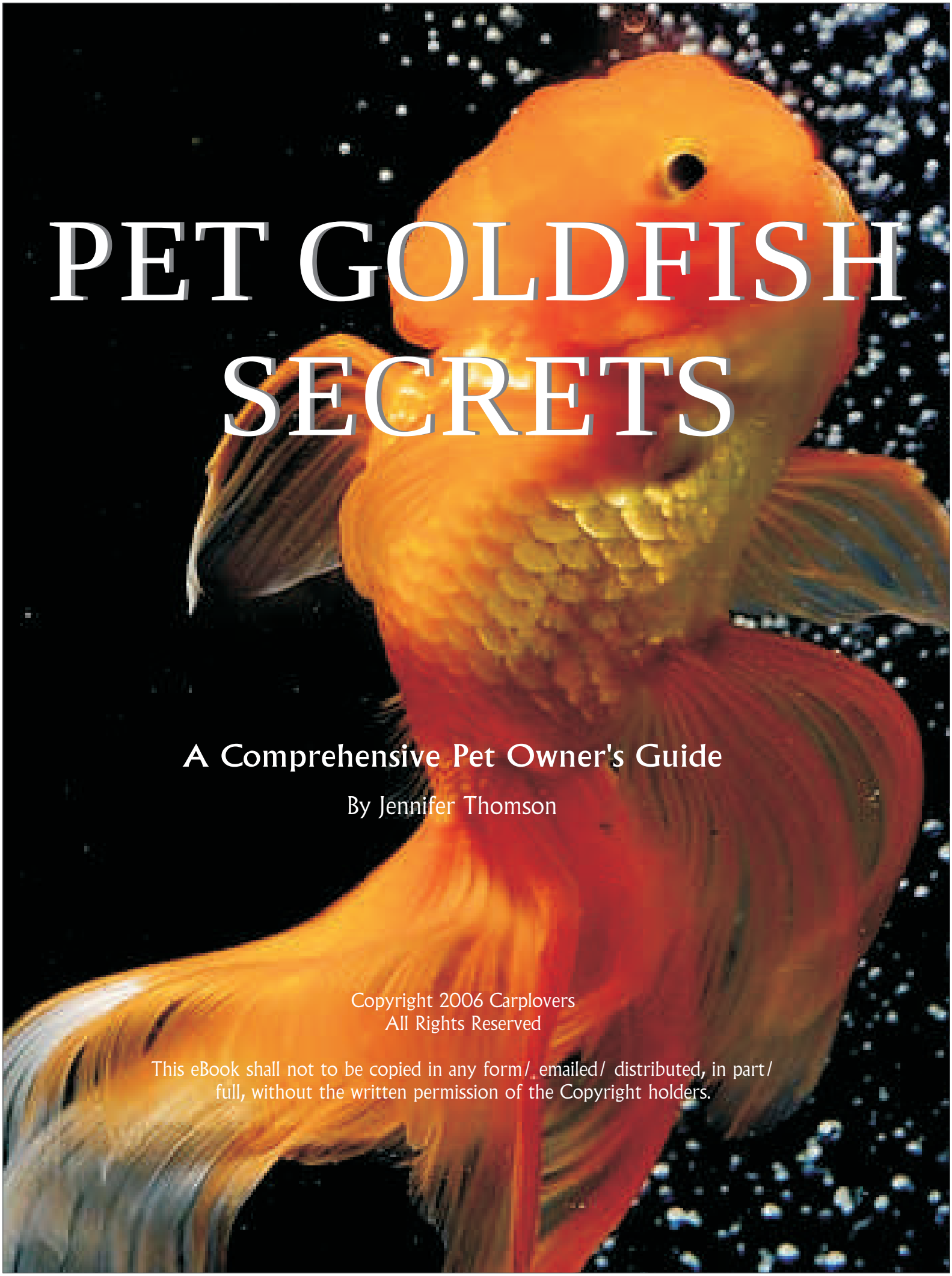

PET GOLDFISH SECRETS

A Comprehensive Pet Owner's Guide

By Jennifer Thomson

Introduction

First Edition: Revision 3 Feb, 2006

Photograph Acknowledgements:

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Think Goldfishes, and chances are you'll picture a beautifully colored and entertaining fish.

Can't blame them. After all, Goldfishes are probably among the most beautiful of God's creations. Just one glimpse is enough to convince anyone.

Most people who have ever had a Goldfish will tell you that Goldfishes are more than just pets.

A Goldfish can really crack you up. While other pets are great companions and a source of amusement, Goldfishes can be a riot. They have all the intrinsic qualities that will make them ideal family pets. Owning one can be a rewarding experience.

But this is just the sunny side. Truth is, the full Goldfish story will have a few bumps and bruises too. What we are going to do is to tell you the story as it is.

Before we set about writing this eBook, we did an extensive survey to find out exactly what Goldfish buffs, rookies and wannabes wanted to know. This eBook answers all their questions, and more.

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It has information that will be immensely useful to someone

toying with the idea of a pet Goldfish, the beginner who's just started down this road but wants to know how to get there, and the enthusiast who's got there and wants to know what to do next.

This ebook covers everything there is to know about Goldfish species, caring, feeding, behavior, breeding, health and more.

There is much in it for everyone.

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Goldfish is the domesticated subspecies of Carassius auratus,the gibel carp is endemic to China and shows a wide range of morphological variation when raised in different environments. Goldfish are an intrinsic part of Chinese culture.

The Chinese have kept Goldfish as pets for centuries. Wild Goldfish grows up to a length of 30 cm. They weigh 2.5 kg and live between 2 and 10 years. However, there have been reports of some of them living over 40 years. Two Hong Kong fish breeders are angling for a place in the Guinness Book of Records with a giant goldfish the size of an average housecat.

"Bruce", more formally known as a Red Oranda, measures 37.2 cm (15 in) long and is big enough and strong enough to give any hungry tabby second thoughts.

Scooping up the writhing orange bundle with both hands, Louis Chan beamed and attributed Bruce's bulk to selective breeding, a good diet and plenty of exercise.

“Every fish breeder dreams of owning the biggest fish," said Louis

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as he and his brother Jackie showed off the grounds of their large fish farm in Dongguan in China's Guangdong province.

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History of Goldfish

Goldfish is the domesticated subspecies of Carassius auratus, the gibel carp is endemic to China and shows a wide range of morphological variation when raised in different environments. Goldfish are an intrinsic part of Chinese culture. They are depicted in a number of things ranging from silk and paintings to ceramics and jade carvings. In the 17th century, Goldfish popularity spread to the world with the fish being exported to Japan, Portugal and Holland. Goldfish were exported to America in the late 19th century.

Year	Name of the Country
1603	Japan
1611	Europe
1874	America

Natural Habitat

Wild Goldfish, when it's in native conditions require minimum temperature of 10°C to 32°C to survive. They live in rivers,

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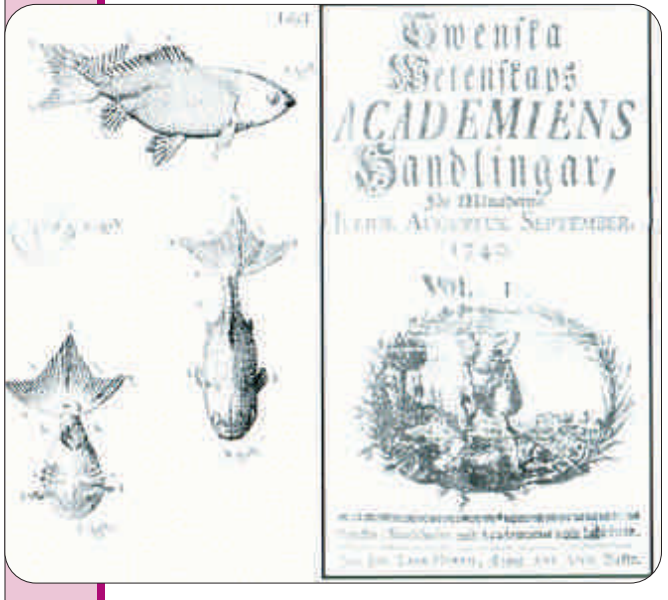
streams, ponds, lakes, ditches and even in stagnant water.

Size and Weight

Wild Goldfish grows up to a length of 30 cm. They weigh 2.5 kg and live between 2 and 10 years.

Mutations



The Chinese have kept Goldfish as pets for centuries. Breeders for almost 2000 years have successfully brought about new species of the fish through genetic mutations. This was primarily done to tickle man's fancy. But later, as experiments to test the goldfish's genetic potential. A list of milestones in breeding experiments is given below:

- In the Chun dynasty (between the 3rd and 5th century AD), breeders first recorded the gold color on the scales of this fish.

- Between the 12th and the 13th century, during the reign of the Nan Song dynasty, goldfish became common pets. For the first

time, white and red-and-white colors were noticed.

- During the Ming dynasty (1368-1644) goldfish made their way into the Chinese homes. They were put inside glass bowls. This led to a number of mutations, of species that wouldn't have otherwise survived in ponds.

- In 1590, the Red-capped mutation of Goldfish was observed and in 1592, Globe Eyes were recorded.

- The mutation in 1596 recorded matt scales and calico coloration. Goldfish now became the fish of common man.

- During the Chun dynasty (between the 17th and 20th century), exotic breed of Goldfish were recorded. These include the bronze and blue Goldfish.

- Between the late 19th and the early 20th century, a number of new species were recorded. These include Oranda/Tigerhead (in 1893), Pompon, Comet, Veiltail and Pearl scale (early 1900s), Shubunkin (early 20th century), Bubble eye (1908), Curled operculum (1911).

Mutations that occur naturally in the wild are not all that strong

and the new species has a tendency to slip back to the original wild variety when further bred. Mutations bred in captivity are dominant.

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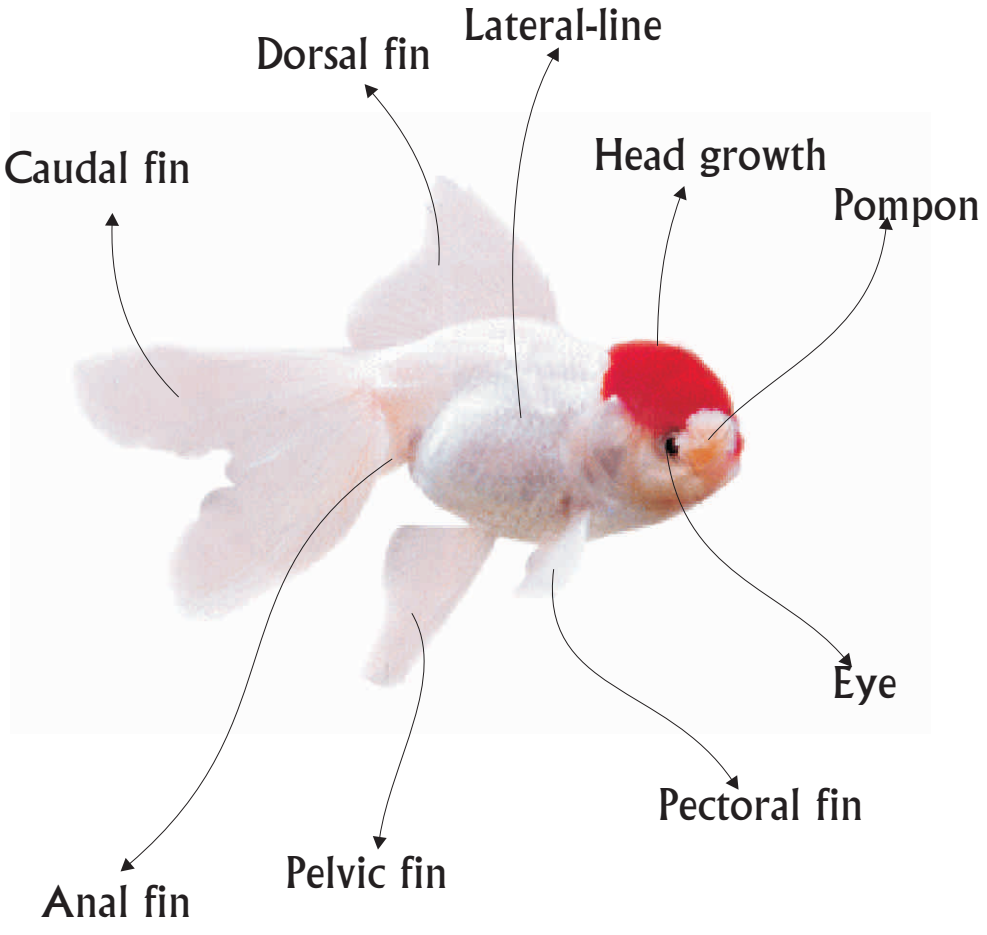

Anal Fin - The lower fin which appears before tail

Caudal Fin - The tail is called as caudal fin

Dorsal Fin - The fin which appear at the top of the rear side

Pectoral Fins - Fins which appear at the front

Pelvic Fins - Ventral Fins which appear behind the pectoral fin

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Aquariums are an amazing and beautiful hobby. This hobby provides hours of restful activity, apt to get relived from the usual pressure and tension of everyday life. It helps children to learn about ecosystem. A lot of preparation and planning goes into the setting up of an aquarium for your fish to ensure a long life for your pet.

Although it may seem to be very complicated and involve a lot of work, in truth an aquarium is easier to manage than a simple looking fish bowl.

Like any other household equipments, you have to set up the whole aquarium setup and run it for two days. Only after testing the aquarium's efficient running, should you purchase the Goldfish.

Before purchasing an aquarium, you have to consider the following:

1. Tank size and type

2. Aquarium Equipments

3. Tank Accessories

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Tank size and type

1. You have to choose the aquarium type and size according to the type of Goldfish you are going to purchase. Secondly, consider the range of cost at which you are planning to buy the aquarium and other essential things for fish.

Goldfish will survive long in cool-water aquarium. You should not put Goldfish in warm water or heated aquariums. So, choose cool water aquarium for all varieties of Goldfish you have to decide on the size of the aquarium depending on the variety of Goldfish you're going to buy.

Aquarium Equipments

Goldfish needs equipment such as heater, lights and filters to survive long periods in the aquarium. Providing these equipments, gives them a feel of living in the natural temperament.

Heater

You have to choose the brand of heater and thermometer according to your budget. You can fix a thermometer in the tank to measure the heat fluctuation. You have to maintain appropriate

temperature for your Goldfish avoiding temparature fluctuations.

They are so many heaters available in the fish pet stores. Buy a suitable heater for a cool water aquarium. Don't forget to buy a thermometer as it is very essential to measure the temperature inside the tank.

Lights

Appropriate lighting not only makes a tank look attractive, but also plays a role in your fish's attitude and temperament. The lighting you choose should complement and highlight your fish's colors.

While buying lights for your fish tank, you will have a few options to choose from. The most common lights are strip lights, full hood lights and canopy lights. You also have a choice between fluorescent and incandescent fixtures. Fluorescent fixtures are perhaps a better option as they produce more light and give out lesser heat than incandescent bulbs.

Filters

There are many types of filters floating the market and you

should choose a filter best suited to your tank. The person in charge of the pet store will be able to guide you in your choice. This provides mechanical filtration by removing and filtering waste from the water. They usually do this by replaceable filter media such as carbon or floss or cartridges.

Different varieties of filters available in the market are listed below:

Emperor Power Filters

First power filter to combine high-end performance with multiple filtration options.

Penguin Bio-Wheel Power Filters by Marineland

These Power Filters deliver efficient, three-stage aquarium filtration without air pumps, valves, tubing or air stones.

Proquatics Power Filters

Proquatics Power Filters provide an optimal combination of mechanical, chemical and biological filtration to ensure a clean, beautiful aquarium and healthy fish. Sold only at PETs MART.

Top Fin Power Filters and Filtration Cartridges

These filters offer complete 3-stage filtration in one quiet, efficient unit. Available in several sizes for aquariums upto 60 gallons. Made in the USA.

EHEIM Liberty Power Filters

Provides three-stage filtration - mechanical, chemical, and biological. The advanced 3D technology is based on a disposable pleated carbonized cartridge which provide 100% more mechanical and chemical filtration.

Aqua Clear Filters by Hagen

These compact filters pack a punch with large filter material capacity. Features the patented "Flow Adjustment Control" at the intake siphon.

The SandMan Fluidized Filters

The first power filter to use flulidized sand for biological filtration.

H.O.T. Magnum Compact Hang-On Tank Filter by Marineland

Powerful, quiet, and convenient.

Magnum 350 Pro Canister Filter System by Marineland

3 in 1 filtration system.

Unmatched power and versatility.

Magnum Canister Filter by Marineland

Use in a freshwater or marine aquarium to achieve crystal clear water. Powerful yet quiet operation.

Proquatics Internal Power Filter

deal as a primary filter in low water terrariums, small aquariums, or goldfish bowls.

Whisper Internal Micro Filter

Efficient filtration for small aquariums and turtle tanks. Features adjustable flow rate upto 70 GPH

Shark UL Filter from Penn Plax

This versatile internal filter and water pump can be used in aquariums or terrariums upto 20 gallons.

Tank Accessories or Ornaments

Tank accessories also make your Goldfish to feel they are living in the natural environment and also dressing up the aquarium.

1) Gravel or Rocks

2) Aquarium plants

You have to select suitable substrate and plants for your Goldfish. Some of these substrates and plants are not suitable for temperament we maintain in the tank and they may wound the fish while they are swimming.

You should be very careful while buying ornaments for your aquarium. Buy only those ornaments that are labeled aquarium-safe as anything else might be toxic for your fish. It is safest to buy ornaments from a pet store.

You will have a wide range of products to choose from… rocks, plastic plants, artificial driftwood, ceramic decorations, shells, etc. You could also collect rocks from your garden for the tank. Just make sure that you clean them thoroughly with conditioned water

to get rid of any trace of pesticides, chemicals, or toxic minerals.

In fact, you should clean all ornaments with conditioned water before you put them into your aquarium/pond. Plastic plants are popular ornaments for aquariums. They come in a wide range of colors, textures, shapes and sizes. But not all plastic plants can be put into a tank and you should be careful when you buy them.

Most of them contain metal wires that rust easily. The rusted metal wires pollute the tank and make it toxic for your fish. So be careful when you pick up plastic plants. Make sure that they are labeled aquarium-safe.

Another consideration while selecting plastic plants is the amount of gravel you have in your tank. Most plants have a base that is designed in such a way that they need to be pushed into an inch of gravel. If your tank has very little gravel then it won't work.

You may buy these things in the pet stores and also with the help of breeders.

Following are some the various ornaments which are suitable for cool-water aquariums and Goldfishes.

Gravel

Gravel is normally used for its aesthetic value in tanks. It gives them a natural look. It is also very useful in the production of beneficial bacteria. However, it is not necessary to have gravel in your tank unless you have an underground filter or live plants in your tank.

Gravel your tank to bring out the color of your fish. You should add darker gravels as lighter gravels give a washed out color to the fish.

Aquarium gravel comes in many sizes, shapes, colors and materials. Natural gravel, epoxy-coated gravel and tumbled glass are the common gravel materials used in aquarium. If you have a freshwater aquarium, you should ideally use quartz or granite. You should avoid coral, seashells, dolomite and limestone-based materials as these release carbonates into the tank, which in turn raises the water's pH buffering capacity. To check if your gravel is

inert, put a bit of vinegar on the gravel. If it foams or bubbles, it is not inert.

Clean the gravel thoroughly before you put it into the tank.

Natural gravels can be put in a dish of water and boiled. However, epoxy or plastic coated gravel should never be boiled, as this will loosen the coating.

Cultured Gravel

Since bacteria are necessary for your tank, cultured gravel with normal aquarium gravel with a layer of beneficial bacteria growing on the surface. If you buy gravel in the bag, they will not be cultured. You will need a layer of cultured gravel atleast a quarter of an inch thick. This gravel will biologically remove waste from the water in the tank.

If your tank has a power filter and a BIO-Wheel, you need not add cultured gravel to it, as sufficient bacteria will grow on the BIO-Wheel. If you are a first-time fish owner, you should get a

filter with a BIO-Wheel and avoid gravel altogether.

Don't use the following things since these materials may contain soluble matters which may pollute the water in the aquarium.

1. Sea shells
2. Builder's gravel
3. Beach sand
4. Drift wood

Visi-Therm Heaters
Double sealed and completely submersible. Preset temperature with direct reading thermometer type scale. Magnetic switching accurately maintains temperature and eliminates checkbox interference. Durable and long-lasting.

Aquarium Plants

Plants are necessary to improve the atmosphere of the tank. But you can't just put any water plant into the tank as your Goldfish might try to eat it.

Live aquarium plants can add lots of color; however, they need proper care or they will develop problems. Most live plant problems stem from water quality problems, improper lighting, and fish eating or uprooting them.

Signs: Unhealthy plants will appear soft, unusually dark or light-colored, thin leaves, mushy or dark colored roots, or bad smelling.

Gravel Vacuum

To operate the gravel vacuum, you will need to get a siphon started in the tube.

Place a bucket on a low stool or on the floor in front of the fish tank, and place the wide end of the gravel vacuum in the aquarium.

To get your siphon started, you will need to get water into the siphon tube. Probably the easiest way to do this is to gently suck the water from one end of the tube while holding it above the bucket and below the water level in the aquarium.

As soon as the water gets past the edge of the tank and begins to flow down the tube, remove your mouth from the siphon and allow the water to flow into the bucket. (You can buy a siphon starter kit from a pet store if you want to.)

Once you have the siphon started, you will need to place the end of the gravel vacuum into the gravel. The flow of water out of the tank through the siphon will lift the debris out of the gravel and carry it into the bucket.

As each spot in the gravel becomes clean, you will probably want to plug the lower end of the siphon with your finger or thumb and lift the gravel vacuum out of the gravel and move it to an adjacent and unclean section of the gravel.

Unless you are severely overfeeding your fish or providing water changes too infrequently, you should be able to vacuum between 1/4 and 1/3 of the gravel with 10-15% water change each week. You will get best results if you place the end of the gravel vacuum deep into the gravel, and do not move it until it has pulled all the debris out of the gravel.

If, at any time, the gravel gets too high in the gravel vacuum, you can easily release the gravel from the vacuum by plugging the other end of the siphon tube with your finger or thumb.

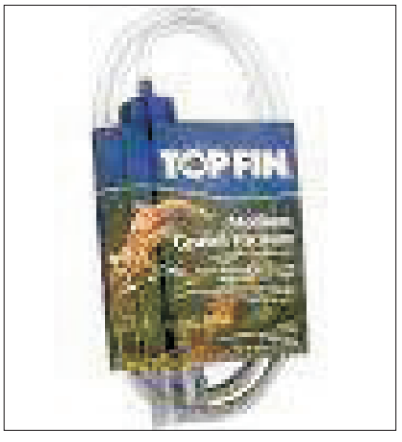
To stop the siphon, simply raise either end of the siphon above the surface level of the fish tank.

Some gravel vacuums in the market are as follows:

Top Fin Gravel Vacuum

Separates debris from gravel when making routine water changes.

Self-starting siphon action for easier cleaning. Made exclusively for PETsMART.



Proquatics Gravel Vacuum, Deluxe gravel vacuum with self starting siphon. Some of the mentionable features are the removable wide-mouth nozzle for extra 20% coverage and a flexible, non-kink vinyl hose. Made exclusively for PETsMART.

Hagen Gravel Vacuum

Easy-clean gravel vacuum have a quick-start siphon feature and a bucket clip for easier use.

Symptoms & Diagnosis

In many cases, if an aquarium plant's leaves appear healthy but the roots look unhealthy, the cause is improper water conditions. If the roots look healthy but the leaves appear thin, the plant most likely has some form of bacterial or fungal disease. Occasional brown leaves are normal, but should be pruned. Numerous brown leaves or abnormally long, thin leaves indicate inadequate aquarium lighting. Abnormally stunted plants or excessive algae growth indicates too much light. Holes in the leaves are normally caused by fish, snails, etc.

Water Conditions

An aquarium that has proper water conditions should be and ideal environment for most live plants. Slightly acidic water is generally preferable to hard water because hard water can cause the leaves to become brown.

Fish Uprooting Plants

Large fish may occasionally uproot plants. Goldfish are notorious for this.

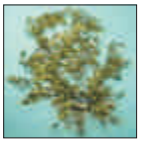
Fish or Animals Eating the Plants

Goldfish love to nibble on the plants provided in their tanks. Use any of the plastic plants and attach it to the tank's glass with suction cup devices made for aquariums. It allows them to eat it without having the mess of the plants decaying in the gravel bed.

Listed below are plants that are Goldfish-safe:

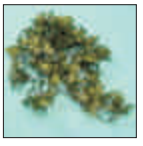
Amazon Swordplant

Watersprite



Giant Bamboo

Giant Asparagus



Floating Philodendron

Green Tiger Lotus

Ambulia Aquarium Plant

Tetra Plantastics Plus Ultra Lush Anacharis Aquarium Plant

Cabomba Aquarium Plants

Cabomba Aquarium Plants

Red Ludwigia Aquarium Plant

Lush Red Foxtail Aquarium Plant

Hygrophilia Plastic Plants

Ambulia Plastic Plants

Cabomba Plastic Plants

Top Fin Anarcharis Plastic Plants

Other equipments

1) When you buy an aquarium, you'll also need to buy a cover for it and an aquarium stand.

