winter sessions when learners can see all.

Sidewalk Astronomy for groups or the public at large are highly recommended, at which each of the above observing options can be done.

**4. Observing Lunar & Solar Eclipses (and Mercury Transits)** Always exciting and easy to attract many attendees.



*Mercury is Small*



*Mercury Transit at Curro 2016*

**5. Analemmatic Sundial.** Help learners to design, mark out and decorate (paint) an analemmatic sundial at their school. [analemmatic.sourceforge.net](http://analemmatic.sourceforge.net) or Google “Analemmatic sundial pdf generator” and use. PowerPoint or other [assistance](#) available on request.

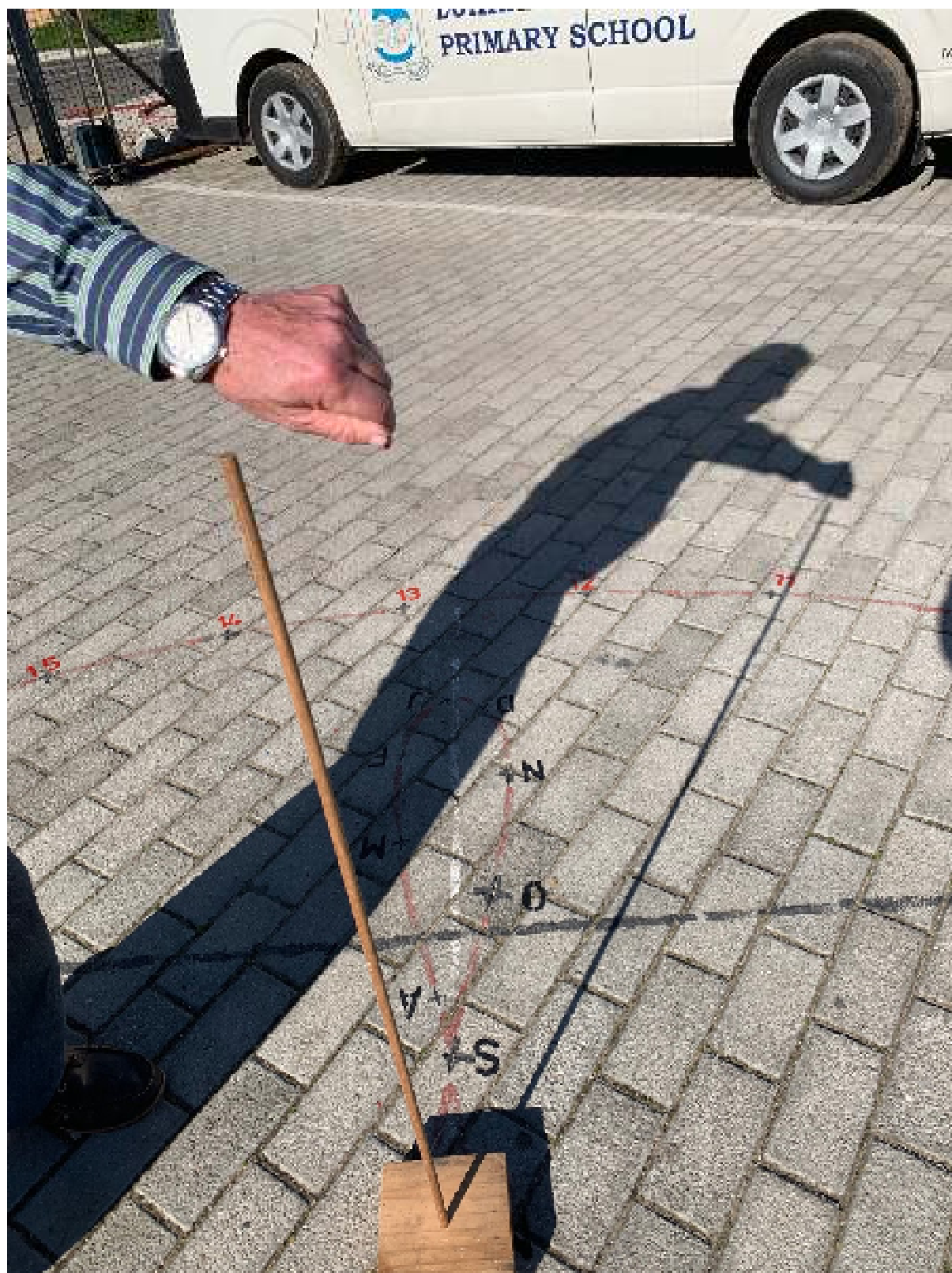


*Generation School Analemmatic sundial*





*Lukhanyo Analemmatic*



*Just Checking*

**6. Workshops (Solar System, Seasons – both in curriculum).** Ideally arranged for several schools after hours (requires working through the Circuit Manager; catering costs!) or individual ones during school time. Hand-outs are mandatory.

See <https://www.hermanusastronomy.co.za/wp-content/uploads/2024/03/Guided-Tour-Objectives-2-Cols.pdf> ,

[Planet Sizes Relative to 300mm Sun page  
