

# Integrated Astronomy Activities for

## Rationality, Scientific Temper and EQUALITY

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# Day Time Astronomy – Campaigns done by AIPSN

- Solar Eclipse campaigns – 1980, 1995, 1999 and later
- Transit of Venus campaigns – 2004 and 2012
- International Year of Astronomy 2009
- Comet ISON Campaign 2013

# Universalizing the universe.

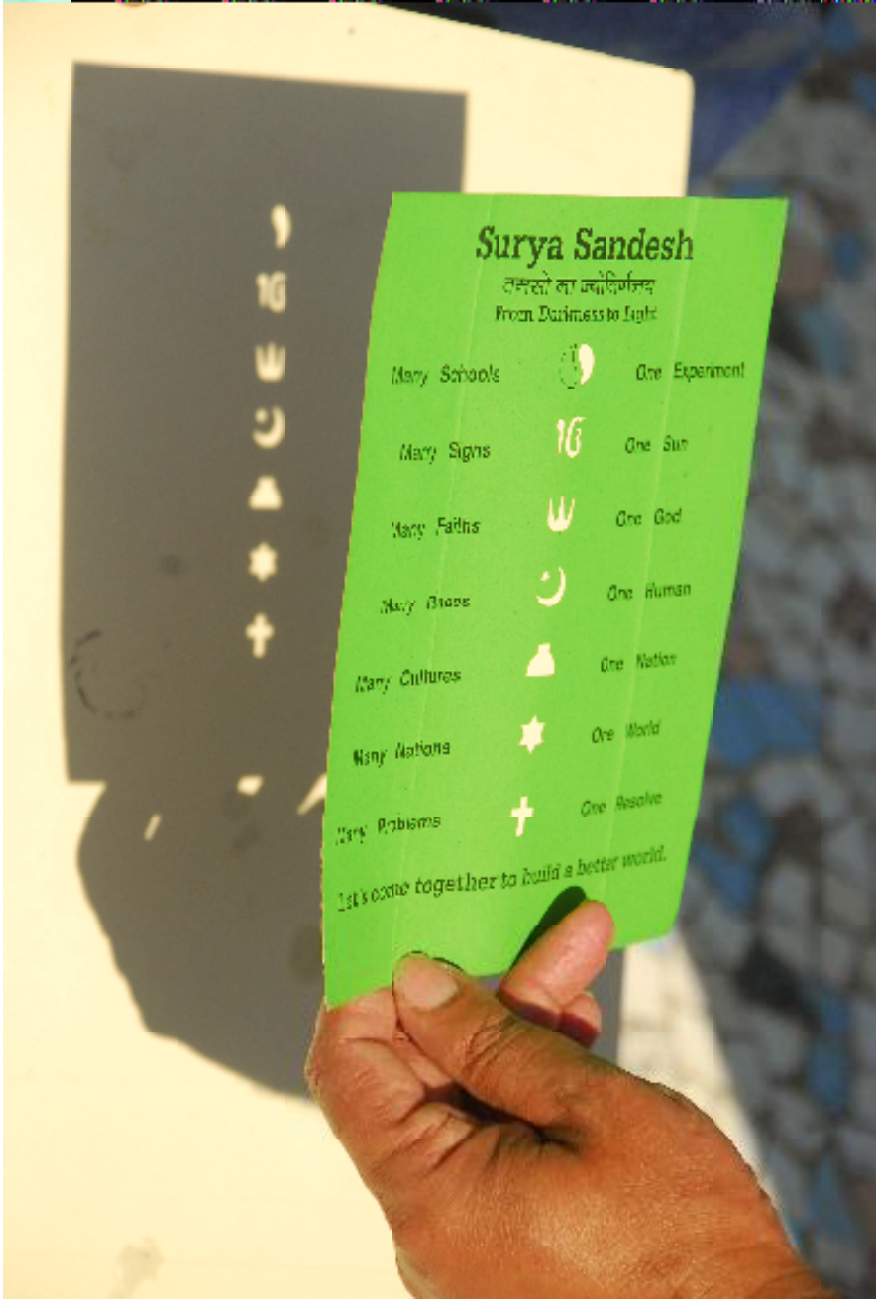


# Examples

- Sun card - Message from the Sun
- Magic mirror – Not a magic, you can find out why
- Ball Mirror solar projector – Sooraj Zameen Par
- Colour TV – Wow !
- Gyano telescope with ball mount – Observing beyond what you see.

**DAY TIME ASTRONOMY ensures  
active Participation of girl students and women teachers**

# Suncard





# Magic Mirror





# Ball Mirror Solar Projector





# Jawalabazar Ashramshala, Hingoli

Children imaging the Sun using  
Self Constructed Telescope and ball mount.

