

WALNUT CREEK SUPPLY

THE COMPLETE CARE GUIDE

Aquarium Plants

Light, nutrients and layout for a living underwater garden



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New owner? Go straight to Section 1. It is written so you can set up a safe, correct home and get through the first 48 hours without reading anything else first.

Walk past a tank full of healthy live plants and you can feel the difference before you can name it. The water looks clearer, the fish drift instead of dart, and the whole thing seems to breathe. Live aquarium plants are the quiet workhorses of a freshwater tank. They soak up the nitrate and ammonia that fish waste leaves behind, they give shy fish somewhere to hide, they shade the water so algae has a harder time, and they release oxygen into the water while the lights are on. They also happen to be beautiful, and a handful of easy species will grow happily for years in a plain tank with a basic light. This guide covers everything we would tell a neighbor standing in our shop: which plants to start with, how to arrange them, what they eat, how to trim them, and what to do when something goes wrong. It focuses on freshwater aquarium plants, with a short note on pond plants near the end of the layout section. Fish selection, cycling a new tank, and water changes live in our separate Freshwater Aquarium Guide, so we will point you there instead of repeating it. Start with the Quick Start below, and remember that a planted tank rewards patience far more than it rewards gadgets.

SECTION 1

Quick Start: Your First 48 Hours

If you only read one section, make it this one. Following these steps gives your new plants the best chance to settle in and start growing instead of melting away.

1. **Unpack right away and inspect everything.** Open the bag or box the day your plants arrive, lift each plant out, and remove any rubber bands, metal weights, or plastic pots. Discard leaves that are already mushy, black, or slimy. A few rough leaves on a new plant are normal; a whole plant that smells foul is not.
2. **Quarantine and rinse before anything goes in your main tank.** Swish each plant gently in a bucket of dechlorinated water, pick off visible snails and egg clusters, and consider a short dip (see the pest section later in this guide). Plants grown in commercial farms and other people's tanks can carry hitchhikers.
3. **Match the plant to your light.** If you have a basic, low-output light, choose low-light plants such as java fern, anubias, cryptocoryne, vallisneria, hornwort, and floating plants. Save the demanding red stem plants and carpets for later.
4. **Plant rooted plants correctly.** Bury roots and the crown base just deep enough to hold the plant down, but keep the crown (the point where leaves meet roots) at or just above the substrate surface. Burying the crown is one of the most common ways to lose a plant.
5. **Never bury rhizome plants.** Java fern, anubias, and bolbitis have a thick, horizontal stem called a rhizome. Tie or glue it onto wood or rock, or wedge it into a crack. Buried rhizomes rot.
6. **Set the light on a timer for 6 to 8 hours a day.** Do not run the light longer to "help" the plants. More hours mostly feeds algae. A simple outlet timer is one of the best small investments in the hobby.
7. **Hold off on heavy fertilizing for the first week.** New plants, fresh substrate, and a newly set-up tank usually have plenty of nutrients to start. After the first week, begin a gentle weekly dose of a balanced, aquarium-safe liquid fertilizer.
8. **Expect some melting.** Many store-bought plants are grown above water ("emersed") and must rebuild their leaves for life underwater. Old leaves may dissolve over two to four weeks while new leaves grow in. This is normal. Do not pull the plant out unless the base turns to mush.
9. **Keep the water stable.** Avoid large water changes or big temperature swings for the first couple of weeks, and keep the filter running gently so plants are not whipped around or uprooted.
10. **Trim off dying leaves daily for the first week.** Decaying plant matter feeds algae and can foul the water. Quick, gentle removal keeps things clean.
11. **Photograph the tank today.** A picture on day one makes it easy to see growth and spot problems later.

First-Time Starter Bundle

Here is what we suggest having on hand before your plants arrive, and what to look for in each category.

Essentials

- **A suitable aquarium light with a timer** - a full-spectrum LED made for planted aquariums. Choose low or medium output for beginners. A mechanical or digital outlet timer keeps the schedule steady.
- **A planting substrate** - inert sand or fine gravel for easy plants, or a nutrient-rich aquasoil for heavier planting. Fine to medium grain sizes hold roots best.
- **Root tabs** - slow-release fertilizer capsules pushed into the substrate for heavy root feeders such as Amazon swords and cryptocoryne.
- **A balanced liquid fertilizer labeled aquarium-safe** - a complete all-in-one formula that includes both macronutrients and micronutrients. Check the label for copper if you keep shrimp or snails.
- **A water test kit** - liquid drop-style tests for nitrate and phosphate, plus general hardness and pH. Strips are fine for a quick look, but drop tests are more reliable.
- **Aquascaping scissors and tweezers** - long, curved or straight blades for trimming, and long tweezers for planting and pulling out debris without disturbing the tank.
- **A bucket kept only for aquarium use** - used for plant rinses and water changes. Never wash it with soap.
- **Dechlorinator** - removes chlorine and chloramine from tap water, which is essential for plant rinses as well as fish.
- **A beginner plant selection** - java fern, anubias, cryptocoryne, vallisneria, hornwort, and a floating plant such as frogbit.

Ready to set up? Browse the essentials in our collections: Aquarium Live Plants & More, Aquarium Substrate and Aquarium Lighting.

Enrichment

- **Driftwood and smooth rock** - safe, aquarium-grade hardscape to anchor rhizome plants and create the structure of the layout. Wood should be boiled or soaked before use.
- **Aquarium-safe plant glue or cotton thread** - for attaching java fern, anubias, and moss to wood and rock.
- **A small algae scraper and a soft toothbrush** - for gentle glass and hardscape cleaning.
- **A liquid carbon supplement** - an optional step up from no carbon at all, for medium-light tanks.
- **A pair of fine-tipped planting forceps** - for tucking small stem plants and carpeting plants into the substrate neatly.

