



A desktop aquarium's compact footprint makes it a perfect addition for your classroom and with the advances in energy saving lighting and multi-stage filtration, maintaining a GloFish aquarium is easier than ever. As long as you choose the proper tank size, the correct support equipment, and stock the aquarium with compatible fish, you will have many hours of enjoyment.



Location

An aquarium requires not only enough space for the stand, equipment, and the tank, but you also need ease of access around it for cleaning and maintenance purposes. Select an area that will not block accessories you will need to use, such as the filter, lighting, aquarium décor and inhabitants. An aquarium can also affect the area immediately around it by increasing the temperature and humidity, so the area should also have good ventilation and the aquarium should not be kept in an enclosed space like a closet.

Placement of the aquarium is important. Do not set up the aquarium in front of a window or in a room that receives large amounts of direct sunlight. Since algae utilizes sunlight as an energy source, heavy growths of unsightly algae can occur and cover rocks, decorations, and glass walls. Usually, an inside wall away from windows with direct sunlight and heating and air conditioning vents is the best location. Keep the aquarium away from airborne contaminants such as furniture polish, cigarette smoke, insect sprays, cooking aromas, and spray paint. These fumes can enter the aquarium and harm your fish.

Level Surface

Having a level and sturdy stand or counter for the aquarium is important. An aquarium that is not on a level and on a sturdy surface will not only make it impossible to fill the aquarium, but it is also a potential liability due to it being top heavy and easily tipped. Aquariums are heavy! Your aquarium will need a sturdy, level stand.

Nearby Water and Power Sources

Having an electrical power source close to the aquarium is important to minimize use of an extension cord and to avoid tripping hazards. Additionally, aquarium maintenance frequently requires water changes and additions to keep the system chemically balanced. Ensuring that a water source is nearby will only help decrease the labor required during these adjustments!



Aquarium Size

Choosing the right-sized aquarium depends on what type of fish and/or aquatic invertebrates may live in it. The larger the aquarium is always better for the inhabitants as it is easier to keep the water chemistry more stable; "dilution is the solution to pollution." You must consider where you are placing your aquarium due to the weight of a filled aquarium with water, gravel, and decorations and to prevent unnecessary stress on the table or counter. To calculate the estimated weight of a full aquarium, multiple the gallon size by 10 (ex. 20-gallon aquarium x 10 = 200 lbs when filled).

Aquarium Material

Aquariums are typically made of either glass or plastic. Plastic tanks are much stronger and durable than glass but you should exercise care during maintenance since plastic tanks scratch easier than glass. Glass is harder to scratch but much easier to break if mishandled. Either type is acceptable for freshwater fish.

Lighting

Proper lighting not only provides energy to plants and animals within an aquarium, but it also influences fish behavior, physiology, and health. Beginner fish keepers might try looking for a lighting system that gives the best value for their money, while the more experienced aquarists might prefer the higher-end lights due to personal preferences, aesthetics, or plant requirements. Many aquariums today are utilizing energy efficient LED lighting. Most LED lights will last for four to five years before they need to be replaced.

Tank Preparation

Rinse your tank gently, with warm water only. Do not use soap, detergents or cleaning agents. These cleansers can leave residues that can be harmful to your fish.

Substrates and Décor

In addition to decorative benefits, aquarium substrates assist aquarium filtration by providing the microorganisms/beneficial bacteria a place to colonize. A 1" to 2" layer of substrate (gravel, sand, stone) should be used in the aquarium for best results. Some substrates can also act as a buffering material when made of carbonate-based material to minimize pH fluctuations (pH and buffering are discussed later). Determining how much substrate to buy for the aquarium depends on the size and shape of the tank but generally can be estimated by planning for 1 lb. of substrate per gallon to achieve a 1" thick bed or 2 lbs. of substrate per gallon to achieve a 2" thick bed.



Décor can be added to allow for tank personalization but it also offers benefits for the tank inhabitants by affording them plenty of places for resting and hiding. Additionally, different stones/rocks and natural woods can influence the pH and tannin levels in the water, which can be favorable with specific species.

