# HYDRA LAB

**MATERIALS:**

* Hydra
* Well Slide
* Dissecting Microscope
* Flat Slide
* Cover Slip
* 0.0% Methlene Blue Solution
* 1% Acetic Acid (if needed as a trigger)
* Compound Light Microscope
* Daphnia
* Disposable Pipette (Dropper)
* Dissecting Needle

**PROCEDURES:** Answer the italicized questions on your hydra lab report. (Page 72-73)

**General Appearance :**

* Examine a living specimen of hydra in a dish of pond water. Be sure to use pond water and not tap water, since most tap water contains trace amounts of copper and other substances toxic to hydra.
* Place the hydra in a watch glass and examine under the dissecting microscope. Locate the following structures on your specimen and use these terms to help label your self-test.
* Notice the **basal disc** at the lower end, which serves for attachment. The **body** is a cylindrical tube with a circle of **tentacles** at the free end.
1. *How many tentacles are present?*
* The **hypostome** is an elevation between the bases of the **tentacles.**  In the middle of the hypostome is the **mouth**. **Buds** may be located on the sides, which are products of asexual reproduction. **Ovaries** or **testis** may be present on the body tube of a mature hydra.
1. *Draw and label your hydra noting the structures that your see.*

**Behavior:**

1. *Does your specimen change shape?*
* Touch one of the tentacles with the tip of a dissecting needle.
1. *What is its reaction?*
2. *What methods of locomotion are used by the hydra.*
* Observe Hydra feeding in your dish by adding a few drops of daphnia near the specimen. BE PATIENT. Watch the reaction from the hydra. Note how the food organism is captured what happens to them after capture, and the movements of the various parts of the hydra.
1. *Describe the Hydra’s response.*

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**Cnidocytes & Nematocysts:**

* After you have studied the basic form and behavior of your specimen. Place it on a clean microscope slide in a drop of water. CAREFULLY add a cover slip. Observe the numerous **cnidocytes** which appear as swellings on the tentacles. Each cnidocyte is a cell containing a **nematocyst** of stinging capsule.
* The cnidocytes of the hydra can be stained to aid your observation by adding a DROP of 0.0% methlene blue solution at the end of the cover slip.
1. *Describe the cnidocytes.*
* Gently tap on the cover slip of your wet mount of hydra tentacles to induce the discharge of the nematocyst. When properly stimulated, the nematocysts empty their contents with a rapid discharge as the coil tube is shot out. In addition to tapping the cover slip, you may also add a drop of 1% acetic acid to stimulate the discharge if they are not discharging after tapping the coverslip.
* Study the discharge nematocyst under the high power. Observe the outer capsule, the long thread or tube and the large spines or barbs at the end.
1. *Make a drawing of the cnidocytes and nematocyst. Label the parts you see.*

# HYDRA LAB RESPONSE

Please read the procedures outlined earlier in this packet.

**Introduction**: (#1) What are stinging capsules and (#2) how do small cnidocytes and large cnidocytes work together to capture prey? Please answer in complete sentences.

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**Results:** Write the results from the procedures in the corresponding spaces.

1. How many tentacles are present?

Draw Hydra. Need to label: title, tentacles, body wall, basal disk

1. Does your specimen change shape?
2. Touch one of the tentacles with the tip of the dissecting needle. What is the Hydra’s reaction?
3. What methods of locomotion are used by Hydra?
4. After adding the Daphnia, describe the reaction of the Hydra.
5. After staining the cnidocytes, describe their appearance.
6. Draw the Cnidocyte and Nematocyst. Need to label: title, stinging thread/tube, trigger.