2) You also need to buy a 5-inch fish net with a handle to catch the fish when you want to transfer them. You can buy all these supplies at a pet store

Water Conditions for Goldfish

Most tap water is safe for fish, provided a maximum of 20% of the water is changed in a day. In a few areas you can't use the tap

water in your aquarium. For instance, some well water has chemicals or minerals that are toxic to fish. So you must be cautious. If you have doubts, talk with someone at the local water district. You can also chat with someone else who keeps fish in your area. Many water conditioners will neutralize most toxic chemicals. Usually, you can change up to 20% of the water in your aquarium without adding water conditioner. But changing more than 20% of the water on the same day is risky, even if you add conditioner. If you don't want to use bottled water for the aquarium, you should buy a bottle of water conditioner to treat the tap water with.

Heater Size Guide

Gallons / Liters	5°C / 9°F	10°C / 18°F	15°C / 27°F
5 gal / 25 L	25 watt	50 watt	75 watt
10 gal / 50 L	50 watt	75 watt	75 watt
20 gal / 75 L	50 watt	75 watt	150 watt
25 gal / 100 L	75 watt	100 watt	200 watt
40 gal / 150 L	100 watt	150 watt	300 watt
50 gal / 200 L	150 watt	200 watt	two 200 watt
65 gal / 250 L	200 watt	250 watt	two 250 watt
75 gal / 300 L	250 watt	300 watt	two 300 watt

Instructions:

Subtract the average temperature of the room the aquarium is located in from the temperature you wish to maintain the aquarium water at. Find the size of your aquarium in the left hand column and move to the column that shows the number of degrees the aquarium needs to be heated. If the heating requirement is between levels, move up to the next larger size.

In larger tanks, or where the room temperature is significantly below the desired water temperature, two heaters may be required. Heaters should be installed at opposite ends of the

aquarium to heat it more evenly.

Example:

Average Room Temp = 68 degrees F

Desired Water Temp = 77 degrees F

Heating required = 9 degrees F

Tank Size = 20 gallon

Heater size needed = 50 watts

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How to setup the aquarium in your home?

You should ideally figure out where you will place your fish tank before you bring your new fish home.

ideally figure out where you will place your fish tank before you bring your new fish home.

l) An aquarium can be the highlight of your living room and are also a great way to brighten up living spaces. Just keep a few things in mind. Direct sunlight will heat the water, which isn't good for goldfish. Sunlight also makes algae grow quickly. So it's best to keep your aquarium away from direct sunlight.

2) Also keep the aquarium away from heaters and air conditioning vents. Place the aquarium preferably on a stand, if not, use a sturdy flat surface.

3) Placing your tank in the best possible environment is essential. A fish tank can be the center of attention in a room and at the same time be a relaxing feature as well. Fish owners will tell you that watching fish swim in a tank is therapeutic. This is very true, in fact, you can spend hours just watching them.

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4) Your tank will need a sturdy base. You can buy a readymade stand from a pet store. If you don't want to buy a stand, make sure that you put it on a strong and flat surface.

5) Keep in mind that each gallon of water weighs approximately eight pounds. So if u have a 30 gal tank, you will need a base that can take 240 pounds of weight for your fish to live long and healthy.

Getting started

Once you have bought all the equipment, you have decided where to keep the aquarium. You will need to assemble and install the aquarium. Fill the aquarium with tap water and add water conditioner based on the quantity of water as per the instructions. Follow instructions to get the filter working. Let it run for three days before putting in the fish.

Step - 1 Choosing a location for the tank

After selecting your aquarium, you have to select the place where it should place.

You need to keep the following in mind while choosing a location

for the tank:

1) Do not place the tank in direct sunlight to maintain a constant temperature of 74-75 degree Fahrenheit. Sunlight will cause the tank water to heat up.

2) Do not place the tank near a heater or any other source of heat.

3) Do not place the tank near an air-conditioning vent.

4) Do not place the tank in a part of the house that is very cold or gets drafts.

5) Place the tank in a location that is close to a water source and it would be convenient for you to change the water.

6) You should also be able to service the filters easily and perform general care.

7) The place where you place your tank should be relatively quiet. Loud noises will cause stress and you should keep your tank away from stereos and television sets.

8) Do not tap the glass tank often. This will frighten your fish. If

you see a fish swimming around with jerky motions or jumping, it may be because it is frightened.

After choosing the place considering all the above stated points, place your tank on a strong wooden table. Your table size should be greater than your aquarium size.

Step - 2 Fix the filter in the aquarium

Select the filter according to your aquarium size and type. You can seek advice to select the suitable filter for your aquarium. There are too many type of filters available in the market. It is better to get complete details of filter that you have purchased. Instruction to fix up the filter differs from brand to brand and type of filters. So you have to follow the manufacturer instruction to fix the filter in your aquarium.

Step - 3 Fix the light and heater in your aquarium

Fix the light in the tank with help of the instruction given by manufacturer. Light arrangement helps to regulate day and night for fish and plants. It also helps to see your fish inside the tank. It adds to the decor of the aquarium.

You can switch on the light between 8 to 10 hours in the day and switch off the light during the night.

After fixing the light, you have to fix the heater in your aquarium. It is necessary to fix a heater with thermostat in the tank. The thermostat is required to check the tank from overheating or contributing towards extra chillness. Maintaining a consistent temperature for your fish is required. The fluctuation of temperature in the tank may lead to ill health to your fish. Keep watching the temperature inside the tank.

Following chart shown to select the heaters.

Tank size	Heaters in Watt
10 to 20 gallon	50 watt heaters
25 to 30 gallon	75 watt heaters

Step 4 - Place the gravel

Before placing the gravel in your tank, you have to wash gravel with gravel washer.

It removes dust and debris from gravel. Now you can place the

gravel in the tank.

Use of angular-shaped gravel helps in natural biological filtration in the aquarium.

Place the gravel 2 to 3 inches in the back and slope towards the front in case of under gravel filter.

Step 5 - Adding plants and other accessories

Select the plants and other items which are suitable for your fish and place those items in the aquarium. In case of using plastic and artificial ornaments, you have to wash with water before placing inside the tank.

It is better to use live plants for beginners as they aid in nitrogen cycle (water quality maintenance) in the water tank. Do not place the plants very close to each other. Don't dump too many items in the aquarium.

Step 6 - Add water and checking working of all equipments

Your aquarium looks very pleasant with decorations, light, heater and filter fixed. Now, it is time to fill water in your tank.

You should not pour water directly into the tank. It may disturb your arrangements inside the aquarium. You should take small bowl and place it at the center of the tank.

Now you can pour water into the bowl slowly. Don't fill water till the edge of the aquarium. You can fill the water till it reaches 90 percent of the tank size.

Now you should turn on the light, heater and filters. Allow the heaters, light, filters to run for two days. Check for the proper functioning of temperature and filtration. After ensuring everything is working properly, purchase fish and add it in the aquarium.

Step - 7 First Fish for Cool Water Aquariums

Once all the equipments are in working condition, it is an ideal time to buy a Goldfish from any pet shop. You can put your fish into the aquarium by floating method.

Step 8 - Add your fish into the aquarium.

To start with, do not buy any expensive or delicate variety of Goldfish. After your new aquarium equipment has been running

for a couple of days, start with the inexpensive variety of Goldfish such as Comet. Buy three of four of them. Don't add any more fish for at least three weeks.

This is important as in the first 2 or 3 weeks, the water may get cloudy or foamy and have an odor. This is often referred to as the new fish tank syndrome. After the first three weeks (if your fish survives), your fish will settle down and you can buy more fishes for your aquarium.

But do not add too many fishes at the same time. Add a couple every few weeks. Just keep in mind that each fish needs a gallon of water for every inch of its length. Use this as a guide to determine how many fish you can put in your aquarium and prevent your aquarium from overcrowding.The chart given below will guide you better.

Size of the Tank	Small-size Goldfish	Medium-size Goldfish
10 gallon	2 to 3	1 to 2
20 gallon	4 to 5	2 to 3
30 gallon	6 to 8	4
45 to 55 gallon	8 to 10	5 to 6
75 gallon	10 to 12	7 to 8

You can easily follow the thumb rule for the number of fish you can add in your aquarium. You have to provide 5 gallon space for one Goldfish to live comfortably. Calculate tank size according to this rule.

How to float your fish to the aquarium?

First, you have turn off the aquarium lights and dim light in the room where you have fixed the aquarium.

You should not open the shipping bag or box in bright light. It may cause severe stress to your fish.

1. Take the sealed bag containing the fish and float it in your aquarium without opening the seal. Float your sealed bag for 15 to 20 minutes in your tank. By doing this, the temperature in your aquarium and sealed bag get adjusted and the high level oxygen also gets dissolved.

2. After 15 to 20 minutes, you can cut the sealed bag under metal clips. Roll the top edge of the bag one inch down (see picture 2).

Float open the bag in your aquarium (see picture3).

3. Now, add the aquarium water into the bag until it gets full (see picture 4). When the bag is completey filled with aquarium water, you can lift the bag from your tank and discard half of the water from the bag (see picture 5).

4. Once again float the fish with the bag in your aquarium. Repeat point 3 procedure again. After that, net the Goldfish from the bag and add in to your aquarium (see picture 6).

5.Remove bag from the aquarium. You should not discard the water from the bag into the aquarium.

Regular checking of fish and aquarium conditions

1) Goldfish need heaters to maintain the tank temperature at 74 degrees Fahrenheit. They are most active at this temperature. It is also proven that Goldfish kept in a tank at this temperature live longer and healthier. Fluctuations in temperature will put too much stress on your fish and cause them to fall ill.

2) But remember not to leave the lights on for too long or too short a period. Lights should be left on for not less than four hours and not more than 10 hours everyday. When you turn on different lights in the tank, do them one by one. This is because Goldfish don't have eyelids and will get stressed if all lights come on at once.

3) Fish sleep every night and you should switch off all lights when they do so. Although your Goldfish might sleep during the day when the lights are on. Fish that sleep at night are healthier. To train them, you should switch off the lights at the same time everyday.

4) Regular checking of water quality is the most important factor

for your Goldfish to live a healthy life.

Using the test kit (refer how to maintain water quality chapter) test pH, ammonia, alkalinity/hardness, and nitrate/nitrite in the water on a weekly basis. Please follow the below mentioned chart to maintain water quality.

Water Quality Maintaing Chart

Date	Time	Ph	Ammonia	Nitrite	Nitrate	Salinity	Water Change/ Top Off

5) Changing water in the aquarium is a vital factor for your Fish to live a healthy life. Without changing the fish to another tank, remove the upper surface of water from the aquarium. Replace 10 to 20 % of the water in the tank with fresh water. This will equalize to tank temperature in a week. You should not pour fresh water directly into the tank. It may make stress to your fish due to sudden temperature changes.

To adjust tank water temperature and fresh water temperature, follow the below instructions.

Using water siphon hose, remove 20 % water from the surface. Before removing the tank water, you have to keep 20 % fresh water in the bucket or bowl for one day. Water should be treated for chlorine and chloramines before using it.

Tank size	Percentage of water to be removed	Times per week
10 gallon	10 to 20%	Once in a week
20 gallon	20 to 25%	Once in a week
30 gallon	20 to 25%	Twice in a week
40 to 50 gallon	25%	Twice in a week
Above 50 gallon (in case of more fish)	25 %	Thrice in a week

Daily check

1) Check your aquarium every 30 to 45 minutes after feeding.

Remove floating foods, if any from the water surface immediately after your fish has its food. Do not overfeed your fish.

2) Temperature of the tank

1) Equipment of tank should be checked whether filter, heater, and light are working properly.

2) Make sure water is not cloudy and without odor.

3) Check the behavior of your Fish for a few minutes by watching it. Watch your fish swim normally in all levels. Check the skin for any signs of diseases.

Weekly check

1) Make sure the dead leaves are removed in case if you have added live plants in the aquarium.

2) Remove algae using algae remover once in week.

3) Change the partial water from the tank using water siphon.

4) Clean the outer aquarium glass using a window cleaner.

2 to 3 weeks

1) You have to clean the aquarium or the tank completely once in 2 to 3 weeks. How to clean the tank has been explained in detail in chapter (How to clean the aquarium).

2) Test water quality using test kits.

3) Trim the live plants.

Twice a year

1) Clean the filter completely. Replace carbon, sponge, and floss in the filter.

2) You have to change the fluorescent light once in six months.

3) You have to check whether heater and thermometer are working properly. If not, you have to replace those.

Fish Care Chart

Date	Time	Temperature	Lighting	Feeding	Water Quality	Health	Behavior of Fish

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Go To Table Of The Content

The most important aspect in keeping fish is the quality of water available. Fish will not survive if the water has chemicals in it. Chemical-free water will also prevent disease and other health problems. It is therefore essential that you maintain favorable water conditions at all times. Temperature, pH, dissolved oxygen, hardness of the water, nitrate, nitrite and ammonia levels all affect your fish. Besides changing 20% of the tank water every week, you should buy a water testing kit from your local pet store and check the water often.

The Nitrogen Cycle

Ammonia, nitrites, and nitrates are produced at stages of the nitrogen cycle through animal waste, decaying food, and the nitrogen produced by the fish. Ammonia is oxidized by bacteria, forms nitrites and then nitrates. Nitrates are used as food by plants and hence enter the nitrogen cycle again.

This cycle is controlled by nature, but in enclosed spaces like tanks, aquarium and ponds. It is often difficult to maintain safe levels. In easy terms, it means a fish eats and defecates and urinates and this turns to ammonia. Ammonia, thus formed, if not

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broke down by beneficial bacteria will cause illness and possibly death in your fish. So the fish keeper must do routine water changes, provide a good source of filtration and monitor water conditions. Do not overfeed. When the ammonia mixes with the nitrifying bacteria, it creates nitrites which are less toxic than ammonia to the fish; However, nitrites are converted further by bacteria and oxygen to nitrates, Which are way less toxic.

The only way you can control this problem is by doing routine water changes, not overfeeding and cleaning out leftover food everyday. Goldfish will tolerate 500 mg of nitrates per liter of water. A level higher than this will cause your fish stress and also make them prone to diseases.

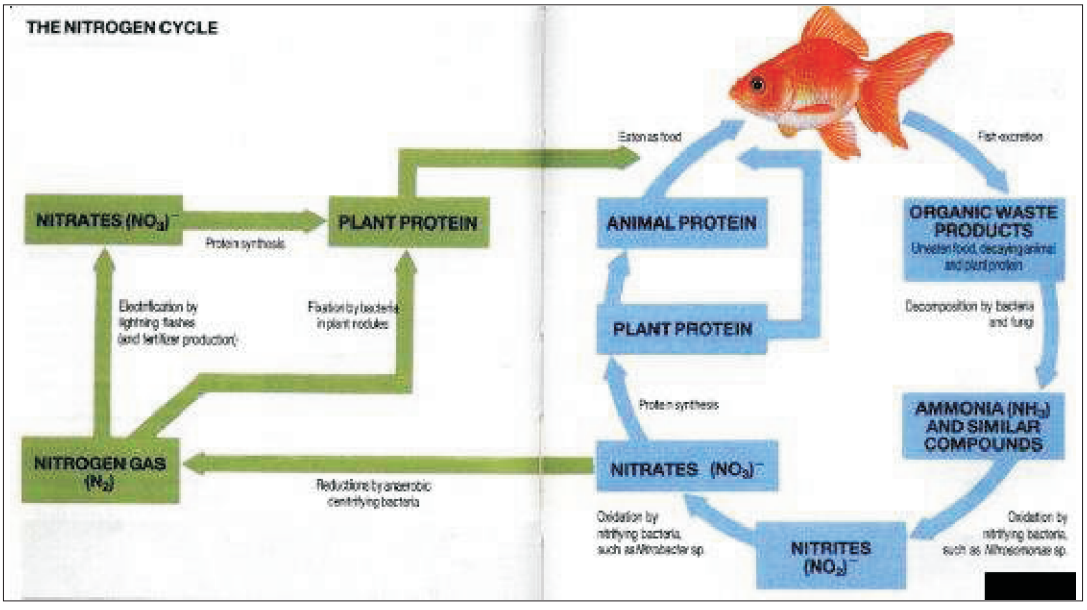


Photo taken from
The Healthy Aquarium: Dr. Neville Carrington

Test kits to check ammonia, nitrate and nitrite levels are available at pet stores. You should definitely buy the kit and check your water regularly. This is how you test for each of these levels in the water.

Ammonia

Ammonia is generated from fish wastes, from excess food floating around the tank and from dead fish tissues. Ammonia has to be cleaned from tanks as they are dangerous and can cause many problems for your fish including death. Other common problems including reddening of fins and the excessive production of mucus.

It is therefore very essential to keep the various levels as low as possible. Even the presence of 2 parts of ammonia per million parts is deadly to fish. So ideally, you should have 0 parts per million of ammonia in the tank.

If you find a slight change in the ammonia level of your tank, you should partially change the water and clean out all visible waste products. If the ammonia levels are found to be very high, you should change all the water as your fish may become poisoned and killed. But a sudden change of water can be stressful for your fish. In that case, add a few drop of anti stress solution to ease the problem.

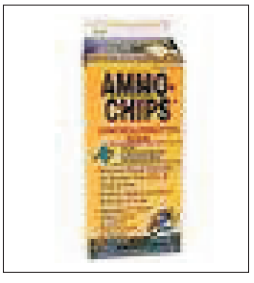
Although it might not help much, your fish are safer in clean water. Ammonia levels will keep rising until you change the water, especially at high temperatures. Also, the more fish you have in a tank, the higher the concentrations of ammonia will be and the faster it will rise. Ammonia cannot be removed naturally from a new tank, as there are no bacteria that help in removing the ammonia. It takes several months for the helpful bacteria, Nitrosomonas to grow. But this isn't enough to eliminate all of the ammonia.

These bacterias converts the ammonia to a less toxic nitrite. But this isn't enough to eliminate all of the ammonia.

Below is a helpful guide to the appearance of the fish and the action that should be taken:

0 PPM	.5-1 PPM	2 - 3 PPM	4 - 5 PPM	6 - 7 PPM

Ammo-Chips can be purchased at most pet stores.



Aquarium Pharmaceuticals Ammonia Test Kit

Quickly & accurately measures the level of ammonia in pond water, reading levels from 0 ppm to 7 ppm. Makes 75 tests.

Mardel Ammonia Test Strips

Ammonia test strip refills for your Mardel Master Test Kit (also available, sold separately).

Aquarium Pharmaceuticals Freshwater Master Test Kits

Tests tap water and aquarium water in six different ways to protect tropical fish from dangerous water conditions.

Jungle Labs Quick Dip Pond Test Kit, 5 in 1

The fast, easy and accurate way to measure five different water conditions with one Quick Dip strip. Kit performs 125 tests.

Jungle Labs Quick Dip Water Test Kits

Scientific quality, "dip and read" test kits give accurate results in anywhere from 15 to 60 seconds. Kits contain from 25 to 100 Strips.

Symptoms of rise in ammonia levels

Your fish will:

- Isolate themselves.
- Lie on the bottom of the tank.
- Keep their fins clamp.
- Secrete excess slime or mucous.
- Develop red fins.
- Show symptoms of dropsy or have a pinecone effect.
- Prone to parasitic and bacterial infections.

Nitrites

Nitrites are produced during the nitrogen cycle and just like ammonia, it is very important to keep its level in your tank as low as possible.It should ideally be 0 parts per million, but definitely not more than 0.25 parts per million of water. High nitrite levels make it difficult for your fish to get enough oxygen and they may suffocate and die. The more fish you have in the aquarium, the more nitrite you will have. Having a larger tank and less fish is perhaps the best way to avoid this problem.

High nitrite levels will also cause the fish a lot of stress. This can be reduced by adding 2.5-2.75 teaspoons of aquarium salt to every gallon of water. Nitrates are formed when nitrites are broken down by oxygenation. Nitrates are not harmful to fish and there are no ill-effects linked to its presence in the aquarium. However, it is good to keep it under 40 parts per million and this can be achieved through routine water changes.

Nitrite Color Chart

NITRITE TEST COLOR CHART

Nitrites are toxic waste material found in varying concentrations in most aquariums. It is produced by nitrifying bacteria in the biological filter as it breaks down ammonia. As the filter develops and grows, it uses the nitrites as a food source and breaks them down into a less harmful nitrate. Regular testing should be done because low levels of nitrites can cause problems in the tank causing your fish to have reduced oxygen which could lead to

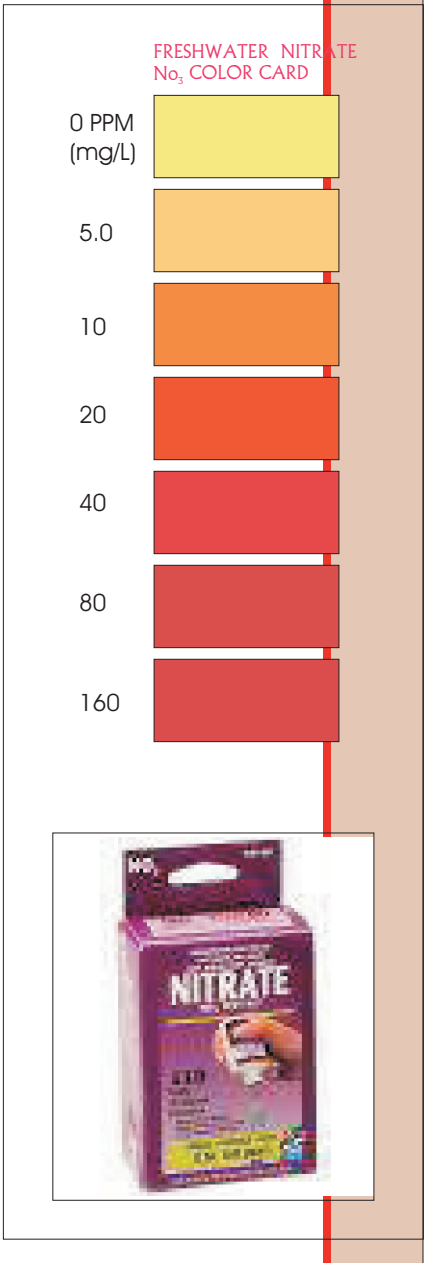
suffocation and death. The chart shows levels from 0-3.

Nitrates in Aquariums

Nitrates are the result of the bacterial breakdown of ammonia which turns into nitrite, which in its final stage becomes nitrates. Nitrates are less toxic than ammonia and nitrites, but can cause stress, which can lead to disease as well as death if not properly cared for.

High nitrate accumulations are more toxic when oxygen is low. Nitrates can do damage to the fish's red blood cells and this in turn causes them to be oxygen deprived.

Symptoms of high nitrate levels are: New small fish die off within 2 to 3 weeks. Fish appear lethargic other than at feeding times. Growth is slowed. Increased susceptibility to disease, slow wound healing, redness or red patches on the body.



Aquarium Pharmaceuticals Freshwater/Saltwater Nitrate Test Kit

Tests nitrate levels from 0 to 160 ppm in fresh or saltwater.

Mardel Master Test Kit

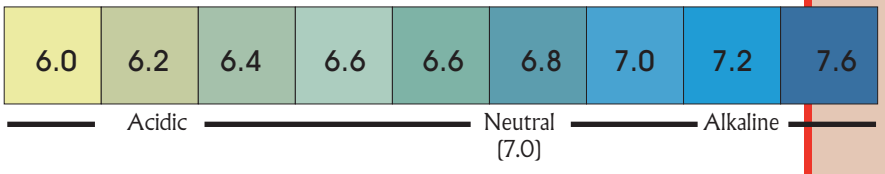
A complete kit for testing the water quality in your fresh or salt water aquarium. Tests for six important water conditions.

pH (phosphorous)

pH Color Chart

What is pH?

It is the measurement of acidity or alkalinity of water. A reading of 7.0 is neutral. pH that is higher than this is considered to be alkaline. If it is lower than 7.0, the water is acidic.



pH Color Chart

Goldfish prefer water that is more alkaline. There are many different test kits available at pet stores that will test the pH. I prefer the easier ones that allow you to add some water to a test tube and drop in the chemical drops. You then allow the water to sit in the tube for a minute or two and shake it really good and you will have a color.

It is also very important to keep the water pH under constant check. Goldfish thrive at the 7.2 - 7.6 range. Anything above or below this range will make your fish sick and even kill them. You should buy a pH testing kit from a pet store. The above chart was taken from a brochure that came in my pH test kit made by Aquarium Pharmaceuticals, Inc.

Comprehensive instructions chart for you to follow. A low pH means that the water is acidic. This happens when there are too many fish in

is less toxic.

Acidic water will make your fish weak. If you find that your fish are anorexia, have excess slime, rest at the bottom of tank away from other fish, and notice streaks of blood in the fins, this is a sign that the tank water is acidic.

A high pH indicates that the water is alkaline. Ammonia is more toxic when the pH levels are high. If the water is alkaline your fish will produce excess slime and gasp at the surface. Once alkalosis takes place, it is hard to reverse it.

Freshwater Deluxe pH Test Kit

Test the pH of freshwater within a 6.0 to 7.6 range and adjust pH levels as required. 250 tests per kit.

