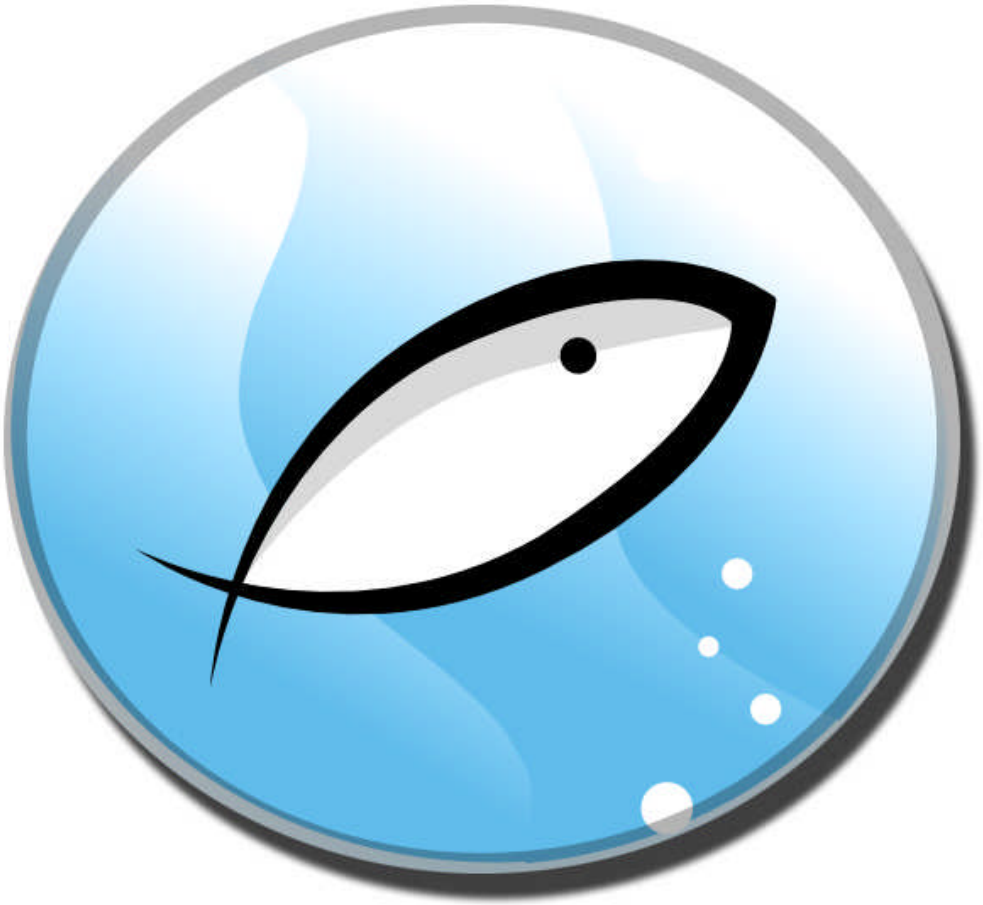
Aussie Aquariums
WALL MOUNTED AQUARIUMS



GettingStarted

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I. Getting started

Location

The aquarium should be located in a place where it will not be bumped by the constant passing of people, dogs, cats, etc. Avoid direct sunlight which will cause algae problems or over heating of the water. Make sure the installation is sturdy enough for the aquarium's weight. Water weighs about 8 pounds per gallon and an additional 25% should be added for gravel, glass. etc. A 10 gallon aquarium can easily weight 100 to 110 lbs.

Placing Equipment

Once the aquarium is mounted, check to make sure it is level. Un-level aquariums, aside from looking unsightly, can cause undue pressure on the glass sides eventually leading to leaks and/or breakage.