Enrichment, one click away. Shop Aquascape Kits & Hardscape and Aquarium Plants.

SECTION 2

Meet Your Aquarium Plants

Aquarium plants fall into a few practical groups, based on how they grow and where they like to live. Knowing the group tells you how to plant it, where to put it, and how it feeds.

Rooted plants pull most of their nutrition through their roots and need a substrate they can grip. **Rhizome plants** grow from a thick horizontal stem and take most of their food from the water through their leaves, so they attach to wood or rock instead of sitting in the gravel. **Stem plants** grow tall and narrow, and absorb nutrients through both stems and leaves. **Floating plants** drift at the surface with their roots dangling down, taking nutrients straight from the water. **Mosses and carpets** form low, dense mats. **Bulbs** grow from a storage bulb that sits at the substrate surface. **Moss balls** are a special case: green algae that grows into a round cushion.

Group	Examples	Difficulty	Light demand	Where it goes
Rooted	Amazon sword	Easy to moderate	Medium	Midground to background, with root tabs
Rooted	Cryptocoryne	Easy to moderate	Low to medium	Foreground to midground
Rooted	Vallisneria	Easy	Low to medium	Background, as a living curtain
Rhizome	Java fern	Easy	Low	Attached to wood or rock
Rhizome	Anubias	Easy	Low	Attached to wood or rock
Rhizome	Bolbitis	Moderate	Low to medium	Attached to wood or rock in good flow
Stem	Hornwort	Easy	Low to medium	Background, or floating loose
Stem	Anacharis (elodea)	Easy	Low to medium	Background
Stem	Bacopa	Easy to moderate	Medium	Midground to background
Stem	Rotala	Moderate to advanced	Medium to high	Midground to background
Floating	Frogbit	Easy	Low to medium	Surface
Floating	Red root floater	Moderate	Medium to high	Surface
Floating	Salvinia	Easy to moderate	Medium	Surface
Floating	Duckweed	Easy	Low to high	Surface (spreads aggressively)
Moss and carpet	Java moss	Easy	Low to medium	Attached to wood or rock
Moss and carpet	Dwarf hairgrass	Moderate to advanced	Medium to high	Foreground carpet
Moss and carpet	Monte Carlo	Moderate to advanced	Medium to high	Foreground carpet
Bulb	Aponogeton	Moderate	Medium	Midground to background
Bulb	Banana plant	Easy to moderate	Low to medium	Midground, leaves floating at surface

Group	Examples	Difficulty	Light demand	Where it goes
Moss ball	Marimo-style moss ball	Easy	Low	Anywhere on the substrate

Our beginner picks

If you are brand new, start with these six types. They tolerate beginner mistakes, a basic light, and ordinary tap water.

- **Java fern** attaches to wood or rock and thrives on low light. It almost never needs fertilizer beyond what fish waste provides.
- **Anubias** is a tough, slow-growing plant with thick leaves that most plant-nibbling fish leave alone.
- **Cryptocoryne** is a classic foreground and midground plant that likes a root tab. It may melt when first planted, then bounce back.
- **Vallisneria** grows long ribbon leaves and spreads by runners, making a natural curtain at the back of the tank.
- **Hornwort** floats freely or can be loosely anchored, grows fast, and mops up nutrients that algae would otherwise use.
- **Floating plants** such as frogbit shade the water, soak up nitrate quickly, and need no planting at all.

Plant by plant

Amazon sword is a big, bold, broad-leaved plant that becomes a focal point. It is a heavy root feeder, so give it a root tab every couple of months and room to spread. In a small tank it can outgrow its space.

Cryptocoryne (often called "crypts") comes in many sizes and colors. It often melts when first planted or when conditions change, then regrows from the roots. Leave it alone and do not dig it up.

Vallisneria sends out runners that form new plants. It handles a wide range of water conditions, and the long leaves can be trimmed to height.

Java fern is tied to wood or rock with thread or glue. Tiny plantlets sometimes form on mature leaves, and they can be removed and attached elsewhere.

Anubias has strong, glossy leaves that are slow to grow and slow to heal. Keep the rhizome out of the substrate and keep strong light off the leaves, because algae loves to settle on the old, slow ones.

Hornwort has bristly, whorled needle-like leaves. It sheds needles when stressed or when the water changes dramatically, which is annoying but not fatal.

Duckweed is a tiny floating plant that multiplies astonishingly fast. **Warning:** duckweed spreads, clings to everything (including nets, fish, and your hands), and is very difficult to remove once established. Think twice before adding it, and never dump it into any natural waterway.

Java moss is a fine, tangled moss that attaches to anything and gives fry and shrimp a place to hide. It traps debris, so rinse it gently during maintenance.

Moss balls are slow-growing balls of algae that need little more than low light and occasional rolling. Because wild-collected moss balls have been linked to hitchhiking invasive mussels in the past, always quarantine them. A common precaution is to inspect, rinse, and freeze or otherwise treat a new moss ball before it goes into your tank, and never to release one into natural water.

What plants do for your fish

Live plants are good for the animals in your tank, not just the eyes.

- **Cover.** Dense leaves give shy fish, fry, and shrimp places to retreat, which lowers stress and aggression.
- **Oxygenation.** While the lights are on, plants release oxygen into the water. They also use oxygen at night, so a gently moving surface is still important.
- **Nitrate sinks.** Plants absorb ammonia and nitrate as food, helping keep water quality steadier between water changes. They do not replace water changes, but they help.
- **Less algae.** Healthy growing plants compete with algae for the same nutrients and light.