Teacher – Nagesh Waikar





# Every Child in school a resource person



# Cognic Zoom

A single thread of evidence through the Universe



Discoveries of the last decades link the world of the nucleus to the world of life in a chain of cause and effect which extends over billions of years, commencing with the formation of stars in our galaxy and ending with the appearance of man on earth. Now I learned for the first time how stars and planets are born, how the solar system was formed, what conditions may have prevailed on the primitive earth, and how life may have developed on our planet. My previous work in physics never led me to consider these matters. **Yet the fact is that a single thread of evidence runs from the atom and the nucleus through the formation of stars and planets to the complexities of the living organism.**

(Robert Jastrow - Red Giants and White Dwarfs- the evolution of Stars, Planets and Life.)

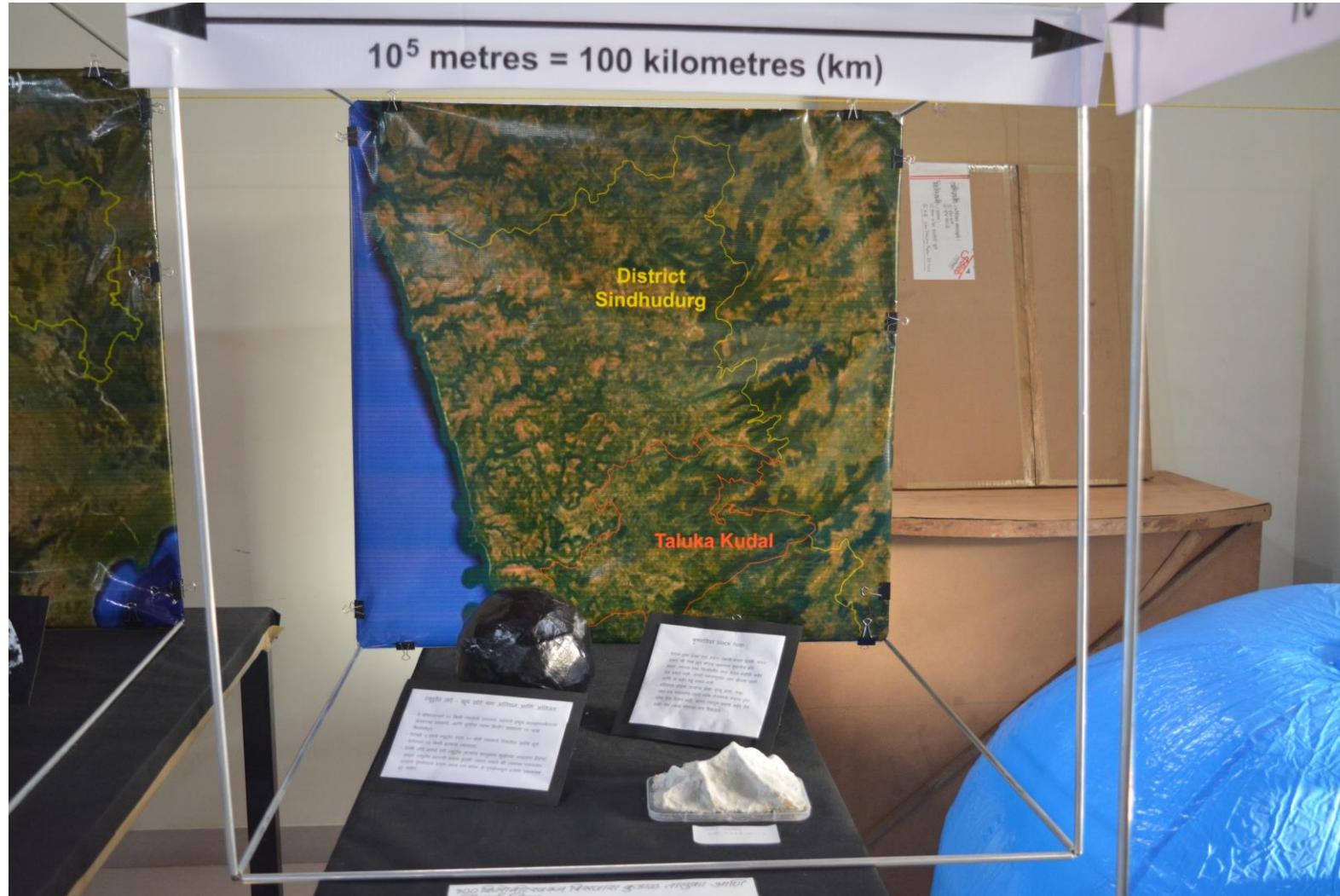








# Mount Everest and neutron star (level 5)





$10^8$  metres = 1,00,000 km = 1 lac kilometres (km)