Adding Gravel

Now it is time to add gravel or whatever media that was selected for the substrate. The amount of gravel needed will depend on a couple of factors. Many recommend having a higher level of gravel toward the back, gently sloping down to the front, giving your aquarium a perception of depth and help debris collect toward the front of the tank for easier cleaning. In my experience, unless decorations, rocks, drift wood, etc. are place in such a position to hold the gravel or sand in position, it will shortly even out anyway. All gravel or sand should be thoroughly washed to remove dust, dirt or any other matter. Don't believe the manufacturers when they tell you that it was previously washed. Put the gravel or sand in a bucket and wash using a hose or under the faucet until the water used to clean the gravel remains clean. It can now be added to the aquarium. Once the gravel is in place, add any decorations.

Initial Filling

Water can now be added. Don't forget to add chlorine remover if starter fish will be added quickly. I would recommend though not adding any starter fish for at least 24 hours. This will give the temperature a chance to stabilize and provide time for equipment break-in. Add the water very gently so as not to disturb the gravel and avoid clouding the water with any remaining gravel dust. Once the water is a couple of inches above the gravel, stop.

Placing Plants, Decorations etc.

If any live plants are going to be used, now is the best time to place them in the aquarium. Any remaining decorations should also be added now. It is much easier to place these items with the lower water level. Put the filter in position now. Add the heater, trying to locate it as close as possible to a high flow area. Position and fasten cables, airline tubes etc. in their final position. Cable and air line fasteners with suction cups are available at most aquarium supply outlets. Don't plug anything in yet!!

Finishing Initial Fill

Finish filling the aquarium. If the aquarium is being filled from a pressurized source such as tap water, you will probably see oxygen bubbles accumulating all over everything. This is normal and they will disappear within 1 or 2 days.

Starting Equipment

Once the aquarium is filled, check for any leaks. Place the thermometer in position as far from the heater as possible. Start the siphon on the filter. Plug in your heater, power heads, filter, etc. Most heaters have an indicator to show when they are heating. Let everything run now for 24 hours, periodically checking the temperature. It should end up between 24 and 26^{O}C (75 to 79^{O}F). After 24 hours and when the temperature has stabilized measure the pH, gH and kH of the aquarium water. This can be done by taking a water sample to the local aquarium store and ask them to do it, or purchase a test kit (described in the essentials section above) and measure them yourself. This will be important when selecting fish for the aquarium. The reason for waiting 24 hours with all of the equipment working is that the pH will be different if measured right out of the tap compared to 24 hours later. Much of the CO^2 in the tap water will be evaporated by the circulating water and CO^2 directly affects the pH reading.

Finishing the Setup

If the temperature is stable, all equipment is working correctly, any cloudiness has cleared up and the aquarium is free from leaks; you are now ready for the final phase... Cycling your tank!!.

The secret of success now, is patience. So many people come to this point, decide they are ready, buy their favorite fish only to find them dead three or four days later. This happens because they didn't finish setting up the aquarium by Cycling the tank.

Fish produce ammonia through waste. This toxic ammonia must be converted to an also toxic nitrite and finally to a non-toxic nitrate. Cycling the tank starts this process by cultivating nitrifying bacteria. I will put forth three methods of doing this, you can choose which one is best for you:

Option 1

Using Zeolites to absorb the toxic ammonia. Zeolites look like white gravel and can be added to filters or even put directly into the aquarium. The major disadvantage is that the Zeolites need to be continually replaced. This can get to be expensive and if you forget replace them, you can say goodbye to those expensive fish.

Option 2

The most common method of cycling the tank is to purchase a few very hardy inexpensive fish such as Zebra Danios, or (WCMM) White Cloud Mountain Minnows to initiate the Cycle. The fish will produce ammonia through their waste which triggers the start of the Nitrogen cycle. Please read the nitrogen cycle section for a detailed explanation and a graphical depiction. The cycle start to finish will take three to four weeks. You will then be able to add your more delicate fish.

Option 3

Fishless Cycling - This method uses household ammonia added to the tank to initiate the cycle. It has the advantage of not putting fish at risk or you having to find a home for the fish you used for cycling in case you don't want them. I would suggest either Option 2 or 3 are the safest and least expensive. Once cycle has completed it's off to the fish store to get those prized beauties you have been waiting for.