SECTION 3

Planting Layout & Aquascape

A tank full of random plants can grow well and still look messy. A little planning makes the same plants look intentional, and it makes maintenance easier too. Aquascaping (the art of arranging plants and hardscape) is a skill worth learning gradually.

Foreground, midground, background

Think of your tank in three zones.

- **Foreground** is the front third. Use short, low plants here: dwarf hairgrass, Monte Carlo, small cryptocoryne, and mosses.
- **Midground** is the middle. Medium plants such as Amazon swords, larger cryptocoryne, bacopa, and bulb plants fit well.
- **Background** is the back third. Tall stem plants, vallisneria, and hornwort hide equipment and frame the view.

In a tank that will be seen from all sides, such as an island layout in the middle of a room, tall plants go in the center and shorter ones around the edges.

Focal points and the rule of thirds

The eye likes a clear focal point. Place your main feature, such as a large piece of driftwood or an impressive sword plant, about one-third of the way across the tank rather than dead center. This is the rule of thirds, borrowed from photography. Balance it with something lighter on the other side, such as a smaller cluster of plants or a few rocks, so the scene feels settled instead of lopsided.

Plant in groups of the same species instead of single plants scattered around. Three to five of one plant makes a stronger statement than a single specimen of each kind.

Hardscape: wood and rock

Hardscape is the non-living structure of your tank. It anchors the layout and gives rhizome plants and mosses a place to grow.

- **Driftwood.** Use wood sold for aquariums, which has been selected for safety. Soak or boil new wood to help it sink and to leach tannins (the tea-colored compounds that can tint water brown). Tannins are harmless to most fish, and some people like the look, but you can speed up clearing with repeated soaking.
- **Rock.** Choose smooth, inert stones sold for aquariums. Some rocks can raise hardness and pH, which may not suit soft-water fish and plants, so ask if you are unsure.
- **Safe woods only.** Do not collect wood from outdoors unless you are certain of the species and have cleaned and cured it thoroughly. Some woods leach harmful sap or rot underwater. When in doubt, buy aquarium-grade wood.
- **Secure everything.** Stack rocks so they cannot topple onto the glass, and set heavy pieces directly on the tank bottom rather than on top of substrate where fish could dig under them.

Swim space, flow, and access

A beautiful layout still needs to work for the people and animals who use it.

- **Leave swim space.** Fish need open water, especially active swimmers. Do not fill every inch with plants.
- **Plan for flow.** Water should move gently through the plants so nutrients and carbon dioxide reach all the leaves. Dead zones collect debris and invite algae. Avoid pointing a strong filter outlet directly at delicate plants.
- **Keep maintenance access.** Leave a path where your hands, scissors, and tweezers can reach the back of the tank without wrecking the front. A tank you cannot trim is a tank that eventually gets overgrown.

Plants and fish that dig or eat

Some fish simply do not mix well with delicate plants.

- **Goldfish** dig, nibble, and uproot plants as a matter of course.
- **Many cichlids** dig pits and rearrange the substrate, and some graze on soft leaves.
- **Large or plant-eating fish** may shred whatever they can reach.

If you keep rough fish, choose tough plants that fish dislike or cannot easily uproot. Anubias, java fern, and bolbitis attach to hardscape, have thick leaves, and tend to survive. Plants that are tied to heavy rocks or wood are harder to dig up. Floating plants and hardy stem plants like hornwort can also work. Details on choosing compatible fish are in our separate Freshwater Aquarium Guide.

A short note on pond plants

Outdoor ponds follow the same principles, with a few adjustments.

- **Choose hardy plants.** Select plants that tolerate your local winters. Check the hardiness information on the label for your area.
- **Plant by depth.** Water lilies, marginal plants, and submerged oxygenators all like different depths. Use planting baskets set on blocks or shelves at the right depth for each species.
- **Use baskets with heavy soil.** Plant in aquatic planting medium (not regular potting mix with fertilizer additives) and cover the top with gravel so fish cannot dig it out.
- **Control spread.** Many pond plants spread vigorously by runners and seed. Thin them regularly and never let cuttings or seeds escape into storm drains, streams, or lakes.
- **Check local rules.** Some pond plants are restricted or prohibited in certain states because of invasiveness. Check your state and local rules before buying or sharing plants.

Environmental responsibility

Please treat this as a rule, not a suggestion. Never dump aquarium plants, water, or animals into lakes, streams, ponds, or storm drains. Several popular aquarium plants are invasive and have caused serious harm to natural waterways when released. Aquarium water can also carry organisms that do not belong in the wild. When you trim your plants, bag the trimmings and either freeze them for a day or two or put them in the household trash. Do not compost them where runoff can reach water, and do not flush them. If you have plants or fish you cannot keep, offer them to a local aquarium club, a friend, or a store that accepts them, or ask a local wildlife or fisheries office what is allowed in your area.

SECTION 4

Substrate & Root Feeding

The material on the bottom of your tank does two jobs. It anchors roots, and for some plants it is also the pantry. Choosing a substrate comes down to which plants you want and how much work you want to do.

