Classification & Plant Taxonomy Station Lab – Station set ups

Station 1
The main part of this plant is the photosynthetic leafy structure called a frond. On the underside of the frond are what looks like little dots these are called sori (singular sorus). The spores are produced inside these sori.

Station 2
This group of plants are considered the cone bearing plants. There are 5 phyla of this group, 2 of which are represented here, one of which you need to know the name of. You can also see the male and female cones of the most common tree around here. The female cones are larger and composed of many scales. At the base of each scale are ovules where meiosis takes place and eventually is where the egg is formed and then the seed after fertilization. The male cones are much smaller and where meiosis occurs to produce sperm or pollen. Each pollen grain contains 4 cells and are transported on air currents.

Station 3
The green leafy plant you see is considered the dominate form of this plant, present all the time. The stalk and capsule is used for reproduction with the spores being produced in the capsules.

Station 4
This is the most successful plant group. You can use the microscope to take a closer look at the different varieties of flowers provided.

Station 5
Use the numbered flowers to fill out the chart.

Station 6
Make a dichotomous key with the 6 Kingdoms of life. Be careful with the Protist!!
Station 7  Use one of the flowers to carefully cut the anthers and ovary and then view each under the microscope.

Station 8  Label the flower:

Station 9  Matching the part of the Flower

1. Male reproductive part of the Flower
2. The part of the flower that attracts animal to aide in pollination
3. The part of the flower where the pollen lands and sticks.
4. The part of the flower where you would find the most pollen.
5. The part of the flower where the egg is produced and fertilized.
6. The part of the flower where the sperm has to tunnel through to get to the egg.
7. The fruit
8. The female part of the flower
9. Protects the developing flower bud.
10. Holds up the part that produces the pollen.

a. anther
b. filament
c. ovary
d. ovule
e. petal
f. pistil /carpel/
g. sepal
h. stamen
i. stigma
j. style
Station 10 Need a cladogram and questions about it

1. How many clads are on this cladogram?
2. What would be considered the outgroup?
3. Which organism(s) have fur and placenta?
4. Which organism(s) is most closely related to turtle?
5. Which organism(s) has the most derived traits?
6. How many nodes are on this cladogram?
7. Which organism(s) is most closely related to the cat?
8. What trait or traits would you think is the ancestral one?

---

Station 11
Directions: Use the dichotomous key below to correctly classify and name each creature. Remember to write the scientific name in the correct format!

1. a. The creature has a large wide head..............................go to 2
   b. The creature has a small narrow head..........................go to 11

2. a. It has 3 eyes .......................................................go to 3
   b. It has 2 eyes .......................................................go to 7

3. a. There is a star in the middle of its chest.......................go to 4
   b. There is no star in the middle of its chest ...................go to 6

4. a. The creature has hair spikes ....................................Broadus hairus
   b. The creature has no hair spikes..................................go to 5

5. a. The bottom of the creature is arch-shaped .......................Broadus archus
   b. The bottom of the creature is M-shaped .......................Broadus emmus

6. a. The creature has an arch-shaped bottom .......................Broadus plainus
   b. The creature has an M-shaped bottom .........................Broadus tritops
Station 12  
Who am I? Give the Kingdom being describe

1. All of us live in water, we can make our own food or use sunlight to make it. We all have a nucleus and are made of only one cell.

2. I am in the kingdom with the sea cucumbers and squid. I have many cells and none of them has a cell wall. I eat small protists.

3. I have chloroplasts, and can make my own food. I am a flagellate and like to swim.

4. I am a single-celled prokaryote that lives on the edge. I like dangerous and weird habitats. I don't cause disease though.

5. My kingdom has only cells without a nucleus. Several of my kind make people sick.

6. I am a Venus Fly trap. I am special because I can eat like a carnivore and photosynthesize, but I have many cells with nuclei.

7. I am a Manula fruit, and animals love to eat me making them drunk. I have chlorophyll and many cells.

8. I am an Entamoeba histolytica, and I give people diarrhea. I live in water and am unicellular with a beautiful nucleus.

9. I looked under the microscope and saw a single-celled organism with chitin in their cell walls. I also have a nucleus and live warm, dark places.

10. I have been used as a biological weapon, I have no nucleus and but am proud of my peptidoglycan cell wall.

Station 13  
Give the term being describe

1. Two part naming system
2. Traits that are new
3. A person who names and assigns organism to groups
4. The evolutionary history of an organism or group
5. Using common feature to group things
6. Organisms that can break down organic matter
7. Organism who cannot make their own food
8. Traits found in in the entire line of descents of a group
9. One branch of the cladogram
10. Organism that has the ancestral trait(s) but lacks derived traits.

Station 14

<table>
<thead>
<tr>
<th>Level of Classification</th>
<th>DANDELION</th>
<th>LIVE OAK</th>
<th>LOBLOLLY PINE</th>
<th>MOSS</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOMAIN</td>
<td>Eukarya</td>
<td>Eukarya</td>
<td>Eukarya</td>
<td>Eukarya</td>
</tr>
<tr>
<td>KINGDOM</td>
<td>Plantae</td>
<td>Plantae</td>
<td>Plantae</td>
<td>Plantae</td>
</tr>
<tr>
<td>PHYLUM</td>
<td>Tracheophyta</td>
<td>Tracheophyta</td>
<td>Tracheophyta</td>
<td>Bryophyta</td>
</tr>
<tr>
<td>CLASS</td>
<td>Angiospermae</td>
<td>Angiospermae</td>
<td>Gymnospermae</td>
<td>Sphagnopsida</td>
</tr>
<tr>
<td>ORDER</td>
<td>Asterales</td>
<td>Anthophyta</td>
<td>Coniferophyta</td>
<td>Sphagnales</td>
</tr>
<tr>
<td>FAMILY</td>
<td>Compositae</td>
<td>Fagaceae</td>
<td>Pinaceae</td>
<td>Sphagnaceae</td>
</tr>
<tr>
<td>GENUS</td>
<td>Taraxacum</td>
<td>Quercus</td>
<td>Pinus</td>
<td>Sphagnum</td>
</tr>
<tr>
<td>SPECIES</td>
<td>officinale</td>
<td>virginiana</td>
<td>taeda</td>
<td>palustrae</td>
</tr>
</tbody>
</table>

1. Which plant is least closely related to the others? List the taxa in which this plant diverges from the rest.
2. Which 2 plants are most closely related? How many taxa do they share?
3. At which taxonomic rank do the live oak and loblolly pine diverge?
4. If you know 2 organisms’ complete classification, how can you judge/determine how closely related they are?
5. What is the scientific name of dandelions?