Aquarium Pharmaceuticals Wide Range pH Test Kit

Quickly and accurately measures the pH of pond water, reading pH levels from 5.0 to 9.0. Makes 160 tests. Water Hardness is determined by the presence of dissolved minerals in it. A few minerals present in the water make water soft. Goldfish do fine in either.

Chlorine and Chloramines

Water has toxic metals, ammonia, nitrate, nitrite, phosphorus. It is likely it contains chlorine and chloramines also. We have to remove chlorine and chloramines by using a zeolite or zeolite carbon filter. Another method of removing chlorine is Aeration.

Aeration is a method which increases the oxygen in the water. Due to increase in oxygen, ammonia gets diffused out. It directs nitrification of waste products contained in the water.

Density Of Water

Density refers to the amount of salt in the water. Goldfish will not survive in salt water for any length of time. However, adding a small amount of salt to the tank will not kill your Fish! It is stated that it will perk up their immune system. You should only use freshwater aquarium salt for this.

Aquarium salt has gained popularity over the last few years and is a very handy and easy method to prevent your fish from falling

sick. It is also known to cure many diseases and in fact many fish owners prefer using salts to putting their fish on medication. It is also known to control the toxicity of nitrite/nitrate spikes.

There are many advantages of using salts. They are:

- Salt does not harm tank filters.
- It is cheap.
- It isn't harmful to human beings.
- Most fish don't react to it.
- It is known to kill 7 out of 9 common fish tank parasites.
- Low salt dosages in the tank also provide required minerals for the fish.
- Salt also stimulates the formation of slime coat.

Aquarium salt is easily found in all pet stores. If you can't find it or run out of it, you can use food grade salt, non-mineralized cattle feed grade salt and non-iodized salt instead.

How much salt to use?

The recommended dosage is 1 teaspoon of salt for every gallon of water. You should repeat this three times with a 12-hour between each dosage. If you have a big aquarium or a pond, you will have to use 3 pounds of salt for every 100 gallons of water.

Before using the salt, just make sure you remove all live plants from the tank. Plants won't survive the salt. You should also take out 50% of the water and replace it with fresh water. Although aquarium salt does no harm to Goldfish, you should not let them stay in salt water too long. Salt also makes water harder and hard water causes a lot of stress to your fish. Too much salt may cause physical imbalance (causes osmotic stress) and your fish could fall seriously ill (energy loss and weakening of the immune system).

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Fish bowls are only temporary solutions. Your goldfish will live longer and happier in a tank or a pond. You can put only one Goldfish per fish bowl. If your fish begins to grow rapidly, you will have to transfer it into a tank or a bigger bowl. While choosing a fish bowl for your Goldfish, make sure that it has atleast one-gallon capacity.It is also equally important to buy a good net to transport your fish. The net needs to be 3-inches wide.

Water for the bowl

Do not use tap water for the bowl, not even if you treat it before filling the bowl with it. To keep you fish healthy, it is best to use a bottled drinking water. Do not use distilled or de-ionized water. Fill the bowl with water leaving two inches below the rim. Use clean transparent plastic sheet to cover the bowl so that you can prevent your fish from jumping out.

How to Change Some Water in your Fish Bowl

Fish live best in fresh water. You shouldn't change all the water in

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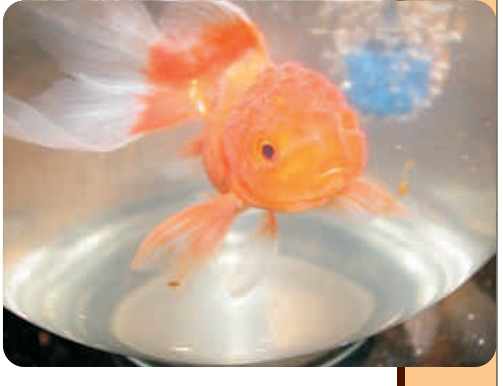
the tank at the same time but change 20% of the water twice a week. While changing the water, it is perhaps best to transfer your fish, lest you might drop you fish into the drain while pouring out the water.

Making Bottled Water

You could purify water at home and use it instead of bottled water sometimes. Use water conditioners to purify the water. Fill a bottle with water, leaving a 2-inch space on the top of the bottle and add five drops of water conditioner. Seal the bottle and shake it well. Let the bottle sit for three days before you use it in your fish bowl.

How to Clean your Fish Bowl



Algae will grow at the bottom of the tank. Although they make a good snack, you should clean it as they give your tank a greenish and dirty appearance. Here is how you should clean the tank:

1. Pour out 80% of the bowl water into another container.

2. With a net, carefully transfer your fish, ornaments and gravel into the temporary container.

3. Use a paper towel to scrub the sides and the bottom of the bowl.

4. Rinse the bowl thoroughly.

5. Pour the water from the temporary container back into the bowl.

6. Transfer your fish, ornaments and gravel back into the bowl.

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Moving your fish and changing the tank or objects in the tank is a topic that receives mixed views. The major concern about changing tanks is over bacterial colonies. To maintain a healthy aquarium is to have thriving colonies of good bacteria. These help to break down and neutralize wastes produced in the tank. And changing the tank would mean leaving the bacteria behind. These beneficial bacteria also live in the gravel bed and the filter, so changing it is also often debated. But this does not mean that you can't remove anything from your aquarium. Your fish may even enjoy a change in gravel.

You should clean your aquarium atleast once in 2 weeks. Transfer your fish and tank ornaments along with 80% of the tank water into a temporary container. Scrub the sides and the bottom thoroughly and rinse it out. Put the water, fish and ornaments back into the tank and add fresh conditioned water to fill up the remaining 20% of the aquarium capacity.

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Here is the list of items you need to clean the tank:

* Algae scraper / pads
* Razor blade (plastic blade for acrylic tanks)
* Bleach
* Water siphon
* Bucket
* Lime remover (made for aquariums)
* Glass cleaner (made for aquariums)
* Filter media
* Filter brush
* Old bath towels
* Paper towels

You can clean your aquarium in the following order:

Step-1

Cleaning your tank makes your fish stress. First, transfer your fish to a temporary bowl or another tank.

Step-2

Remove the plants and decorative items in the tank.

Step-3

Remove filters, heater and lights from the tank.

Step-4

Now, remove gravel or rocks from the tank and any other items in the tank you can discard from the tank water. Pour this water onto your rose plants, they will grow nicely.

Step-5

Clean the rocks or gravel with algae scraper or pad followed by washing the gravels with bleach water. Remove wetness from the gravel using a towel.

Step-6

Cleaning of plants can be easily done by soaking the plants in a mixture of bleach and water. You must remember to clean and rinse the plants well before adding them back into the tank or it may cause diseases to ur fishes

Step-7

You should wash the hood of the tank firstly. Use scrub pad or scraper to clean the hood.

Do no use any chemicals to clean it. Clean the outer and inner side of the glass tank using algae pad. Please do not use soap or chemicals to clean the algae in the tank.

You can use razor to clean acrylic in the tank. After this, clean with bleach water. Then,leave it for sometime till it dries.

Step- 8

You can clean the filters with a filter brush or a filter cleaner. Remove the wetness in the filters with a towel. Fix the filter immediately in the tank after it is cleaned.

Step-9

Leave your tank to dry and then fix the filters, heaters, and light one-by-one. Add dry gravel once again to the water tank. Arrange the plants and other decorative items in the aquarium.

Pour treated fresh water into the aquarium. Now, you can switch

on filters, lighters and heaters. Make sure all are working properly. Check the water quality level of ammonia, pH, and nitrate / nitrite. All the three should show zero level. You can run the aquarium setup for one to two hours without adding your Fish.

Step-10

After making sure everything is working properly, float your fish from temporary tank to the main tank or aquarium.

Steps to replace old gravel with new gravel

You have to understand that it is not as simple as buying new gravel and replacing the old with the new. It is a complicated procedure and logistics of changing the gravel may seem to be a bit challenging. It however isn't impossible.

With proper preparation and methodical execution, you will be able to make things easy for you and also make the transition easy for your Fish Planning ahead is very important and making a checklist is essential.

This will ensure that you have all your bases covered. First you need to buy a water testing kit and then decide what you want to change in the tank. Buy all the things you want to put into that tank. If you want to change the entire tank, the following is a list of things you should buy.

* New gravel
* Holding tank (10 gallon tank is a good choice)
* Cover for holding tank
* Siphon

* Nets
* Buckets for gravel
* Clean cup to scoop gravel
* Stress coat/water treatment

Preparation

Your prime focus should be on making the transition easy and stress-free for your Fish. If you are changing only the gravel, make sure you move the Fish into a temporary container before doing so.

Changing the gravel is invasive and often affects the Fish the most. You should always have a spare 10-gallon tank in storage. It comes very handy when you want to quarantine sick fish or new fish.

You could make do of a 5-gallon bucket from your house. Just ensure that it is clean and never had detergents or chemicals in it. After you move the fish, top the tank off completely and test it

for nitrate and ammonia levels. This has to be zero, else you shouldn't change the gravel. On the day you plan to move your

fish back into their renovated tank, do not feed them as this will cut down the amount of waste produced. If you are changing the filter as well, keep the fish in their temporary tank for at least a couple of weeks. This is to allow the bacteria in the filter to stabilize.

Procedure to follow on the day of moving Fish into their renovated tank:

Rinse the new gravel until the rinsed water runs clear. Then set up the holding tank as close to the main tank as possible to make transfer of the Fish easy. Turn off the filter in the main tank. Quickly siphon off enough water from the main tank to fill the 10 gallon holding tank until about two thirds of the tank is full.

Remove any live plants, rocks, and other decorations, from the main tank and put them in the holding tank. Just make sure that you don't overcrowd your temporary tank with ornaments. Net the fish and move them to the holding tank. Cover the holding tank with a tank cover or newspaper or cardboard. Add more treated water to the main tank and allow the filter to run by

turning it on.

Scoop out the old gravel and place it separately in the buckets. acuum debris from the bottom of the tank. Put the new gravel into the tank. Move rocks, plants and decorations from the holding tank back to the main tank. Lastly move your fish from the holding tank back to the main tank.

Keep the lights switched off for a day and add the stress coat to the water.

Three days after the gravel change, test the water for ammonia. If it is zero, wait another three days and test again. If it is still zero, repeat test after one week to be on the safer side. If the test shows a rise in ammonia levels, treat the tank as if it were a newly set up aquarium. This includes frequent testing and water changes until the ammonia and nitrite levels fall to zero.

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All the Goldfish types have the same Gene and Species name since they differ mainly by their tails and fins. They also differ by their body shape and color. The types are as follows:

1. Single Tail Goldfish

2. Double Tail Goldfish

3. Long Tail with Dorsal Fin

4. Short Tail with Dorsal Fin

5. Short Tail without Dorsal Fin

6. Other Tail types

1. Single Tail Goldfish: This Fish type is long-bodied with elongated tail

2. Double Tail Goldfish: This Fish type has a tail with two layers that grow separately. This fish type is rare in United States.

3. Long Tail Goldfish: This is also called as Veil Tail. It has a deep body with a high dorsal fin and a forked double tail which is largely bred out.

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4. Short Tail Goldfish with Dorsal Fin: This is also called as Fantail. This fish has an egg-shaped body with a short dorsal fin and a forked double tail which is held out like a fan.

5. Short Tail Goldfish without Dorsal Fin: This fish type has an egg- shaped body without dorsal fin.

Single Tail	Double Tail	Long Tail	Short Tail with Dorsal Fin	Short Tail without Dorsal Fin
Common Gold	Jikins Goldfish	Veiltail Goldfish	Fantail Goldfish	Egg Goldfish
Comet Goldfish	Wakins Goldfish	Oranda Goldfish	Pearl scale Goldfish	Lionhead Gold fish
Shubunkins Gold		Black Moor		Ranchu Goldfish
		Telescope Eye		Celestial Goldfish
				Pompons Goldfish
				Bubble Eye Goldfish

Other Tail Types: These types have a double tail. The tail is neither short nor long. Ryukin Goldfish comes under this type. We have classified Goldfish by the above mentioned difference. In China, Goldfish classification is based on the following differences

also.

Parts	Wild type	Other mutation type
Body	Long	Short with very round or deep & Short with not so round or deep
Dorsal Fin	Normal	Tall or Absent
Eye	Normal	Globe, Upturned Globe, Bubble
Finnage	Short	Long
Gill	Normal	Outwards curling
Head	No Hood	Partial Hood , Full Hood

The wild type having different color and tail doesn't show any difference from the Mutation type.

The scientific classifications of Goldfish are:

Kingdom: Animalia

Phylum: Chordata

Class: Actinopterygii

Order: Cypriniformes

Family: Cyprinidae

Genus: Carassius

Species: Carassius auratus

Each of these major varieties is in alphabetical order in the following chapters.

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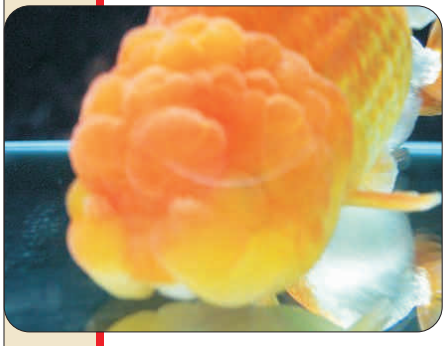
Other Common Name: Tigerhead in Far East.

Origin: China, Japan

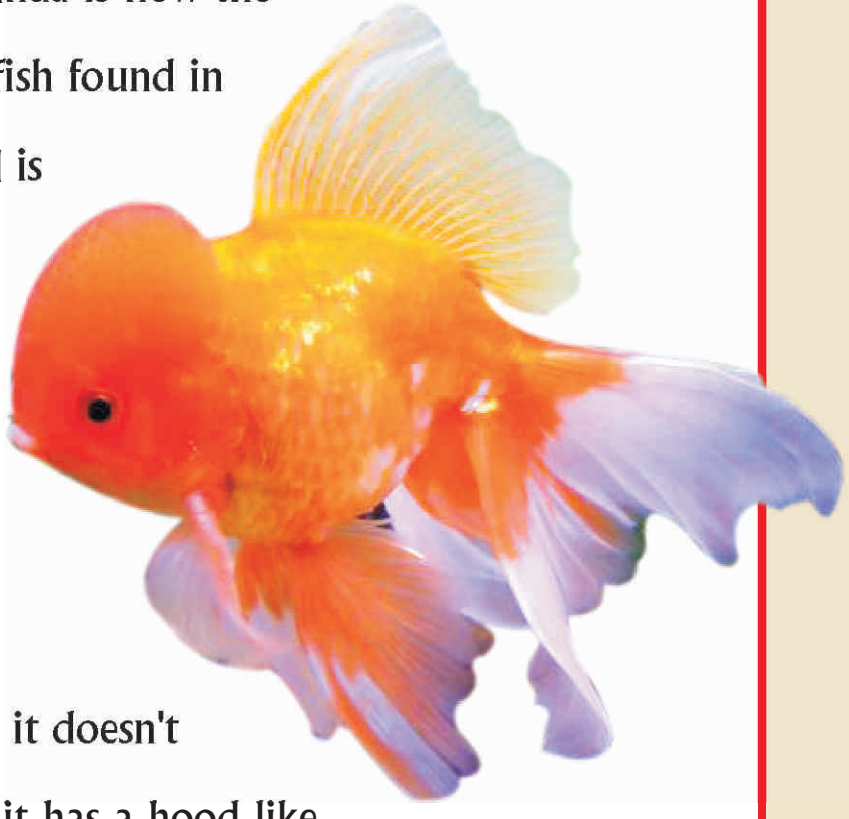
Size: It can grow up to 6 - 10 inches (15 to 25 cm), body length is 2.25 inches (5.5 cm), caudal fin length is 3/4th of the body length, and depth of the body is 2/3rd of the body length.



Lifespan: Average lifespan is 18 years.

Physical Description

Originally bred in China, Oranda is now the most popular variety of Goldfish found in the Western World. The hood is well grown at the top of the head (cranial region) while the hood is less developed in the cheeks & gills (infra orbital & opercular regions).



Oranda looks like Veiltail but it doesn't have long tails as Veiltail and it has a hood like

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Lionhead Goldfish. But hood isn't equally developed in all three parts (cranial region, infra-orbital and opercular regions) of the head.

Oranda has a single dorsal fin and other fins are paired. Caudal fin is well divided and forked.

Color Varieties of Oranda

The Oranda occurs in red, black, blue, chocolate brown, bronze, white, calico, red and black, red and white and red, black and white. The scales of this fish can be matte or glossy.

Redcap Oranda

Redcap Oranda is very popular in the world. This is one of the color varieties of Oranda. But some of its special features make this variety distinct from other one. Redcap Oranda has all the parts filled with white color except the cherry red hood. Hood of the fish is developed only in the top of the head (cranial region). All other internal and external features are the same as Oranda. Due to the red color hood, it is named as Redcap Oranda.

Housing

The Oranda is a hard fish and can be kept in an outdoor pond. If winters in your region are severe, it is best to bring your Oranda indoors at this time. Each Oranda requires a 15 - 20 gallon tank. The fish is not born with the hood. It grows between the age of 3 months and 2 years. Proper and regular cleaning of the water tank and good quality of water is required for the growth of hood. Absence of maintenance leads to infection from bacteria and fungi. So, this fish not recommended for beginners.

You can provide substrate like river round rocks and gravel. You can decorate your aquariums with cold water plants and roots as plastic plants with sharp edges may injure the hood of the fish.

Temperature: Oranda can survive well in 65 to 75 degrees F (18 - 23 degrees C). We have to provide high lighting effect for this fish. Water Condition: You have to maintain water condition in the tank with pH as 6.5 - 7.5 and dH as 4 to 20. You have to fill fresh cold water in the tank.

Moving Level in Water: Oranda can swim in the middle level of

water. Do not put them in the same space as the faster swimming fish such as the Comet and Shubunkin.

Feeding

Like other varieties of Goldfish, Oranda aren't fussy eaters. You should put them on a varied diet that includes soaked pellets, flakes, vegetables, shrimp and bloodworms. Put a few plants on the bottom of the pond or tank for your Oranda to snack on. Avoid using live foods as they may induce parasite infection. Feed them with 30 percent protein diet to enhance hood development.

Reproduction

Oranda variety Goldfish are easy to breed them. Ideal pond/tank mates for the Oranda are the Ranchu, Lionhead, Moor and Pearlscales. They lay eggs between 800 to 1000 eggs per breeding.

Selecting a good Oranda

1. The body should be short with a smooth outline.

2. It should have a high single dorsal fin.

3. Caudal fin should be well divided and it should flow gracefully.

4. Hood should well developed in all three parts whereas in Recap Oranda, it should be well developed in cranial region only.

5. Caudal fin should be forked and may be pointing down.

6. Hood color should be cherry red in case of Redcap Oranda.

Redcap Oranda.

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Origin: China, Japan

Size: Total length is 6 to 8 inches (15 to 20 cm)

Lifespan: Average lifespan of fish is 20 years

Physical Description

The Ryukin looks like a cross between a submarine-like and a softball. It has a high dorsal fin and has a pair of anal, ventral and pectoral fins. Their caudal fin are long finned, short tailed, ribbon or butterfly. The most distinguishing characteristic is a hump like growth behind its head. It is believed that the higher that hump, the more valuable the fish. It is recommended for beginners.

Color Varieties of Ryukin

They occur in red, red and white, pure white, greenish, blue, calico and chocolate brown.

Housing

Given their size, Ryukin require large fish tanks of at least 30-gallon capacity. They also love ponds. You can put them with other

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goldfish like Orandas, Lionheads and Ranchu.

You can use gravel as substrate in aquarium tank. Decorate aquarium with cold watery plants.

Calico Ryukin

Temperature

The Ryukin Goldfish can be kept at temperatures close to freezing. Their hardiness and ability to live at colder temperatures makes them ideal for outdoor ponds. You can maintain temperature as 65 to 75 degrees F (18 -23 degrees C).

Water Condition

You have to maintain water condition in the tank as pH as 6.5 to 7.5 and dH as 4 to 20. You have to fill fresh cold water in the tank.

Moving Level in Water Ryukin can swim in middle levels of the water.

Feeding

Do not feed your Ryukin Goldfish floating flakes and pellets. All

pellets and flakes should be soaked before they are fed. You can also include shrimp, bloodworms, daphnia and vegetables like soaked spirulina flakes, zucchini, lettuce and peas in their diet. You have to feed food which has 30 percent protein.

Reproduction

It has capacity to produce 1000 eggs from one breeding.

Selecting a good Ryukin

1. Do not pick one that is floating or head standing, as this is a sign of an advanced stage of swim bladder problems. This fish is a strong swimmer and you should be able to see it push the water aside while swimming.

Single Cardal Ryukin

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Origin: China

Size: Average total size of the fish is 10 inches (25 cm), body length is 2.25 inches, and depth of the body is 2/3rd of the body length.

Lifespan: Average lifespan is up to 15 years.

Physical Description

Pearlscale Goldfish has a fatter shape with a bulging middle. There is a hard, white, raised area in the middle of each scale and looks like a white pearl so it is named as Pearlscale. There is only one dorsal fin and all other fins occur in pairs. Caudal fin should be forked and held high horizontally.

There are two kinds of Pearlscale Goldfish with or without head growth. The head growth of this variety of goldfish is called a Hamanishiki. The Pearlscale Goldfish was first recorded in the 1900s. This is an outlandish fish with distinctive scales. People around the world have nick named this fish “Golf-ball”.

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Color Varieties of Pearlscale

This type of fish occurs in red, red and white, calico, blue, black and chocolate brown.

Housing

This fish will fit comfortably well in a 30 gallon fish tank with other fish, as long as they aren't faster than it. You can use gravel or river rocks as bottom substrate. You can decorate your aquarium with softy and aquarium plants. Make sure that you don't keep pointed ornaments in the tank. If the scales are damaged they will never grow back. They aren't quick swimmers and Goldfish varieties you should not include in the tank are Comets, Shubunkins and Wakin.

Temperature: They can survive well in 65 to 75 degrees F (18 - 23 degrees C). Lighting arrangement should be high for this fish.

Water Condition: Pearlscale Goldfish scales need calcium-rich water condition.

Moving Level in Water: It moves in the middle level of the water.

Feeding

Pearlscale Goldfish, like most other Pearlscale Goldfish, like most other varieties of Goldfish aren't fussy eaters. Being a small and stout fish, it is best to feed soaked pellets and flakes. Avoid all types of expanding food, as they will cause constipation. You can also feed them vegetable like lettuce, cucumber and peas. While you feed with live foods like brine shrimp, bloodworms, daphnia, make sure they are not affected by any bacterial or parasital infection.

Reproduction

It is not so hard to breed this fish variety. It can lay eggs between 900 and 1000.

Selecting a good Pearlscale

1. The body should be short and rounded.

2. The scale should be doomed all over the body of the fish.

3. Caudal fin should be divided and held high without signs of drooping.

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Physical Description

As the name suggests, the Red Cap Oranda is a white fish with an orange or red cap-like growth on its head. They are hardy fish that live long. They can survive cold temperatures. They vary in size and could be anywhere between an inch to six inches long.

Feeding

Their diet should be a balance between pellets, flakes and vegetables. Just make sure that their protein intake forms less than 30% of its food intake.

The hood of these fish is subject to infection from debris, bacteria, and fungi that settles in the tiny folds. Redcap Oranda Goldfish are considered delicate and not recommended as a beginner fish

Care and feeding

Since they are omnivorous, the Redcap Oranda Goldfish will generally eat all kinds of fresh, frozen, and flake foods. To keep a

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good balance give them a high quality flake food everyday. Feed brine shrimp (either live or frozen), blood worms, Daphnia, or tubifex worms as a treat.

It is usually better to feed freeze-dried foods as opposed to live foods to avoid parasites and bacterial infections that could be present in live foods.

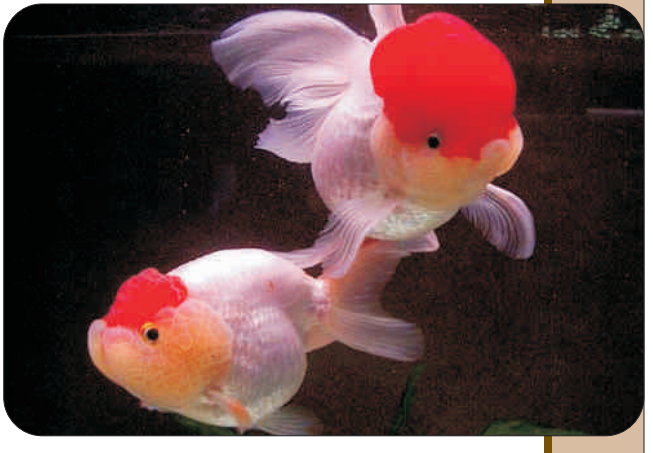
Distribution

Domesticated goldfish are distributed world-wide but originally came from China.

Size - Weight

Redcap Oranda Goldfish grow to about 15-18 cm (6-7 inches).

Social Behaviors



Goldfish are very social animals and thrive in a community. Not only are they a great community fish but they are great scavengers as well. It is really not necessary to add other scavengers

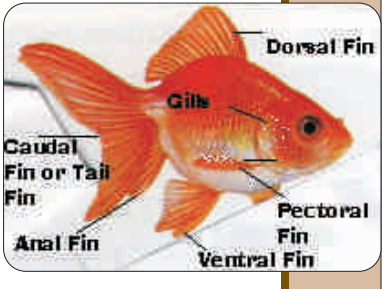
or other bottom feeders to the aquarium when you have goldfish.