https://www.hermanusastronomy.co.za/wp-content/uploads/2024/03/Planet-Sizes-Relative-to-300mm-Sun.pdf](https://www.hermanusastronomy.co.za/wp-content/uploads/2024/03/Planet-Sizes-Relative-to-300mm-Sun.pdf)

Non-curricular workshops (for example “How sundials work”) can also be arranged if the learners and educators are available. Once again take-home handouts are mandatory.

See [Hermanus Sundial Foldable page https://www.hermanusastronomy.co.za/wp-content/uploads/2024/03/Hermanus-Sundial-Foldable.pdf](https://www.hermanusastronomy.co.za/wp-content/uploads/2024/03/Hermanus-Sundial-Foldable.pdf)

**7. Educational Outings** Take school groups to Cape Town for the Science Centre, Noon Gun, Iziko Museum & Planetarium & SAAO

### **Permanent Astronomy Education Structures**

- a. **Sundials.** There are a total of 8 sundials of different designs at Swallow Park (Polar and 15° Inclining) and Gearings Point (Armillary, Bi-Filar, Analemmatic, North, East & West Vertical) – all in Stainless Steel.



*Polar & Declining sundials Swallow Park*

For more information on the Swallow Park Sundials see:

[https://www.hermanusastronomy.co.za/wp-content/uploads/2024/03/The-Swallow-Park-Sundials-MNASSA-Feb-2014-extract\\_opt.pdf](https://www.hermanusastronomy.co.za/wp-content/uploads/2024/03/The-Swallow-Park-Sundials-MNASSA-Feb-2014-extract_opt.pdf)