- Rinse your aquarium gravel and decorations thoroughly.
- Empty the bag of gravel into a new plastic bucket or one that has never been used with chemicals.
- Place the bucket in sink and turn the cold water on, allowing the tap water to fill the bucket. Gently stirring the gravel as the water fills the bucket, continuing to do so as the bucket overflows.
- Rinse the gravel until the water runs clear.
- Place gravel, rocks, and decorations in the tank now, spreading the gravel evenly across the bottom of the aquarium.

Filtration

Sufficient filtration is as important as is the size of the aquarium. The purpose of filtration is to maintain optimum water quality in order to sustain the health of your animals. An efficient filter makes the difference between the successful aquarist enjoying the rewards of their hard work or the frustrated aquarist. Filters trap solid wastes produced by the inhabitants, convert liquid wastes/toxins to a relatively harmless form, and then return the cleaned water back to the aquarium.

When picking a filter, it is important to keep in mind the size of the tank. A filter should be capable of filtering all of the water in the aquarium four to six times every 60 minutes. As an example, a filter for a 20 gallon aquarium should be capable of filtering 80 to 120 gallons of water per hour (gph).

Types of Filtration Systems

Sufficient filtration is as important as is the size of the aquarium. The purpose of filtration is to maintain good water quality in order to sustain the life of the animals. Good biological, chemical, and mechanical filtration are essential in maintaining a healthy freshwater aquarium. There are many types of filters available on the market, each performing single or multiple functions. The types of filters available are listed below with the different functions they perform.

Mechanical

Particulate matter (such as fish waste and excess fish food) is trapped and removed by the filter cartridge, thereby reducing the load on the biological filter. The filter cartridge should be changed every four weeks or sooner, depending on the amount of waste. The filter



cartridge can be rinsed weekly to clean it if there is an excessive amount of fish food or a large number of fish producing waste.

Biological

Nitrifying bacteria living on the gravel, rocks, filter cartridges, or filter media such as ceramic beads and bio balls oxidize the toxic ammonia excreted by fish to less toxic nitrite and then to nitrate, which is relatively non-toxic and harmless to the fish. These nitrifying bacteria are essential to breaking down nitrogen waste (ammonia) produced by fish and other aquatic organisms. Nitrate can be removed through routine water changes, through absorption by live plants, or even by specialized chemical filtration additives. This is an important part of filtration because fish release ammonia (NH₃) mostly by passive diffusion across their gills. Once released into the water, the NH₃ forms an equilibrium with NH₄⁺, ammonium. The pH and temperature of the water has a major effect on this equilibrium, with higher pH and temperature favoring formation of toxic NH₃; pH of the water is more important in this relationship. This combination of NH₃ and NH₄⁺ is called the total ammonia nitrogen (TAN), and this is what is measured by water quality testing equipment. The majority of aquarium test kits currently on the market test for TAN, a combination of NH₃ and NH₄⁺.

In order to start the nitrogen cycle, ammonia must be present in the aquarium, stimulating the growth of the nitrifying bacteria. The bacteria that perform this essential task also require oxygen, and therefore biological filter media must provide large amounts of surface area for the beneficial bacteria to colonize, and plenty of oxygen so that their ability to metabolize the nitrogenous compounds (ammonia and nitrite) is optimized.

Biological filters should be carefully removed and gently rinsed clean when necessary to remove collected debris that slows the water flow through the filter media. The cleaning process may negatively impact the colonies of beneficial bacteria and potentially cause a significant spike in ammonia and/or nitrite, putting the aquarium inhabitants' health at risk. So, water changes may be needed after filter cleaning. Additionally, if the aquarium requires antibiotic treatment for any reason, the biological filter can be negatively impacted if exposed to certain medications.

Chemical

Dissolved organic impurities are removed by using activated carbon or resins. High-grade activated carbon can remove odors, discoloration, and other impurities from the water. The ability of activated carbon to adsorb impurities depends on the porosity and the pore structure of the carbon. Carbons and resins will become saturated over time and need to be properly maintained, and should be replaced every three to twelve weeks, depending on the type used and the amount of impurities. Many different types of chemical filters are available



to remove specific compounds when required, such as nitrate or phosphate removing resins or even water softening resins.