Your substrate options

Substrate type	What it is	Pros	Cons	Best for
Inert gravel or sand	Plain, non-nutritive material	Inexpensive, easy to find, stable, and works with root tabs	Holds no nutrients on its own	Beginners, low-tech tanks, java fern and anubias on hardscape
Nutrient-rich aquasoil	Soil-based granules designed for planted tanks	Feeds roots for months, often lowers pH and softens water slightly	Costs more, can release ammonia early on, breaks down over time	Carpets, stem plants, and demanding plants
Layered setup	A thin nutrient layer under a cap of sand or gravel	Combines nutrition with an easy-to-clean surface	More work to set up, harder to change later	Larger planted tanks and experienced hobbyists

Inert gravel or sand works well for beginners. Plants that feed mostly through their leaves, such as java fern, anubias, and floating plants, do not care what is underneath. Rooted plants can still grow well if you add root tabs.

Nutrient-rich aquasoil gives plants a head start and is popular for carpets and demanding stem plants. New aquasoil can release ammonia in the first weeks, so set up with care, keep fish loads light at first, and follow the guidance on your type of soil. It also gradually exhausts, usually over a year or two.

A **layered setup** puts a thin layer of nutrient-rich material or soil on the bottom, capped with an inch or so of sand or gravel to keep it in place and keep the water clean. Do not disturb it once planted or you will cloud the tank.

Root tabs for heavy root feeders

Some plants, such as Amazon swords, cryptocoryne, and aponogeton, pull most of their nutrition through their roots. In plain gravel they may stall or yellow unless you feed them.

Root tabs are slow-release fertilizer capsules or pellets you push into the substrate near the roots. They release nutrients gradually for a month or more.

- Push each tab about an inch or two deep, a few inches from the plant so you do not damage the roots.
- Place them near heavy feeders and replace them every couple of months, or as the label directs.
- Keep them out of reach of digging fish.
- Use tabs labeled aquarium-safe. If you keep shrimp or snails, check the label for copper.

Do not bury rhizomes

Rhizome plants such as java fern, anubias, and bolbitis must not be planted into the substrate. Burying the rhizome blocks oxygen and invites rot, and the plant will die. Tie or glue them to wood or rock, or wedge them into a crevice. Their roots will grab on over time, after which you can remove the thread.

SECTION 5

Light, CO2 & Water: The 3 Numbers

Every planted tank is shaped by three things: how much light it gets, whether it has added carbon dioxide (CO2), and what the water is like. Get these three roughly right and the rest becomes much easier.

Number 1: Light

Light is plants' food factory. Plants use it for photosynthesis, the process that turns light, CO2, and nutrients into growth.

Duration. For most tanks, **6 to 8 hours a day** is plenty. Put the light on a timer. Long lighting periods do not help plants much, but they give algae more time to grow. If you are fighting algae, shorten the period before changing anything else.

Intensity. Light is usually described as low, medium, or high.

- **Low light** suits java fern, anubias, cryptocoryne, vallisneria, and moss. These plants grow slowly and stay tidy.
- **Medium light** suits Amazon swords, bacopa, many stem plants, and most bulbs.
- **High light** suits carpets such as Monte Carlo and dwarf hairgrass, and demanding red stem plants. High light needs more nutrients and usually added CO2 to stay balanced.

The big rule: too much light for what your plants can use is the number one cause of algae. If your plants are slow and your light is bright, the extra energy goes to algae.

Keep the tank out of direct sunlight, which invites algae.

Number 2: CO2

In water, plants take their carbon from dissolved CO2. In a low-light tank, the fish, bacteria, and surface exchange supply enough. In brighter tanks, CO2 can become the limiting factor.

CO2 is optional. You do not need it for low-light plants. Many beautiful tanks run without it for years.

If you want more growth, there are two paths.

- **Liquid carbon supplements** add a carbon compound to the water that plants can use. They are simpler than a CO2 system but are not the same as pressurized gas, and some sensitive plants (including certain mosses and vallisneria) may react badly to overdosing. Follow the label closely and start with a lower dose.
- **Pressurized CO2 systems** use a gas cylinder, regulator, diffuser, and usually a solenoid valve and timer. They deliver much stronger results but need careful setup and monitoring.

Fish safety. Too much CO2 can harm fish. Signs include gasping at the surface, crowding near the filter outlet, or lying lethargic at the bottom. If you use pressurized CO2:

- Increase the gas slowly over days, not hours.
- Turn it off at night using a timer (usually an hour before the lights go out so levels can come down), because plants stop using CO2 after dark and fish still need oxygen.
- Make sure there is good surface movement for gas exchange.
- Watch your fish closely after any change.

If fish ever look like they are struggling for air, turn the CO2 off, increase surface agitation, and do a water change. Details on fish health are in our Freshwater Aquarium Guide.

Number 3: Water

Plants are more flexible than many people expect. The goal is **stable water, not perfect water**. Plants adapt to steady conditions, but sudden swings stress them.

Water factor	General range most aquarium plants tolerate	Notes
Temperature	About 72 to 80 degrees F	Some plants, such as anacharis, tolerate cooler water; check your fish's needs too
General hardness (GH)	Soft to moderately hard	Many plants adapt; very hard water can slow some soft-water species
pH	About 6.5 to 7.5	Stability matters more than the exact number
Nitrate	Low but not zero	Plants use it as food; zero can mean starvation
Phosphate	Low but not zero	Plants use it too

These ranges vary by species and by source. If a plant label gives different needs, follow the label. If you keep fish, always choose a water range that keeps both fish and plants healthy.