That's it!!! **When you go to the aquarium shop be sure to read up on the fish you are interested in and assure yourself that they can adapt to your local water conditions (Remember those readings I suggested you take).**

II. Acclimating Fish

Probably one of the exciting experiences for the aquarist and maybe one of the most dangerous times for the tropical fish, is the trip from the store to their new home. Changes in the water parameters and temperatures increase fish stress levels and lowers their disease defenses. These changes should be brought about gradually to maintain the new arrivals in healthy condition.

Make sure that any fish you select is compatible to the water conditions you have in your aquarium. If they aren't, no matter how careful you are at acclimating your fish, they will eventually die. You should know the pH and temperature of your tank water and the pH and temperature requirements of the fish you want to introduce as a minimum. The fish species section of this guide indicates the pH and water temperature requirements of many common community tank fish. They should not only be compatible to your conditions, but make sure they are compatible with the other tank mates they will have. You certainly don't want to be bringing dinner home for some of your more aggressive fish or visa-versa.

Many advanced aquarist, when dealing with expensive fish, will actually measure the pH and temperature of the water in the store; duplicate those conditions in a quarantine tank and slowly bring the quarantine tank water parameters to the parameters of the tank where they will be housed over a period of a couple of weeks.

Even without going to all of the trouble of matching pH's, a quarantine tank is a good method of introducing fish to your home environment. It let's you to observe the new arrivals for diseases and allows them to acclimate to your water conditions without the harassment of other fish you may have in their future home.

Whether you are acclimating them to a quarantine tank or directly to your main tank, it needs to be done slowly. As fish are becoming accustomed to their new surroundings their defenses are down and stress high. This is perfect for such stress related diseases as Ick.

When you pick up your fish at the store, they should be in plastic bags. I like to keep no more than one or two specimens per bag. Make sure that there is plenty of air in the bag. Ideally you more air space than water in bag. Many fish stores have compressed oxygen available and if your trip is long, (4 or 5 hours) you may want to ask them to add some of the pressurized oxygen to the bag. This will assure good water/oxygen exchange. I have had fish in pressurized bags for trips of more than 24 hours.

Once you are assured that you have plenty of oxygen, the second step is to keep the temperature fluctuation to a minimum. If you live in a cold climate, you may want to consider placing the bags in a styrofoam cooler to maintain the water temperature on your way home.

For those really long trips, try adding some zeolite into the bag. This will absorbs the toxic ammonia formed from the fish waste.

Once you are home with the fish, float the plastic bags on top of the tank for at least 20 minutes to ½ hour to equalize the tank and bag temperatures. After ½ hour add a small amount of your tank water to the bag and wait another 1/2 hour. Add more water every ½ hour for at least the next 2 hours until most of the water in the bag is your tank water. I personally do this step over a 4-hour period, the longer the better. The purpose here is to adjust your fish to the pH and hardness as well as other conditions of your tank water. Rapid pH changes can severely affect otherwise healthy fish.

Another method often used, is to use a piece of airline tubing and an air valve. Place one end of the airline tubing inside the tank below the water line (you can attach it to the glass wall of the aquarium with a suction cup). Attach the air valve to the other end of the tubing which will eventually be placed in the bag with the new fish. The fish bag must be placed below the water level of the tank on the outside. Start a siphon by sucking on the airline tube where the valve is and adjust the valve to slowly drip water into the bag. Adjust the amount that drips so that after 5 to 8 hours most of the water in the bag is tank water.

After the bag is filled mostly with your tank water, carefully net the fish and put it in your tank. Do not put the bag water in your tank. You want to avoid introducing parasites, bacteria, algae, etc that may be present in the fish store water into your tank.