Another type of “chemical” filtration is the use of Ultraviolet light. UV light is used to disinfect water or clarify water and is often added to the filter system immediately before contact with fish to minimize the number of potential pathogens that the fish are exposed to, or algae and bacterial cells that can cause cloudy water. Ultraviolet light filters, when properly sized, can effectively prevent movement of pathogens between tanks if multiple tanks are set up on the same filter system. They have minimal effect on bacterial or other flora within the tank itself. UV lamps must be changed out on a yearly basis or efficacy will be decreased.

Adding Water

After rinsing your tank with warm water only, place it on the aquarium stand and fill it half full of dechlorinated water. Place the gravel, plants and other décor in the aquarium, attach the heater and filter, and then fill it up the rest of the way. Connect the filter and make sure it is working properly. Set the aquarium heater to the correct temperature and turn it on. It is best to let the aquarium run for 24 hours to make sure it is working properly before getting any fish to add.

Initial Cycling

An aquarium system needs to be “primed” and “cycled” prior to adding fish, which can take several weeks. The first step in a successful aquarist’s tank is allowing the beneficial bacteria to grow in the tank. Adding live bacterial additives will seed the aquarium and these beneficial bacteria will help manage the biological waste products. While the bacteria are colonizing in the bio media, there will be transient spikes in ammonia, followed by nitrite, and then nitrate. Monitoring these compounds is incredibly important during this period because once the biofilter is fully functional there should be little-to-no detectable amounts of ammonia and nitrite in the system.

Stock Slowly and Don’t Overcrowd

Patience with a small aquarium is important. Avoid overcrowding your aquarium or you'll find water quality very difficult to keep stable. Also, when establishing a new aquarium, introduce only a few fish at a time over the first four to five weeks. Select the smaller fish first, slowly adding a fish or two each week. A general rule is one inch of fish adult body size per gallon of water. Remember, your fish will grow so don't add too many or you may need to purchase a larger tank in the future. In years past, when setting up an aquarium we would set up the aquarium and wait a considerable period of time with no fish to assure everything was in balance and then added fish slowly. With the advancement of science, setting up a new fish tank and adding the beneficial live nitrifying bacteria, the cycling process of an aquarium is



greatly enhanced. Adding live nitrifying bacteria will speed the cycle up and keep the levels of ammonia and nitrite at very low levels. The bacteria need the waste of the fish to feed on, and the fish need the bacteria to keep the ammonia and nitrite at minimum levels. In fact, even in established aquariums when adding new fish, adding a dose of live nitrifying bacteria helps to strengthen established and cycled aquariums.

After the aquarium is set up, only add a couple fish along with the live nitrifying bacteria to establish the aquarium. Remember “slow and steady” is the best approach. At the same time, it is important to test and record the water chemistry for ammonia and nitrite. When water testing shows that ammonia and nitrite have disappeared additional fish can be added, being careful not to add too many all at once. Every time you add fish to your aquarium the biological filtration will have to adjust to the new fish load. Your aquarium is considered fully cycled and functioning properly when water parameters are good; particularly when there is low, or non-detectable nitrogen by-products (ammonia & nitrite) indicating that the system is not overstocked (or overfed). Increases in these parameters indicate that either the bio-filter has been damaged or that the bio-load is surpassing the filter’s capacity, and that it is necessary to clean the filter, or either decrease the number of inhabitants or the frequency/amount of feeding.

Balanced Healthy Aquarium

Water quality is one of the most important aspects of a healthy tank and many problems with a tank can be traced to improper water conditions, which stress tank inhabitants (both fish & invertebrates), leaving them susceptible to diseases.

Temperature

Fish are poikilotherms (def: an organism that cannot regulate its body temperature except by behavior means such as basking or burrowing) and therefore particularly sensitive to temperature changes. Water temperature affects their metabolism, growth, reproduction, physiological processes, disease immunity, and general activity. Different species require different temperature ranges, so this is important when considering what fish types you will keep in your aquarium, as they should all share similar temperature needs.