Three setup types at a glance

Setup type	Light	CO2	Fertilizer	Typical plants
Low-tech	Low, 6 to 7 hours	None	Occasional liquid fertilizer and root tabs	Java fern, anubias, cryptocoryne, vallisneria, hornwort, floating plants, java moss
Medium	Medium, 6 to 8 hours	Optional liquid carbon	Weekly liquid fertilizer plus root tabs	Amazon sword, bacopa, aponogeton, banana plant, anacharis, many stem plants
High-tech	High, 6 to 8 hours	Pressurized CO2	Regular, measured dosing of macros and micros	Rotala, dwarf hairgrass, Monte Carlo, red root floater, demanding stem plants

Most beginners do best in the low-tech column. You can always move up later, and many people find they never want to.

SECTION 6

Fertilizers & Plant Nutrition



Plants feed through leaves and roots. Liquid fertilizer, root tabs and a steady light schedule keep a planted tank balanced, and clean trimming keeps it tidy.

Plants need food, just like fish do. Some of it comes from fish waste and tap water, some from the substrate, and some from fertilizer you add on purpose.

Macronutrients and micronutrients

Plants need two groups of nutrients.

Macronutrients are needed in larger amounts.

- **Nitrogen** (usually as nitrate) builds leaves and green growth.
- **Phosphorus** (phosphate) supports energy transfer, roots, and growth.
- **Potassium** helps regulate how plants use water and move nutrients, and its lack often shows as pinholes.

Micronutrients are needed in tiny amounts but are essential.

- **Iron** supports healthy green color, especially in new leaves.

■ **Trace elements** such as manganese, zinc, boron, and others support many plant functions.

A good all-in-one liquid fertilizer covers both groups. Beginners should start there.

Aquarium-safe labeling and copper

Only use fertilizers labeled for aquariums. Garden fertilizers and many houseplant products contain ingredients, such as urea or copper, that can harm fish and invertebrates. Even products made for aquariums vary. **Some fertilizers contain trace copper, which is harmful to shrimp and snails.** If you keep invertebrates, read the label, choose a copper-free formula, and when in doubt, ask us.

Zero nitrate and zero phosphate can starve plants

People who test their water often celebrate zero nitrate. In a tank with fish, zero nitrate is great for the fish's safety, but if you also have demanding plants, **zero nitrate and zero phosphate can starve your plants.** Plants need a little of each to grow. Signs of starvation include pale or yellowing leaves, stunted growth, and algae taking over. A low but measurable level, with steady dosing, usually keeps plants and fish happy.

The balance with fish waste

Fish waste breaks down into ammonia, then nitrite, then nitrate, and plants consume that nitrate. A heavily stocked tank may need less nitrogen fertilizer, while a lightly stocked tank with lots of hungry plants may need more. Think of it as a balance: fish food and waste feed the plants, plants clean the water, and fertilizer fills the gaps. Do not overfeed fish to feed plants, because that fuels algae and fouls the water.

Dosing by routine and test kits

There are two ways to dose, and either works.

- **Routine dosing.** Add a small, steady amount of an all-in-one fertilizer on a schedule, such as after each water change and once or twice a week. Start with half the label dose and adjust upward if plants look hungry and no algae appears.
- **Testing and adjusting.** Use test kits for nitrate and phosphate to track levels, then dose to keep them in a low, steady range. This is more precise but takes more effort.

Change one thing at a time. More is not better; sudden increases cause algae blooms.

Reading a plant's signals

Leaves tell you what they need. Many problems have more than one possible cause, so treat this as a guide, not a diagnosis.

What you see	Likely cause	What to try
Yellowing new leaves	Iron or micronutrient shortage	Add a complete fertilizer with iron; check the substrate and label
Yellowing old leaves	Nitrogen shortage (older leaves are sacrificed first)	Check nitrate; increase fertilizer or reduce plant crowding
Pinholes in leaves	Potassium shortage, often with low nitrate	Add a balanced fertilizer with potassium; check levels
Stunted growth	Low light, low CO ₂ , or missing nutrients	Check light period, add root tabs, review fertilizer
Melting	Shock from a new tank, big water changes, or a lack of nutrients	Wait out transition; stabilize conditions; trim only dead material
Pale, washed-out color	Low iron or too much light	Check fertilizer; consider reducing intensity

What you see	Likely cause	What to try
Glassy, translucent leaves	Sudden change in conditions	Keep water steady and wait for recovery

For more help with specific problems, see Common Challenges & Solutions below.

Feed your plants. Browse *Aquarium Chems, Conditioners, Cultures.*

SECTION 7

Planting, Trimming & Propagation

Planting depth and spacing

How you plant makes a big difference.

- **Rooted plants.** Make a small hole, lower the roots in, and gently cover them. The crown should sit at or just above the substrate.
- **Stem plants.** Remove the bottom inch or so of leaves, then push the stem about an inch or two into the substrate. Plant several stems close together for a fuller look, spaced about an inch or two apart.
- **Carpet plants.** Divide into tiny portions and plant them in small tufts with fine tweezers, a few inches apart. They fill in as they grow.
- **Rhizome plants.** Attach to hardscape. Do not bury.
- **Floating plants.** Just place them on the surface.

Plant when the tank is partly filled with a few inches of water, then top off. This reduces floating and keeps things tidy. Use tweezers to keep your hands out of the tank as much as possible.

Trimming and replanting stem plants

Stem plants are designed to be cut. When they reach the surface, cut the stem a few inches below the top with sharp scissors. Remove the lowest leaves on the cut top, and push it into the substrate as a new plant. Leave the bottom portion in place, because it will sprout side shoots and become bushier. This is one way to turn one bunch into many.

Trim tall plants regularly so lower plants are not shaded. A shaded plant melts and invites algae.

Propagation

Many aquarium plants multiply on their own.

