

Physics 102  
Astronomy of Planets  
Outer Planet satellites HW assignment  
**Due: Nov 15**

Questions to turn in:

1. What is the surface temperature of Titan?
2. What are the geysers on Triton made of?
3. What substance makes the geysers dark?
4. How hot are the lavas in Hawaii?
5. How hot are the lavas on Io?
6. What will eventually happen to Phobos?
7. Which area of the Earth is most like Europa?
8. Define organic.
9. Which world does Titan remind you of? (Be prepared to defend your answer during discussion.)
10. What test made Sagan confident that tholin really exists on the surface of Titan?
11. According to PBD, what is the major scientific controversy surrounding Titan?
12. How will we determine the solution?
13. List the Galilean satellites in order of youngest surface to oldest surface.
14. What evidence suggests that Titan may have oceans of liquid ethane?
15. Why is it surprising to find evidence of geological activity on some of Saturn's medium sized moons, and how do we explain it?
16. Pick a picture of a surface feature (close-up) on one of the moons of the outer solar system. Turn in the picture along with the name of the moon, the planet around which it orbits, the type of surface feature, and the surface geologic process that formed it. Try the required websites for possible images.

Be prepared to discuss:

CP: ch 11: Review Questions #18, 19, 20 and 21, plus

1. What are some of the problems with this TV show?
2. On which solar system bodies can you find an ocean?
3. Why would going underground on Io be necessary?
4. What do you think about future colonization of Io and/or Phobos?
5. Which of the proposed "extreme sports" on satellites sounds most interesting to you? Why?
6. What's so important/interesting about Titan?
7. Why did you choose the picture you did?
8. Which geological surface processes are evident on which of the moons of the outer solar system?
9. How can moons have so much more geological activity than similar-size (or larger) planets?
10. What is Miranda? Who discovered it? How did it form?
11. What is Triton? Where did it come from? Compare it to Titan.