Tides, Advanced

1. Do one of the following:
    a. If you live near tidal waters, keep charts for one month showing the time of high and low tides, neap tides, and spring tides.
    b. Build a tidal clock which will show high and low tide for the average tide day and can be set to ring at various tide levels. Clocks cannot be made to correspond with areas having irregular tide flow. These clocks can be made by taking an old clock and slowing the mechanism to correspond with the 24 hour, 50 minutes, 28 second tidal day (you would divide this in half to compare with the 12 hour period that a clock shows).

2. Make a chart or diagram showing how the various phases of the moon affect the tides.

3. How often do tidal patterns repeat themselves? How can you find out what the tide was at a past date at a particular location, or at a future date so you can plan a scientific expedition in the future?

4. Write an essay on the effect of tides on ecology. Explain what is meant by upper, lower, and middle daily tide levels. Give examples of sea life that can be found at each level. Explain how the monthly schedule of neap and spring tides effect the life cycle of sea inhabitants such as grunion, horseshoe crabs, some sea turtles, etc.

References:

Sources are the same as for beginners' Tide honor, except for Sea Frontiers, a publication of Coast and Geodetics Surveys, Marine Research Development Co.

Tides Advanced Answers

1. b. These clocks can be made by taking an old clock and slowing the mechanism to correspond with the 24 hour, 50 minutes, 28 second tidal day (you would divide this in half to compare with the 12 hour period that a clock shows).

3. Tide patterns repeat themselves every 19 years (when the sun and moon relationship cycles are repeated) and computers can calculate all past and future tide patterns for a location.