Heaters

Heaters are designed to maintain a steady water temperature in the recommended range of 74-80 degrees Fahrenheit. A recommendation of 3 to 5 watts per gallon of aquarium will provide sufficient wattage to heat your tank. It is best to keep the temperature at 74-75 degrees, rather than higher temperatures because at lower temperatures there is a higher concentration of dissolved oxygen in the water. This also benefits the fish because their



metabolism is decreased at the reduced temperature. Higher temperature results in an increase in respiration and metabolism and can stress the fish. Use of a submersible heater will help limit the number of openings in the glass canopy or hood, minimizing water spray and fish being able to escape. Submersible heaters also prevent accidental bumping or jarring that might alter the temperature setting.

Thermometers

There are a number of thermometers available to measure the temperature of the water in the aquarium.

- One style is the digital thermometer, battery powered and easily read, providing accurate measurement of the aquarium water. This thermometer attaches effortlessly to the outside of the aquarium with a plastic probe placed inside.
- Another style is the standing thermometer that is weighted and stands upright on the bottom of the aquarium. The temperature is read while the thermometer remains in the aquarium.
- Another is the floating thermometer. This thermometer floats at the surface. However, the floating thermometer tends to move around the aquarium and sometimes is difficult to locate.
- There is one that hangs on the side of the aquarium and remains in one place. This thermometer is placed inside the aquarium to measure water temperature and is easy to locate and read.
- A liquid crystal thermometer is applied to the outside of the aquarium and measures the water temperature through the glass of the aquarium. It is applied at one spot and never removed.

Heater Installation

Use of a submersible heater will help limit the number of openings in the hood.

- Installing the heater. Position the heater in the aquarium, initially do not plug it in right away, wait 15 minutes before plugging it in. This allows the heater's thermostat to adjust to the temperature of the aquarium water. Always read written safety precautions in manufacture's manual. If possible, use a GFCI-protected outlet.

pH

The pH of aquarium water is a measurement of its acid and base balance, and ranges from 1-14, where 7 is neutral, values above 7 are basic and values below this are acidic. Numerous biological processes depend on pH, and there are species differences for pH requirements. Most freshwater fish prefer water with a pH range of 6.6 to 7.4. Some such as South American and African Cichlids are a bit more particular. Always choose fish that can live in the same pH range.



Most freshwater aquarium water is commonly close to neutrality (approximately 6.0 – 8.0) but there may be diurnal fluctuations observed. The changes are mainly due to the consumption and production of carbon dioxide (CO₂) by aquatic plants (including algae) through photosynthesis.

Low pH

- Low pH is typically caused by poor tank hygiene, incorrectly attempting to adjust the pH with various aquarium pH adjusters, by the biodegradation of organic wastes from dead, rotting animals, or the build-up of nitrogenous wastes in an overstocked tank.
- A pH of less than 5.5 (i.e., very acidic water) will stop oxidation of ammonia by killing beneficial Nitrosomonas bacteria.
- Fish will begin to produce more mucus to protect the gills in water with a lower pH. This protective mucus can be produced in excess, which can then coagulate and result in hypoxia. The surface epithelium of gills can also slough off and the fish will be unable to maintain balanced electrolyte levels.

High pH

- High pH is very common in most parts of North America and should not be a cause for concern unless it goes above 8.5. Note: If you are going to keep African Cichlids from the rift lake regions of Africa, they prefer water with pH of 8.2 and even slightly higher.
- The addition of various calcium carbonate stones and/or rocks can also cause a rise in pH levels.
- Prolonged periods of elevated pH permit the toxic form of ammonia to become more prevalent. So, it is important to monitor your aquarium ammonia levels to assure they are at or near zero in elevated pH aquariums.

Oxygen

Oxygen is required for a healthy aquarium. The carrying capacity water has for oxygen (and other dissolved gases) is directly impacted by the temperature and salinity, where dissolved oxygen is reduced at higher temperatures and in higher salinity. Healthy aquariums should be approximately 70-100% saturated with oxygen. As a general rule, fish need >5 ppm (mg/L) of dissolved O₂.

Additional oxygenation supplementation may be required where there are high stocking densities, large fish, frequent feeding, and/or higher water temperatures. Additional

oxygenation can be accomplished through increased water flow from an additional water pump or by adding an air pump that produces bubble in the aquarium through an airstone.



