

Freshwater Fish

Goldfish and Guppies as Examples

Tropical Guppy

Species: *reticulata*

Genus: *Poecilia*

Family: Poeciliidae

Order: Cyprinodontiformes

Class: Actinopterygii

Phylum: Chordata

Kingdom: Animalia

Coldwater Goldfish

Species: *auratus*

Genus: *Carassius*

Family: Cyprinidae

Order: Cypriniformes

Class: Actinopterygii

Phylum: Chordata

Kingdom: Animalia



Conditions for Customer Ownership

We hold permits allowing us to transport these organisms. To access permit conditions, [click here](#).

Never purchase living specimens without having a disposition strategy in place.

The USDA does not require any special permits to ship and/or receive fish with the exception of the state of Ohio. However, in order to continue to protect our environment in all states, you must house your fish in an escape-proof container. Under no circumstances should you release your fish into the wild! Customers in the state of Ohio need to obtain a "Fish Entry" permit from the Ohio Department of Agriculture before we can ship fish to them.

Primary Hazard Considerations

Wash your hands thoroughly after handling any organism.

Availability

- These fish are available year round; however, to be sure that you get them when you need them, please order your fish at least one week in advance. It is recommended that you set up a tank with the below instructions before the fish arrive. This will ensure that the water is of the highest quality before your fish are released in it.
- We over-pack each order of goldfish and guppies. They will arrive in a bag of water. It is normal to have some deceased goldfish and guppies in the bag. You will receive at least the quantity of live goldfish and guppies stated on the bag.
- Since fish need oxygen, we recommend getting them into a more oxygen rich, aerated environment as soon as possible upon receipt. When the fish arrive, let the unopened bag sit in your tank for about 20 minutes. This allows them to slowly become acclimated to your tank's water temperature. After 20 minutes, take about 1 cup of water from your tank, add it to your fish's bag, and let the fish acclimate another 15-20 minutes. Finally, net the fish and place them directly into the prepared tank. It is best not to transfer the bagged water into the tank.
- Goldfish are about one to two inches in length. They range in color from bright orange to a bronzed brown. Guppies are about ¼" to 1" in length and they are usually silver; some even have a colorful tail. They may look tired and sluggish when they first arrive. If you notice whitish spots on your goldfishes' or guppies' fins and tail, it might have Ich, a parasitic disease, which is caused by stress or poor water quality. Ich must be treated as soon as possible, or else it will be fatal. It can be treated with methylene blue or malachite green, which are available under several different product names.

Captive Care

Habitat:

- The recommended size of a tank is dependent on the type of fish being kept. The general rule of thumb is one, 1 inch long fish per gallon. (Approximately one 2.5 cm fish per liter.) It is recommended that the tank be set up before the fish arrive, so that the water will be at optimal condition for your new fish. Both coldwater and tropical fish need de-chlorinated water to stay alive. Most de-chlorinated tap water is okay to use for cold water tanks. To de-chlorinate the water, leave it out for 48 hours or use a water conditioner (such as [Stress Coat 21 W 2338](#)) to make sure the water is high quality.

It should have a pH between 6.8 and 7.0. The pH of your tank's water can be adjusted with pH water conditioners ([pH Up 21 W 2345](#) or [pH Down 21 W 2346](#), which can increase or decrease the pH. An aquarium should have about 2–3 inches of [Aquarium Gravel 21 W 1800](#), especially if planting deep rooted plants. Plants help keep the tank healthy by metabolizing fish waste and adding oxygen to the water. Wastes can be measured using a nitrate test. If the nitrate levels are above 40 ppm, a partial water change is needed (change about 20 to 25% of the water). Siphoning the bottom of the tank about once a week with a gravel vacuum will also help keep the level of nitrates and harmful chemicals down.

Cold Water Fish (example—goldfish):

- These fish do not need a heater. They should be kept between 59°F and 66°F (15–19 °C). Although they prefer a colder temperature, goldfish do just fine at room temperature, which is around 72°F. Goldfish are especially tolerant and can survive simply with frequent water changes to remove waste (about once a week for one fish in one gallon). Most cold water fish will thrive at room temperature if provided with an aeration system. A filtration system will make long term care easier by reducing wastes and decreasing the time you must spend cleaning tanks. With a filtration system water should be changed dependent on a nitrogen test, or once a month.