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$10^8$





सूर्य

बुध

शुक्र

पृथ्वी चंद्र

मंगल

सूर्य

शनि

यूरेनस

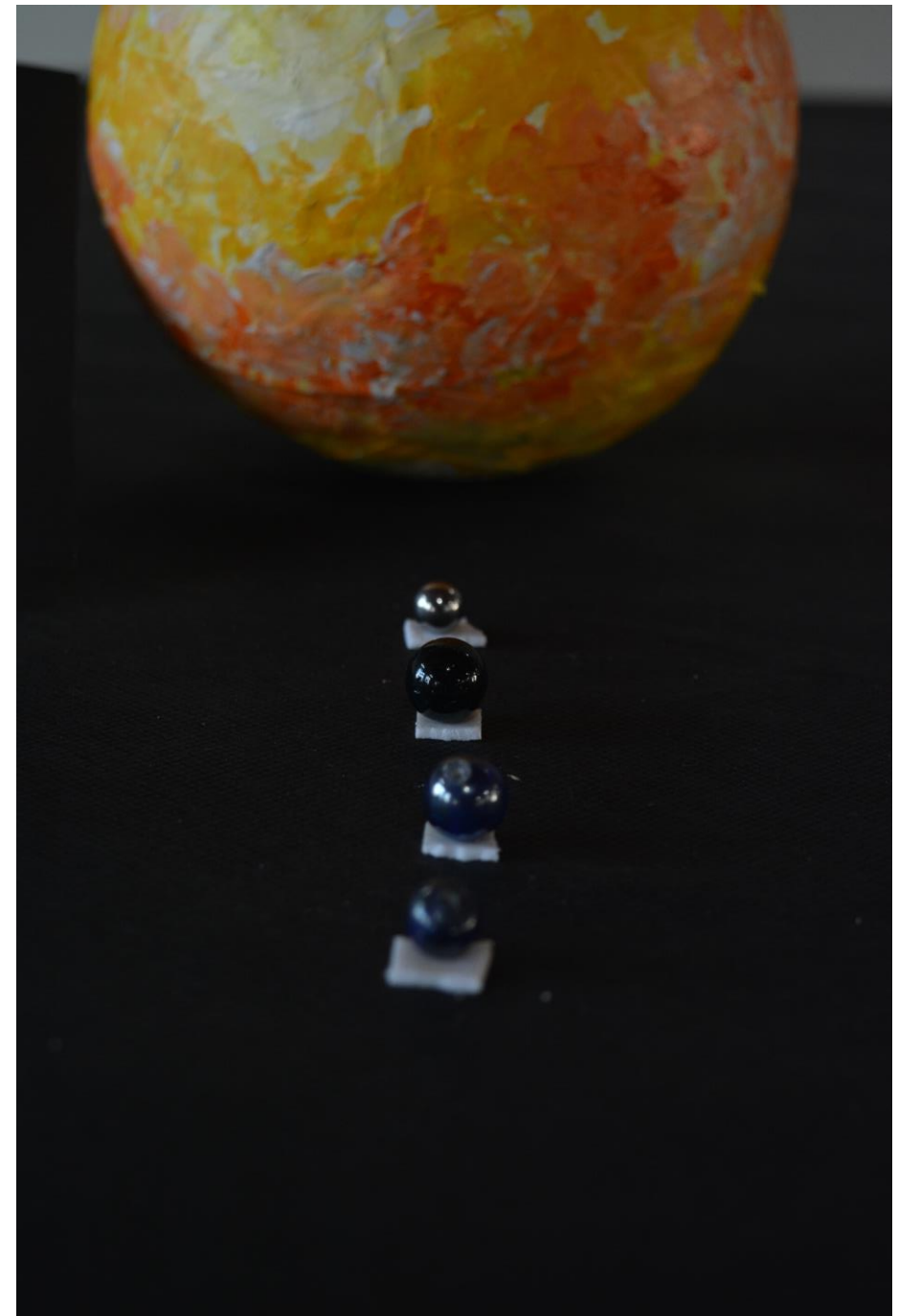
नेपच्यून

सूर्य  
सूर्य को एक बड़ा चमकता हुआ गोलका मानें, जो हमें गर्मी और प्रकाश देता है। यह हमारे सौरमण्डल का केंद्र है।

10<sup>9</sup>

Level 9

Red Dwarf Star Trappist  
And its exoplanets





# Level (-8) : Periodic table - Atomic Sizes of elements



# Big Balloon – blow enough to get the size within 5% error for each of these.

- Level 7 – Earth
- Level 8 - Jupiter
- Level 9 – Sun
- Level 10 – Pollux
- Level 11 – Rigel
- Level 12 – Betelgeuse
- Level (-15) – Proton



# Lemon (find a lemon within 5% error for each of these)

- Level 0 - Lemon
- Level 8 - Mercury
- Level 9 - Uranus/Neptune
- Level 12 - One of the three stars of Polaris
- Level (-8) – Sodium atom



# What can be achieved?

- From WOW to Why and How
- Activities integrating Geometry, arithmetic, geography, science
- Done using low tech every day materials including bamboo, baskets, *Shadu mati*, plastic balls etc
- Understanding where we are in the universe
- Asking questions – basis of rationality
- Reaching out to every school, every classroom, every child
- Girls can participate
- Students with special needs can participate
- Values of Indian constitution like secularism, spirit of inquiry and reform

# Thank You!

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