Carbonate Hardness (KH) or Alkalinity

This is the measurement of the capacity of water to neutralize an acid. Alkalinity is primarily composed of bicarbonate ions (HCO_3^-) and carbonate ions (CO_3^{2-}) which is from where the common name is derived: KH. Alkalinity is not only essential to stabilize the pH of water, but it is also an important energy source for nitrifying bacteria and used by plants for photosynthesis when carbon dioxide is absent. Generally, the desired KH for freshwater fish is 60-100 ppm (mg/L).

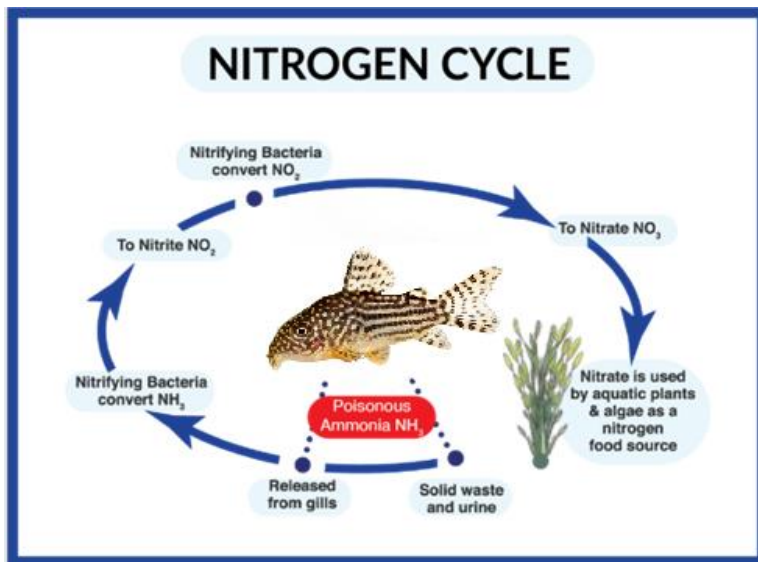
Chlorine and Chloramines

Chlorine (Cl_2) is commonly found in tap water at a rate of 0.5-2.0 ppm (mg/L) and can even be as high as 4.0 ppm (mg/L). Adverse effects on fish can occur at levels as little as 0.02 ppm (mg/L) and it can be lethal to fish at levels above 0.04-0.10 ppm (mg/L)! Chlorine exposure causes damage to the red blood cells, resulting in cell death in the gills, liver, and spleen. The lower the pH, the more toxic chlorine is.

Chloramine is a combination of chlorine and ammonia; both being added to public drinking water for purification and both are toxic to fish. To remove chloramines, remove the chlorine, then the ammonia. The easiest way to remove chlorine and chloramines to assure your tap water is safe for your fish is always add a water treatment product every time you add water to your aquarium. A quality water treatment product works instantly to remove these compounds and makes tap water safe for your fish and invertebrates.

The Nitrogen Cycle - Ammonia (NH_3), Nitrites (NO_2^-) and Nitrates (NO_3^-)

Fish continually produce ammonia as their waste product, and at high levels it can be toxic to all aquarium inhabitants. The conversion of ammonia to nitrite (predominantly by *Nitrosomonas* bacteria) and from nitrite to nitrate (predominantly by *Nitrobacter* bacteria) is termed the "nitrogen cycle." In the natural environment, the end-product (nitrate) will be absorbed by the aquatic plants but in an aquarium without plants, nitrate will accumulate unless it is removed by performing partial water changes. A properly cycled aquarium with a healthy biological filter facilitates the natural breakdown of ammonia to nitrates.



Ammonia (NH_3) (NH_4^+)

Ammonia (NH_3) results from decomposition of uneaten decaying food and fish wastes, also during respiration the fish's gills will release ammonia. Ammonia is toxic to most aquatic life as it lowers the oxygen carrying capacity of the blood which increases ammonia levels in the blood by changing the gills' ability to normally excrete ammonia.

Ammonia exists in two forms, namely, unionized ammonia (NH_3) and ionized ammonium (NH_4^+). Both forms are measured together and are referred to as total ammonia nitrogen (TAN). Most ammonia test kits are actually testing TAN (Total Ammonia Nitrogen). TAN is a combination of unionized ammonia (NH_3) and ionized ammonium (NH_4^+). Ammonia (NH_3) is a highly toxic chemical to fish and changes from ammonia to ammonium and back again relative to the pH level and temperature.

