1. Q: What life cycle do Cnidarians display and what is the function of each "generation" within the life cycle?  
    A: Cnidarians display the **alternation of generations** life cycle. The two generations are polyp, which are sessile, and medusa, which are motile. During the polyp stage, the Cnidarian is attached to the sea floor. It consumes food using feeding polyps, and new jellyfish are created in the reproductive polyps using asexual budding. The jellyfish formed in the polyp are in the medusa stage, and are released when a change in the environment around the polyp occurs. These medusa jellies grow into mature jellyfish which reproduce sexually, creating genetic diversity and dispersing the species. Large groups of jellyfish form, and all release sperm and eggs into the ocean. The eggs become fertilized, become planula larvae, and eventually attach to the sea floor and grow into new polyps.   
  
2. Q: What is the difference between a cnidocyte and a nematocyst?  
    A: The cnidocytes are microscopic cells located all along the tentacles of a medusa and polyp stage. Each cavity contain deadly venom, as well as a nematocyst. Nematocysts are like tiny harpoons, attached to the venom sac in the cnidocyte (harpoon gun) with a very thin, but long tube.   
  
3. Q: How does a nematocyst fire?  
    A: On the outside of each cnidocyte there is a trigger. When a victim swims past the tentacles of a medusa jellyfish, it hits the triggers of thousands of   cnidocytes. The door on the front of the cavity opens, and the nematocyst is shot out at immense speed. The nematocyst bury themselves into the flesh of the victim, just like a harpoon. Venom from the cnidocyte then travels through the tube connected to the nematocyst and into the victim.  Depending on the severity of the attack and the species of jellyfish, the stings can cause anything from the slightest tingle to paralysis and even death. 

4. Q: In Obelia, describe the role of each type of polyp and the medusa.   
    A: Feeding polyp - Captures and digests food, spreading nutrients throughout the polyp colony.

Reproductive polyp - Produces medusa jellies asexually by budding from a central stalk in the polyp, and releases jellies during any environmental pressures on the polyp.

Defense polyp – higher concentration of cnidocytes for defense

Medusa - Reproduces sexually with other jellies once out of the polyp to form new larvae and polyps. Used mainly for species dispersal.  
  
5. Q: How is the Portuguese Man-O-War similar and different to Hydra and Obelia?  
    A: Both the Man-O-War and the Hydra and Obelia belong to the class hydrozoa, and reproduce both sexually and asexually. They also have similar tentacles on feeding polyps and identical digestive systems. The Man-O-War, hydra and Obelia are polyp stage dominant and mainly reproduce asexually. The Man-O-War is a collection (colony) of polyps with different functions, including a polyp which forms the balloon sack that allows the Man-O-War to float. Obelia are also a colony of polyps with different functions. Hydra are not colonies.