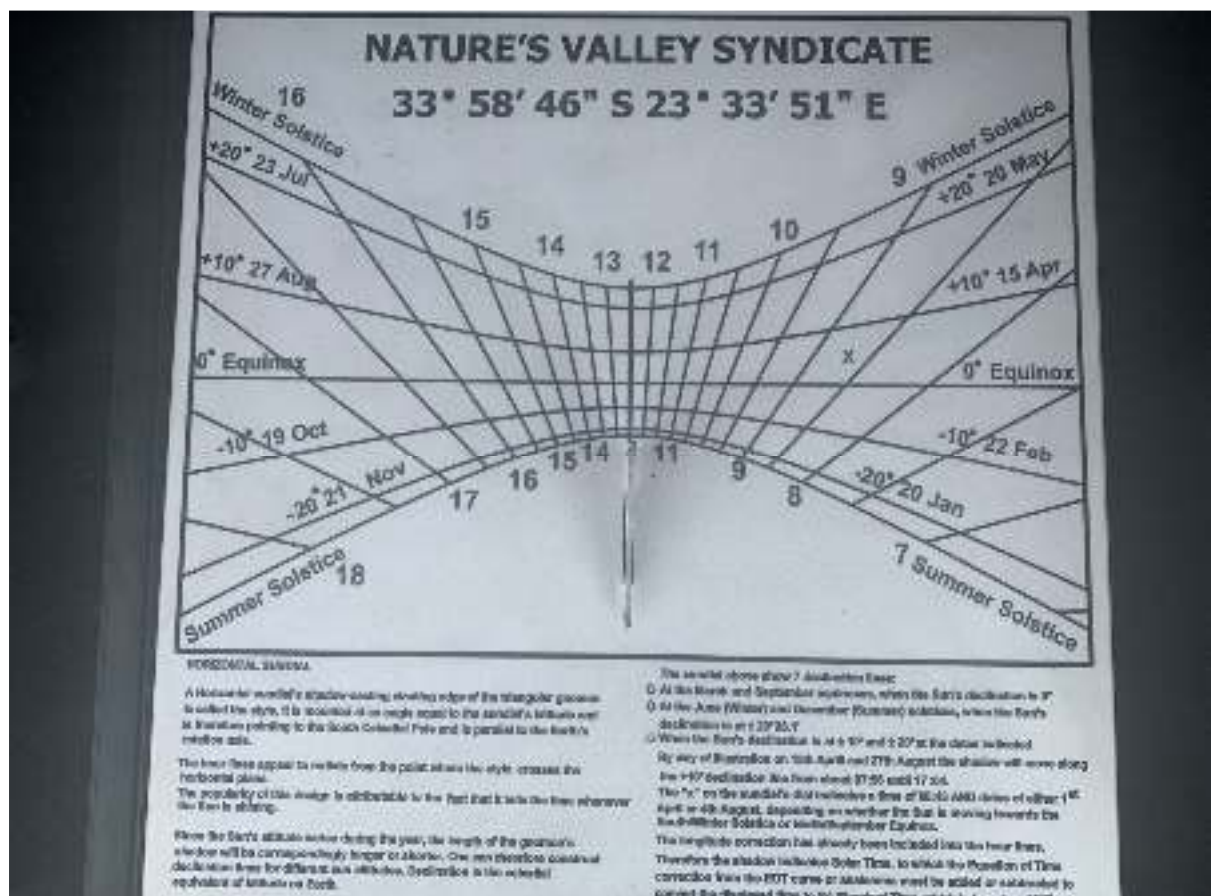




*Armillary & Bi-filar sundials Gearings Point*



Horizontal & Armillary sundials SANSA



Horizontal sundial Nature's Valley





*Analemmatic sundial Gearing's Point*

- b. True Scale Solar System Model.** A True Scale Solar System model was designed and constructed along the iconic Cliff Path over a distance 3.86 km from the Old Harbour to Grotto Beach



*Planet models for 912mm Sun*



*Jupiter and its view*

For True Scale Model of the Solar System detail see:

[https://www.hermanusastronomy.co.za/wp-content/uploads/2024/03/True-Scale-Model-of-the-Solar-System-in-Hermanus-MNASSA-Aug-2016-extract\\_opt.pdf](https://www.hermanusastronomy.co.za/wp-content/uploads/2024/03/True-Scale-Model-of-the-Solar-System-in-Hermanus-MNASSA-Aug-2016-extract_opt.pdf)





*The Sun*

- c. **Gearings Point Astronomy Education Display.** This display comprises 36 educational tablets of 595 x 795 mm mounted at 60° about 100 mm above the paving, which makes it easy to read standing in front of them. The intention is to give a comprehensive but introductory overview of Astronomy, to serve as a trigger for further reading. The Eastern Side of the display cover *theoretical* topics (Earth, Moon, Sun, Solar System, Galaxies, Ancient Astronomy, Pioneering Females in Astronomy, The Big Bang, The Cosmic Pie, The Origin of the Elements, Stellar Evolution). By contrast, the Western side tablets are more *practical* (The Eye, Binoculars, Telescopes, Space Telescopes, Celestial Objects in the Night Sky, Observing Tips, The Celestial Sphere, Sky Maps, Astrophotography and Space Exploration).



*GPAED completed*

For the MNASSA article on the Gearing's Point Astronomy Education Display see:

[https://www.hermanusastronomy.co.za/wp-content/uploads/2024/03/Gearings-Point-Astronomy-Education-Display-MNASSA-Apr-2013-extract\\_opt.pdf](https://www.hermanusastronomy.co.za/wp-content/uploads/2024/03/Gearings-Point-Astronomy-Education-Display-MNASSA-Apr-2013-extract_opt.pdf)