Aquaria

Steps to setting up an aquarium:

1. Select your organism
2. Research your organism
3. Select a tank:
   * All glass aquarium
   * Size # of gallons
   * Shape rectangular, hexagon, rounded, or circular

high, low, long, or shallow

1. Pick a location for the tank

* Need a sturdy surface (8 lbs/gallon)
* Not in direct sunlight (could change water temp.)
* Easily accessible
* Not near doors or heavily trafficked walkways

1. Clean the Tank
   * Only use cold water (so glass doesn’t crack or glue doesn’t melt) and kosher salt (non-iodized)
   * Never use:
     + Iodized salt
     + Soap
     + Hot water
     + Windex
     + Bleach \*\* may only use this for a bleach bath of decorations
2. Check for leaks
   * + Place cardboard under the tank, it changes color when wet and allows the tank to move when filled (can drag it)
     + Fill the tank partially, mark and date the height of the water, then wait 24 hours to see if the level decreased
     + If there are no leaks then fill the tank to the top and repeat (date, mark level, and check)
3. Add salt
   * F.W. 1 tablespoon of aquarium salt

Fresh Water

* + S.W. add sea salt until the density is 1.02 g/mL

Salt Water

* + use a hydrometer to test and measure density

salinity is measured in ppt – parts per thousandth

1. Add substrate:
   * about 1 to 1.5 inches deep
   * holds down decorations
   * some animals burrow or move it around
   * some like to dig
   * use it to scratch or eat food from

F.W. gravel (doesn’t affect the pH)

Crushed coral (dolomite – artificial)

S.W. adjusts the

Live sand (pretreated with bacteria) water’s pH

1. Install an aquarium heater

* Most aquariums require a temperature range between 72oF and 80oF (21oC to 25oC)
* Size of heater needed is measured by 5 watts/gallon rule
  1. Place the heater, unplugged, on the bottom of the tank, horizontally (heat rises)
  2. Wait 15 minutes for heater thermostat to adjust to the water temperature
  3. Plug the heater in using a “drip line”, which is a loop in your electrical cord.

1. Add a thermometer
   * + Measures the temperature, keeps track of tank temperature and checks to see if the heater is working properly
2. Add/Install a filter
   * + There are three parts to a filter system:
       1. Physical filtration – Blue Pad, separates out solid particles from the water
       2. Chemical filtration – Black rocks of activated carbon, removes harmful chemicals / gasses from the water
       3. Biological filtration – Bio-wheel, contains beneficial bacteria, removes ammonia and nitrates from the water (nitrogenous waste products)

Filter

|  |  |  |
| --- | --- | --- |
| Filtration Type | Features | Purpose |
| Physical | Blue Pad | Separates out solid particles from water |
| Chemical | Activated Carbon Rocks | Removes harmful chemicals and gasses |
| Biological | Bio-wheel  Of beneficial bacteria | Removes nitrates from the water |

1. Decorations:

* Reasons for decorations
  + - 1. Hiding Spots
      2. Makes them feel at home
      3. Lay eggs – don’t often see this happen
* Rules for decorations
  + 1. All F.W. decorations are okay in S.W. tanks, but NOT all S.W. decorations are okay in F.W. tanks

S.W. decorations include corals and sea shells

made from CaCO3, raise the pH

1. Lighting

* Requires 8 to 10 hours of light a day
* Fluorescent bulbs are used, they generate little heat
* Reef tanks require actinic light (blue)
* Turtle tanks require UV light

1. Cover – reasons for the cover
   * + Keep animal in the tank
     + Limits evaporation
     + Keep things out of the tank
2. Add a Starter Fish (a test animal)
   * + “Starter” fish is an animal that is less sensitive to spikes in ammonia (NH3) levels
     + Acclimating a Fish
       1. Float the bag in the new tank for about 15 minutes
       2. Open the bag and mix in some water from the tank into the bag. Wait 15 minutes.

\*\*careful not to let animal escape

* + - 1. Slowly let the animal swim out of the bag
* Cycle the Tank

Ammonia level – above 2.0 ppm is toxic

Start at 0 ppm and it will grow to 1.5 ppm, stimulating bacteria growth on the bio-wheel.

* 1. Add your starter fish
  2. The fish goes to the bathroom and “adds” ammonia to the water
  3. Increased NH3 (ammonia) stimulates the bio-wheel bacteria to reproduce
  4. Increased bio-wheel bacteria, decreases NH3
  5. When NH3 is back to 0 ppm the tank is cycled

1. Cycling the Tank

* Ammonia increases due to fish waste
* As bacteria on the bio-wheel increases in number then the level of ammonia decreases
* Bacteria waste NO2 , nitrite, then increases
* Additional bacteria on the bio-wheel increases in number and eat the nitrite, but their waste NO3, nitrate increases
* \*\* End up with nitrate, over time could be deadly

1. Water Changes
   * + Remove 1/4 to 1/5 of the water and replace it with aged water. (Aged water has sat for 24 hours)
     + Must be done once a month, \*Replace F.W. with F.W. and S.W. with S.W.
     + Siphon – tool necessary to change the water
     + Reasons for the water change
       1. Removes nitrate
       2. Cleans substrate
       3. Adds fresh minerals to the tank
2. Check the pH

* F.W. pH = 7
* S.W. pH = 8
* Check pH once a week
* Some F.W. animals require a higher pH so you need to check
* The natural way to adjust the pH is by adding a shell to raise the pH

1. Feed the Fish
   * + Over-feeding is the #1 cause of death
     + A small pinch of food 1x a day
     + Remove any uneaten food
2. Transfer or Moving of Fish from one Tank to Another

* Don’t use a net! Fish have a protective slime coating over their scales and nets remove this slime coat
  1. Use a special small container (has a hook on the side) and fill it with tank water
  2. Dip container underwater and try to get the fish into the container
  3. Once captured you may transfer and acclimate your fish (refer to step 15 for acclimating procedures)