Meteorology Heat Transfer and Sphericity Questions

1. Define Heat:
2. Define Temperature:
3. Mass important to temperature or heat?
4. Why does a metal spoon feel cooler than a drinking glass, when both have the same temperature?
5. When we touch it with our hand, why do we tend to dramatically underestimate the temperature of the ocean?
6. Why does beach sand get so hot on a sunny summer day?(Explain two reasons)
7. Why does that same sand so cold just before sunrise? (Explain two reasons)
8. Seasons are caused by the fact that the Earth’s axis is tilted. Presently, that tilt is 23.5 degrees, but this value varies over a long period of time. When would you expect an ice age to be most likely, when the tilt is greater than the present value or smaller? Why?
9. Consider a blanket of snow on the ground. It is often noticed that snow melts faster from below than above, resulting in air pockets beneath the crust that cause the snow to crunch when you walk on it. Why?
10. Which direction does the wind blow in relationship to pressure differences? Why?
11. What does the temperature differences got to do with the direction of the wind?
12. How does convection cool the hot sand on the beach?
13. How is heat capacity and thermal inertia related?
14. Which has a higher thermal inertia, water or sand?
15. Juneau, Alaska is further north than Moscow, Russia; why is Moscow so much colder in the Wintertime?
16. How does snow and asphalt tell you the direction of the blowing wind on a cloudless day?
17. What does the length of night got to do with the tilt of the earth and the seasons?
18. Why do the leaves on the trees turn yellow or red in the fall? (Hint: Temperature change is not the primary reason).