Tropical fish (example—guppy):

- A [Heater 21 W 4897](#) and thermometer are essential for tropical fish tanks. A general rule when purchasing a heater is 5 watts of heater per gallon of tank. (Example: 75 watt heater for a 15-gallon tank .) The temperature of the tank for tropical fish should be kept between 69°F and 78°F (21 °C to 26 °C). Because warmer water holds less oxygen, an Aeration System ([Air Pump 21 W 2982](#) and [Air Line Tubing 21 W 2910](#)) is required. A filtration system will make long term care easier. With a filtration system, the tank should be cleaned dependent on the results of a nitrogen test. If you do not have a nitrogen test, it is best to change the water at least once every two weeks to once a month. Guppies do best when set up in a tropical fish habitat, but are very hardy and will survive in a cold water aquarium as well.

Care: (for both tropical and cold water fish)

- In general you should feed your fish enough food so that they finish eating in about a minute and there is no food remaining. Start with a pinch of a high quality flake food such as [Tetramin Staple Food 21 W 2813](#) fed once or twice a day. Tropical fish can also be fed live foods such as [Protozoa 87 W 1500](#), [Blackworms 87 W 4680](#), and [Daphnia 87 W 5200](#) for an added supplement to their diet.

Information

- Method of reproduction: Sexual in most freshwater fish species. Most are egg laying, but some common varieties (like guppies) have internal development of eggs and are live bearing. Most species are difficult to breed in captivity, but there are exceptions (like guppies). For those fish, the best way to control reproduction is to separate males and females.
- Determining Sex: Most species of fish are difficult to sex. One exception is the guppy. The mature male is usually slightly smaller (0.5–1.5 inches) and more brightly colored than the mature female (1.5–2.5 inches). In fish that can be sexed, the male is often more colorful than the female (similar to birds).

Life Cycle

- The length of life cycle depends on the species. Guppies, for instance, are live born 20–100 at a time and become sexually mature in 3–6 months. Their total lifespan is 2–5 years. The female will produce fry on average of once a month, and can continue to produce fry for about six months after last being with a male. Adult guppies will eat fry, so if you intend to raise fry, it is best to remove the adults while the fry mature.
- In contrast, female goldfish lay 500–1000 eggs which are externally fertilized by the male. They will hatch in 3–4 days, they become sexually mature in 1–3 years, and their lifespan averages 10 years but has been known to exceed 40 years.



Wild Habitat

- Freshwater fish are found in warm freshwater streams, lakes, and rivers all over the world and have a large variety of predators and prey.
- Goldfish originated in China and were introduced to western regions of the world between 1600 and 1800. They are closely related to the carp and prefer slow moving water in subtropical, temperate regions. Goldfish eat plants, insects, small crustaceans, and detritus. In North America, predators of goldfish include raccoons and great blue herons.
- Guppies originated in tropical areas of Trinidad and Central America and now have wide distribution throughout the world where warm, slow flowing, vegetated fresh water is available. They feed on plankton, small insects, and detritus. Their predators include cichlid fish and kingfisher birds.

Special Notes

- In contrast to most other tropical and freshwater fish, both guppies and goldfish are highly tolerant of adverse conditions. This has allowed them to be spread into their current broad distribution throughout the world and makes them the easiest of these species to maintain in the classroom.

Disposition

- We do not recommend releasing any laboratory animal into the wild. As a laboratory animal, it has not encountered or learned wild survival skills and is therefore likely to come to an inhumane end. Further, the entry of non-native species can damage local habitats.
- Adoption is the preferred disposition for a vertebrate.
- If the animal cannot be adopted by a capable owner, it may be surrendered to your local humane society.
- If the animal must be euthanized, we recommend consulting the AVMA guidelines on euthanasia (American Veterinary Medical Association, http://www.avma.org/issues/animal_welfare/euthanasia.pdf).
- According to these guidelines, acceptable methods of euthanasia for fish include exposure to CO₂ at >60% or treatment with tricaine methane sulfonate (also known as TMS, MS-222 and [Biocalm 947-2100](#)). TMS is an anesthetizing agent that will cause fish and amphibian death due to central nervous system depression and hypoxia with overexposure. Wear personal protective equipment (gloves, safety glasses, labcoat) when handling TMS. The fish or amphibian is placed in a solution of 5 g of TMS per 5 gallons of water for 30 minutes or until all motion has ceased. To make sure the animal is dead, check for reflexive movement when the eye is touched. If movement occurs, replace the animal in the TMS solution for another 30 minutes.
- A deceased specimen should be disposed of as soon as possible. Consult your school's recommended procedures for disposal. In general, a small dead vertebrate should be handled with gloves, wrapped in an absorbent material (e.g., newspaper), wrapped again in an opaque plastic bag, then placed inside a opaque plastic bag that is sealed (tied tightly) before being placed in a general garbage container away from students.