

Daphnia

Water Flea 470176-934

Species: *magna*

Genus: *Daphnia*

Family: Daphniidae

Order: Cladocera

Class: Branchiopoda

Phylum: Arthropoda

Kingdom: Animalia

Conditions for Customer Ownership

We are a USDA compliant facility and hold all necessary permits to transport our organisms. Each state is assisted by the USDA to determine which organisms can be transported across state lines. Some organisms may require end-user permits. Please contact your local regulatory authorities with questions or concerns. To access permit conditions, [click here](#).

Never purchase living specimens without having a disposition strategy in place. Live specimens should not be released into the wild! Please dispose of any unwanted organisms using the guidelines below.

Primary Hazard Considerations

None

Availability and Short-term Care

- Daphnia are available year-round since we culture them in our labs.
- Our Daphnia cultures are shipped in plastic jars containing water. We over-pack each order of Daphnia. It is normal to have some deceased Daphnia in the container. You will receive at least the quantity of live Daphnia stated on the container. Daphnia endure slight oxygen deprivation while in transit, but should still be active when you receive them. Upon arrival, immediately remove the lid and gently aerate the culture using a small pipet. Replace the lid loosely and maintain at room temperature. If you are planning on keeping the Daphnia for a short time, you can leave them in their shipping container with the lid loose. They can live in this jar without food for about two days after arrival.

Captive Care

Habitat:

- For long-term care, Daphnia should be kept in a large container. A one-gallon container is best for up to 100 Daphnia, and a 5-gallon container should be used for 100 to 500 Daphnia. If you have 500 or more Daphnia, you should use a 10- to 100-gallon container. Begin preparing the container 48 hours before introducing the Daphnia. Temperature is one of the most important environmental factors for Daphnia and should remain near 70°F for successful breeding. Also, the pH of the water should be kept at 7 to 8.5. If the pH needs to be adjusted, use a pH conditioner that is approved for use with invertebrates, such as pH Up (470033-820). The container must be well aerated; this is commonly accomplished with the use of an airstone powered by an air pump. Make sure that the container is aerated for at least 48 hours before introducing the Daphnia. You may use tap water for the Daphnia as long as it has been de-chlorinated. You can do this by treating it with a water conditioner (such as Fluval® Aquaplus 470308-824) or allowing it to sit for at least 48 hours before introducing the Daphnia. Spring or bottled water can also be used for the Daphnia. Be sure to provide light for the Daphnia cultures. Daphnia typically do well with 12 hours of light and 12 hours of dark a day; this is critical for reproduction. An artificial light source may be used if natural light is not sufficient. Make sure that the artificial light does not heat the water significantly.



Care:

- Daphnia are filter feeders; this means that they strain microscopic food from the water. Yeast (470303-060), *Euglena gracilis* (470175-818), and Daphnia growth food (470030-344) are all good food sources. The following feeding estimates are based on a 1-gallon container size. Live yeast can be mixed with warm water and fed to the Daphnia. Add a few drops of the food until the water becomes cloudy. Wait a few days for the water to clear up before feeding again. If feeding with *Euglena*, feed the Daphnia about 2 ounces twice a week.
- If you use Daphnia Growth Media, add about five drops three times a week.
- Over time, debris will accumulate at the bottom of the container. This debris includes deceased Daphnia, empty carapaces (exoskeletons), and uneaten food. Do not remove this debris; it acts as a food source for the Daphnia.
- Be careful not to allow overcrowding in your Daphnia containers. Overpopulation can cause a culture to fail. If necessary for the health of the culture, pull Daphnia from the containers and use for subculturing.

Information

- **Method of Reproduction:** Daphnia reproduce primarily by parthenogenesis. This means that eggs develop in the females without male fertilization. These eggs develop in the brood chamber and are released when the Daphnia moves its post abdomen downward. Daphnia hatch as fully developed young, and molt multiple times before reaching adulthood. This usually takes about two weeks from the time that they hatch. In most circumstances, only female Daphnia are produced; this is ideal.
- Some exceptions occur when environmental conditions, such as temperature change or overcrowding, cause stress. In these circumstances, males may be present. Males will copulate with specialized females producing haploid eggs. The haploid eggs are also held in the brood chamber and are referred to as “winter eggs” because the chamber walls thicken and darken to form an extra shell called an ephippium. Ephippia and their eggs are better able to withstand harsh environmental conditions. They begin to hatch when favorable conditions exist again.
- **Determining Sex:** Under ideal conditions, only female Daphnia are present. However, under stressful conditions, males can be found. Male Daphnia are generally smaller in size than female Daphnia. They also have an abdominal appendage that is used during mating to fertilize the females’ eggs.

Life Cycle

Depending on water temperature, the Daphnia’s life cycle is typically ten to forty days in length. Their lifespan never exceeds a year. *D. magna* goes through 6–22 instars (molts); each instar can be one day to several weeks long, depending on environmental conditions. Under ideal conditions females produce a new brood about every ten days.

Wild Habitat

Daphnia can be found in most freshwater environments. They are most commonly found in ponds and calm water in rivers and lakes. Common predators include young and adult fish, hydra, and immature and mature insects.

Special Notes

Daphnia cultures are sensitive to temperature, pH, and water quality and may fail suddenly. If you plan to subculture your Daphnia, we recommend that you maintain two or three cultures at a time.

Disposition

In order to protect our environment, do not release this organism into the wild. When you are done with your Daphnia, either donate it to another teacher or dispose of it in one of the following ways:

- Use Daphnia as a feeder to feed aquarium fish
- Put them into a container or bag and freeze for 48 hours
- Treat culture with a 10% bleach solution for 24 hours (1 part bleach to 9 parts water)
- Place the organism in 70% isopropyl alcohol for 24 hours

~ See also *Working with Daphnia* ~

