

Aquaponics in the Classroom

Aquaponics is a form of agriculture that combines raising fish and plants together in a balanced ecosystem. In aquaponics, the nutrient-rich water from raising fish provides a natural fertilizer for the plants and the plants help to purify the water for the fish. It is an innovative and sustainable growing method that increases food security and decreases environmental degradation. Aquaponics have the potential to engage students while building and creating initiatives in science, technology, mathematics and language arts.

Pros

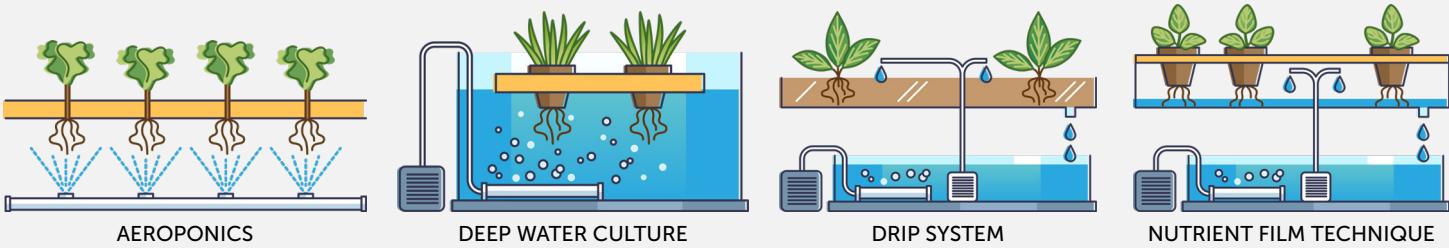
- Uses 90% less water than traditional soil-based agriculture
- There are no external fertilizers or pesticides used
- Can be used to achieve a wide range of curriculum outcomes
- With better nutrient uptake offered by Aquaponics, plants grow much faster
- Can be done year-round in a school setting
- System can be reused for many school years
- Food-grown may be used in school food programs

Cons

- Upfront costs to build or purchase an aquaponics system exceed that of hydroponics or traditional soil growing methods
- Requires maintenance and supervision
- Risk of unexpected failure for fish* or plants

Method

Aquaponics' hybrid food growing technology combines the best of aquaculture (growing fish) and hydroponics (growing veggies without soil). It's organic because the fish produce natural fertilizer used by the plants. Using this method, a fish tank and grow bed are interlinked. Water is pumped from the tank to the grow bed. The water returns to the fish tank. The fish produce ammonia and with the help of naturally occurring beneficial bacteria, the ammonia is transformed into nitrate. As the nitrate is absorbed by the plant they are naturally fertilized, and the water is cleaned. It's a symbiotic relationship! There are many types of systems that all work using this principle:



*Before introducing aquaponics in a classroom setting, consider developing a plan on how to deal with the possibility of fish failure. Losing a few fish in an aquaponics system can be expected but handling an entire fish failure should also be considered.



Point your cellphone camera at this QR code and follow your phone's instructions to visit "What is Aquaponics - Murray Explains" on YouTube.

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Our fish have even encouraged students with high anxiety and low attendance to come to school so they can be a part of feeding time! The benefits of this program far exceed the initial cost and we are only getting started!

Chris McIntyre, Principal
Coalhurst Elementary School



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I have really enjoyed our aquaponics system this year, especially watching the student and staff reactions! Many have commented on how quickly everything grows, and the fact that we can use the lettuce and swiss chard in our breakfast and hot lunch programs.

Deb Bronson
Claresholm A.B. Daley School



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