The non-ionized form is more toxic and is the predominant form in more alkaline water (pH above 7). Ammonia is also more toxic at higher temperatures and in water with lower dissolved oxygen. The most common causes of ammonia spikes include, but are not limited to; overcrowding, adding too many fish at the same time, inadequate biological filtration, and overfeeding. When testing your aquarium's water, always aim for 0.0 ppm (mg/L).

Nitrite (NO_2)

Nitrite is generated from the oxidation of ammonia by nitrifying bacteria (Nitrosomonas). Nitrite (NO_2) will continue to increase as a result of nitrification until nitrite oxidizing bacteria



develop to sufficient numbers to oxidize nitrite to nitrate. Monitoring nitrite levels is important because it measures the progress of nitrification. In new aquariums with a normal biological load, nitrite will rise during the third to sixth week and then drop to a safe level near zero. A sudden spike in nitrite in an established aquarium usually means there is an imbalance in the biological filter system.

Nitrate (NO₃)

Nitrate is relatively non-toxic to fish, although high levels can promote undesirable algae growth. High nitrate levels indicate the buildup of other wastes that cannot be measured directly, and therefore is an indicator of poor water quality. Partial water changes (with substrate vacuuming) of 20% every two to four weeks will help keep nitrate levels under control. Monitoring water quality every 7-12 days using test kits will keep you aware of your water quality. In a healthy aquarium the NO₂ level is 0.0 and the NO₃ level is about 20-30. This is typically when the cycle is complete.

Freshwater Healthy Water Parameters and Basic Troubleshooting

Water Parameter	Normal/acceptable values	What to do when too high?	What to do when too low?
Temperature range	70 – 78 degrees F*	Lower room temperature with air conditioner or add aquarium chiller	Add water heater to system
pH	6.5-7.0*	Add peat or soften water to overcome buffering capacity, or add a pH down product	Add commercial preset buffers, pH Up products or crushed oyster shell (calcium carbonate)
Carbonate Hardness (KH)	100-300 ppm*	Water change using deionized water	
Total Chlorine (chlorine + chloramine)	0 ppm (mg/L)	Use of commercial aquarium water treatments	n/a
Ammonia (unionized)	< 0.00 ppm	Water change, decrease feeding, and potentially decrease livestock density, add chemical to reduce levels	
Total Ammonia Nitrogen (TAN)	< 0.00 ppm		
Nitrite	< 0.25 ppm		
Nitrate	< 40 ppm	Water change, consider adding live plants, add chemical to reduce levels	

**normal/acceptable values may vary greatly depending upon species of invertebrates or fish in aquarium*

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Aquarium Maintenance

Consistent, routine maintenance is vital to the ongoing health of an aquarium and its living inhabitants. Staying on top of aquarium maintenance helps prevent aquarium emergencies and usually results in a healthy aquarium.

Water Changes

Routine (20-25% every 2 weeks, more frequently as needed) water changes have always been the primary aquarium maintenance step. Aquarium filtration helps extend water quality and slow down the buildup of harmful chemicals, but it alone is not capable of maintaining a balanced aquarium. Water changes not only allow for the physical removal and dilution of harmful nitrogenous pollutants and decomposing organic wastes, but it can also improve water clarity.

Bacterial Additives

Even a well-cycled aquarium can benefit from regular use of live bacterial additives to help supplement the existing beneficial bacteria within the biological filter. These products help prevent potential ammonia spikes during the introduction of new fish and helps continuously re-establish nitrifying bacteria in older, established aquariums. A second type of bacteria often added to aquariums are enzymatic bacteria from the genus *Bacillus*. Stains of beneficial *Bacillus* bacteria species help to break down organic materials that build up in the aquarium that can become a breeding ground for disease causing organisms. Adding a cleaning-bacterial product routinely to any aquarium helps to keep the aquarium cleaner and reduce overall maintenance.

Filter Maintenance-Filter Cartridge

Mechanical Filtration

To maintain optimum mechanical filtration and to keep your fish healthy and stress free, change your filter cartridge every 3 to 4 weeks. Filter cartridges remove uneaten fish food and unwanted fish waste, so it is important to perform timely replacements to ensure optimum water quality. A dirty, clogged filter cartridge will cause the power filter's water flow to diminish greatly.