Temperatures

Recommended temperatures for Goldfish is 65°-72° F (18°-22° C).

Sexual Differences

Although is it impossible to sex Goldfish when they are young and not in breeding season, the male is usually smaller and more slender than the female. In the breeding season the male has white prickles, called breeding tubercles, on its gill covers and head. Seen from above the female will have a fatter appearance as she is carrying eggs.



Water Region: Top, Middle, Bottom

These fish will swim in all areas of the aquarium.

Breeding / Reproduction

Redcap Oranda Goldfish are egg layers that spawn readily in the right conditions. See Breeding Freshwater Fish - Goldfish for more information on breeding Goldfish.

Availability

The Redcap Oranda Goldfish is readily available and is inexpensive.

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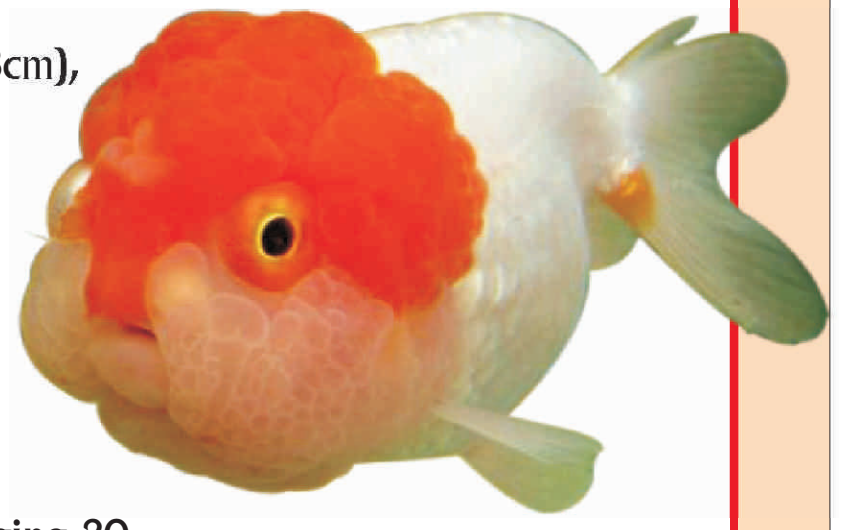
Other Common Names: Shou-xing in China

Origin: China

Size: Total length of the body can grow up to 10 inches (25 to 28cm), body length is 2.25 inches (5.5 cm), depth of the body is greater than ½ and width is 5/8th of the body length



Lifespan: It has a lifespan averaging 20 years.

Physical Description

The Lionhead Goldfish was first bred in the 16th century in China where it is called Shou-xing. Shou-xing Gong is the Chinese God of Longevity and the fish's round belly is also said to resemble that of the laughing Buddha. The Lionhead was one of the earliest variety to be bred and is a close ancestor to the Eggfish.

Lionhead Goldfish has a fat round belly and a smooth back. The remarkable feature of this fish is the hood that develops on the

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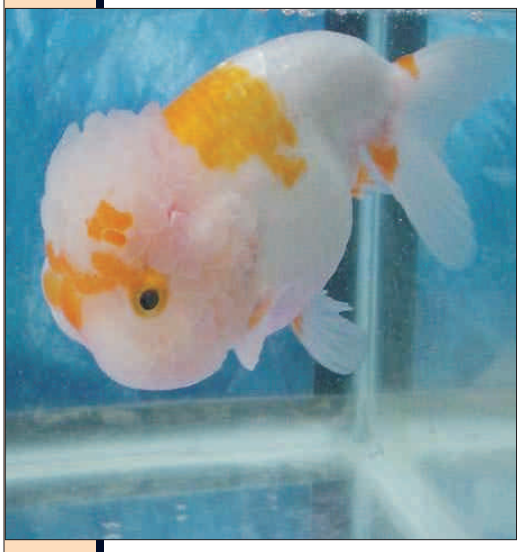

top of the head. Hood is nothing but fleshy growth and it looks like a lion's mane. So it is named as Lionhead Goldfish. Dorsal fin, double caudal fin and matching pairs of anal, pectoral and pelvic fins are not present.

Sometimes, this head growth causes problems to the fish if it grows too large and over the gills. So it is not advised for beginners.

Color Varieties of Lionhead

They occur in orange, red, black, chocolate brown and blue and have metallic scales. Sometimes, you can see them in bi-color (red white, red-black), tri-color (red-white-black) and calico.

Housing

Lionhead can survive happily in 20 gallon volume water tank. You can use substrate like rocks or gravels in the tank basement. Water tank can be arranged with Green plants or aquarium plants. Avoid using sharp plants inside the tank as they may injure the hood of the fish. This fish is docile and gets along with other

slower varieties of Goldfish. You might have to separate them from other fish if the head growth begins to cover its eye as this will make the fish slow down and won't be able to get much food. They love being in an outdoor pond, but you will have to transfer them indoors for the winter.

Temperature: Temperature varies from 65 - 72 degrees F (18 - 22 degrees C). You have to maintain natural lighting effect.

Water Condition: The tank water conditions should be maintained at a pH level of 6.5 - 7.5 and dH of 4 - 20.

Moving Level in Water:

They are gracious swimmers and can swim in all levels of water. Your can spend hours just watching them.

Feeding

You can feed your fish with frozen, and flake foods. To maintain 30% of protein and balanced diet, use high quality flake food everyday.You can feed brine shrimp (either live or

frozen), blood worms, Daphnia, or tubifex worms. But, it is better to feed frozen/dried foods. Avoid live foods in order to prevent parasites and bacterial infections.

Reproduction

You can breed them during breeding season after they attain maturity. They have a capacity to lay up to 1000 eggs. The fry doesn't have hood. It will grow between 3 months to 2 years. The popular Goldfish variety, the Oranda, was bred from the Lionhead. Today, it is perhaps one of the most popular Goldfish breeds in the world. To an untrained eye the Lionhead looks like a Ranchu, another variety of Goldfish.

Selecting a good Lionhead

1. The fish should look bright and alert.

2. Flesh around the top of the head should be well developed in the cranial, infra-orbital and opercular areas.

3. The caudal fin should be well divided and forked.

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Other Common Names: Feather-dressed long finned Man-yu in Asia

Origin: Japan, China

Size: Total length is 6 - 10 inches (18 - 25 cm), body length is 2.25 inches (5.5 cm), and depth of the body is more than 2/3rd of the body length.

Lifespan: The average lifespan is up to 20 years.

Physical Description

The Veiltail Goldfish is a very gracious and beautiful fish, and it comes as no surprise that it is very popular among Goldfish keepers and breeders. A Veiltail Goldfish should have a short and rounded body with a smooth outline. The Veiltail Goldfish standard requires the trailing edge of the caudal fin to be free from forking or pointed lobes. A perfect Veiltail Goldfish must have a single dorsal fin and all other fins paired. A Veiltail Goldfish of high quality sports a strong color intensity that extends all the way to the fins.

The Veiltail Goldfish probably originated from metallic fish

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imported to the United States from Japan in 1893. The Veiltail Goldfish appeared during the 1920s and was then called Philadelphia Veiltail Goldfish. The calico strains were developed by crossing the fish with calico colored globe-eyed goldfish. The next steps in the history of the Veiltail Goldfish took place in Britain.

Color Varieties of Telescope

The coloration can be calico or metallic (self-colored or variegated).

Housing

The Veiltail Goldfish can be kept in ponds, but it is much weaker than those Goldfish types typically kept in ponds. Most aquarists therefore keep their Veiltail Goldfish in indoor aquariums where the fish can be well looked after and pampered. You can decorate your pond or aquarium with water plants or rooted plants.

Temperature: The temperature of the tank should be maintained as 65 - 75 degrees F. 75 degrees F. Lighting should be high. We have to maintain a peaceful temperament.

Water Condition: The tank water conditions should be maintained

at a pH level of 6.5 - 7.5 and dH of 4 - 20.

Moving Level in Water: It loves to move in all levels of water.

Feeding

Clean the aquarium and feed your Veiltail Goldfish suitable food to get them into spawning condition. A combination of dry foods, such as pellets and flakes, and fresh or frozen foods, such as bloodworms and earthworms is recommended.

Reproduction:

The Veiltail Goldfish is very hard to breed true to its type; it is actually considered one of the hardest fancy Goldfish types to breed. Many Veiltail Goldfish follows just a few of the standard requirements. A Veiltail Goldfish can grow older than 10 years, but is usually not used for breeding when it is older than five.

Selecting a good Veiltail

1. The caudal fin should be divided, flowing and at least ¾ of the body length.

2. The Fish should be bright and alert and show off its dorsal fin

high and erect.

3. High quality fish color intensity should extend to its fin.

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Origin: China

Size: Total length of the fish is 6 inches (18 cm), body length is 2.25 inches (5.5 cm), and depth of the body should be more than 3/5th of the body length.

Lifespan: The average lifespan is 12 to 15 years.

Physical Description

Fantail is a fancy Goldfish which is an ideal choice for beginners. Fantail can be differentiated from other Goldfish varieties by their short body with double or split tail fins. It has a single dorsal fin and all other fins are paired. Years ago, this fish had two standard type of tails: one was long with thin tail, another one was short with stump tail. Nowadays, it is combined together with an intermediate tail pattern.

Color Varieties of Fantail

Fantail can be found in patches of violet, red, orange, yellow and brown with blue background. They are also found in metallic colors.

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Housing

You can make your fish happy in a 20 gallon water tank. You have to maintain cold water in the tank. You can use gravel and rock in the aquarium. Fantails like to swim in between plants. It is a better choice to decorate your aquarium with pond and aquatic plants. Fantail should be kept with other fishes. Use of java moss plant in the aquarium may help fry to survive well in the tank.

Temperature: Temperature varies from 65 - 72 degrees F (18 - 22 degrees C). You have to maintain a natural lighting effect.

Water Condition: The tank water conditions should be maintained at a pH level of 6.5 - 7.5 and dH of 4 - 20.

Moving Level in Water: It can swim in all levels of water.

Feeding

Fantail is omnivorous. So, you can feed all kinds of fresh, frozen and flake types of food. You can also feed live food like blood worms, daphnia or tubifex worms, but make sure live food is not affected by bacteria or parasite. Frozen or dried foods is a better and a safer choice.

Reproduction

It is the easiest fish to breed. Matured fantails have to kept in the spawning condition.

It will lay up to 1000 eggs. Fry comes out from eggs within 5 to 6 days.

Selecting a good Fantail

The following points are helpful to identify a good specimen.

1. The body of the fish should not elongated.

2. Body should have a smooth outline.

3. Caudal fin should be well divided at the top than at the bottom.

4. Caudal should be held high without drooping and look like a fan in the rear view.

5. The pair of anal fin should completely separate from each other.

6. Good Fantail fins has high intensity color.

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Other Common Names: Black Dragon Eye, Black Peony

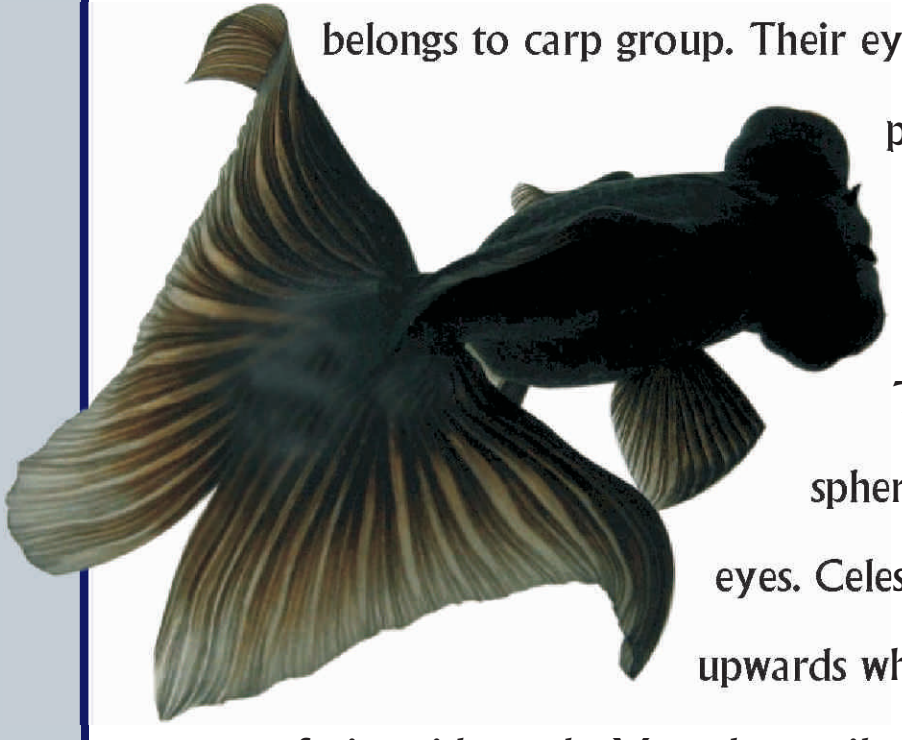
Origin: China, Asia, Japan

Size: Total length up to 10 inches (25 cm) [Body length 2 ¼ inches (5.5 cm), caudal fin length ¾ of the body length, Depth of body is 2/3rd of body length and Dorsal fin 1/3rd to 5/8th of the body depth.]

Lifespan: up to 20 years

Physical Description

Black Moor Goldfish are quite hardy in nature since they belongs to carp group. Their eyes are unique as they are protruding and pointing sideways. This distinguishes them from Telescope which has spherical and more protruding eyes. Celestial fish has eyes facing upwards whereas Moor has its eyes facing sidewards. Moor has a silver belly with a



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rectangular shape body outline and a broad and deeply forked tail. Moor having single dorsal fin and other caudal, anal, pectoral and pelvic fins occur in pairs. The caudal fin and lobes are rounded and forked whereas other fins are of the same size.

Short Tail Black Moor

Various Color and Pattern

Black Moor is the one of the veil tail variety. All varieties of Moor has a black coloration overall in their body. The fish comes in in different types like broad tail, ribbon tail and butterfly, and are pretty when viewed from above. In earlier times, around the 1930s, there was a very gorgeous veil tail Moor vastly appreciated in England, but unfortunately they are not available anymore to my knowledge.

Housing

Moor can live comfortably in a tank with a capacity of 20 to 25 gallons of water. You can decorate your aquarium with silky plants and rocks. Avoid using objects, ornaments and plastic plants

inside the tank as they may damage the fish's eyes. The Black Moor is a tank fish and doesn't do too well in a pond. If you are adding other goldfish to the same tank, make sure that they are slower ones like celestials, telescopes and bubble eyes so that all fish have an equal chance to find food.

Temperature: This fish can survive with a temperature of 65 - 72 degrees F (18 - 22 degrees C). Tank lighting set up should be high. You should maintain a balanced temperament in the aquarium.

Water Condition: The tank water conditions should be maintained at a pH level of 6.5 - 7.5 and dH of 4 - 20.

Moving Level in Water: This fish swims mostly in middle level of the water.

Feeding

The Black Moor has an ideal diet consisting of a mixture of pellets,

flakes, frozen foods like daphnia, shrimp, bloodworms, pre-cooked cocktail shrimp and vegetables like lettuce, cucumber and peas. The basic rule is to avoid foods that float as their unique positioning of eyes makes it difficult for them to find food. You have to maintain 30 % of protein food to grow a healthy one.

Reproduction

You can breed your fish after certain years. They lay up to 1000 eggs. The fish will start to grow at the age of 6 to 7 months. For more on this, refer Breeding.

Selecting a good Black Moor

While selecting this fish, we have to follow below mentioned points.

1. Fish should look bright and alert

2. The caudal fin should be well divided and forked

3. The eye sacs should be well developed and match each other.

4. The short body should have a smooth outline.

5. The dorsal fin should look high and erect.

6. The color of fish should look as deep black without any shade of brown or sliver.

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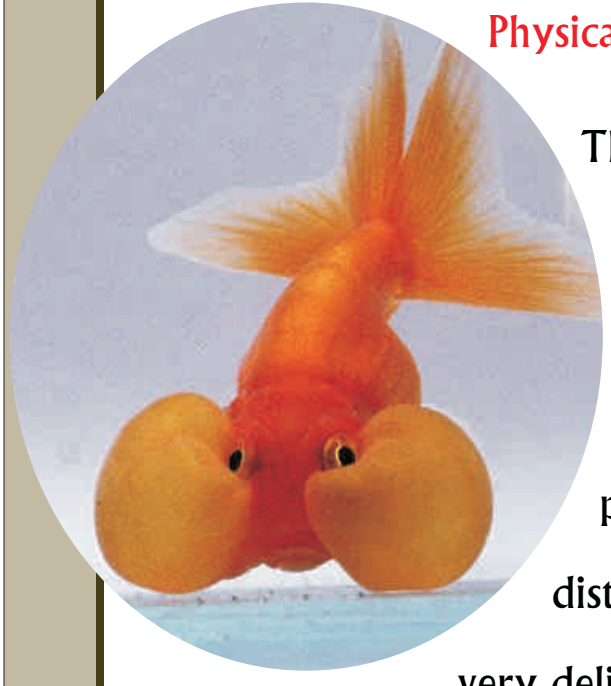
Other Common Name: Water Bubble Eye Goldfish (in Far East), Frog head or Toad head Goldfish

Origin: China

Size: Total size: 5 inches (12.5 cm), Body length: 2.25 inches (5.5 cm)



Physical Description

The Bubble Eye Goldfish is beautiful in a very grotesque sort of way. You will either love it the moment you see it or you will absolutely hate it. Most people find the presence of huge bubbles under the eye disturbing. These bubbles are filled with a very delicate liquid. The other unique feature of its eyes is the placement. This species of goldfish has eyes that point upwards. They are not as round as other species but are slim with smooth backs. They have a pair of anal, ventral and pectoral fins. This species doesn't have dorsal fin. Caudal fins are divided and forked.

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Color Varieties of Bubble

The Bubble Eye Goldfish occurred in red and white, plain red, red and black, and sometimes even in blue and brown, spotted black and burnished metal.

Housing

The Bubble Eye Goldfish is comfortable with minimum 20 to 30 gallon water tank. This fish are fragile so you will have to make sure that there are no sharp objects such as ornaments, plastic plants inside the tank and even the tubes of the filter should be covered with a sponge. You will also have to be extra careful while transferring this fish. You should try and avoid putting different species in the same tank as a Bubble Eye Goldfish. Their poor eyesight might cause them to starve to death if there are faster and quicker fish in the tank.

Temperature: This fish can survive with a temperature of 65 - 72 degrees F (18 -22 degrees C).

Water Condition: The tank water conditions should be maintain a pH level of 6.5 - 7.5 and dH of 4 - 20

Moving Level in Water: Bubble normally swims in all levels of water.

Special Care: Housing this fish can be quite challenging due to the presence of delicate bubbles under its eyes. You have to take regular care of the fish as the sensitive bubbles may break easily. In most cases, new bubble will not grow. In some cases, they grow again. And in the time between the growth of new bubble, the fish may be affected by infection.

Feeding

Bubble Eye Goldfish aren't fussy eaters and they eat all kinds of fresh, frozen, and flake foods. To maintain a good balance, give them a high quality flake food like brine shrimp (either live or frozen), blood worms, Daphnia, or tubifex worms as a treat.It is usually better to feed frozen/dried foods as opposed to live foods to avoid parasites and bacterial infections that could be present in live foods. You can even feed vegetables like lettuce and cucumber. You will have to choose their diet carefully. Due to the bubbles under their eyes, they find it very difficult to find food

that sinks quickly or is too small. It is perhaps a good idea to drop the food in the same place everyday or use large and slowly sinking pellets. Better solution is to teach your Bubble Eye Goldfish to accept food from your hand.

Reproduction

It is very difficult to breed this fish. They lay up to 1000 eggs. The bubble on the fish will start to grow at the age of 6 to 7 months. For more info, refer Breeding.

Selecting a good Bubble

Bubble Eye fish are not a beginner fish due to the delicate bubbles under eyes.

While selecting this fish, we have to follow below mentioned points.

1. Fish should look bright and alert

2. The caudal fin should be well divided and forked

3. The eye sacs should be well developed and unique

4. The body should not grow very long.

5. The body depth should be greater than half of the body length.

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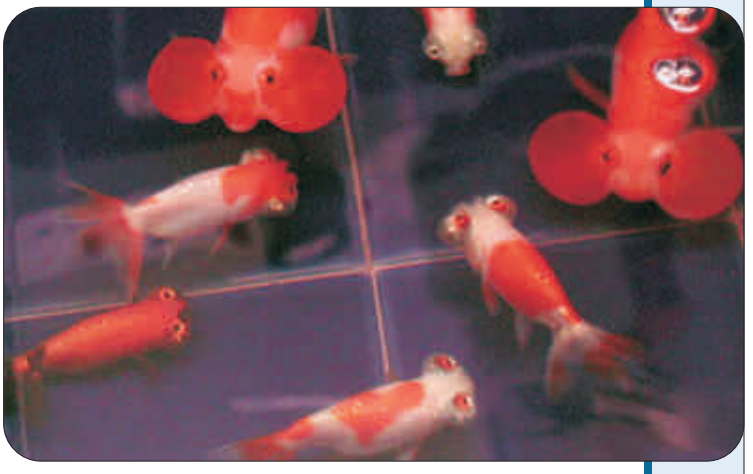
Other Common Name: Demeranchu (in Japan)

Origin: Japan

Size: Total length is 8 inches (21 cm) and body length is 2.25 inches (5.5 cm)



Lifespan: lives between 10 to 15 years

Physical Description

Celestial fish are an egg-shaped short body with large eyes which look fragile and protruding upwards from the surface of the body. It has double tail with no signs of dorsal fin. It is rare in UK, but it is very popular in China and USA.

Color Varieties of Celestial

The color of the fish may be metallic or calico. Metallic fish have metal color, with similar pattern on each side. Calico pattern Celestial have patches of violet, red, orange, yellow, brown and spotted black with blue background.

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Housing

It is a very difficult job to house a Celestial fish for normal survival. You should setup 20 gallon water tank.

Temperature: It is very important to maintain very less lighting for normal survival of Celestial fish.

Moving Level in Water: This fish swims in all levels of water.

Feeding

Celestial is an omnivore. We can feed all types of dry and live food which has 30 percent protein.

Reproduction

It is very difficult to breed this fish and you should really work hard for their standard.

Selecting a good Celestial

While selecting a good Celestial Goldfish, we should ensure the following points.

1. Body of fish should be short and not elongated.
2. Fish body should have a smooth outline.

3. Eyes should be matched to each other and looking upwards.

4. Caudal fin should be well divided and forked.

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Other Common Names: Gold Crap (in Far East), Hibuna (in Japan) Feeders fish (pet stores)

Origin: Japan

Size: Total length of the body is 12 to 14 inches (36 to 42 cm) , Body length is 3 inches (7.5 cm) , Depth of body varies between 3/7th to 3/8th of the body length.

Lifespan: It lives between 15 to 20 years

Physical Description

Common Goldfish body is slender shape with short single tail. It has single dorsal, caudal and anal fins. This fish has pairs of pelvic and pectoral fins. Common Goldfish is wild-type in nature so it is very difficult to differentiate from other fish. The young one looks very dark within one to two years it develops a ornamental red or orange color. This Goldfish is commonly found in UK and USA.

Color Varieties of Common Goldfish

This fish varies in color like red, orange, blue, brown or black and even a combination of these colors. It also varies in pattern with

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metal or sliver color extending to their fins.

Housing

You can make your Common Goldfish swim comfortably in a tank with 30 to 40 gallon of water. This fish is mostly kept in ponds so, we need to provide more space in the aquarium.

It is a simple fish and it is very easy to maintain. So this Common Goldfish is fit to be the first beginner's fish. We should keep this Goldfish in a cold water aquarium. You can decorate your aquarium with rocks, gravels and hearty plants. It likes to eat plant roots. Therefore, you should provide hard rock for the plant base to protect plants.

Temperature: Temperature varies from 65 - 72 degrees F (18 - 22 degrees C). We have to maintain a natural lighting effect.

Water Quality Conditions are issues that need to be taken seriously. It is necessary to check pH and ammonia and nitrite, nitrate levels to maintain a proper balance for you fish. When putting water into your tank you must remember to dechlorinate it. I recommend using Kordon's Aquarium NovAqua or Kordon's

Aquarium AmQuel. They remove Ammonia and Toxic Metals and Chlorine. This is a necessary step in keeping an aquarium. Check the pet store for more information regarding the use of these items.

Kordon AmQuel
Eliminate the toxins in the water that can be harmful to your fish.

Kordon AmQuel Plus
Removes nitrate, nitrite ammonia, chlorine and chloramines from fresh or saltwater, without interfering with the biological cycle.

Kordon NovAqua
Forms a protective coating to reduce fish stress and neutralize toxins.

Pond AmQuel
Instant water detoxifier removes ammonia, chloramines, chlorine and toxic pheromones.
Treats 960 US gallons of fresh or salt water.

The amounts of food you feed should be adjusted according to the temperature or the season.

Reproduction

This is wild-type in nature and it will breed true to its type. So this is very easy to breed for beginners.