Carefully observe the new arrivals over the next few days for any signs of disease or other fish nipping at them. Assure they are active. Many fish won't eat for the first two to three days. This is nothing to worry about; they will eventually adapt and start feeding. Do not medicate the fish unless there are visible signs of disease. Medicating healthy fish only lowers their resistance and increases their stress levels.

Another common problem when adding new fish is they become targets for other territorial fish in the tank, since they are unfamiliar with these pre-established territorial boundaries. With fish that are territorial in nature, it is a good idea to re-arrange the decorations in the tank just prior to introducing the new fish. This helps even things up as everyone will be looking to establish new territories. If you don't like the new decoration arrangement, simply put it back the way it was after a couple of weeks and everyone will again establish their territorial lines.

Following the simple step above will help assure that your new arrivals will have long and healthy lives in their new homes.

III. Maintenence

Maintenance is the key to long term success with this hobby. In the properly setup and stocked aquarium, it can be kept to a minimum.

There are several factors that influence how much maintenance is required. Let's look at some.

Overstocked Aquariums

Overstocked aquariums increase maintenance. The increased bio-load requires more frequent gravel cleaning, water changes and filter cleaning. The increased bio-load can also increase algae growth due to increased nitrate production.

Over feeding

This is another common problem that can increase maintenance substantially. The more fish eat the more wasted is produced. Increased ammonia results in increased nitrates which in turn increase the need for water changes. There are lots of phosphates in fish food. The increased phosphates and the increased nitrates are the two main reasons for algae growth. The increased waste production also increases debris leading to more frequent gravel cleaning.

A good rule of thumb is not to feed your fish more than they can eat in two minutes every other day.

Recommended Maintenance Schedule

Daily

- Check Aquarium Temperature

  This is good practice to do on a daily basis and only takes a second. Make sure the aquarium temperature is in the range you expect and there are no temperature fluctuations. A faulty heater are common and can destroy the aquarium stock in short time. Temperature fluctuations can also lead to diseases, especially Ick. After a time you will be able to feel the aquariums

side and determine if the temperature is correct.

Check the Fish

Make sure their activity is normal, they are not hanging out at the top of the aquarium (lack of oxygen in the water) or hovering in a corner. Out of normal activity is one of the first signs of disease and a daily check is the best way to combat any disease as early as possible.

Check Power Filter or Air Pump

Make sure the filter is running. Faulty filters can increase water laden pollutants and nitrifying bacteria die off. Meaning you may need to re-cycle the tank.

Weekly

Water Changes

Some aquarists do 20 or 25% changes every two or three weeks. Weekly changes of a smaller amount mean less change to the fish's environment. The pH of an aged aquarium has the natural tendency to change over time (usually downward). The replacement water may not have exactly the same pH value, even though you have always used the same water. Larger percentage water changes mean larger pH swings causing increased stress. Smaller percentage water changes mean less stress on the fish. Water changes are important in that they increase the oxygen content of the water, decrease the accumulated nitrates, and replace beneficial trace elements that may have been depleted. Two important point about water changes

Make sure that the temperature of the replacement water is the same as the aquarium water. Temperature shock can lead to increased fish stress and disease. The replacement water should be free of chlorine or chloramines. Chlorine /Chloramine removers are available at local aquarium supply shops and are inexpensive. The replace water should be close to the same pH as the water in the aquarium.

Gravel Cleaning

It is good practice to do this with water changes. Gravel cleaners shown in the Essential Equipment section will allow you to do water changes and clean the gravel simultaneously. You don't need to clean all of the gravel with each water change. Try to do about 20%. Accumulated debris will decompose resulting in increased phosphates and nitrates. Periodic removal of debris collected in gravel will help control this.

Every Two Weeks

Filter

The filtering media should be replaced or cleaned. If you are cleaning the media be sure and use dechlorinated water at the same temperature as the aquarium water. A good idea is rinse your filter with the old aquarium water

that you are changing. The same goes for cleaning the activated carbon and bio-media if your filter has them. Chlorinated water and temperature shock can kill the nitrifying bacteria that has accumulated on these elements reducing the capability of your aquarium to convert toxic ammonia to nitrate.

