

## Questions on the Basic Astronomy Presentation

Answer the following questions during the presentation on Basic Astronomy.

1. What is the Sun mostly made of? (slide 2) **Hydrogen**
2. How long in total do we expect that the Sun will last? (slide 2)  
**In total, about 9 billion years**
3. How many planets are there in the solar system? (slide 3) **Eight**
4. Which planet appears to be about the same size as the Earth? (slide 3) **Venus**
5. How many Mercury days are there in a Mercury year? (slide 4)  **$88/58 = 1.5$**
6. Is Mercury nearer to the Sun or the Earth? (slide 4) **Sun**
7. Why is Venus so bright in the sky? (slide 5) **Clouds in the atmosphere reflect sunlight**
8. Which is hotter, Mercury or Venus? (slide 5) **Venus (due to the thick clouds, even though it is further away from the Sun than Mercury)**
9. What is odd about a day on Venus compared to a Venusian year? (slide 5)  
**Day longer than year**
10. Name two parts of the world that are brightly lit up at night (slide 6)  
**Any sensible two**
11. What is a meteorite? (slide 7) **Lumps of rock from space**
12. How do craters form on the Moon? (slide 8) **Impacts from meteorites**
13. Why does the Moon only show one side to us? (slide 9) **Time to turn on its axis is the same as the time it takes to orbit the Earth**
14. If the atmospheric pressure on Earth is  $10^5 \text{ Pa}$ , what is the pressure on Mars? (slide 10)  
 **$0.0075 \times 10^5 \text{ Pa} = 750 \text{ Pa}$**
15. How deep is Valles Marineris compared to the Grand Canyon? (slide 12)  
 **$7/2 = 3.5$  times deeper**
16. What is the Great Red Spot? (slide 13) **Hurricane in Jupiter's atmosphere**
17. What is the density of Jupiter compared to Earth (the volume of a sphere  $\propto \text{diameter}^3$ )? (slide 13)  
**Mass = density x volume, so:  
 $318 \times \text{density of E} \times \text{volume of E} = \text{density of J} \times \text{volume of J}$   
 $\text{volume of J} = 11^3 \times \text{volume of E}$   
 $318 \times \text{density of E} \times \text{volume of E} = \text{density of J} \times 11^3 \times \text{volume of E}$   
making density of J =  $(318 / 11^3) \times \text{density of E} = 0.24$  density of E**

18. Would Saturn float in a large enough bath tub? (slide 14)  
Yes, if you could find one big enough (!); the density of the planet is less than that of water
19. What is odd about the rotation of Uranus? (slide 15)  
Axis on its side, rolls around the Sun
20. Which planet is the last of the gas giants? (slide 16) Neptune
21. What is the name of Pluto's major Moon? (slide 17) Charon
22. How far away is Andromeda? (slide 19) 3 million light years
23. How big is the patch of sky in the Ultra Deep Field? (slide 20)  
 $1/10^{\text{th}}$  of the size of the full Moon