Tides Web Activity

Instructions: Click on the link below, watch the video and answer the questions below.

<http://oceanexplorer.noaa.gov/edu/learning/player/lesson10.html>

Lesson:

1. What causes tides?
2. What is the highest normal point called?
3. What is the lowest normal point called?
4. What is the difference between these points called?
5. What are tidal bulges?
6. Which exerts more tidal force (moon or sun)?
7. What are spring tides? Under what circumstances do they occur?
8. What are neap tides? Under what circumstances do they occur?
9. What are the four subdivisions of the intertidal zone?
10. Give one example of an adaptation of an organism due to hits intertidal zone location?

Instructions: Click on the “Global Impact” Heading, watch the video and answer the questions below.

Global Impact

1. What percentage of energy needed to power global circulation comes from the tides?
2. How do the tides affect humans living on the coast?
3. Explain how we can harness tidal power.

Instructions: Click on “activities” on the right, go through each step and answer the questions:

Step 1: Lunar Day

1. How much time passes between one high tide and the next?
2. How much time passes between low tide and the next high tide?

Step 2: Position of the Sun and Moon

1. Explain how spring and neap tides are created
2. How many spring and neap tides occur each month? Why?

Step 3: Orbital Shape

1. Why does the distance from the earth to the moon or fun affect the tides?
2. When will lunar tides be higher, at perigee or apogee? How often does each occur?
3. When will solar tides be higher, at perihelion or aphelion? How often does each occur?

Step 4: Be the Captain

1. Describe the conditions that made a safe trip possible?
2. Your sister ship will have to wait to make the same attempt until you unload your cargo and clear the dock. If you leave on a high tide that crests at noon, when should your fellow captain make his move?

Instructions: Click on “Life in the Intertidal Zone”, read the information and answer the questions

1. How does the abundance and diversity of life change across the various intertidal zonesLife is very abundant and very diverse in the lower intertidal, and becomes less diverse towards the high intertidal. Both diversity and abundance are lowest in the spray zone. ?
2. Describe how the physical stresses on life vary from the top of the intertidal zone to the bottom?At the top of the intertidal zone, organisms spend more time exposed than underwater, so they will have to cope with desiccation and large temperature swings. Those pressures will be less important lower in the intertidal zone because of the protection provided by greater time underwater. But plants and animals there are at, or just below, the surf zone, so they will be pounded by waves.
3. How are these stresses reflected in the types of animals that inhabit the intertidal subzones?Many of the creatures that live in the highest intertidal zones either have the ability to close themselves up into their shells as a shelter against drying out, or are mobile enough to take cover. In the lower parts of the intertidal zone, many animals and plants have a means of attaching themselves in place and are either very sturdy or very flexible to stand up to wave energy.
4. Living conditions in the intertidal zone are difficult, yet most of it is abundantly populated. What are some of the benefits of intertidal living?