

2.1 Intro to Smiley

SMILEY

1. "Smiley" is a 4.6m radio telescope located at the _____, or PARI.
2. Smiley is remotely accessed via the Internet to be used by teachers and students to introduce them to _____ Astronomy.
3. Smiley is a real working radio telescope and not a simulation.
4. After training students will be able access and utilize a real working radio telescope to conduct real world scientific investigations.

RADIO TELESCOPE OPERATIONAL BASICS

5. A _____ is any device that makes an object look _____ than it is.
6. Most are familiar with _____ telescopes, which view the _____ spectrum.
7. Radio telescopes do the same as optical except they “look” at the radio spectrum.
8. Radio telescopes are _____ “ears to the sky”.
9. Smiley scoops up _____ waves in a dish looking telescope.
10. Radio telescopes catch radio waves in a dish looking antenna called a _____.
11. The reflector sends the signals up into the center of the dish called the _____ point.
12. The feed is comprised of a horn.
13. The horn feeds the incoming signals to a sensitive radio _____ and amplifier.
14. Lastly, the signals are sent to a computer for conversion from _____ to digital data.

RADIO TELESCOPE SPECS

15. Hydrogen is the _____ element on the periodic table. It contains _____ positively charged proton and one negatively charged _____.
16. Normally the electron spins in the _____ direction in relation to the proton.
17. When a hydrogen atom is hit by another atom or an electron, the hydrogen’s electron is forced to _____ into the same direction as the proton.
18. Since the proton is _____ charged and the electron is negative, they repel each other causing the electron to _____ back into spinning into the opposite direction.
19. When the electrons flip back energy is released in the form of a photon.
20. The photon has a wavelength of _____ cm or a frequency of _____ GHz.
21. This Flip –Spin action identifies the presence of _____.
22. Smiley collects the emissions from _____ hydrogen to locate and study hydrogen.
23. Since Hydrogen is the most _____ element, studying it gives us better insight into the _____.

DATA ANALYSIS

24. Data from Smiley is processed by a computer and analyzed with three types of scanning.
25. _____ measures the intensity of a radio emission's _____.
26. _____ measures the intensity of radio emissions _____.
27. _____ Collects the intensity of an emission over an area to generate a _____ image of the source