Biology 11 Unit 9 Assignment 1: How do sponges, cnidarians, flatworms, and roundworms obtain food? Virtual Lab

**Instructions:**
Please complete the [How do sponges, cnidarians, flatworms, and roundworms obtain food Virtual Lab](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS13/LS13.html).

External Link:

Read the information and procedures provided in the lab and complete the journal questions (provided below). Please note you should be answering your questions in detail, by providing support in the form of data values (external or from the lab) and/or scientific information/research to explain your statements.

**Table/Graph Section:**

Table 1: How do sponges, cnidarians, flatworms, and roundworms obtain food.

<table>
<thead>
<tr>
<th>Name of organism</th>
<th>Types of feeder</th>
<th>Image of organism (insert picture/sketch)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tapeworm (in intestine of fish)</td>
<td>Parasite</td>
<td><img src="http://www.extremetech.com" alt="Tapeworm" /></td>
</tr>
<tr>
<td>Sea Anemone</td>
<td>Filter feeder</td>
<td><img src="http://wonderopolis.org" alt="Sea Anemone" /></td>
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<td></td>
</tr>
<tr>
<td>Jellyfish</td>
<td>Filter feeder</td>
<td></td>
</tr>
<tr>
<td>Sponge</td>
<td>Filter feeder</td>
<td></td>
</tr>
<tr>
<td>Portugese man-of-war</td>
<td>Predator</td>
<td></td>
</tr>
</tbody>
</table>

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Journal Questions:

Describe each of the four types of feeders identified in this activity. Explain how various invertebrates have adapted to feeding in their environment.

In this activity, four types of feeders were identified: Predators, Scavengers, Filter feeders, and Parasites. Predators hunt and kill prey/food, Scavengers feed on the remains of dead organisms, Filter feeders filter out bacteria, algae, and other material from the water they live in, and Predators obtain food from their host organism. Each of the invertebrates have adapted different methods to obtain food within their environment.

The predators have specialized cells, such as “stinging cells” to immobilize and kill their prey. The filter feeders filter bacteria, algae, protozoans and other bacteria from the water, these organisms are usually sessile and relatively inactive. The Parasites are small organisms such as worms. They enter the host in larval form and grow by obtaining food from the host. The scavengers feed on dead, decomposing organic material.
**Why are filter-feeders usually stationary organisms?**
Filter feeders can remain sessile as their food comes to them. The tidal currents allow new food (in the form of bacteria and algae) to drift by. The filter feeders are able to efficiently filter the water and extract the food. Filter feeders are also often difficult to digest and “unappetizing” to most predators. Because of this, filter feeders to not require movement to obtain food or evade predators.

**Early scientists classified sponges as plants. Based on your observations of the sponge’s feeding system, why do you think scientists now classify sponges as animals?**
Early scientists originally classified sponges as plants based on the fact that they do not move (sessile) and that they lack true tissue development. Sponges were later classified as animals when scientists observed their embryo development feeding habits. Sponges are heterotrophs, meaning that they rely on other organisms for sustenance as opposed to plants, which are autotrophs and are capable of creating their own food with photosynthesis. Scientists observed that sponges are multicellular and have multiple tissue layers and systems which is further evidence of their classification as an animal rather than a plant.

**Jellyfish cannot swim rapidly, yet they are efficient predators. How are they adapted to predatory life despite their lack of speed?**

Despite not being fast swimmers, jellyfish are effective and efficient predators. The have accomplished this through the development of specialized stinging cells called cnidocytes. Each stinging cell contains a capsule called a nematocyst which, when brushed against by prey, will uncoil, and anchor the stinging thread into the prey. In some species these threads are filled with toxins that can cause paralysis or death.

**Why are scavengers usually found in the lower part of the coral reef habitat?**
Scavengers are usually found in the lower part of the coral reef habitat due to the fact that organisms which have died will drift downward. By being located at the lower part of a coral reef, the scavengers are located where they have the best chance of finding food.

**How do internal parasites keep from being washed out of their host’s bodies in body fluids or wastes?**
To prevent being washed out of their hosts bodies, internal parasites have developed methods to ensure they stay in place. Parasitic flatworms have hooks and suckers on the scolex (anterior end of a tapeworm) to attach it to the wall of the gut. They also have an extra outer covering called glycocalyx, (glycoprotein-polysaccharide) which protects them from being digested. Tapeworms stay in place by attaching their head to the inner wall of the intestines.
How do the methods for obtaining food change as an organism’s complexity increases?

As the complexity of organisms increases we can observe how their method of obtaining food changes. Very simple organisms do not actively seek out food and rely on the sea current to bring new algae, bacteria, or decomposing organic matter to them. More complex creatures have adapted methods of actively seeking out prey. Mobility, or stinging cells in jellyfish are some examples of this. By increasing in complexity, organisms are able to gain an edge on the competition within their environment and adapt to more effectively compete for natural resources such as food.