Selecting a good Common Goldfish

Please consider the below mentioned points while selecting a new Common Goldfish.

1. The body of the fish should be strong, hard with a smooth outline.

2. The caudal fin should be short and the width of the fin should not spread more than 5/4th of the body depth.

3. Length of lobes should be slightly rounded with its ends and 1/3rd of the body length

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Other Common Name: Swallowtails (in Far East)

Origin: First produced in USA and Europe

Size: Total length is 12 to 14 inches (36 cm), Body length 3 inches (7.5 cm), Depth of the body lies between 3/7th and 3/8th of the body length.

Lifespan: It lives up to 20 years

Physical Description

The body shape of the Comet is long and slim. They have a high dorsal fin and deeply forked long and narrow caudal fins. Comet has a tail lobes like open pair of scissors with metallic scales which is distinct feature from other goldfishes. It has single anal fin and long & pointed pair of pelvic, pectoral fins.

Comet is fastest swimmer among all Goldfish varieties.

Color Varieties of Comet

Comet have both metallic and calico color pattern which is red, white, orange, yellow , brown and spotted black. Comet with red

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and white is called as Sarasa Comet in China.

Housing

Given the size and speed of the comet goldfish a pond makes the best habitat. They can survive cold winters in ponds as long as the water doesn't freeze completely. If the surface freezes over, just remember to make a hole on the ice for oxygen and gas exchange. We can keep Comet in the aquarium of 30 to 40 gallon for single fish. You should fill aquarium with cold water and decorated with rocks, hearty plants, and gravel.

Comet is more suitable for pond type housing. Proper filtration required to maintain good water condition.

Temperature: Temperature you have to maintain between 33 to 90 degrees F. You should provide light setup as natural lighting.

Water Condition:

You have to set up water condition for Comet pH as 6.8 to 7.2 and dH as 2 to 12

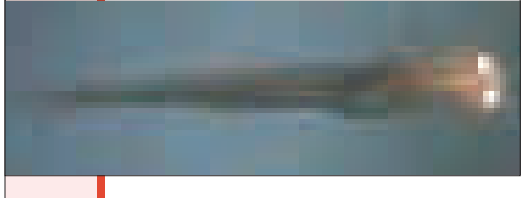
Moving Level in Water:

Comet is fastest swimmer so; it can swim in all levels of water

Feeding

This species of goldfish are voracious eaters and will eat just about anything. If there are other species of fish in the same pond, there is a good chance that they might starve as the fast swimming comet will eat everything. Their diet can include spirulina, vegetables like spinach, cucumber, lettuce, peas and all kinds of pellets and flakes. You can also give those frozen krill, bloodworm and daphnia. They will also snack on the algae growing at the bottom of the pond.

Reproduction: It is very easy to breed in pond. They may lay their eggs up to 1000 or more. Fry may emerge in 5 to 6 days and color of the fish may develop with in 6 to 8 months. After breed them remember remove the parents from the pond in which you have done the breeding. Since, they may eat their eggs.



On the flip side

The comet goldfish is not a fancy fish and is often used as food for other fish. The next time you go to a pet store be sure to check the feeder tank and you might just find a beautiful comet you want to take home with you.

Selecting a good Comet

1. The fish bright and alert with high caudal fin without overlapping each other.

2. Good quality fish high color intensity which is extending to fins.

3. Length of dorsal lobe of caudal fin should be greater than 3/4th of the body length

4. 25 percent should be blue in case of calico color pattern Comet.

5. Body should be long slender with smooth outline.

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Other Common Names: Dan Yu in China, Phoenix Egg Goldfish.

Origin: China

Size: Total length is 5 to 6 inches (16 to 18 cm)

Lifespan: It lives up to 15 years.

Physical Description

This species has a short, egg-shaped body with double tailed and smooth arch-shaped back, the highest point of which is at the center of the backbone. You can easily recognize an Eggfish by the absence of the dorsal fin. All other fins except the caudal fin are small. Due to the difference in tail length, there are two varieties of Eggfish. One is the short-tailed Egg-fish and the other the long-tailed Eggfish. This species of Goldfish was first recorded in 1726 in China. The Eggfish is believed to have been bred from Celestials, Ranchus and Lionheads.

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Color Varieties of Eggfish

Eggfish coloration can be metallic or calico. Calico color may be red, white, and yellow.

Housing

Egg Goldfish can live comfortably with 30 gallon of water in the aquarium. You can use substrate as gravel or rock in the aquarium. You can decorate your aquarium with plants.

You should arrange proper lighting effect and filtration process in order to maintain a good water condition.

Temperature: Temperature varies from 65 - 72 degrees F (18 - 22 degrees C). You have to maintain a natural lighting effect.

Moving Level in Water: This fish can swim in the middle level of water.

Feeding

You can feed your fish with vegetable pellets or flakes. You can also give frozen krill, bloodworm and daphnia.

Reproduction:

It is very difficult to maintain the bloodline of the eggfish and now it has become extremely rare. They are also slow spawns, but a lot of effort has been put into breeding this species. Today the red and white celestial-eyed type is relatively common whilst many breeders are trying to achieve success in breeding the Blue Eggfish.

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Other Common Name: Peacock-tail Goldfish

Origin: Japan

Size: Total size of the fish is 9 inches (25 cm).

Lifespan: Average lifespan is 15 years.

Physical Description

The Jikin is one of the most beautiful varieties of goldfish. Its extreme beauty sets it apart from other fish. It has a slightly shorter body than Common Goldfish and a divided tail which is scattered outwards. Except dorsal fin, all other fins are paired.

Spectacular caudal fin which when viewed from the back looks like it has four parts.

Nowadays Jikin has become a rare species.

Color Varieties of Jikin

The Jikin is red and white(with red only in certain areas) or calico in color. Breeders try to achieve an all-white Jikin with red

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fins, red gills and red lips. This, however, is very difficult to come by.

Housing

We can keep this fish very comfortable in ponds only, as this fish needs natural circumstances. This fish can adopt to natural heat, light as Sunlight and algae make the red marking bright. You can keep them in an indoor tank, but they will not grow to their full potential, never reaching their usual 9-inch length. And it is not good for the long life of the fish.

Moving Level in Water

This fish can swim in all levels.

Feeding

Jikins Goldfish loves to eat all source of food. You can feed your fish with vegetable pellets or flakes.

Reproduction

Jikin is very difficult to breed.

Selecting a good Jikin

1. Good quality Jikin's caudal fins should be well divided completely.

2. All fins should be red in color and lack of red color shows some fault in the fish.

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Other Common Names: Velvety Ball Eggfish, Hanafusa in Japan

Origin: Japan

Size: Total size of the fish is 8 to 10 inches (25 cm), body length of the fish is 2.25 inches (5.5 cm), and depth of the body is half of the body length.

Lifespan: It can live up to 10 to 15 years.

Physical Description

Pompon is egg shaped body with Pom-poms development in their nostrils. It has pairs of caudal fin, pelvic fin, anal fins and there is no sign of dorsal fin. Nasta septa should be a Pompon variety that appeared first in 1900. Pompon name appeared because of excessive growth of fleshy in nostrils.

Color Varieties of Pompons

This fish has a blue background with patches of violet, red, orange, yellow and brown, spotted with black.

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Housing

This fish can live comfortably in a 30 gallon fish tank with other fish, as long as they aren't faster than it. You can use gravel or river rocks as bottom substrate. You can decorate your aquarium with softy and aquarium plants. Make sure that you don't keep pointed ornaments in the tank. Because fleshy growth may be get damaged by sharp edges.

Temperature: It can survive well in 65 to 75 degrees F (18 - 23 degrees C). We have to provide high lighting effect for this fish.

Moving Level in Water: Pompons can swim in middle level of the water.

Feeding

You should put them on a varied diet that includes soaked pellets, flakes, vegetables, shrimp and bloodworms.

Selecting a good Pompons

1. It should look bright and alert.

2. Caudal fin should well divided and forked.

3. The Extreme fin should have a round appearance.

4. Fleshy growth should look identitical on each side.

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Other Common Name: Buffalo Head Goldfish

Origin: China

Size: Total length of fish is 10 to 14 inches (25 to 35 cm).

Lifespan: It can live up to 20 years.

Physical Description

The Ranchu Goldfish is very suitable for ponds and is most striking when seen from above. The Ranchu Goldfish resembles the Lionhead Goldfish, but the posterior dorsal contour is much more curved on the Ranchu Goldfish. One other distinguishing feature that separates the Ranchu Goldfish from the Lionhead Goldfish is the tail, which is splayed sideways with its lower lobes sometimes being located nearly horizontal. The Lionhead Goldfish on the other hand, has a tail similar to the Fantail Goldfish.

The Ranchu Goldfish was created during the Meiji Period (1870-1885). The history of the Ranchu Goldfish began in China, but it

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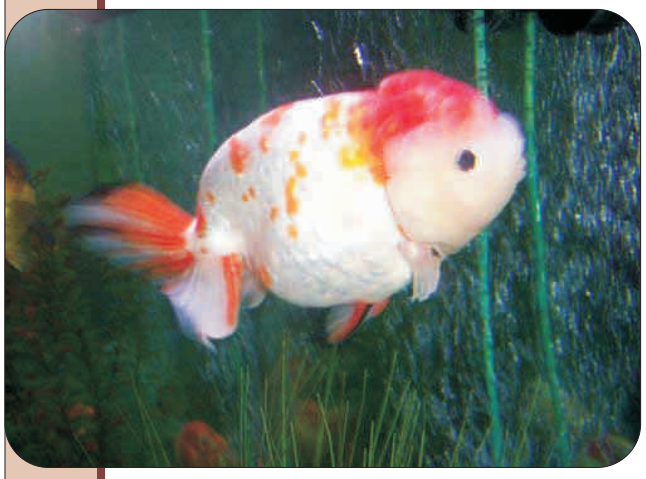

was in Japan that the breed was really developed and perfected. The Ranchu goldfish is also known as Buffalo-head Goldfish. There is no official standard for Ranchu Goldfish in Japan, but there are established norms that most breeders follow. There must be good balance between the head, body and tail and a Ranchu Goldfish should always be able to swim around in a graceful and potent manner. It should never look as if the Ranchu Goldfish is weak, troubled by its body shape or having problems in swimming. The size of the Ranchu Goldfish is not important in shows. It is the proportions that are central when judging this fish.

The back of the Ranchu Goldfish should be wide and the fish should be without a dorsal fin. The head should ideally be rectangular with a deep skull, and the distance between the eyes should be as long as possible. A Ranchu Goldfish has small eyes and they must

be in the right position; not too high or too forward. The tail must be symmetrical and should be elegantly attached to the body of the fish. A good Ranchu Goldfish will display a tail that is slightly shut inside while the fish is moving, and opens up as a flower when the fish stops. A lot of importance is placed on this when judging a Ranchu Goldfish during shows.The Ranchu Goldfish can have a three-tail, four-tail or cherry blossom-tail, and the four-tail is the most appreciated variant.

Color Varieties of Ranchu

The whole body and tail of the Ranchu Goldfish can be deeply red or have a reddish yellow-orange shade. There are also Ranchu Goldfishes that sports a red and white color combination, or a combination of white and reddish yellow-orange. Some Ranchu Goldfish have red scales with a white edge, while other individuals are

completely white. There is also the calico coloration, which seems to be favored over self-colored fish. In Japan, a Calico Ranchu Goldfish is called Edonishiki.

Housing

You can house your Ranchu Goldfish in a pond or in an aquarium, as long as you provide it with enough space. You can provide a 30 gallon water tank for the fish to live happily. Just like the other goldfish variants, the Ranchu Goldfish produces quite a lot of waste products and a small aquarium will soon suffer from poor water quality even with strong filtering. Too little space will also hamper the development of your Ranchu Goldfish and you will never see it reach its full potential. You can decorate your aquarium with gravel or rock in the basement. You can use aquarium plants or root plant in the tank.

Temperature:

Remember that all Goldfish types are cold-blooded, so the

metabolism of your Ranchu Goldfish will depend on the water temperature. It can survive well in 65 to 75 degrees F (18 - 23 degrees C). We have to provide high lighting effect for this fish.

Water Condition:

You have to maintain water condition in the tank as pH 6.5 - 7.5 and dH 4 to 20. You have to fill fresh cold water in the tank.

Moving Level in Water:

It can swim in all levels of water.

Feeding

You must therefore adjust the amount of food according to seasonal temperature variations. It will eat almost anything you feed it, and you should provide your Ranchu Goldfish with a varied diet to ensure that it gets all necessary nutrients. Flake food and pellets can be combined with fresh or frozen food. Also include vegetables in the diet, such as cucumber, lettuce and zucchini.

Selecting a good Ranchu

1. Its body should look bright and alert.

2. The tail of the Ranchu should splay sideways.

3. Dorsal fin should be posterior curved and make an acute angle with the upper lobe of the tail.

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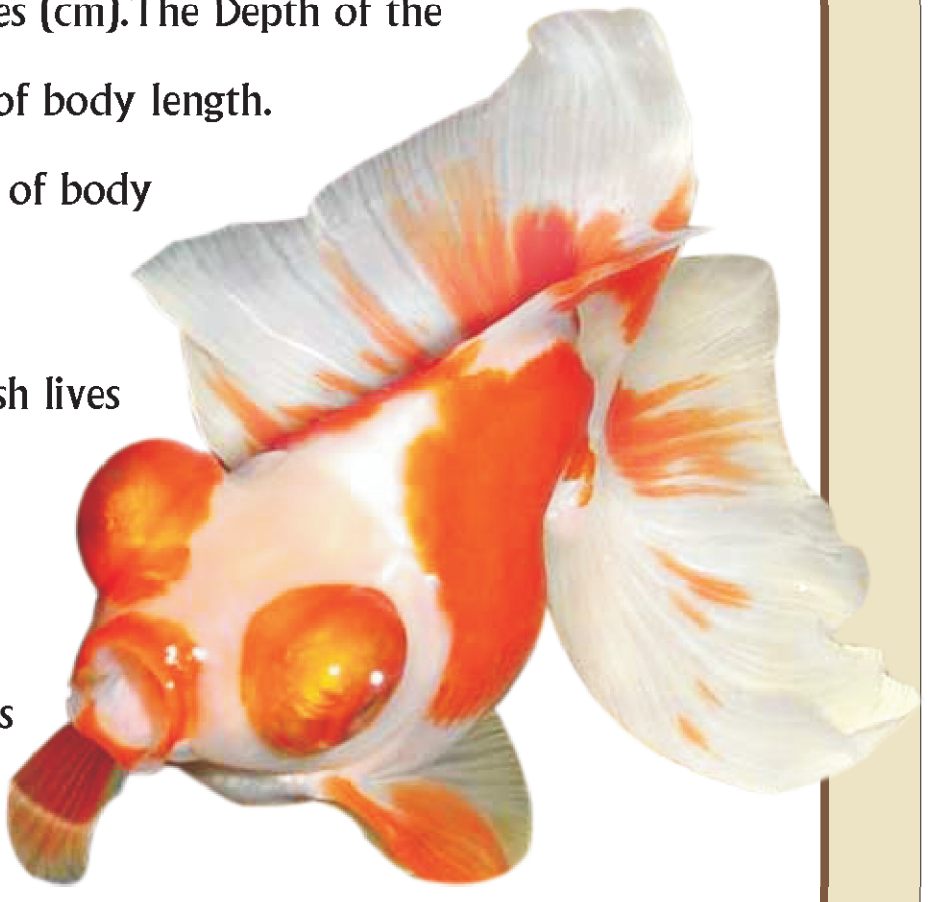
Other Common Names: Globe-eye Goldfish, Dragon-eye Goldfish

Origin: Asia, China, Japan

Size: Body length is 8 inches (cm).The Depth of the body is more than 2/3rd of body length. Caudal fin length is 3/4th of body length.



Lifespan: Telescope Goldfish lives between 15 to 20 years.

Physical Description

The Telescope Goldfish has an egg-shaped body with large protruding eyes that looks like those of a dragon. The eyes are also dome-shaped and are wider at the base than the tip. Initially bred in China as an experiment, this fish is now popular world over. A slight variation to the Telescope is the Demekin (bred in Japan). Telescope Goldfish has normal eyes while inside the egg. One month after

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being hatched, its eyes begins to grow the bulge. It may take three months to develop protruding eyes. Another special feature is that these fish have a single dorsal fin while other fins are paired. The fins include a pair of deeply forked caudal fins, a long dorsal fin and a pair each of pectoral, anal and pelvic fins. The shape of the caudal fin can be butterfly, broadtail or veiltail. This Goldfish differs from Celestial Goldfish by the eyes which are in upward direction. Some people find the big bulging eyes of the telescope alluring, while others find it ugly. However, Telescope Goldfish has unique eyes that will definitely attract your attention.

Color Varieties of Telescope

Telescope Goldfish occur in black, orange, white, black and white, red and white, calico and tri-color (black, red and white). Very rarely do you come across chocolate brown or blue-scaled Telescope Goldfish.

Housing

Telescope Goldfish needs a minimum of 40 gallons capacity of fish tank. All goldfish that belong to carp group are generally quite

hardy. So, the tank setup should be with fine gravel, hardy bottom, cold water plants and fresh water. Since these Goldfish are good diggers it will strew the sand on to the leaves, injuring thin and less hardy plants. Use of well-rounded river rocks is good for your aquarium.

Do not put Fish faster than the Telescope in the same tank. They aren't very good pond Fish as they are easy prey for cats and birds. Avoid plastic plants ornaments, as this can hurt the Telescope's eyes. Also, wrap a sponge around the filter intake tubes so that your fish doesn't hurt its eyes if it accidentally bumps into it.

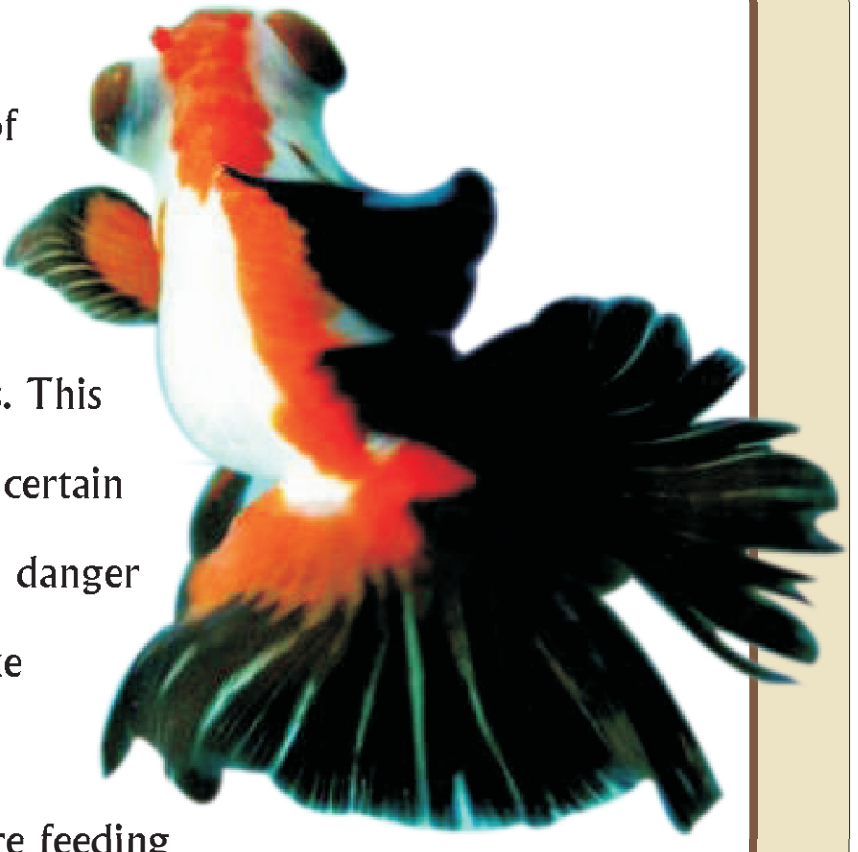
Temperature: The temperature of the tank should be maintained as 65 - 75 degrees F. Lighting should be high. We have to maintain a peaceful temperament.

Water Condition: The tank water conditions should be maintained at a pH level of 6.5 - 7.5 and dH of 4 - 20.

Moving Level in Water: This Fish can swim in the middle level of the water region.

Feeding

It is omnivorous and will eat vegetables like lettuce and cucumber and live foods like blood worms, etc. To feed your Fish floating food and bloodworms, use a feeding cone. Limit protein to 30% of the diet which is good for Goldfish.Though all varieties of Goldfish are not fussy eaters, the problems you'll face with a Telescope are due to its eyes. This Fish can see food only from a certain angle and if it misses it, it is in danger of starving. To avoid this, make sure you drop the feed at the same place everyday. If you are feeding your fish pellets, make sure they are of the sinking kind. Your fish will soon learn to find food that is available at the bottom of the tank. You could also put a feeding clip in the tank to feed vegetables. This is a device that can be suction fixed to the tank on which you can attach.



Reproduction

This fish belongs to the scattered egg reproduction type. Telescope Goldfish have a definite courtship ritual. So, it can breed easily. It lays up to 1000 eggs and fry hatches within 5 to 6 days. We can feed foods to the fry, which should make for the egg-laying fish.

Selecting a good Telescope

While Selecting the Telescope Goldfish we have to note the following points.

Good specimen should have large, symmetrical and bulged eyes. The pupils of the eyes should lie horizontally and pointing upwards. (Note that the eyes are not the same type as on the Broadtail Moor, they should be truncated cones, not spherical)

Dorsal fin should be erect, bright and alert.

Caudal fin should be well divided and trailing edge should have a fork of 1/4th to 3/8th of the caudal fin length.

Good quality fish will have high color intensity extending into the fins.

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Common Names: Israeli wakin goldfish

Origin: Japan

Size: Average size of the fish is 15 inches (37 cm)

Lifespan: It can live for more than 20 years.

Physical Description

The body of a Wakin looks similar to that of a comet but the only difference is the shape of the tail. This variety of Goldfish has a Fantail shaped caudal fin. They have a pair of anal, pectoral and pelvic fins.

The Wakin was first bred in Japan and the name literally means Japanese Goldfish. It is believed that this variety was first bred in China in the 16th century and transported to Japan where it was perfected. They are beautiful, make great pets and live a long life.

Color Varieties of Wakin

Wakins occur in red, white and red and white.

Housing

They can grow up to 18 inches when kept in ponds. Wakin do best when raised in ponds where they can continue to be even in the

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coldest part of winter. Just remember to drill a hole on the ice for gaseous exchange. If kept in a tank, it should be of a minimum capacity of 30 gallons. Avoid putting them with Moors, Telescopes, Ranchu, Bubble eyes and Celestials.

Temperature: The temperature of the tank should be maintained as 65 - 75 degrees F. Lighting should be high. We have to maintain a peaceful temperament.

Water Condition: The tank water conditions should be maintained at a pH level of 6.5 - 7.5 and dH of 4 - 20.

Moving Level in Water: It swims in levels of water that is upper middle and lower.

Feeding

A Wakin does not need a special diet and will eat just about anything you feed. They aren't aggressive eaters as well. You should vary their diet with pellets, flakes, vegetables and bloodworms. You will love to feed this friendly Fish as they will respond to you while you are dropping food into their pond or tank.

Selecting a good Wakin

1. Fish should look bright and alert.

2. Caudal fin should be well divided.

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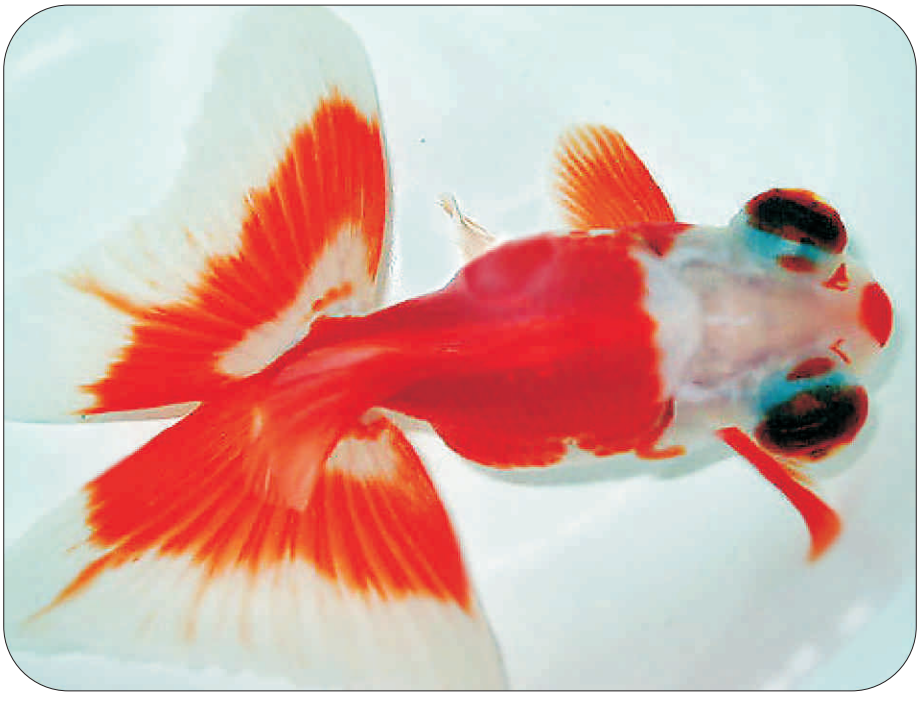
Also known as the Black Peony in Hong Kong, the Black Dragon Eyes are not expensive and easy to raise. The selection of a good specimen places much emphasis on the eyes. Fish with asymmetrical eyes are considered inferior. It is desirable for a Dragon-Eye goldfish with velvety balls to have a triangular head and a pointed mouth so that both the eyes and the balls can be seen clearly. This Dragon Eye fish has different colors like red, red and white, calico, black and white (namely Panda - but only available a short time in the year).



