NAME _____

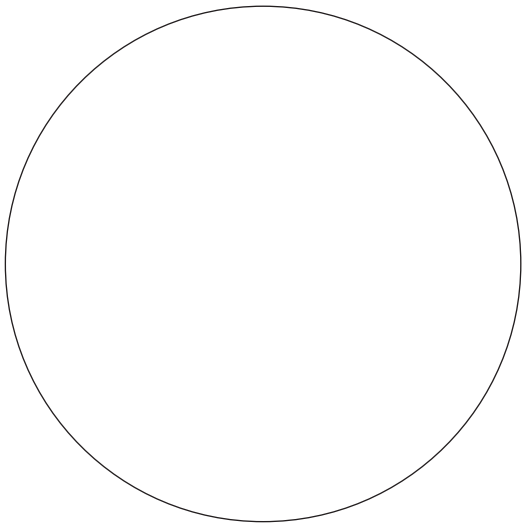
DATE _____

Embryology with *Rhabditis*

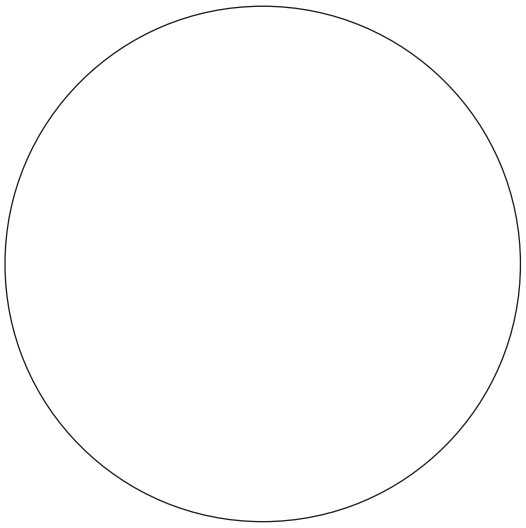
Obtain a microscope slide and place 2–3 drops of water on it. Observe a culture of *Rhabditis* until you see a small (about 2-mm) worm wiggling on the surface of the agar. (The *Rhabditis* will be concentrated in the liquid surrounding each earthworm section.) Lift the cover of the dish and pick up a worm on the end of a teasing needle and place it in the drop of water on your slide. Gently place a coverslip over the preparation and observe it under a stereomicroscope or the scanning lens of a compound microscope. Determine that the worm is a female. The male has a posterior copulatory bursa, with which it attaches to a female. The males are much smaller than females and will probably not be seen in the *Rhabditis* culture unless you look for them with a stereomicroscope. When you have determined that you do have a female *Rhabditis* on your slide, gently tap the coverslip with the blunt end of the handle of the teasing needle or the eraser end of a pencil until eggs and embryos are discharged into the water. Older eggs and embryos will be discharged first. Under low power (100×) of a microscope, search for one- and two-cell stages of embryo development. If you do not see one- or two-cell stages, tap the coverslip again and try to expel all the eggs. If you are still unable to find early developmental stages, repeat this procedure with another worm.

When you have located some one- or two-cell stage embryos, observe them carefully for the presence of nuclei. In the one-cell stage, you may find the pronuclei, the unfused sperm and egg nuclei. You may observe a small spherical object on the surface of an egg or early embryo. This is a polar body, a minute cell produced during oogenesis. Select a field of view under the microscope that shows several one- and two-cell stages. Make a drawing of what you see in this field of view.

Drawing 1 Time _____



Drawing 2 Time _____



Redraw the same area at 5-minute intervals over a period of 30–40 minutes. Number each drawing and record the time at which it is made. You may have to add water to the edge of the coverslip to prevent drying. You will likely find that the cells are dividing. The first indication is a slight furrow in the surface of a cell. From your drawings, determine the approximate length of time required for division to occur. Try to observe the actual cleavage of a cell.

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