Every Two Months

- Activated Carbon

  Replace the activated carbon. See the article on activated carbon.

When Required

- Air stones

  Clean or replace air stones if used

- Filter Uplift Tube

  Clean. Hose brushes available at the local aquarium supply store will make an easy job of this.

- Accumulated Algae

  Clean accumulated algae on aquarium glass and decorations. Algae scrubbing pads are available for both acrylic and glass aquariums. If you are using plastic or silk plants, these can be cleaned by soaking them in a solution of water with 5% bleach overnight. Be sure and rinse them thoroughly after treatment and do a second rinse with water and dechlorinater (A same as is used for the Aquarium water).

That's it, following these simple procedures will help assure a successful aquarium.

With a new aquarium, one of the first things that's required is to cycle the tank preparing it for the additional of fish. This requires patience, not easy for some but with a little of it success is much easier to come by. Fish, decaying plants and uneaten food produce waste A large amount of this waste is ammonia and phosphates. Phosphates, while not toxic, help produce algae. Ammonia (NH^3) on the other hand is very toxic to fish. So many beginning enthusiasts bring home the aquarium, add water, wait until the water is up to temperature and add the fish. Within a week all of the fish are dead and they are wondering why!! The answer is simple they didn't cycle the tank and the fish died of ammonia poisoning! Properly cycling your tank is essential and requires nothing more than the adding some hardy fish to get the cycle started.

IV. Cycling your Aquarium

Ok, as we mentioned fish produce ammonia (NH^3) which is toxic to fish and the damage

caused is permanent so we need to get rid of this ammonia. Luckily,in the presence of Ammonia in the aquarium, a nitrifying bacteria called Nitrosomonas forms. The amount is dependent on the amount of ammonia in the aquarium. This bacteria converts the ammonia (NH^3) to nitrite (NO^2). Seven to Ten days are required for the Nitrosomonas to form in sufficient quantities to convert the ammonia to nitrite. If you put a couple of hardy and I repeat hardy fish, something like White Cloud Mountain Minnows or Zebra Danios, not your prize Discus, they will start producing ammonia, which in turn will produce the bacteria (Nitrosomonas) that will change the ammonia to nitrite. This is the first part of the nitrogen cycle depicted above.

But wait, you're not out of the woods yet! Nitrite ((NO^2) is also toxic to fish. We are still in luck, in the presence of nitrite a second bacteria appears called Nitrobacter. This second bacteria will convert the nitrite (NO^2) to nitrate (NO^3-). Nitrobacter growth is inhibited in the presence of ammonia therefore the Nitrosomonas must be in sufficient quantities to convert all of the ammonia to nitrite before the Nitrobacter can prosper. Once the ammonia is converted to nitrite the Nitrobacter will build up and convert the Nitrite to a harmless Nitrate after about 21 to 28 days.

To our good fortune, nitrate, in reasonable quantities is non-toxic to fish. We still need to control it or you will get some great algae blooms. Nitrate levels are generally controlled through periodic water changes. Usually a 10 to 15% on a weekly basis is recommended. Now you can see what I mean by patience, The aquarium is now three weeks old and just finished cycling!! In some cases it can take even longer.

With the Ammonia and Nitrite levels at zero, additional fish can be added to the aquarium. Be careful though! As you add fish the amount of waste produced increases, which means the amount of ammonia produced increases and you need to give the tank time to build up the additional bacteria required to convert the added ammonia. The amount of ammonia produced directly relates to the amount of bacteria that will be in the tank. This is called the **"Bio Load"**

Both Nitrosomonas and Nitrobacter are Aerobic bacteria which means they requires oxygen to form and will do so anywhere where the oxygen rich water flow meets a surface area like on your gravel, decorations, etc. In a closed system such as the aquarium, a lot of surface area in contact with the water flow is required in order to grow enough bacteria to take care of your tank's Bio Load.