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The Tosakin goldfish, also known as the Curlytail goldfish, is a true beauty. It is among the most difficult to raise. This type should be kept and bred bv experienced

goldfish fanciers. The, caudal finnage is the unique part of this type. The inner edges of the caudal fins are webbed together; the outer lobes turn upward and twist slightly towards the head. The dorsal fin usually curls over the back of the body. All the other fins should be double and relatively short. This type of goldfish is meant to be viewed from above. They should be raised in shallow containers with no more than 2 or 3 inches of water over the height of the body. While all these curlytail type of goldfish are referred to as Tosakin, most do not have headgrowth. However, Tosakin Orandas and Telescope Tosakins are produced. These are difficult to produce due to the balance problems from the added weight on the head. However, they are very unique and beautiful goldfish.

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Other Common Name: Chuwen-chin in China

Origin: China, later in Japan

Size: Total size of the fish is 12 inches (30 cm), body length is 3 inches (7.5 cm),depth is 3/8th of the body length, length of the lobes is 1/3rd of the body length.

Lifespan: The average lifespan is 20 to 25 years

Physical Description

The Shubunkin looks similar to a Comet Goldfish, except for the length of the caudal fin. They occur in calico containing black, white, red, orange, and brown on a silvery-blue background. The fins are black. Their scales are transparent and have an underlying opalescent sheen. They are slender and streamlined. The anal, pectoral and pelvic fins occur in pairs

Color Varieties of Shubunkins

Shubunkins are classified depending on finnage. There are three

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types of Shubunkin and they are the Japanese or American Shubunkin, the London Shubunkin and the Bristol Shubunkin. The Japanese or American Shubunkin has deeply forked caudal fins that end in long narrow lobes. The caudal fins of London Shubunkins have rounded lobes and very minimal forking. They are approximately one-fourth the length of the fish's body. The Bristol Shubunkin has the longest finnage. The caudal fins are rounded and lobed. They can occur in violet, red, orange, yellow and brown, spotted with black.

Housing

Shubunkins are hardy kinds. They respond best when left in ponds. If you want to keep them in a tank, it should be a minimum of 30 - 40 gallons. They are fast swimmers, so avoid putting the slower varieties of goldfish such as the Telescope and Bubble eyes in the same tank. Use hard rocks or gravel as a substrate for the basement of the tank. Use water plants or aquarium plants to decorate the tank.

Temperature: You have to maintain moderate temperature of 65 to 75 degrees F (18 - 23 degrees C).

Water Condition: You have to maintain water condition in the tank as pH 6.5 7.5 and dH 4 to 20. You have to fill fresh cold water in the tank.

Moving Level in Water: It can swim in all levels of water.

Feeding

Shubunkin Goldfish can eat all kinds of fresh, frozen, and flake foods. To keep a good balance give them a high quality flake food everyday and feed them with 30 percent protein food. You can feed brine shrimp (either live or frozen), blood worms, and daphnia. You should confirm that live or frozen food is not infected by any bacteria.

Reproduction

You can easily breed this Goldfish during a breeding season. It can lay 1000 eggs.

Selecting a good Shubunkins

1. The body of the fish should be strong, hard with a smooth outline.

2. 25 percent body should have a blue background.

3. Width of the caudal fin should not spread more than 5/4th of the body depth.

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Goldfish aren't fussy eaters and will eat just about anything you feed them. However, you will have to keep a couple of things in mind. One, make sure you don't overfeed them and two, put only fish with the same swimming and physical capabilities in the same tank.

Watching your Goldfish feed can be very relaxing. Once your fish recognizes feeding time, it will approach the tank wall as you approach it. They might even put on a swimming show just for your benefit. A hungry fish will rush to the food as soon as you drop it.

Although a diet of only flaked goldfish food should be enough to sustain your Goldfish, a varied diet including vegetables, pellets, etc., makes a happier and healthier fish. You will have to keep track of the amount of food you are feeding your fish, as not only could overfeeding be lethal, but the leftover food also makes the tank murky. You could feed your fish twice a day but you

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could feed fish food only once a day. Each time, add only a pinch of fish food per fish. Do not forget to presoak pellets and flakes to prevent choking and constipation. You should drop food at the same time and spot in the tank/pond everyday. Remove excess food with a net after the feeding session, to avoid polluting the water. It is necessary not to feed your adult fish for a day every week.

Once you bring your fish home and get it settled into its new atmosphere, you will then have to determine its feeding habits. If you find that the new fish is willing to eat but unable to do so due to the competition from other fish in the tank then a separation might become necessary.

If you find your fish is still not eating, then try changing its diet. If you watch closely, you might notice your fish tasting something you dropped into the tank, but later rejecting it. By trial and error, you can figure out the food your fish likes and the ones it doesn't. Fish prefer to eat small portions all through the

day. So if it is convenient for you, feed them many small meals several times a day instead of just one large meal once a day. But remember that you shouldn't feed them more than two mouthfuls everyday. Get the incharge at the pet shop to show you just how much you should feed your Goldfish.

If you Goldfish suddenly stops eating for days together, then you should take this as a sign of illness. It is safest to show your fish to a vet in such a situation.

You should also feed your Goldfish live food from time-to-time. Not only are they nutritional, but are also good for conditioning your Goldfish and work as natural laxatives. You can't give your fish just anything, but should be careful and make sure that the organism you are giving it isn't harmful. Many of the live foods are available as frozen foods. A list of goldfish-safe live foods is given below:

Brine Shrimp

Brine shrimp of the Artemia species eggs are packaged and sold all around the world. They are ready to hatch and good for all small

fish. The other advantage with brine shrimp is that they do not carry fresh-water parasites or other organisms. Brine shrimp flakes are also available at pet stores and these make a good supplement if you are unable to hatch them at home.

Daphnia

This is the most popular live food as the fish love it. Daphnia is a generic name and they are available in many sizes. Choose the size best suited to your fish.

Infusoria

Not visible to the naked eyes, the infusoria is a protozoan and make excellent food for baby fish.

Micro Worms

Micro worms are thread-like organisms and are also good for baby fish. They are predominantly used if brine shrimp is unavailable.

Mosquito Larvae

The best thing about mosquito larvae is that they can be preserved longer than other live feeds. Just make sure you don't

let them hatch into mosquitoes.

Goldfish are classified as cold water fish and don't need to have a diet that is high in protein; however,they will do better with a diet high in carbohydrates. Goldfish are not picky eaters; however, the greater the variety offered, the more active and colorful they will become.You should feed your fish once each day. But, do not overfeed.

Live foods

Daphnia, Brine shrimp, Tubiflex worms, Meal worms, Wax worms, Blood worms (I recommend using bloodworms cautiously as they will burrow into the gravel). Staple foods- shrimp pellets, flakes in a variety of types, algae wafers, etc.

Nutrafin Max Goldfish Flake Food

Goldfish, koi and other coldwater fish will benefit from the complete and balanced nutrition in these easily digestible flakes.

Bio-Blend Goldfish Food

Offer your Goldfish maximum daily nutrition with these slowly sinking, moist wafers. Enriched with Bio-Guard to boost immunity.

San Francisco Bay Brand Krill

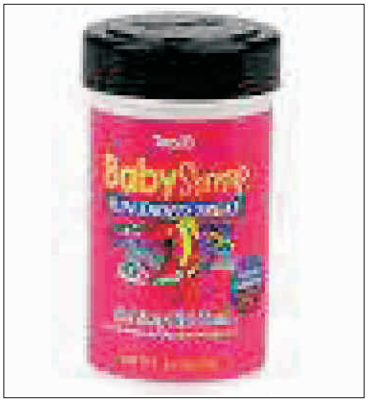
Krill makes an excellent alternative to feeder fish for large freshwater and marine tropicals. 100% natural, with no additives or fillers.

Top Fin Shrimp Pellets

A nutritious, high-protein treat, ideal for all Goldfish and bottom feeders. Made exclusively for PETsMART.

Tetra Nature's Delica Brine Shrimp

A convenient way to offer your fish the fresh taste they love in an easy-to-serve, nutrient-rich gel form.



Tetra Baby Shrimp Sun Dried Treat

Treat your larger fish to the nutrition of these whole baby shrimp in the shell. Feed in addition to a Tetra staple flake food.

San Francisco Bay Brand Shrimp Flakes

Give your fish the taste they crave with these 100% nutritionally complete and balanced brine shrimp flakes.

Hikari-Makes a decent pellet as well. It offers many types.

Freeze dried foods- Krill, Pacific plankton, brine shrimp, blood worms, etc.

Frozen foods- Brine shrimp, blood worms, etc.

Greens and Plants- There are many different types of plants to feed your fish. Mine just loves Anacharis. Romaine lettuce is good too. The best way to see what is available is to look on the shelves and in the freezers (for frozen food) at the local pet stores.

Now these are only suggestions. I have given my fish 'pieces of cucumber and zucchini' on a suction cup clip for years, and they absolutely love it. (If you have snails, they will find it through smelling and sit on it until it is gone--kinda a neat sight to see!)

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Outdoor/Indoor" Feeder

The KSF-2 is composed of vey thick high-impact acrylic Plastic, tough polypropylene interior parts and stainless steel hardware . And all parts are available and easily replaced, should you ever need them. Heavy-duty high-impact acrylic plastic helps prevent condensation and is practically animal-proof. This feeder is extremely weather resistant and can be used for any type of outdoor or indoor feeding.

The only thing you will need to operate, power and trigger your feeder is some wire and any inexpensive remote plug-in timer. It can also be operated without its power adapter by hooking it up directly to a timer/transformer for a 12 Volt landscape lighting system or a sprinkler system timer which normally supplies 24vac. Operate it like a "zone" valve.

A home automation X-10™ type system is perfect match and A 12 Volt battery can also be used with our optional external 12vdc digital timer.

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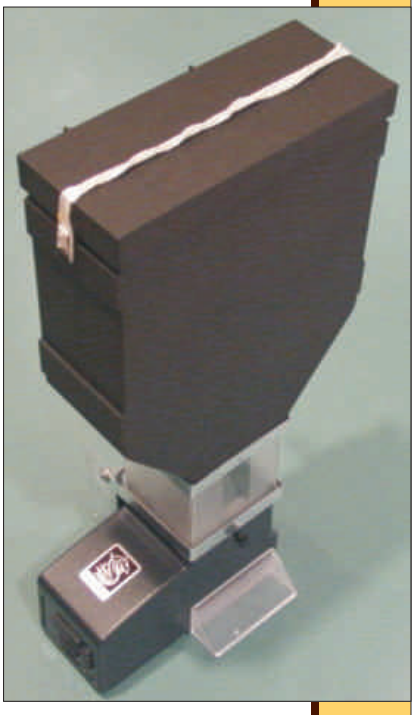
The external 120vac remote timer (not included with a basic package, but available with combo deals) and the feeder's supplied low-voltage power adapter are normally used to "trigger" and power the feeder's own internal and adjustable feed timer (no batteries required).

THE KSF-2 ABOVE IS AVAILABLE IN LARGE QUANTITIES. MODEL WITH CUSTOM-BUILT HOPPER BELOW IS LIMITED AVAILABILITY.

YOU adjust the feeder's own internal feed timer for the length of time you want the feeder to run at each cycle. The feeder is capable of feeding as many times as the external remote timer is able to provide "on-off" cycles (24 times a day, or more, depending on the timer used). A 12 Volt battery system/timer is also available for those of you who must have it, but we really do not recommend battery systems. Our Super Feeders can accurately feed from just a few pellets to several cups per day.

Several feeders can be "triggered" by one timer .

All models will readily fit to a vertical 2x4 (preferred method), a pipe, hung, or on top of a platform. A real neat mobile method is with a 4x4, 2x4, or a PVC pipe held in place with sand or concrete at the inside edge of a 5 gal. plastic bucket, to which you can attach your Super Feeder.



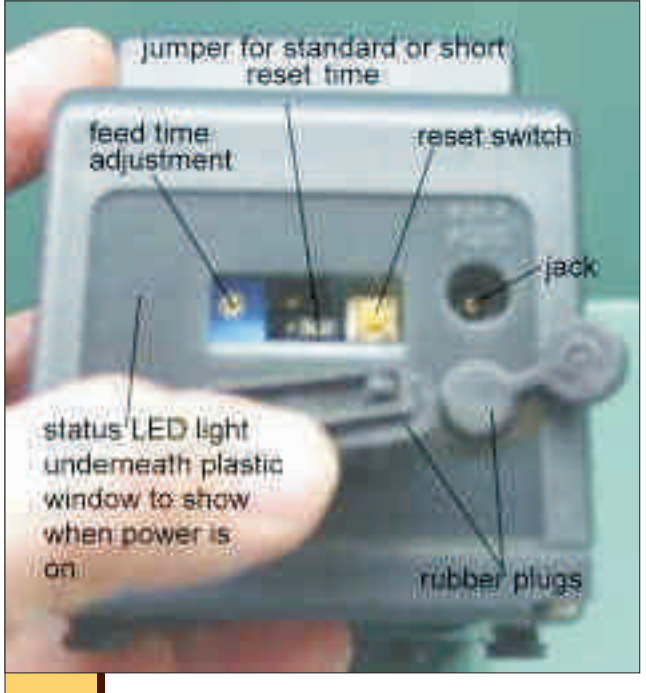
You can move the bucket around in your pond wherever you want it to be. You can even dress up your installation with flowers. Real handy! Each feeder has its own reset switch and electronic adjustment to initially calibrate the feeding cycles. A status green (LED) light lets

MODEL KSF-2/1G
The model above includes the KSF-2 Super Feeder, mounting bracket, 1 custom-built 1-Gallon hopper, 2 clear 2-cup hopper extensions (which you may use one or both to let you see when the food gets low), 1 power pack, straps and hardware. This model can hold upto 20 and 3/4 cups of food.
A 2-gallon set-up is also available at 36 3/4 cups.
These large custom-built hoppers are only available in limited quantities and may not always be available!

you know when the feeder is powered. The time it runs determines the amount of food that comes out for a given time, and a mechanical adjustment calibrates the volume of food dispensed for that given time. It dispenses all the food required from a split second to approximately

TYPICAL INSTALLATION OF KSF-2 ABOVE

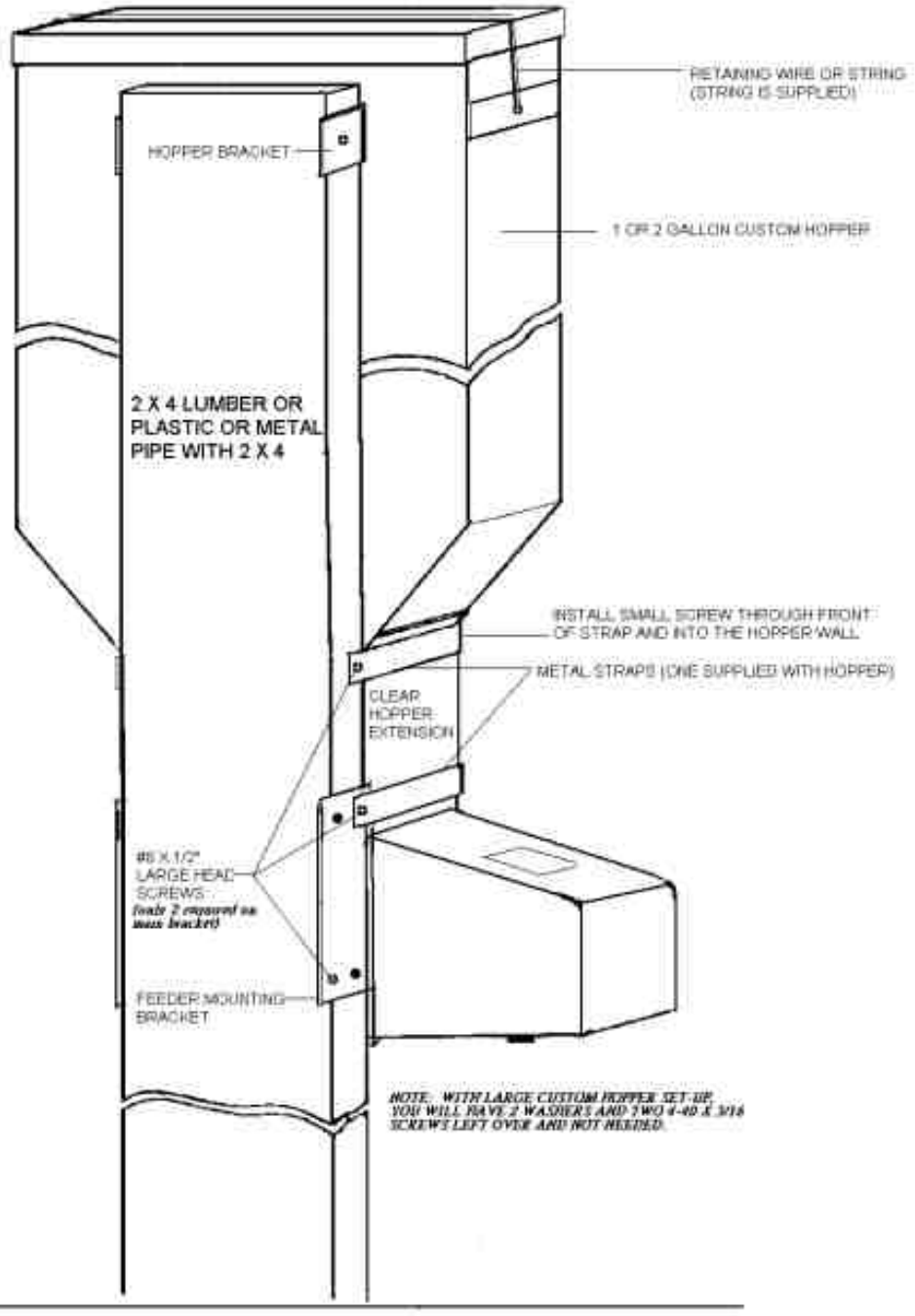
70 seconds, as adjusted by you, totally independent of the length of time the remote timer stays on.



Sealed components of KSF-2. The additional screw terminal strip underneath the feeder (left) is for connecting a two-conductor wire outdoors and/or triggering several other feeders, relay, etc... The jack plug should not used on outdoor installation

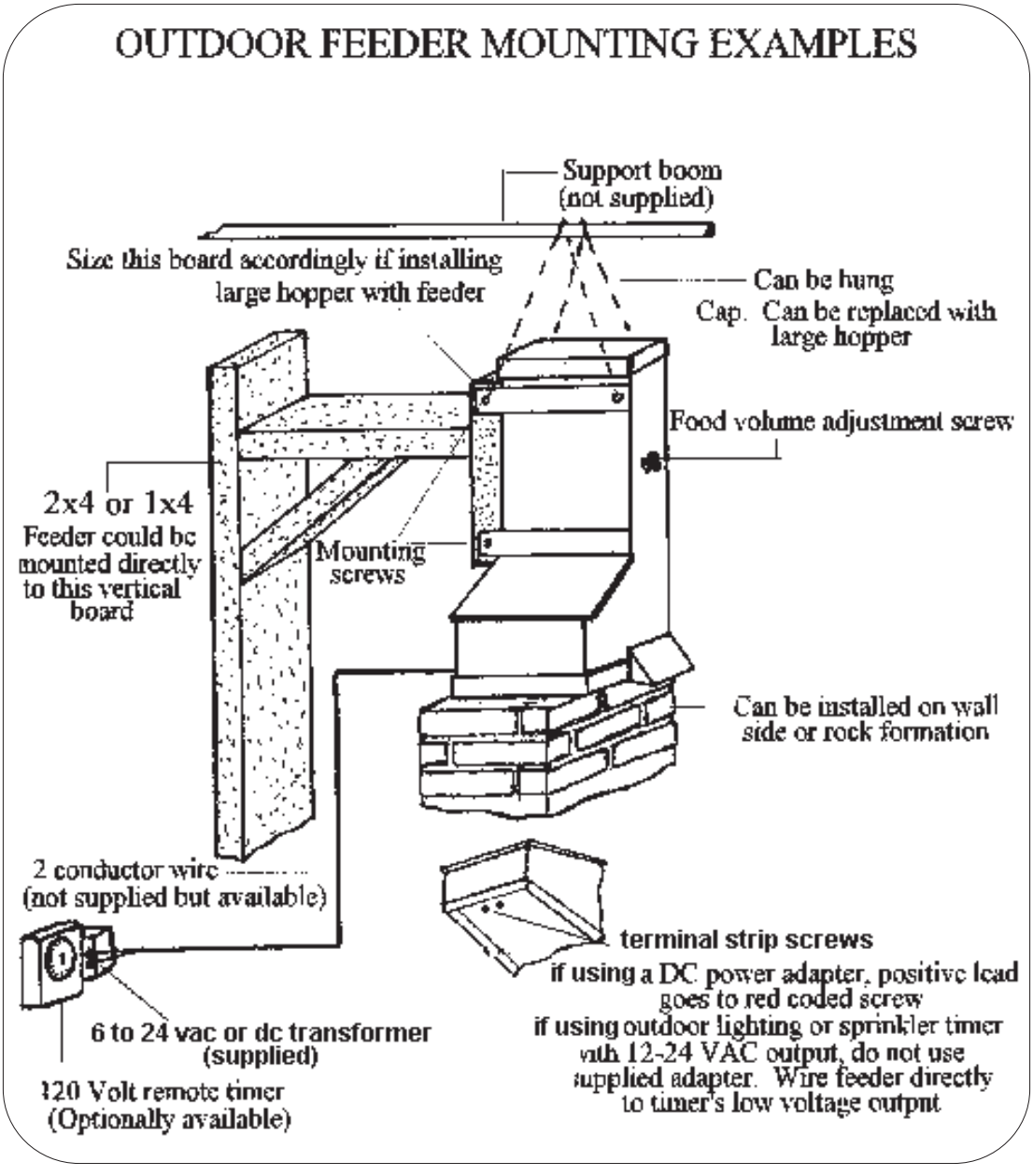
Mounting Drawings

SUPPLEMENTAL INSTALLATION PAGE FOR LARGE HOPPER INSTALLATION



YOU CAN ALSO APPLY THIS SAME MOUNTING TECHNIQUE IF STACKING SEVERAL 2-CUP HOPPER EXTENSIONS ON TOP OF EACH-OTHER. IF DOING SO USE EXTRA STRAPS WHICH CAN BE PURCHASED SEPARATELY.

OLDER CUSTOM-BUILT MODEL BELOW, BUT SAME BASIC MOUNT AND OPERATION



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Feeder goldfish is popular among keepers of predatory fishes for several reasons. You should however keep in mind that a diet that consists solely of feeder goldfish can cause some fish species to suffer from malnutrition. Some species also have a tendency to die from "gut blockage" when fed feeder goldfish. The gut blockage is caused by a feeder goldfish cranium that becomes stuck inside the predatory fish and blocks the passage between the stomach and the intestine. It seems as though Lionfish is especially prone to this problem.

One of the reasons why goldfish is popular as feeder fish is the fact that goldfish can produce very large spawns. Comet goldfish is by far the most common type of feeder goldfish and a medium-sized female Comet goldfish will produce up to 1,000 eggs during each spawn. Many aquarists purchase feeder goldfish from pet stores, but you can actually breed your own feeder goldfish at home since Comet goldfish is quite easy to coax into spawning mode.

A problem with feeder goldfish is that they can introduce a wide range of problem causing bacteria, virus and parasites to your

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aquarium. If you purchase feeder goldfish instead of raising your own, you should therefore ideally quarantine and treat them before you add them to your aquarium. Feeder goldfish are often kept in extremely crowded aquariums or ponds, and this places large amount of stress on the fish. It can also be hard to keep the water quality up during such conditions. The stress and poor water condition means that it will be easier for bacteria, virus and parasites to infect the feeder goldfish. Most predators are quite resilient towards sick feeder goldfish, since the germs will be killed in the stomach of the predator. Problems can however develop if your predatory fish does not consume the feeder goldfish as soon as it is placed in the aquarium. The infection will get a chance to grab hold of the aquarium and the predators can eventually become infected.

As mentioned above, you should ideally quarantine the feeder goldfish. Put the fish in water that is at least two days old and add a water conditioner. You can also perform some basic prophylaxis by adding standard Ich remedy (half of the normal strength is enough) during three days, and one teaspoon of salt for each

gallon of water. Quarantining feeder goldfish and performing prophylaxis will ofcourse cost you some time and money, but it will on the other hand significantly lower the risk of introducing harmful organisms to your aquarium.

If you want to breed your own feeder goldfish, you should ideally have a garden pond to it in, but breeding Comet goldfish in aquariums are not impossible. Goldfish kept in ponds will often spawn during spring, since the increased water temperature gets them into spawning mood. This also means that if you bring your pond goldfish indoors, they will often spawn since the temperature is higher indoors.

As mentioned above, a mid-sized female Comet goldfish can release up to 1,000 eggs. When the fry hatch, you can start feeding them small brine shrimp, crushed flake food, or goldfish pellets that have been grounded into a fine powder. You can also purchase special fry food suitable for egg-laying fish species. Getting the fry to eat is usually not hard at all.

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Breeding Goldfish is not an easy task. It is a fun-filled, worthwhile experience. But, it is also time consuming. If you want to breed Goldfish,you need to know the following:

- Age of maturity
- Determining the gender of the Goldfish
- Sexing
- Reproduction Strategies
- Breeding Tips
- Encouraging your Goldfish to spawn
- Identifying Eggs
- Egg Care
- Hatching and Raising Fry
- Fry Care
    - Filtration, Aeration, and Heating
    - Water, Lids, and Water Depth

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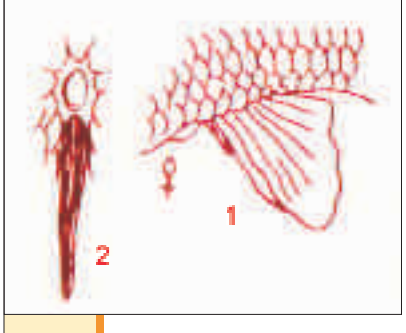
- Lighting and Cleaning
- Feeding
- Goldfish Growth Rates and Color Changes

Age of Maturity

All Goldfish varieties, both male and female attain their maturity when they grow 3 to 5 inches (7.5 to 11 cm). Their maturity age differs from different types of fish and their living conditions. Nevertheless, they reach the maturity size from 10 months to 36 months.

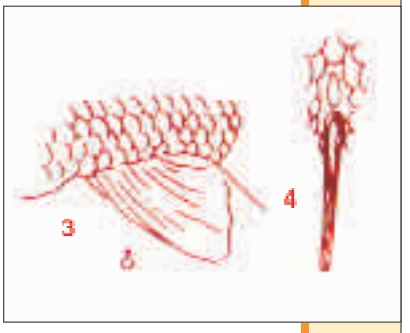
Determining the gender of the Goldfish

It is impossible to differentiate between the sexes of Goldfish until they reach maturity. Only professional breeders can tell the difference. The internal and external difference between a female and a male are as follows. We can only see these differences after they attain maturity.

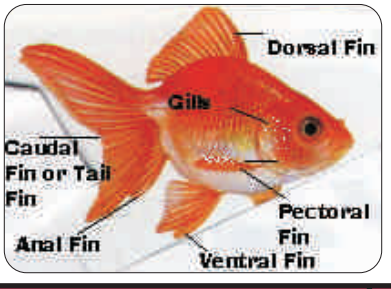


1 & 2 are the female anal openings. They are larger, protrude slightly and is round in shape. The anal fin is thicker and has a heavier first anal fin spine. The

male is 3 & 4. The male's opening is small and oval with no noticeable anal fin thickness.



Internal body location	Male	Female
In Gill plates	It has white prickles called tubercles present on gill plates and head.	It has white prickles called tubercles present on gill plates.
Vent (where wastage comes out)	Smaller opening and goes in (concave)	Larger opening and sticks out (convex)
Abdomen	Smaller, more firm and may have ridge	Larger, fat, no ridge and more supple.



External body location	Male	Female
Behavior	Chaser	Chased and attacked repeatedly
Anal fin	Thinner	Thicker
Body shape	It appears slender, longer and symmetrical from the top	It appears fatter, shorter and asymmetrical from the top when it carries eggs.

Sexing

When a male and a female Goldfish attains at least 3 years of age, move the couple into a separate 20-gallon tank with plants. To encourage breeding, you should raise the temperature of the tank to 70 - 74 degrees F during the breeding season (spring). Sexing occurs in the wild during breeding season only. Through spawning method, we can breed in spring season.

Female goldfish are plumper than the male of the same species. The males have white little bumps on their heads. These are called tubercles and they become more visible during spawning.

The vents of females enlarge and turn outwards, while the male vent remains the same. Behavioral changes during the mating season includes the males chasing the females around the tank. You can use this as an indicator to separate the pairs. These differences become much more apparent as spawning time

approaches. The male's opening is small and oval with no noticeable anal fin thickness.

These differences become more apparent as spawning time approaches. The female opening will be larger and more distended when the eggs are ripe. When the male is ready, milt may be pushed out of the ventral opening by running a finger lightly along the sides of the fish. But, this shouldn't be necessary as the tubercles can be plainly viewed.

Reproduction Strategies

Six types of reproduction can occur in fishes.

1. Brood

2. Egg depositors

3. Egg scatters

4. Live bearers

5. Labyrinth fish

6. Mouth brooders

Here naturally all varieties of Goldfish are reproduced their fry

through Egg scatters strategy.

Brood:

If the fish reproduces through brood strategy, one of the parents takes care of the eggs and fry. They protect their eggs or fry from other fishes.

Egg depositors:

The egg depositors lay their eggs under any object like gravel or plant leaf or rocks or in nest or on a surface.

Egg scatters

The 'egg scatters'type of fish swims into watery plants or sides of objects or in gravels and scatters its eggs on them. In this type, both male and female scatter their eggs and sperm respectively by pushing against each other. Sometimes, parents may eat their own eggs. In this type, we should protect the eggs from the parents and other fish.

Live bearers

In Live bearer's, female fish develop the eggs inside the body after mating. After a certain period of time, live fry are born on their

own.

Labyrinth fish

Labyrinth fish protect their eggs in bubble nests. The male makes bubble nest using saliva and water. The male protects the egg until fry are born.

Mouth brooders

Some species of fish protect their fertilized eggs in their mouth until they hatch.

By this time, both male and female does not eat much.

Breeding Tips

1. Changes in water temperature, direction of change is dependant on the species.

2. Changes in water depth and direction of change is also dependant on the species.

3. Changes in feeding - usually increase in live foods.

4. Changes in tank mates - usually separate and re-join male(s) and female(s) or introduce new fish together.

5. Changes in water quality - usually cleaner water with a greater pH closely matching that found in the wild.

6. Changes in lighting - usually increase in day time

Encouraging your Goldfish to spawn

Spawning of fish is an artificial method formating fishes. This method is worked well for fish which, belongs to Egg depositors and Egg scatters reproduction type.

Goldfish are egg scatters so they prefer to breed on soft location. Hair-like structures of algae plants and soft aquarium plants help the fish to spawn.

We can induce spawning in Goldfish by the following ways.

1) Replace 20% of the water in their tank with fresh tap water. This will induce the pair to spawn. But make sure you don't change more than 20% of the water, as this may stress your fish out.

2) A gradual change in diet may also induce spawning. Normally, they respond to live food like brine shrimp, tubifex or black worms, daphnia, etc. But, remember not to change their diet

overnight. Live food gives the extra nutrition required to produce vast quantity of eggs and sperm. Feeding fish to induce spawning is called conditioning.

3) Gold fish can be spawned easily for temperature changes during spring season.

4) If the above three methods doesn't help, then separate the male and female on the first day of spring and put them back together after 15 to 18 days in the spring season, then they will spawn.

Just keep in mind that goldfish do not do well with drastic changes. Any change in diet or habitat has to be gradual.

Now, the fish is ready to mate. After spawning, increase the temperature of the tank from 70 to 74 degrees F. Before mating, female fish carries unfertilized eggs. At the time of mating, male releases sperm and female releases unfertilized eggs. Sperm and unfertilized eggs get together to form fertilized eggs on the leaves. Female may lay eggs from 10 to 1000 eggs.

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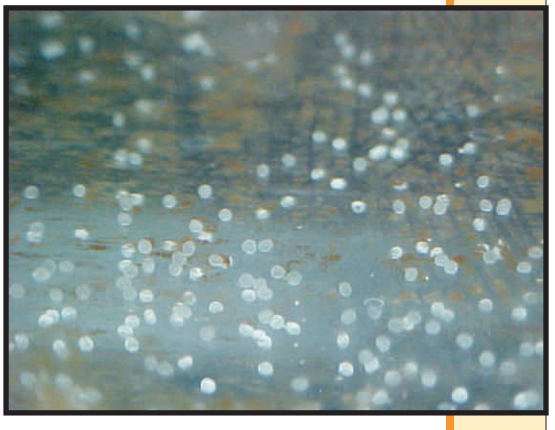
unfertilized eggs. Sperm and unfertilized eggs get together to form fertilized eggs on the leaves. Female may lay eggs from 10 to 1000 eggs.

Identifying Eggs

Ideally, you should remove the eggs from the main tank and transfer them into a dish no more than six inches deep so that you can wash the eggs. Otherwise, we can separate parents to another aquarium to prevent them from eating the eggs. If eggs are scattered, we can remove those from the mating tank by using a siphon. Just make sure that the temperature of this water is the same as the temperature of the water in the tank.



After cleaning the eggs, place them in a 20-gallon tank. Maintain a steady temperature of 70 degrees Fahrenheit.

Egg Fungus

Some eggs will be white in color while others tanned. The clear, white ones are the fertile eggs. You should remove the infertile

eggs as they are susceptible to fungal infections that could kill the fertile eggs as well. We can remove infertile eggs using finger nail tweezers. The fertile eggs will hatch in four to five days time. To prevent egg fungus, add dilute solution of methylene blue to the water tank which has the transferred eggs. We can keep all the eggs first in methylene blue solution for one day. Then remove the unfertile eggs and transfer the fertile eggs to a fresh water tank. Frying does not do well in methyelene blue solution. Now, let's see stage by stage how an egg becomes a fry or hatchling. The egg shown in the picture is three days old. It is a well developed embryo.

This is the embryo at the beginning of the fourth day.

Hatchlings

Goldfish requires more oxygen in the development stage. Use of mud and organic debris is not suitable to the development of eggs. At birth, Goldfish fish are tiny… only onesixth of an inch! They are translucent and have large black eyes.

This is a nine-day old fry.

Fry care

After the hatchling comes out, we have to care until it attains full growth.

First, move the hatchings into larger tanks of 20 gallon or divide them to prevent overcrowding.

Temperature: Your fry likes warmer temperatures, so maintain the temperature at 75 degrees F.

Water: Unwanted organisms can be grown in the tank. In order to prevent from growing such organisms, add 2 spoons of salt per 10 to 12 gallon water. Don't add too much of salt since Goldfish does not like salty water.

Tank cover: Please cover the water tanks with glass to keep moisture in. You should provide more oxygen supply to the fry.

Filtration and Aeration:

To provide bacteria in the tank, use filter with carbon and floss. Fix filter in the corner of the tank. Otherwise, you can also make

use of sponge filter. Light aeration is needed for the egg until it starts to feed. We can provide light aeration in the filter by flow of air bubbles. Don't feed fry until it can swim.

Lighting and cleaning

If you start feeding them, you have to clean the tank on a regular basis. Before feeding, make sure the tank is clean. Provide light above the tank after you add food in the tank. This will be very helpful for the fry to find their food.

Feeding for Fry

Taking their tiny size into consideration, it is very difficult to feed young Goldfish. You should drop sufficient food for them to eat. But, remember to clean the tank before adding fresh food every few hours to prevent stagnation. For the young fish to survive, they need to be fed often and sensibly to keep them alive and growing. You can feed live foods, various sizes of micro worms, daphnia, cyclops, and euglena. Make sure live foods are free from parasital or bacterial infection. You can feed fry foods, pearls and baby brine shrimp

Brineshrimps (Artemia salina)

Most fry are large enough to eat brine shrimp as their first food, especially if you give them newly hatched brine shrimp. Very small fry should instead be fed infusoria initially, and brine shrimp can be introduced as a second food. If you feed your brine shrimp suitable food, they will grow large enough to be used as food for adult fish as well. Growing large brine shrimps is an inexpensive way of providing your fish with much appreciated livefood and is especially recommended when you wish to induce spawning.

Just like infusoria, brine shrimp is easy to cultivate at home. You can buy a brine shrimp hatchery from your fish store or fix one yourself. Brine shrimp will hatch even in bottles! Some brine shrimp hatcheries will require an air stone connected to an air operated pump. Other brine shrimp hatcheries can be attached inside or outside the aquarium.

If you want to fix your own brine shrimp hatchery in a bottle, you can use a clean milk bottle or a similar container. Boil some water, three quarters of a pint is enough, and let it cool down before you fill the bottle. Add one teaspoon of aquarium salt to

the water and put the bottle in a warm room. It is possible to use ordinary cooking salt instead of aquarium salt, but the result will usually not be as good as aquarium salt. Insert an air stone in the bottle to provide oxygen. Place a pinch of brine shrimp eggs in the water and wait for them to hatch. The water temperature must never go below 15 degrees Celsius, but this is usually not a problem in a temperate room. Brine shrimp eggs will typically hatch after 48 hours or even earlier.

By setting up new bottles, you can make sure that you always have suitable size brine shrimp for your fry Brine shrimp eggs can be bought in most pet shops and fish stores. If you use eggs with shells, you must turn off the air stone in the hatchery to make the shells sink to the bottom. The hatched brine shrimp will stay a few inches above the bottom and can be easily removed. It is important to separate the brine shrimp from the shells, since shells might get stuck inside the fry if they consume the eggs. You can also buy shell-free brine shrimp eggs.

Water Fleas (Daphnia)

Water fleas can be hard to disinfect properly, so if you want to

feed your fry daphnia, you must obtain it from a source that you can trust and that you know have no sanitary problems. The same is true if you plan to raise your own daphnia for the fry. You must make sure that you begin with a disease-free starter culture.

Once you have obtained a proper starter culture of daphnia, the rest is easy. Fill a plastic container with 5 gallons of tap water and let the water stand for roughly 48 hours at room temperature. Obtain a handful of manure from a stable. You may also require a nylon bag. You can produce one yourself from a pair of nylon stay-ups or use the type of nylon bag that comes with washing machine tablets. Place the manure in the nylon bag and submerge

the nylon bag in water. After roughly 7-10 days, the water would have turned cloudy, which means the water is now filled with micro organisms for the daphnia to feed on.Add the daphnia to water and wait. The culture will take care of itself for the few weeks during which the daphnia grows large and abundantenough to be used as fish food. The easiest way of removing daphnia is to use a fine meshed net.

White worms

White worms are the much appreciated fry food that can be cultured at home. You need some moist and nutritious garden soil for the white worms to grow. Fill 75% of a shallow box with garden soil. If necessary, water the soil until it is quite damp.

It is important that the soil is never allowed to dry out, but waterlogged soil is just as bad. Add the white worm culture to the soil together with a few small pieces of moist white bread. Cover the box with a lid. The box or the lid must have some air holes to allow for ventilation. Put the box in a dark place where the temperature is around 16 - 18 degree Celsius. Add new bread to the box every 3 - 4 days and make sure that the soil is constantly moist. If you find any uneaten food, you should remove it before it turns bad.

When it is time for you to collect white worms for your fish, you just spoon out some soil from underneath the bread. You will naturally find one of the largest congregations of white worm right beneath the food pieces. Pour the soil with the white worms into a bowl or dish filled with water. When the worms separates

from the soil, you can easily collect and drop them into the aquarium.

Period	No. of times per day
After 48 hours	You can start the first feeding
For first 4 weeks	Feed 3 times
Up to 4 months	2 times
After 4 months	1 time

Please provide large tank according to their growth rate. After 2 to 3 months, fry can grow large enough to live with parents. At that time, we can put fish with their parents and other fish.

Growth rate and color changes in young ones

Growth rate

Goldfish can grow up to 1 to 4 inches (2.5 to 10) years. Common Gold fish and Comet grow up to 5 inches (12.5 cm) in two years. Single tail varieties reach 4 to 6 inches in length (10 to 15.5 cm)

within 32 months.

Fancy Goldfish can grow up to 3 to 5 inches (7.5 to 12.5 cm) within 30 months.

Color changes

Matured Female Goldfish

They may take one or two years to change the brown color to golden color or their parents color. Some Common and comet Goldfish change their brown color when they attain a growth of an inch in length. Other varieties can change their color to orange or gold when it attain a growth of 4 to 5 inches. Most Common Gold remain in their natural color. Fancy and Shubunkins Goldfish develop their colors when they attain a growth of an inch in length. They develop the best color and are ready to breed earlier than Common Gold.

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This information is provided by Provet for educational purposes only.

You should seek the advice of your veterinarian if your pet is ill as only he or she can correctly advise on the diagnosis and recommend the treatment that is most appropriate for your pet.

Even though fish are relatively simple organisms control of swimming is quite a complex thing. Many disorders can lead to abnormal swimming behaviour - even swimming upside down.

If you have ever owned goldfish or other ornamental fish, you may well have seen individuals that seem to lose control of their swimming - they may swim on their sides or upside down, swim in spirals or float in the water. Oftentimes they float or swim near the surface of the water - other times they cannot seem to get up from the bottom of the tank/pond.

Normal swimming requires both the nervous system and the muscular system to be intact and working properly. Buoyancy is controlled through a special organ called the swim bladder.

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Any disease which affects the nervous system , muscular system or swim bladder can cause abnormal swimming behaviour. Any debilitating disease that causes weakness will also lead to inability to swim properly, and so it isn't surprising that fish which are terminally ill will be seen swimming abnormally - even up-side down.

Because there are so many potential causes diagnosis requires a full history and examination of :

The environmental conditions - temperature, oxygenation of water etc

The presence of toxins in the water or food

The presence of infectious diseases - bacteria or viruses

The presence of parasitic infections

Disease that have been documented to affect swimming include :

Sleeping sickness. Caused by blood flagellates (protozoans) - egs cryptobia (which affects cyprinids including carp, goldfish and tench) and trypanosoma. Fish contract the disease having been bitten by leeches. There is no specific treatment for the disease, so

remove infected fish and leeches from the aquarium.

Costia - a protozoan now called Ichthyobodo necator - affects coldwater fish and freshwater tropical fish kept below 250 C . They sometimes scrape themselves on objects as well, and they develop a white film over their body.

Fish Tuberculosis - (caused by mycobacterium and nocardia spp). TB is relatively common and affected fish can show a variety of different signs but loss of condition is very common. This disease is a potential zoonosis. Remove dead and dying fish to prevent cannibalism and transfer of the disease.

Hole-in-the-head disease - (caused by the parasite Hexamita spp). Most commonly affects Discus fish .

Ichthyosporidium - a fungal disease that affects freshwater and marine fish. It causes weight loss and skin defects. Treatment is unlikely to be successful in advanced cases.

Neon disease First reported in Neon tetras - but is seen in other fish as well, including other Characins and some Cyprinids (eg Zebra Danios). Caused by a sporozoan: Pleistophora spp. There is

no specific cure.

Swim bladder trouble - causes loss of balance, and fish may not be able to get down from the top of the water , or they may not be able to get up from the floor of the tank.

Diagnosis can only be confirmed by taking samples for laboratory testing, or by performing a post-mortem examination. Always remove affected fish from your aquarium and seek veterinary advice.

The importance of a major water change before treatment

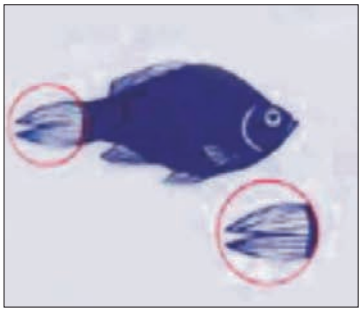
When you're treating your goldfish aquarium for flukes, lice, anchor worm, bacterial infections or any other goldfish health problem with a water treatment, it's very important that you do a major water change of 50 to 90%. The main reason for this water change is to increase the oxygen in your goldfish aquarium. Plus, a major water change will decrease the pollutants in your goldfish aquarium. A major water change will also decrease the food for the organisms that cause diseases and reduce any pathogens floating in your goldfish aquarium.

Note: When doing any major water changes make sure the temperature of your tap water is close to the water temperature in your goldfish aquarium. As long as the water feels the same temperature to the touch, that's good enough. pH is important, the pH of your tap water must be the same or higher than your goldfish aquarium. If your tap water is lower than your tank water you must add a good buffer like our Buff-it-Up. When doing a water change of any size always add enough dechlor to your aquarium water for the entire size of your aquariun before you add your new tap water, Exp: 100 gallon aquarium remove 25 gallons, add enough dechlor to the aquarium for 100 gallons then add the 25 gallons of tap water.

A list of common diseases and infections encountered by Goldfish is given below.

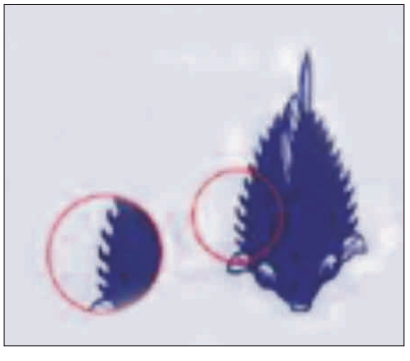
Anchor Worm

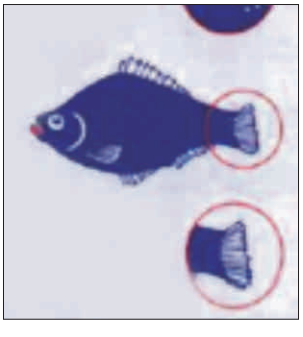
If you find your Goldfish rubbing itself against anything in its tank, it probably has anchor worms. An anchor worm is a white stick-like structure that hooks itself onto the fish. You will notice a red ring at the point of attachment.



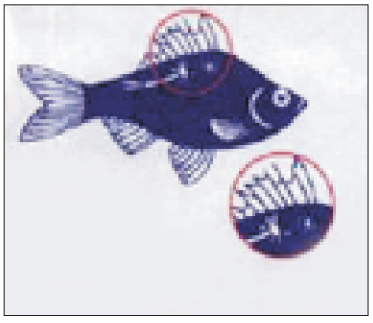
CLAMPED FINS
Fins held close to body, especially in liverbearing fish.

DROPSY
Fish bloated with scales standing out. Fish resembles a pine cone.





TAIL, FIN OR MOUTH ROT
Flesh eaten away around mouth, tail or fin. Possible redness at the base area.

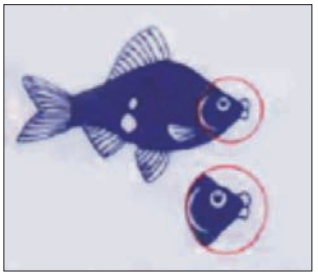


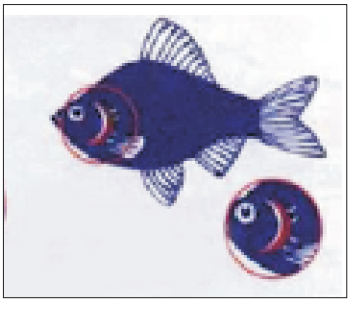
ANCHOR WORM AND EXTERNAL PARASITES

Thread-like worm hanging from fish. Base of anchor worm may be red. Nodules or reddish pimples on skin may be seen.

FUNGUS

White or grey cottony growth or patch on any part of the fish.



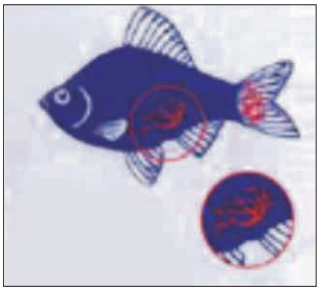


GILL FLUKES

Gills hang partly open and may pump fast. Gills may appear red.

HEMORRHAGIC SEPTICEMIA

Red streaks on fins or body with no sign of skin damage.



ICK

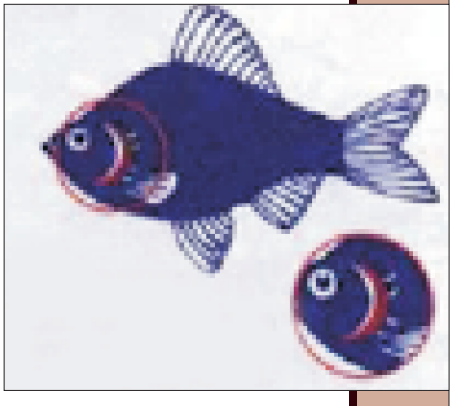
White, sugar-like crystals on fins or body of fish.

Black Spot

Following ammonia surges, black spots might appear on the back and sides of your Goldfish.These spots should disappear within two weeks and its place should be replaced by fresh orange colouration.

GILL FLUKES
Gills hang partly open and may pump fast. Gills may appear red.

Body And Gill Flukes



If you notice excessive slime coat, isolation, clamped fins, scratching, sores and ulcers, your fish is probably suffering from flukes. If your fish has gill flukes you will find it gasping for air on the surface of the water. Usually Potassium Permanganate, Droncit, Fluketabs and Formalin are used to treat flukes. You will have to continue with the treatment a little after all symptoms have subsided as sometimes fluke eggs and larvae may be left behind and if not killed they will attack your fish again.

Chilodonella

This disease is caused normally after your fish has suffered an

injury. Parasites attack the wound and this disease can soon spread to other healthy fish. This disease can cause some serious damage like severely affecting the gills.

The symptoms of this disease include clamped fins and breathing problems. The fish will become lethargic and spend a lot of time at the bottom of the tank. Sometimes, a whitish blue pigment covers their body. Treating this can be tricky and it's best for you to get help from a vet or from the pet store from which you bought the fish.

CLAMPED FINS
Fins held chose tyo body, especially in livebearing fish.

Clamped Fins

Your fish's fins will look clamped if the water in which it is housed is of poor quality. The presence of parasites in the water also causes this condition. If this occurs, get the water checked for the level of ammonia, pH and nitrites.

Constipation

Most goldfish suffer from constipation at least once in their lives. They don't have the strongest digestive system. If you feel that

your fish is constipated, feed it peas which acts as a mild laxative.

Dropsy

If you find your fish's scales sticking out, it is probably due to dropsy. This is a bacterial infection that normally kills fish.

Dropsy is not a specific disease, but rather a condition where the fish's abdomen becomes swollen. It causes concentration of the fluids in the body tissues or cavities. This results in swelling of the fish's abdomen, thus creating a pinecone effect.

The scales protrude from the body. A sudden swelling of the abdomen (scales may stick out) is known as acute dropsy while a slow swelling of the abdomen is known as chronic dropsy. The actual cause of this swelling could be one of several conditions:

Acute Dropsy - Internal bacterial infection can cause internal bleeding and thus cause acute dropsy.

Chronic Dropsy - cancer: In this case, the abdomen is slow to swell as the cancer affects the fish's internal organs. If the fish is not isolated in the early stages of the disease, it could spread to other

fish that are being housed with the ill fish.

Chronic Dropsy - parasites: Internal parasites can cause dropsy(abdominal swelling) because they are rather large parasites or because of the damage they are causing with the fish's organs.

The abdomen tends to swell over a period of time if the fish is infested with internal parasites. It is best to isolate the sick fish at once to help maintain the outbreak of disease with other fish!

Goldfish are said to be somewhat more prone to dropsy than other fish. In some cases it is caused by a Costia Infection. Be careful when making this decision. Some fish could be spawning. Symptoms: The body will have a general swelling with protrusion of scales. The eyes may even bulge.

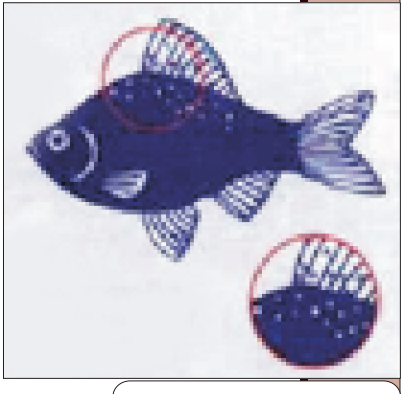
Treatment: Dropsy is not very contagious. The earlier it is caught the more likely treatment will be helpful. It is best to up the water temp to about 82-86 degrees and use epsom salts (1/8 teaspoon of epsom salts per 5 gallons) instead of aquarium salts because they will help the fish to lose some of the fluid that has built up. (It is common to think that salts would help, but in reality the fish is

bloating and having a hard time ridding its body of fluid; whereas the epsom salts will

"draw out toxins"). It is also wise to increase aeration since the temps will be higher. Water quality is very important at this time. This will have to be tried for about 2 weeks. Now if you think the fish is suffering from parasites you will need to treat for them first.

Ick

This salt grain-like looking parasite affects most fish. The Ichtyopthirius attaches itself to the body of the fish and feeds off the Goldfish. They fall to the bottom of the tank in a couple of days where they lay eggs and the cycle continues. This can sometimes kill your fish if not treated thoroughly and rapidly.



ICK
While sugar-like crystals on fins or body of fish.

Fin Rot

Fin rot occurs when your goldfish has injured itself and bacteria grow on the wound. You will notice a whitish colouring on the edge of the fins. If not treat quickly, this will lead to a funga

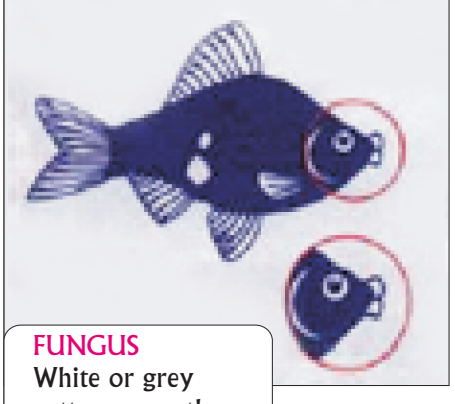
infection.

Fish Leech

Leeches are worm-like parasites that feed on blood. There are around 300 species of leech that attack fish. The wound caused by the leech's suckers could sometimes get fungal and bacterial infections. If affected by leeches, your fish will rub itself against the tank. A 3% salt dip will take care of the leeches. Don't try pulling out the leeches without the salt dip as this will injure your fish. There are medicines available at pet stores as well.

Fish Lice

Fish lice are greenish disk shaped creature that is about a fifth of an inch in length. You will notice your fish rubbing itself against the tank walls when affected by these lice. The places in which the lice attach themselves turn red. You can pluck these out manually from your fish. You have to do this quickly as they reproduce very fast.



FUNGUS
White or grey cottony growth or patch on any part of the fish

Fungus

There are many types of fungi and can be broken

down into different categories. The most common is a bacterial infection that forms white cotton-like patches. If you notice this, be sure to take your fish to a vet immediately.

Hole-in-the-head Disease

Sometimes a small hole appears on the fish's body that later develop into tubular eruptions with cream-colored or yellow strings of mucus. If you notice this, you should put the fish in a separate tank and take it to a vet.

Pop Eye

If you find out fish's eyes popping out, it is the first sign of dropsy. You can prevent the occurrence of this deadly disease with medicines.

Pop eye can affect pond and aquarium fishes. The progress of the disease depends on what is or has caused it. Bulging eyes can result from a number of causes, including fish tuberculosis, ichthyosporidium, dropsy, and bacterial infections.

Symptoms: One or both eyes protrude abnormally. (remember some fish are bred to have protruding eyes ex: fancy goldfish)

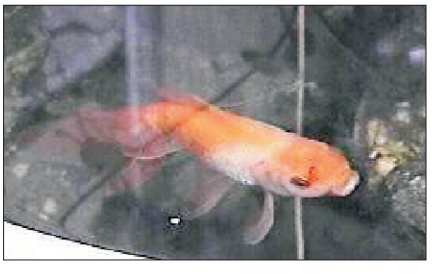
Treatment: Use anti-parasite and anti-bacterial treatments

Scale Loss

If you find you fish losing scales for no apparent reason, you should immediately change the water and treat the tank for all possible parasites.

Slime Disease

This is another disease caused by parasites and if not treated in time, it could kill your fish.The symptoms of this disease include frayed fins, sluggishness, loss in coloration and damaged gills. Treatment of this disease is a two-step process. One, you will have to treat your fish with medicines and two, you will have to thoroughly clean the tank.



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The first step to consider is to decide what type of pond you want to build. You should consider what type of aquatic life you want in the pond. Is it going to be a home for goldfish? Or, is your main concern for the aquatic plants? Perhaps you only want the pond for the sound of a waterfall. Each type of pond should be planned for its specific features. Keep in mind that the most common mistake water gardeners say they made when building their first pond was making it too small. A small pond limits the number of fish and plants you can add.

POND

A goldfish pond is different from a water garden because goldfish limits the amount of plant life to be grown. Goldfish also eats some plants. A goldfish pond should also be larger because goldfish grow quite large despite the size of the pond, it is recommended that a goldfish pond be no less than 1000 gallons in volume, the bigger the better. It also needs to have an area of the pond atleast 3 feet deep, 4 - 5 feet may be better.

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WATER GARDEN

A water garden typically contains both goldfish and a variety of aquatic plants. Water gardens in moderate climates usually need the pond area to be atleast 2 feet deep. Colder climates require extra depth to provide atleast 12" to 16" of water below the freeze zone.

The second step in establishing a new pond is to select a proper location.

Ponds can be a great enjoyment if they are installed close to the home. Select an area where you can see the pond round-the-year. Ponds are great attracters of wildlife including birds and butterflies. Position the pond where runoff from rain will not flow into the pond. This may carry fertilizers, chemicals, and organic debris into the pond. It may be necessary to alter the terrain to accommodate this. Avoid placing a pond too close to trees. Falling leaves and other debris will need to be removed from the pond. You will want to place your pond where it will receive atleast 4 to 6 hours of direct sun if you want grow water lilies. Shade is fine for fish-only ponds. Water circulation is not

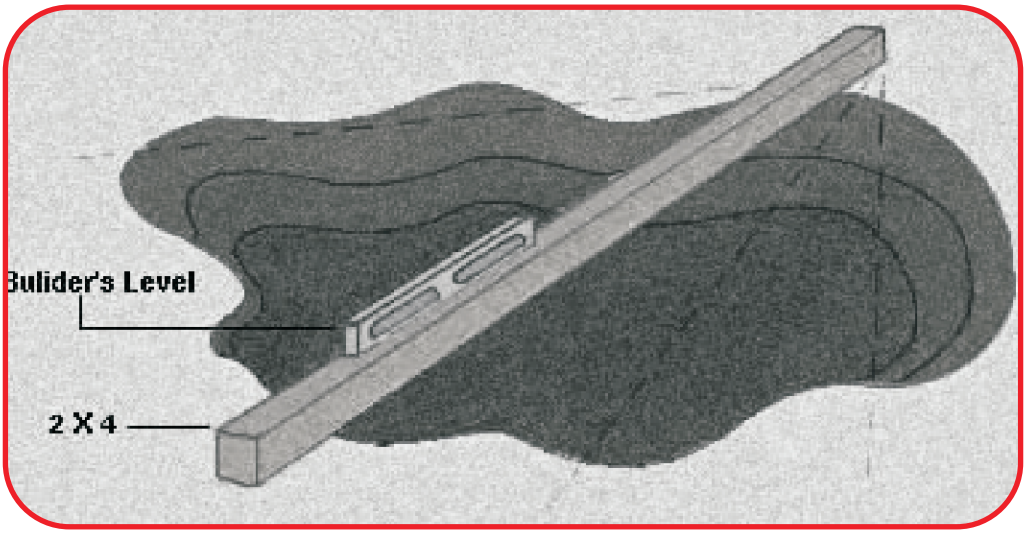
essential, but the use of a pump will allow you to keep more fish. It will also keep your plants healthier.A pump is required to run a filter, fountain, or waterfall. The sound of running water adds greatly to the enjoyment of the pond. Most ponds will benefit from the use of a biological filter. This is essential if you are keeping koi or more than a few goldfishes. We have several types of biological filters to choose from.

Now you need to determine the size of your pond or water garden.

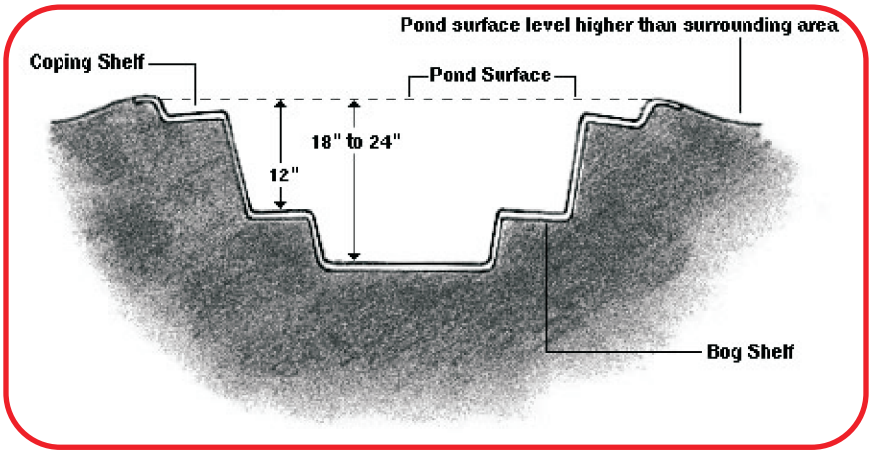
The best way to do this is to use a rope or water hose and lay out the shape on the ground. A pond for goldfish or water lilies need only about 2 feet deep for zones 5 or greater. Ponds built in colder areas may need more depth to keep the pond from freezing. Ponds built for koi should be close to three

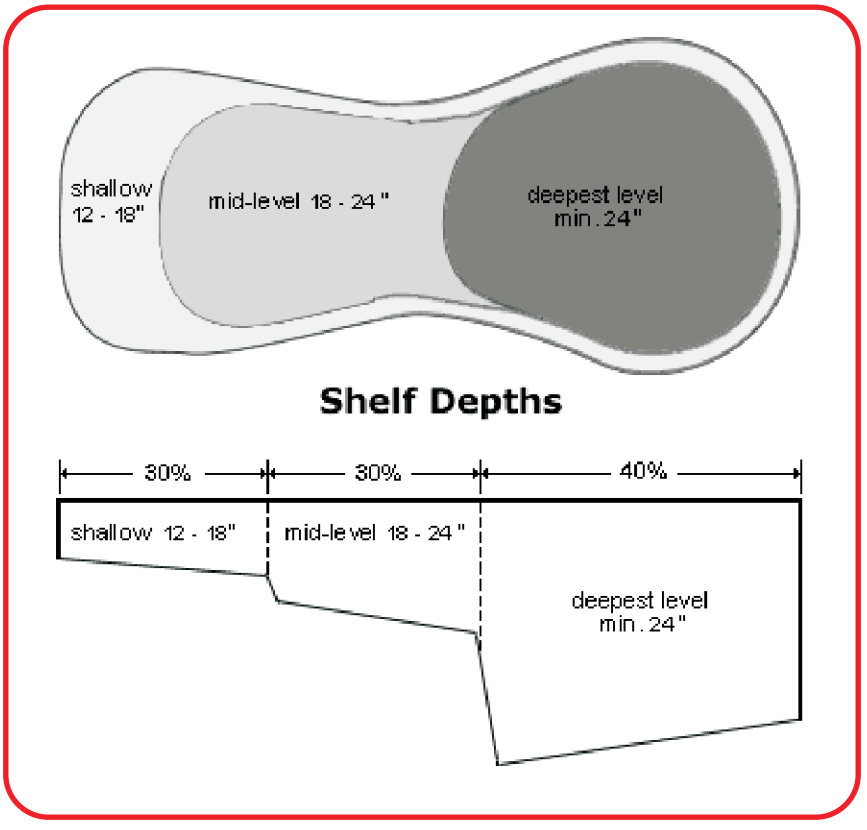
feet or deeper to allow larger fish enough space. The biggest mistake that most people make is building the pond or water garden too small. A larger pond is more stable and easier to maintain. Keep in mind that a finished pond or water garden will be about 30% smaller than you visualize it. After you have laid

out the shape, measure the maximum length and width. Add the depth twice to these measurements plus a foot or two for overlap and this will give you the pond liner size.



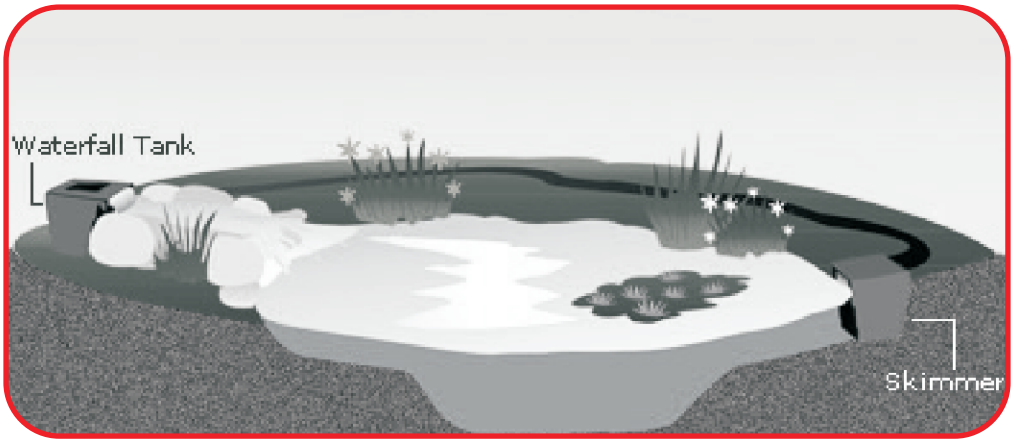
Dig the pond or water garden to the desired shape and dig a shelf around the perimeter of the pond about one foot deep and one or more feet wide. Dig the remainder of the pond with a slight slope to the end opposite the waterfall if one is included in the design.





Position any external pond filters and/or pond skimmers and level these in their proper location. Pond skimmers should be buried to the proper level beside the pond. A ditch should be dug to facilitate plumbing from the pond to the waterfall or external pond filter. If a pond skimmer is being used, dig a ditch to the external pond pump and from the pump to the external pond filter or waterfall. If you are using a submersible pump in the pond skimmer, then the ditch will be from the skimmer to the

external pond filter or waterfall.



Line the pond or water garden excavation with pond underlayment

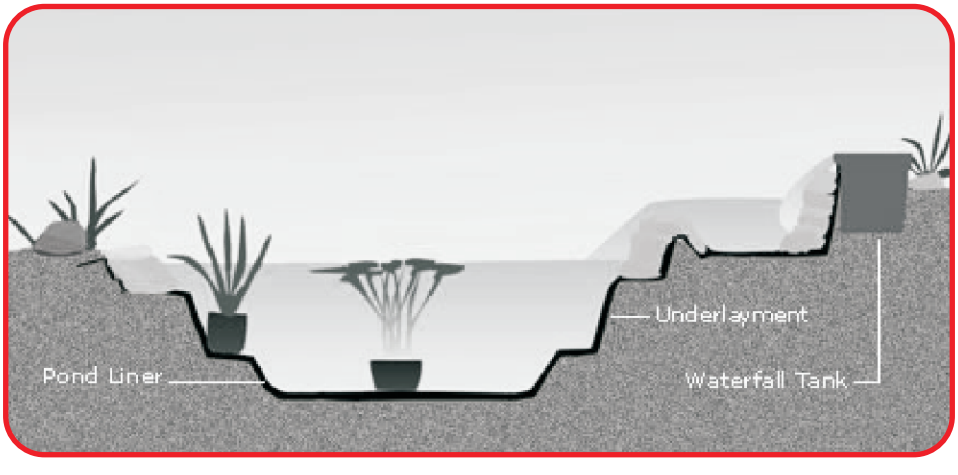
This can be cut with scissors or a utility knife. You may want to tape small pieces if any, together in order to keep them from moving when the pond liner is placed.

Place the rubber pond liner into the excavation and unfold. Position the liner evenly in the pond. Try to minimize folds and wrinkles. But some will be necessary. After the water is added, the folds should flatten out.

Pond waterfalls and streams can be excavated now. An external pond filter or waterfall tank can be positioned to create the first waterfall. This can be placed to spill directly into the pond in

which case, the pond liner is held against the pond filter until you are able to stack stone from the pond shelf up against the pond filter to create a waterfall. If a small pool or stream is desired then excavate several inches deep to the desired size and shape. Position the underlayment and pond liner allowing extra material to overlap several inches into the pond.

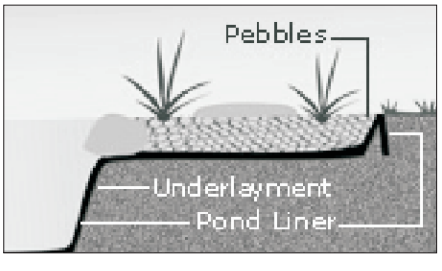
Plumbing from the pump can be brought over into the stream of pool. Or if using an external pond filter, this will be the start of the waterfall. Streams should be dug wider than the finished size to make room for stone that will be placed into the stream for the edging. Stone can be secured to the liner with mortar or expandable foam. This will hold back the water allowing it to spill over the stone creating the waterfall.

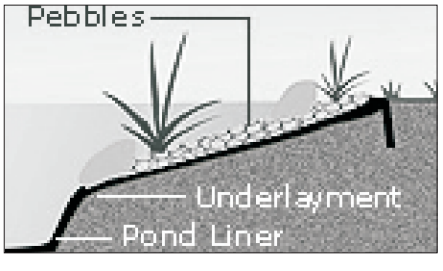


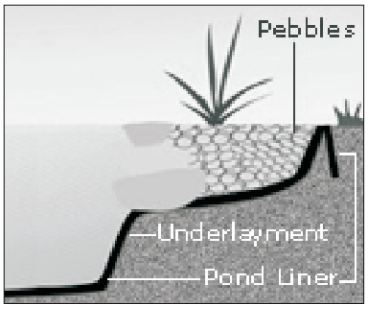
Connect the pond liner to the skimmer, if one is being used

following the manufacturers directions. Place the pipe or tubing in place leaving a few inches extra to make your connections later.

Place the stone or other coping around the edge of the pond or water garden. Arrange the coping stone around the edge of the pond and fold the pond liner behind the stone slightly above the water level. It is usually not necessary to mortar the stone into place if it is of sufficient size to be stable. In case of small stones or if people will be walking around the edge, then mortaring the stone may be required to ensure stability. Backfill with soil to hold the pond liner against the stone. Fill the pond with water for a few inches from the top and then make corrections if necessary to ensure that the pond is level. As the pond is filling, remove wrinkles and make folds as necessary.



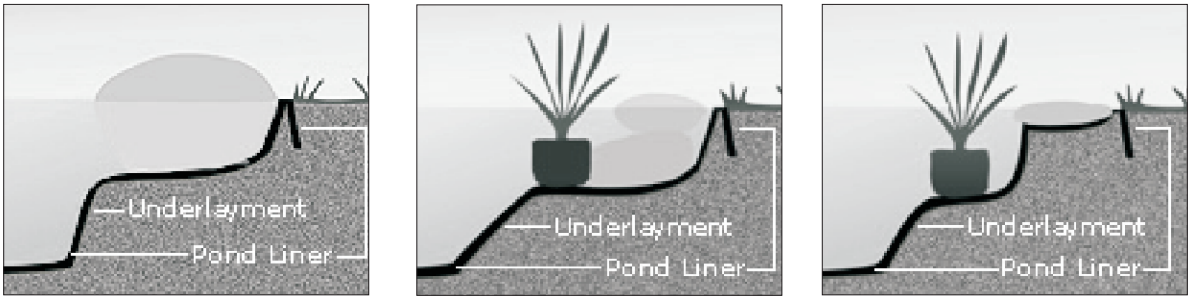




Other methods of edging the pond or water garden. For most installations having a stone necklace around the pond or water garden does not create a natural appearance.If your goal is to make your pond blend into the landscape in a natural setting, then you will want to consider other methods of edging the pond. Besides the traditional method of edging with a thin stone on the edge overlapping the pond, you can also use one or more layers of stone built from the shelf.

This provides a greater natural appeal and will allow the water to fluctuate without seeing the liner. You can also create a cobblestone beach edging by placing a large stone at the inner side of a large shallow shelf and filling the area with gravel and cobbles.

You can naturalize this area by planting shallow water plants. This will create a better natural edge with plants partly in and partly out of the water. You can plant bare root plants directly into the gravel or place the plant with some soil still attached into the gravel. This will help the plant to establish itself.



Add dechlorinator to the pond to remove any chlorine or chloramines.

Add aquatic plants as soon as possible after constructing the pond or water garden.

Add packaged bacteria to seed the pond filter and pond. Fish should be added a few at a time over several weeks to allow the bacteria to establish in your water garden.

The most important plant is Anacharis.

This is an underwater plant that produces nutrients that would feed the algae. For ponds and water gardens under 25 square feet, use one bunch for every square foot of pond surface area. For ponds 25 to 100 square feet, use one bunch for every two square feet of surface area. For ponds 100 to 300 square feet, use one

bunch for every three square feet of surface area. Use one bunch for every four square feet for ponds over 400 square feet in size. If you are keeping koi, then a smaller upper pool or plant protectors will be needed to keep them from eating the Anacharis.

The next step is to add water lilies and other plants with surface leaves to provide shade to approximately 66% of the surface area if in full sun. If less than full sun, then less coverage is acceptable.

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Paradise was not paradise till Goldfishes were created. Their color, cleverness and camaraderie has fascinated man since the beginning.

Goldfishes come in different shapes and colors. The different species are in many ways distinct. And individual specimens seem to have a personality all of their own. If you already own a Goldfish or plan on getting one, you can be sure that there will not be a moment of boredom.

They are capable of love as much as they are capable of tantrums. And considering their long life spans, they will be your good companions for many years. If you want a colourful companion fish you want to make a good hobby with, then it's the Goldfish for you. Goldfishes even make fantastic pets for pre-teens.

Comet are the best Goldfish to start with for the beginners. If you like a challenge, the Oranda, Ryukin and Moors is a handful .
One of the first things you should do once you bring home your pet Goldfish is to find a suitable knowledgable shopkeeper. Fishes are very different from other animals and never take your fish to a veterinarian who doesn't normally treat fishes.

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Keep the vet's/shopkeeper off-duty contact number in case of emergencies. Not only is this convenient, but this also minimizes the risk of transmitting the disease and the problems of transporting the fish to the petshop/clinic. This will avoid the stress to the fish that caused when the fish is transported to one place to another.

You will need to be very patient with your Goldfish. It takes time for them to settle down in a new home. If you observe your Goldfish, you will then become accustomed to its behavioral patterns and see its personality develop. Goldfishes can become lovable, tame and trusting companions. It may take time and work but the end result is a great and rewarding one.

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