Biological Media

It typically does not require replacement, but it can become occasionally clogged with debris that then requires careful cleaning with dechlorinated water. It is a good idea to use bacterial additives after this process to help re-establish the beneficial bacteria that may have been washed off during the cleaning process.



Chemical Media

Activated carbon and specific selected resins need to be replaced based on manufacturers recommendations.

Routine Water Chemistry Checks

It is very important to check the water chemistry levels either once a week or whenever fish behavior is not normal. Keep a log on the various levels in the aquarium so problems can be identified early. Regular testing of ammonia and nitrite levels can help determine if overfeeding is occurring and may alert you to problems with your biological filter. Checking the pH is also important because, over time, pH naturally lowers in the aquarium, due to accumulation of natural acids and loss of buffering capacity. If a pH crash occurs, the result would be the death of the biological filter and spikes in ammonia. Monitoring the water chemistry and recording it will allow you to catch problems before they occur.

Selecting GloFish for Your Freshwater Aquarium

GloFish have been bred to have brighter colors than normal fish of that species. There are a large number of freshwater GloFish available in today's fish hobby. Some of the easiest fish to take care of include GloFish Tetras, GloFish Corydoras, GloFish Pristellas, GloFish Long Fin Tetras, GloFish Danios, GloFish Tiger Barbs, and GloFish Sharks.

GloFish Tetras

Calm and colorful, GloFish Tetras make perfect starter fish for beginners. These peaceful community fish form schools and prefer to live in groups of 5 to 7 fish.

GloFish Corydoras

The friendly, hardy Cory is recommended for aquarium keepers of all experience levels. These peaceful community fish are best in groups of three or more and will interact with each other frequently. They swim at the bottom of the aquarium and need to be fed sinking fish food.

GloFish Pristellas

The beautiful, easy-to-care-for Pristella Tetra is an ideal fish for beginners and seasoned aquarium keepers alike. These peaceful community fish form schools in groups of ten or more and are best kept in groups of at least three fish. This species of fish comes from both acidic and alkaline rivers, so they're very adaptable in freshwater tanks.

GloFish Longfin Tetras

This schooling fish does well in groups of 6, but more is even better. This active and fast-moving fish are excellent choices for aquarium beginners.



GloFish Danios

Easy to care for and hardy, the small GloFish Danios are undemanding and thrive in a range of aquatic conditions. These lively fish are best in groups of at least 5.

GloFish Tiger Barbs

Hardy, lively schooling fish that are ideal for the classroom aquarium. Super playful, active swimmers that may harass or nip the fins of slow moving tankmates.

GloFish Sharks

GloFish Sharks are the largest species in the GloFish varieties, and it is recommended to keep them in a 20 Gallon aquarium or larger. Sharks like to have places to hide in the aquarium and are a great addition because they clean up leftover food. They can be territorial to each other, so a large aquarium is needed if you want more than one or two of these fish.

Compatibility

There are many freshwater fish available in today's fish hobby. Some of the easiest fish to take care of include white cloud minnows, cherry barbs, danios, guppies, neon tetras, and cory catfish.

Asking the right questions as you begin adding fish is important to ensure they all get along. Some of these questions should include:

- How large will the fish get as it matures?
- Is the fish species peaceful or aggressive?
- Is the fish territorial or communal? Will it get along with the current fish in my aquarium?
- Does it need special water parameters or temperature?
- How many fish should I buy for the size of my tank?
- What is the primary diet of this fish? Does it eat live plants? Does the fish eat invertebrates? Are the food items needed easy to acquire locally?
- Does the fish usually live in fast-moving or slow-moving waters?
- Is the fish a topwater, midwater, or bottom dweller?
- Does the fish usually live in fast-moving or slow-moving waters?
- Is the fish a topwater, midwater, or bottom dweller?