How do you tell if your tank is cycled? The best way is to periodically measure the amount of ammonia and nitrite that is in the aquarium. Most fish stores sell test kits for measuring ammonia and nitrite at reasonable prices. They are good to have on hand. If you have problems with your aquarium the first thing you want to do is check the pH, ammonia and nitrite levels to assure yourself the fish are living in a safe environment. During the initial cycling of your tank you will want to check these levels every three or four days. After it has cycled, once a month should be plenty, or whenever you are having a problem with the fish health.

Certain medications, extended time without fish, chlorinated water, etc can cause loss of your nitrifying bacteria meaning you will need to recycle your tank. This is not fun and puts your fish at risk.

Providing a healthy environment for the raising and breeding of fish should be the primary goal of the aquarist. Planning can help achieve this goal with the minimum amount of effort and expense for the aquarist. As a minimum to following equipment is required:

V. Essential Equipment

- Aussie Aquarium (tank, filter, lighting)
- Heater
- Thermometer
- Chlorine remover

Almost Essential

- Sand or gravel
- Algae cleaner
- Gravel cleaner
- Test kits or Source for water testing

Filter

The three types of filtering that must be considered for an aquarium are Mechanical, Chemical and Biological. These can be done using one filter, or in many cases, two types of filtering are used. Let's define each type of filtration first:

Mechanical

Removal of particulates floating in the water. Normally this is accomplished by passing the water through a sponge, cotton, or other synthetic material where the particulates are trapped. The filter media is then periodically cleaned or replaced.

Chemical

Removal of harmful chemicals and dissolved organic compounds (called DOCs) from the water. Water, after passing through the mechanical filtration stage, passes through a layer of activated carbon, where the carbon absorbs these chemicals and DOC's. The carbon needs to be periodically replaced

Biological

Probably the most important part of filtering and the least understood. Fish, decaying food, plants, etc. produce ammonia which is toxic to fish. In a closed system such as the aquarium this ammonia will quickly kill your fish. Biological filtration consists of growing of

two types of bacteria in your aquarium. The first converts the toxic ammonia to nitrite (also toxic) while the second converts the nitrite to nitrate (non-toxic). Nitrate levels are then controlled through periodic partial water changes. The process of creating the biological bacteria is primarily providing the space and the conditions to grow the bacteria and waiting for the cycle to complete. This is called "Cycling your Tank or completing the Nitrogen Cycle. An in depth discussion of the Nitrogen cycle is illustrated and discussed by clicking here.

Most of the power filters have special areas or compartments where the bacteria can grow. Care must be taken when cleaning the bio-media so as not to kill the bacteria that has been established.

There are many types of filters on the market today and many claim to be able to handle all three types of filtration. Check out the filtration page for an in-depth discussion on the different types of filters. Probably the most popular system in use today is a combination of using a HOT (Hang on the Tank) power filter for the mechanical and chemical filtration and the UGF (Under Gravel Filter) for the biological filtration. With the UGF the gravel is where the nitrifying bacteria grows.

Depending on the size of your tank, both air powered and electric powered filters and UGF's are available. I would suggest that with aquariums larger than 10 gallons, electric power filters rather than air should be considered. If you decide to use the UGF filters, I would suggest that anything over 30 gallons will require electric power heads for water movement rather than air stones.

You should choose a filter with an hourly flow capacity of 4 to 7 times your tank volume. In other words, a 30-gallon tank would need a filter with 120 to 210 gallon per hour flow rate.

Heater

Tropical fish require that the aquarium water be maintained at about 24 to 26^{O}C (Variations will occur, depending on species kept). This will require a heater. Heaters are rated in watts and a good rule of thumb is 5 watts of heating capacity per gallon of water. If you live in a cold climate or have the tank in the basement, you may want to increase this. You need enough heater capacity to maintain a constant temperature in the tank with as little temperature variation as possible (2OF maximum) Temperature variations can stress fish and is also a common cause of Ick disease. There are several types of heaters available.

The most popular are those that contain the thermostat and heating element in one unit. A simple dial on the end of the heater regulates the temperature setting. These are available in both as submersible heater or one that attaches to the side of the aquarium. Those that attached to the upper lip of the aquarium have a low water level mark on them. If the water level falls below this line the heater can be damaged. When doing water changes with this type of heater be sure and unplug it. I prefer the completely submersible heaters. You don't need to worry about shutting them off during water changes and they allow you more flexibility in placement in the aquarium.

Thermometer

Most heaters have graduated dials with temperatures marked on them, but they are not very accurate. A thermometer is the best way to determine the actual temperature and should be used to adjust your heater. Heaters can also fail and the thermometer is the best indicator of whether your heater is working properly.

Chlorine Remover

Chlorine is found in almost all tap water, it kills harmful bacteria, making the water fit for human consumption. Chlorine however is lethal for fish and must be removed prior to using the water in the aquarium. This can be done by allowing the water to sit for 2 or 3 days and having the chlorine evaporate out of the water or by adding chlorine remover.

LIghting

Unless you are planning on live plants, the amount and type of lighting is flexible. You will need to adjust the amount of time you have your lights on so as to avoid algae growth. The most popular is the fluorescent light which has several advantages over the incandescent lights supplied with many aquarium kits and hoods. Incandescent lighting (your typical home light bulb) generates a lot of heat and can make it very difficult to control your aquariums temperature, especially in the summertime. They can also heat up your aquarium hood to the point where you can burn yourself. Fluorescent lighting is much cooler and fluorescent tubes come in a variety of colors where you can select the color temperature that you like for your viewing pleasure. For more information on lighting for the aquarium Click here.

Most hoods, especially those that come in kits will not provide sufficient light for plants. You will need to build your own hood or resort to specialty hoods for these types of aquariums.

Substrate or Gravel

Gravel is by far the most common substrate in use. Sand is also used by many aquarists. Unless you have a planted tank or have opted for the UGF filter, sand or gravel, as a substrate is really optional. If you are using a UGF, then gravel is required as it is the median where the nitrifying bacteria adhere. Do not use sand if you have a UGF filter since it will simply fall through the holes in the bottom plate and ruin your power head or clog the uptake tube. Most sand or gravel sold in aquariums is suitable. If you purchase elsewhere be sure that the gravel will not affect the pH of your water. The gravel or sand should be inert to avoid leaching carbonates into the water and altering the pH. You can test this simply by dropping an acid such as vinegar on the gravel or rock. If it bubbles or foams then it is not inert and will leach. Avoid using sand collected from the beach in that there are many impurities in it.

Gravel Cleaner

A very important tool required for the maintenance of the aquarium. Consists of a section of hard plastic tubing connected to a length of flexible tubing. The hard plastic section is larger than the flexible part. The hard plastic section is inserted into the aquarium and the opposite end is placed in a bucket or some other receptacle placed below the aquarium. By starting a siphon, water flows from the aquarium to the receptacle. Inserting the hard

section into the gravel will lift debris from the gravel into the receptacle. This process allows you to clean the gravel as you do water changes. Gravel cleaning is important, as the decaying material, if not removed will increase nitrates and phosphates in your aquarium increasing the possibility for algae growth.

Algae Pad

No matter how hard we try, algae will eventually appear in the aquarium. Algae pads are made of a material tough enough to clean the algae from the glass or acrylic wall of your aquarium without scratching. Be sure and select the algae pad designed for your type of aquarium. Using a glass pad on an acrylic will only scratch the surface of the aquarium.

Test Kits

The pH, ammonia and nitrite levels must be monitored in your aquarium, especially when just starting up. Knowing the gH, kH and nitrate levels are also important factors when trying to analyze a problem. An in depth discussion of how these affect your aquarium can be viewed by clicking here. Many LFS (Local Fish Stores) will do water testing free for their customers or you can purchase on of the many test kits available for a reasonable price.