- **Runners.** Vallisneria, cryptocoryne, and Amazon swords send out runners with baby plants. Let each plantlet grow several leaves and its own roots, then cut the runner and replant it.
- **Rhizome division.** For java fern and anubias, cut the rhizome with a clean, sharp blade so each piece has leaves and roots, then attach each piece to hardscape.
- **Cuttings.** Stem plants root from cuttings. Trim, then replant.
- **Plantlets.** Mature java fern leaves may grow tiny plants. Remove and attach them elsewhere when large enough.
- **Moss.** Trim a piece and attach it.
- **Floating plants.** They divide naturally. Simply scoop out extras.

Share extras with friends or local aquarium clubs instead of discarding them into the environment.

Melting is normal for new plants

If you buy plants that were grown above water, they usually have thicker, waxier leaves meant for air. Underwater, they need to grow new leaves with a different structure. During this "transition" they may melt, sometimes dramatically. Leave the roots or crown alone, keep conditions stable, and expect new growth in weeks. Do not assume you have killed the plant.

SECTION 8

Algae, Pests & Plant Problems

Algae is not a sign that you are a bad fishkeeper. Every tank has some. The goal is to keep it small, not to wipe it out entirely.

Common algae types

Type	What it looks like	Common causes	First response
Green dust	A thin green film on glass	New tank, strong light, young tank	Scrape glass, shorten light period, wait
Green spot	Hard, round green dots on glass and slow leaves	Strong light, low phosphate	Scrape off, check phosphate, reduce light
Hair or thread	Long green strands	Excess nutrients, uneven fertilizing, iron overdose	Remove by hand, dose steadily, improve flow
Black beard	Dark, bristly tufts on leaf edges and hardscape	Unstable CO2 or nutrients, poor flow	Remove affected leaves, improve flow, stabilize care
Blue-green slime (cyanobacteria)	Slimy mat, often smelly, in blue-green or dark patches	Dead spots, low flow, excess waste	Siphon out, improve flow, reduce feeding
Diatoms	Brown dusty film in new tanks	New tank with silicates	Wipe off; it usually fades on its own

Why algae grows

Algae feeds on the same things plants do: light, nutrients, and carbon. It wins when something is out of balance, such as too much light, too many nutrients compared with what plants can use, poor flow, or a tank that is too young and unstable.

How to respond

1. **Reduce light.** Shorten the photoperiod by an hour or two and check for direct sunlight.
2. **Remove it by hand.** Scrub with a soft toothbrush, wipe glass, and trim badly affected leaves.
3. **Improve flow.** Add a small circulation pump or redirect the filter outlet to remove dead zones.
4. **Balance fertilizer.** Dose steadily and avoid big swings. Do not stop fertilizing completely unless plants are clearly getting too much.
5. **Add more fast-growing plants.** Floating plants and stem plants help outcompete algae.
6. **Choose algae-eating animals carefully.** Some snails, shrimp, and fish eat algae, but they are not a magic fix and not every tank suits them. Make sure any animal you add matches your water, your other fish, and your plan. Our Freshwater Aquarium Guide has compatibility details.

Pest snails

Small snails that appear from nowhere are usually hitchhikers on plants. They are generally harmless, and they eat dead matter and algae, but they multiply fast. **A snail boom is a sign of overfeeding**, because they feed on leftover food and waste. Feed less, remove excess food, and pick snails off by hand. If you want to avoid them entirely, quarantine plants and dip them first.

Hitchhikers and the quarantine and dip routine

New plants can carry snails, snail eggs, algae spores, and other tiny passengers. A quarantine and dip routine reduces the risk.

1. **Quarantine.** Keep new plants in a separate container or tank for one to two weeks if you can, with light and clean water.
2. **Rinse and inspect.** Rinse in dechlorinated water and look carefully at stems and under leaves.
3. **Optionally dip.** Two widely used methods are a short dilute-bleach dip, followed by thorough rinsing and a dechlorinator soak, and an alum soak. Both are used by hobbyists for hardy plants.
4. **Rinse well.** Rinse thoroughly in dechlorinated water before placing in the tank.

Cautions. Bleach dips can kill plants that are delicate, including mosses, many stem plants, and vallisneria, and a mistake in strength or time can burn or kill a whole batch. Exact ratios and times vary by source and plant type, so follow a tested procedure from a reliable aquarium plant source for your specific plants. Wear gloves and eye protection, keep bleach away from children and pets, and never put bleached plants in the tank without rinsing. Test a single plant first.

Medications and copper

Never use copper-based medications or treatments in a tank with live plants or invertebrates such as shrimp and snails. Copper can damage plants and is toxic to invertebrates. Always read the label on any medication or algae treatment before adding it to a planted tank, and ask us if you are unsure.

SECTION 9

Common Challenges & Solutions

Melting plants

What you see: Leaves turn transparent, brown, or mushy, and fall away from newly planted plants.

Why it happens: Most often, the plant is changing from air-grown to water-grown leaves. Sudden changes in light, temperature, or water can also trigger it.

What to do: Leave the roots and crown alone. Trim only the dead leaves, keep conditions steady, and wait several weeks for new growth.

When to ask for help: If the entire plant, including the base, turns to mush and nothing regrows after a month, or if many unrelated plants melt at once.

Algae outbreak

What you see: Green film, hair, or slime coating glass, leaves, and hardscape.

Why it happens: Too much light, too many nutrients, poor flow, or an unstable tank.

What to do: Cut the light period by an hour or two, remove algae by hand, improve flow, and keep fertilizing steady. Avoid blackouts or drastic changes.

When to ask for help: If algae keeps returning after a few weeks of consistent care, or if it is smothering your plants.

Plants uprooting

What you see: Plants floating loose or tipped out of the substrate.

Why it happens: Shallow planting, digging fish, strong flow, or buoyant new stems.

What to do: Replant more deeply, weigh down with a small stone, or tie to hardscape. Choose tougher plants if fish dig.

When to ask for help: If specific fish repeatedly destroy the layout, ask us for tough plant and compatibility ideas.

Snails

What you see: Lots of small snails on glass and leaves.

Why it happens: Hitchhikers on plants plus extra food in the tank.

What to do: Feed less, remove leftover food, hand-pick snails, and quarantine new plants.

When to ask for help: If the population keeps exploding after you have cut feeding.

Yellowing leaves

What you see: Leaves fade from green to yellow.

Why it happens: Often a nutrient shortage, such as iron or nitrogen, but old leaves also yellow naturally.

What to do: Check the table in the fertilizer section, add a complete fertilizer, and add root tabs for root feeders.

When to ask for help: If new growth is also yellow and nothing improves after two to three weeks of better feeding.

Holes in leaves

What you see: Pinholes or small holes appearing in leaves, which then spread.

Why it happens: Usually a nutrient shortage, especially potassium, though some fish and snails also nibble.

What to do: Add a balanced fertilizer with potassium, check your nitrate, and confirm no plant-eating animals are responsible.

When to ask for help: If holes continue to spread despite better fertilizing.

Plants not growing

What you see: Plants hold steady, or shrink slowly, with no new leaves.

Why it happens: Too little light, missing nutrients, a plant that is dormant, or a tank that simply needs time.

What to do: Confirm light duration and strength, add root tabs and fertilizer, and give slow growers like anubias patience.

When to ask for help: If nothing changes after two months of consistent care.

Floating plants blocking light

What you see: A thick mat of floating plants shading the plants below.

Why it happens: Floating plants multiply quickly.

What to do: Scoop out extras weekly so about half to two-thirds of the surface stays open. Dispose of extras responsibly (freeze or trash them).

When to ask for help: If stubborn tiny plants like duckweed take over and you cannot remove them.

CO2 gassing fish

What you see: Fish gasping at the surface or crowded near the filter outlet, especially in the morning, in tanks using pressurized CO2.

Why it happens: CO2 is too high, or it was not turned off at night, or the surface is too still.

What to do: Turn off CO2, increase surface movement, and do a water change. Resume at a lower rate and gas off an hour before lights out.

When to ask for help: Right away if fish keep struggling after these steps. See our Freshwater Aquarium Guide.

Brown diatoms

What you see: A brown, dusty film on glass, plants, and substrate in a new tank.

Why it happens: New tanks often have silicates and an unbalanced early community.

What to do: Wipe it off, keep lights short, and be patient. It usually fades within a few weeks.

When to ask for help: If it persists for months or covers everything.

Fish eating plants

What you see: Chewed leaves, missing growth, or stripped stems.

Why it happens: Some fish and snails graze on plants, especially soft leaves.

What to do: Offer fresh vegetable matter in the diet, switch to tougher plants like anubias and java fern, and consider whether the fish suits a planted tank.

When to ask for help: If the damage is severe or you are unsure which animal is responsible.

Cloudy water after planting

What you see: The water turns milky or tan after planting.

Why it happens: Fine substrate dust stirred up, or a bacterial bloom after disturbing a newly established tank.

What to do: Do not do a big water change right away. Let the filter run, and the water usually clears within a day or two.

When to ask for help: If cloudiness lasts more than a week or smells bad.

SECTION 10

Routine Care Calendar

How often	What to do
Daily	Check that the light turned on and off at the right times
Daily	Look over plants and fish, and remove obvious dead leaves
Daily	Feed fish lightly and remove uneaten food
Weekly	Do a partial water change (see the Freshwater Aquarium Guide)
Weekly	Dose liquid fertilizer according to your routine
Weekly	Wipe algae from glass and remove dead leaves
Weekly	Thin floating plants and check for pests
Every 2 weeks	Trim fast-growing stem plants and replant tops
Monthly	Test nitrate, phosphate, pH, and hardness, and record results
Monthly	Clean filter media gently in tank water (not under the tap)
Every 2 to 3 months	Replace root tabs
Every 2 to 3 months	Divide rhizome plants and thin crowded clumps
Every 6 to 12 months	Check light output and consider replacing aging lights
Yearly	Reassess the layout, replant tired areas, and review your fertilizing routine

SECTION 11

When to Ask for Help

Plants forgive a lot, and most problems are slow enough that you have time to think. Still, ask for help if:

- Plants keep dying across the whole tank even though you have followed this guide for several weeks.
- Algae returns again and again, or covers your plants completely.
- Fish are gasping, lethargic, or dying, particularly if you use pressurized CO₂.
- You cannot figure out which nutrient is missing.
- You suspect a pest that is not a snail, such as something chewing or eating plants.
- You are choosing plants for fish that dig or eat them and want ideas.
- Water tests show readings that make no sense, or a sudden change.
- You are unsure whether a plant, fertilizer, or medication is safe with your shrimp or snails.

For fish health, cycling, and water quality issues, see our Freshwater Aquarium Guide. For plant questions, call the store at (717) 983-8069 and we will talk it through with you. If your fish are in serious trouble, contact a local aquatic veterinarian or experienced fish store right away.

SECTION 12

FAQ

What are the easiest aquarium plants?

The easiest aquarium plants are java fern, anubias, cryptocoryne, vallisneria, hornwort, and floating plants such as frogbit. They tolerate basic lighting, ordinary tap water, and beginner mistakes. Java fern and anubias attach to wood or rock and need no special substrate. Hornwort and floating plants soak up nutrients straight from the water. Cryptocoryne and vallisneria root in the substrate and grow steadily with an occasional root tab. Start with a few of these, give them time to settle, and add more demanding plants once you are comfortable.

Do aquarium plants need special lighting?

Aquarium plants do best under a light made for planted aquariums, but they do not need anything extreme. A full-spectrum LED at low or medium output is enough for most beginner plants. Ordinary room light alone usually is not enough, while strong direct sunlight usually brings algae. Choose a light that suits the plants you want, put it on a timer, and adjust duration before spending more on intensity. Low-light plants like java fern, anubias, and cryptocoryne are happy with a basic setup.

Do I need CO2 for a planted tank?

No, CO2 is optional. Low-light plants grow well without added CO2, and many successful tanks run that way for years. Pressurized CO2 or liquid carbon supplements can boost growth in brighter tanks and help demanding plants, but they add cost, effort, and risk if you overdo it. If you use pressurized CO2, increase it slowly, turn it off at night, keep good surface movement, and watch your fish carefully. Beginners can skip CO2 entirely and choose easy plants instead.

How many hours a day should aquarium lights be on?

About 6 to 8 hours a day is a good starting point for most planted tanks, run on a timer. Longer periods tend to feed algae more than plants. If you see algae, shorten the period by an hour or two before changing anything else. Some people use a short midday break to help limit algae, but a steady, simple schedule works well for most. The exact best duration depends on your light strength, plants, and nutrients, so adjust gradually and watch how your tank responds.

Do aquarium plants need fertilizer?

Most do, at least a little. Fish waste supplies some nitrogen and phosphorus, and tap water supplies some minerals, but in a tank with growing plants these often run short. Easy plants like java fern and anubias may do fine with little, while heavy root feeders such as Amazon swords and cryptocoryne benefit from root tabs, and stem plants usually appreciate a weekly liquid dose. Use products labeled aquarium-safe, and check the label for copper if you keep shrimp or snails. Start with half the dose and adjust based on how the plants look.

Why are my aquarium plant leaves melting?

Melting is most often the plant's response to a change. Many store-bought plants are grown above water, and when they go underwater they drop their old leaves and grow new ones made for submerged life. Cryptocoryne is famous for it. Sudden changes in light, temperature, or water, and nutrient shortages can also cause melting. Leave the roots and crown in place, remove only the dead leaves, keep conditions steady, and expect regrowth in a few weeks. If the base itself turns to mush and nothing regrows, the plant may be lost.

How do I plant aquarium plants?

Planting depends on the type of plant. Rooted plants go into the substrate with the roots covered and the crown at or just above the surface. Stem plants are stripped of their bottom leaves and pushed an inch or two into the substrate in small groups. Carpet plants

go in as small tufts with tweezers. Rhizome plants like java fern and anubias are never buried; they are tied or glued to wood or rock. Floating plants simply go on the surface. Plant gently, and give each plant room to grow.

Can live plants help cycle a new tank?

Live plants can help, but they do not replace the cycle. Plants absorb ammonia and nitrate, and fast growers such as hornwort and anacharis can take up a lot, which makes a new tank gentler on fish. But beneficial bacteria still need time to establish, and plants cannot be relied on to protect fish by themselves. Test your water, take cycling seriously, and follow the steps in our Freshwater Aquarium Guide. Think of plants as helpful teammates, not a shortcut.

Why do my aquarium plants have holes in the leaves?

Pinholes are most often a sign of a nutrient shortage, especially potassium, and often appear along with low nitrate. Adding a balanced, aquarium-safe fertilizer that includes potassium, and checking your nitrate and phosphate, usually helps. Holes can also come from fish or snails nibbling soft leaves, or from age and physical damage. New leaves that grow in clean tell you the fix is working, but existing holes will not heal, so trim badly damaged leaves once the plant has recovered.

How do I prevent algae in a planted tank?

Balance is the key. Keep the lights on a timer at 6 to 8 hours, avoid direct sunlight, feed fish lightly, and fertilize steadily instead of in big bursts. Choose fast-growing plants and keep them trimmed so they outcompete algae. Keep water moving through the tank, remove dead leaves promptly, and do regular water changes. Add floating plants to shade the surface if needed. Some algae will always appear, and that is normal. If it grows out of control, shorten the light period first and remove it by hand.

Ready to shop? Start with Aquatics. 10% of every purchase supports no-kill animal shelters.

SECTION 13

Every Purchase Gives Back

Before we earn a dime, **10% of every purchase at Walnut Creek Supply goes to no-kill animal shelters across the country.** It is not an add-on at checkout and not a button you have to click. It comes off the top of every order, every day, because we believe caring for the animals in our own homes and caring for animals in need are the same kind of love.

That is as true for a planted tank as for anything else. A healthy planted aquarium is a small living community, and the same patience that grows a java fern also makes a good neighbor. When you pick up plants, hardscape, or fertilizer from us, a share of it helps shelter animals somewhere else find a home.

We are a family business in Christiana, Lancaster County, Pennsylvania. We grow our own food, keep our own animals, and stock the clean-label goods we would put in front of our own family. No mystery ingredients, no cheap filler, and no care guide that leaves out the honest parts. If you have a question about your plants, your light, or why that crypt is melting, call us at **(717) 983-8069**. We would be glad to talk it through.

Here is to clear water, green leaves, and a tank you love looking at.

With thanks from our family to yours, Walnut Creek Supply - Christiana, Lancaster County, Pennsylvania
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