Introducing New Fish

What Fish Should be Added First

It is recommended to add hardier fish in small numbers to the aquarium first. This will help facilitate a healthy continued cycling of the biological filter and not overstress the system. Once the hardier fish are established and the water parameters stabilized, additional compatible fish-types can slowly be introduced. Do not add too many fish too quickly to ensure the beneficial bacteria are in sufficient numbers to handle the additional fish. It is important to note, however, that the use of a separate quarantine tank is strongly recommended to house the new fish initially so that newly acquired fish can adjust to the new environment. During quarantine you can closely monitor the new fish for any signs of health concerns. This will also prevent any disease or parasites from affecting your fish. Typical quarantine time is 2-3 weeks.

Nutrition

Nutritional content of fish food is extremely important to fish health and coloration. Make sure to choose a food developed specifically for the type of fish that are being kept. Keep in mind that a fish's stomach is only as big as its eyeballs on average, so do not overfeed. A general guideline is to have all the food fed consumed within a 2 to 3-minute time frame. Several small feedings are healthier than one large feeding. When possible, feed 2 to 3 times daily.

Acclimation

Fish are often packaged for travel after being purchased in plastic bags that contain the aquarium store's water that the fish is used to. Whether it is transporting the fish to the quarantine tank or to the actual aquarium, it is important to allow the fish to slowly adjust to the new water temperature and pH parameters. The most common method is to float the bag, which will allow your new fish to acclimate to the temperature.

1. Turn off aquarium lights.
2. Float the sealed bag in the aquarium for 15-20 minutes. This will enable the water in the bag to match the temperature in the aquarium.
3. After 20 minutes, use a fish net over a bowl and carefully pour your fish into the net.
4. Quickly release your fish into the aquarium.
5. Discard the water from the bag. Never add the bag water into the aquarium.
6. Water Conditioners are available to aid in the introduction and acclimation of new fish. Water Conditioners specifically can enhance the slime coat on fish, reduce stress, and help in healing any damage caused by netting or transportation.



7. Let the new fish settle in the aquarium for a short time, then turn on the lights and feed the fish.

With desktop aquariums, little problems can become large problems quickly. An aquarium is a closed environment that requires a little routine maintenance once established. Through regular maintenance and proper feeding, your fish will remain healthy, vibrant, and live a long and happy life. Observe your fish and aquarium daily, don't overfeed, perform timely water changes, and enjoy your fish. But when your fish aren't acting right or you see bacteria or parasite problems, act quickly to treat them. If you wait too long you may lose your fish.

Taking Care of Your Fish

Daily

- Feed your fish small amounts twice a day, but only what they will eat in about 2-3 minutes. Do not overfeed.
- Check your equipment, e.g., filter systems and heater to make sure they are operating properly.
- Check the water temperature to make sure it is within the acceptable range of 70-78 degrees F.
- Check your fish and water quality tests. Consult your aquarium store or veterinarian if fish appear listless or weak, if you see white spots (ich) on their body or notice a change in their normal behavior, such as heavy breathing, erratic swimming, loss of appetite, or if water appears cloudy. Be sure to take a sample of your aquarium water to have it tested. Water that appears cloudy, yellowish, or smells bad is indicative of poor water quality. A 20-25% change using dechlorinated water and a new filter cartridge is recommended to correct these conditions.

Weekly

- Rinse or change your filter cartridge as needed.
- Add dechlorinated water to compensate for any evaporation loss.
- Test pH, ammonia and nitrite weekly using reputable test kits. Performing these tests will allow you to monitor the water quality of your aquarium. If readings are not in the preferred range, perform a partial water change.

Monthly (or as needed)

- Replace your filter cartridge every 4 weeks. As carbon gets older, it becomes less efficient. Filter pads can be rinsed once or twice before needing changing. It is always best to install a new filter cartridge if there are water quality problems.



pets in the
classroom

CARE SHEET **GloFish**

- Perform a 20-25% water change (more frequently if necessary), use a gravel vacuum to thoroughly remove any uneaten food and waste buildup from the substrate.

HELPFUL LINKS

How to remove harmful tap water chemicals:

<https://zoomed.com/aquapure/>

How to add beneficial bacteria:

<http://usa.hagen.com/Aquatic/Watercare/Additives---Supplements/A8348>

Maintenance tools to help clean aquarium:

<http://usa.hagen.com/Aquatic/Maintenance/Cleaning/A370>How to speed up cycling process: