





IPRO 336 AQUAPONICS PROTOTYPE

HOW AQUAPONICS WORKS

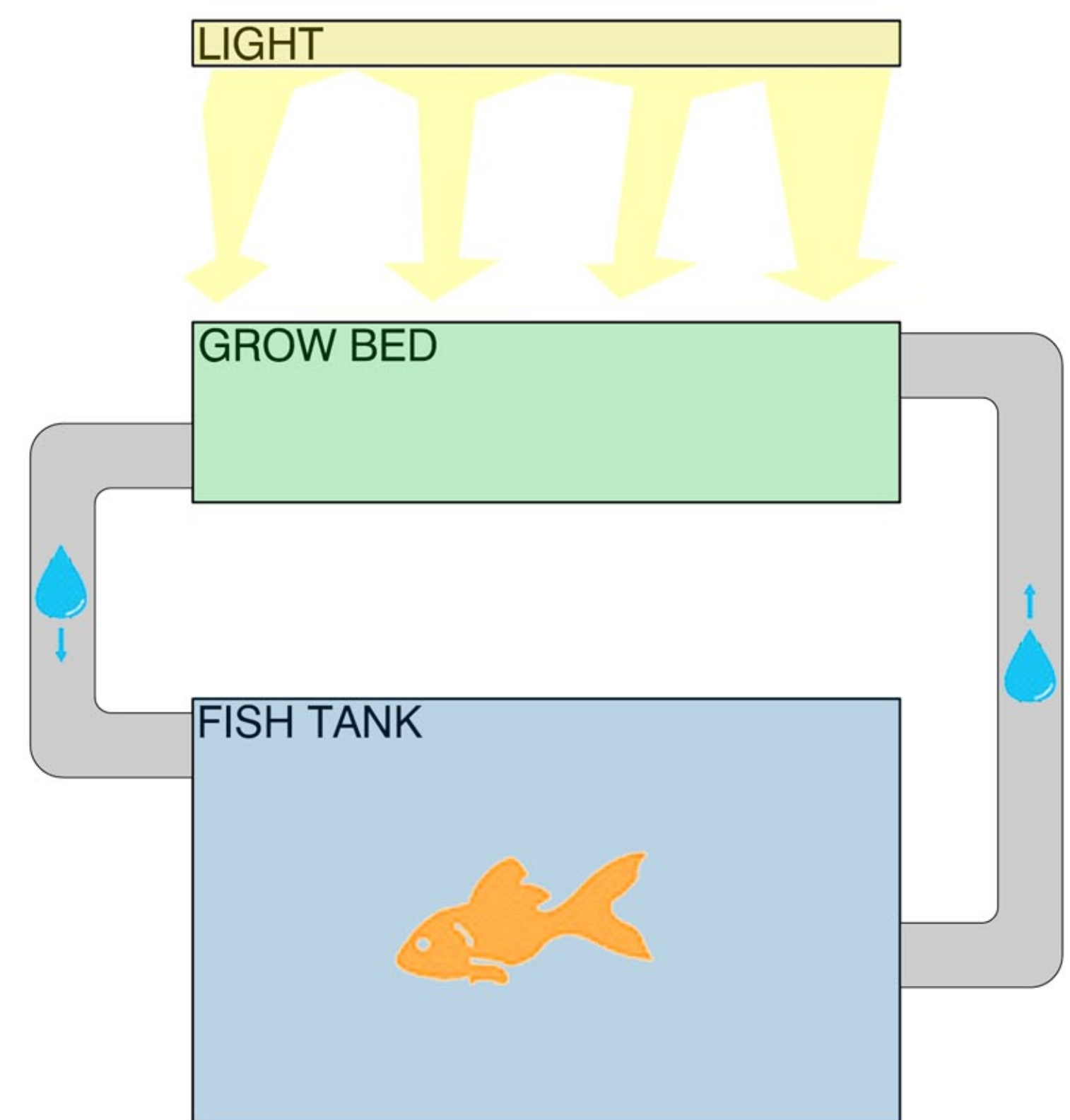
 Fish are fed food and produce Ammonia rich waste. Too much waste substance is toxic for the fish, but they can withstand high levels of Nitrates.

 The bacteria, which is cultured in the grow beds as well as in the fish tank, breaks down this Ammonia into Nitrites and then Nitrates.

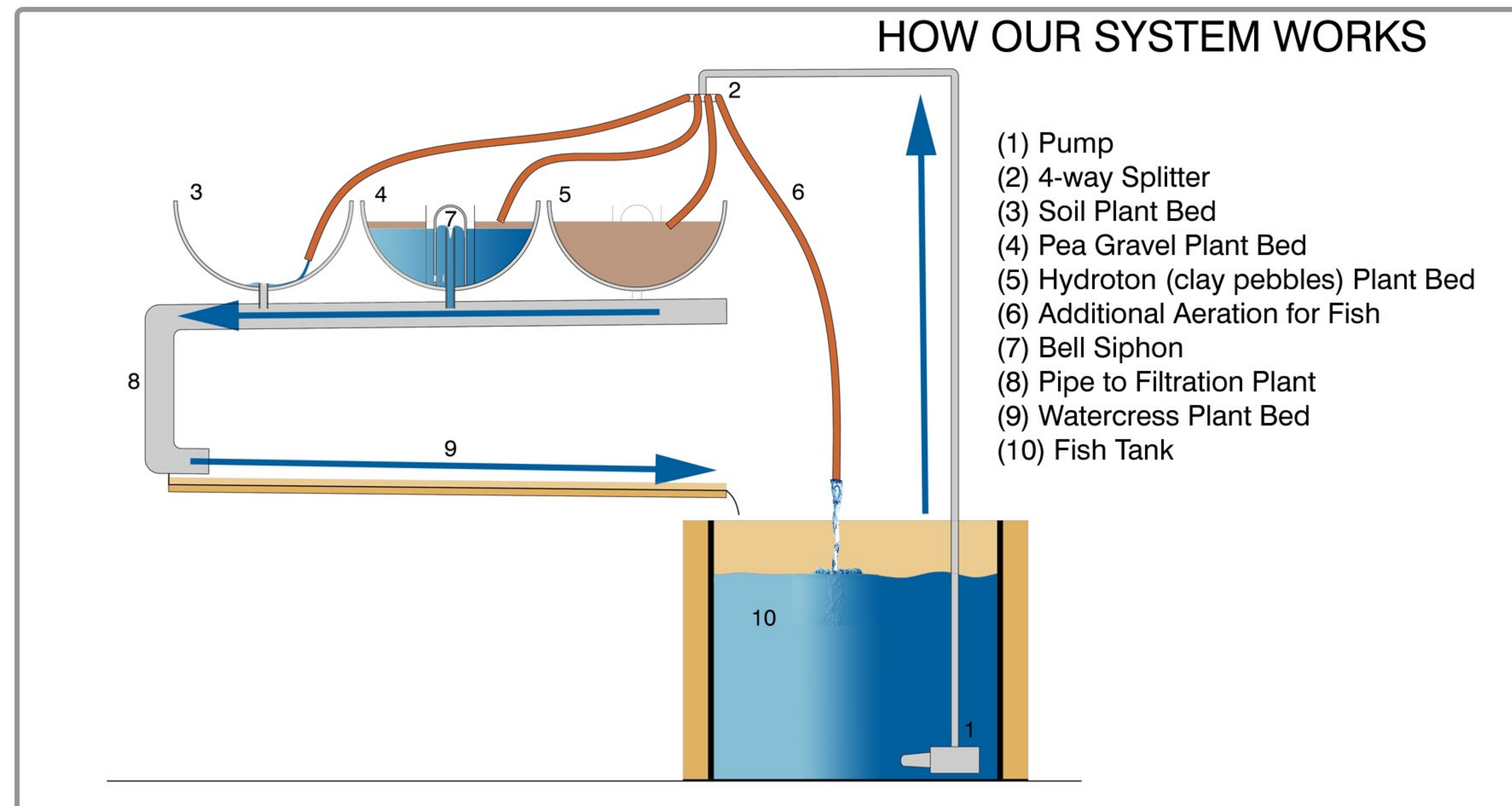
 Plants take in the converted Nitrates as nutrients. The nutrients are a fertilizer, feeding the plants. Also, the plant roots help filter the water for the fish.

 Water in the system is filtered by the plants roots and through the medium in the grow beds. It is heated to support fish growth.

Oxygen enters the system to aid fish and plant growth through three operations:
 -Air pump in fish tank
 -Siphons in plant beds give roots time to breathe
 -Water reentering fish tank create air bubbles

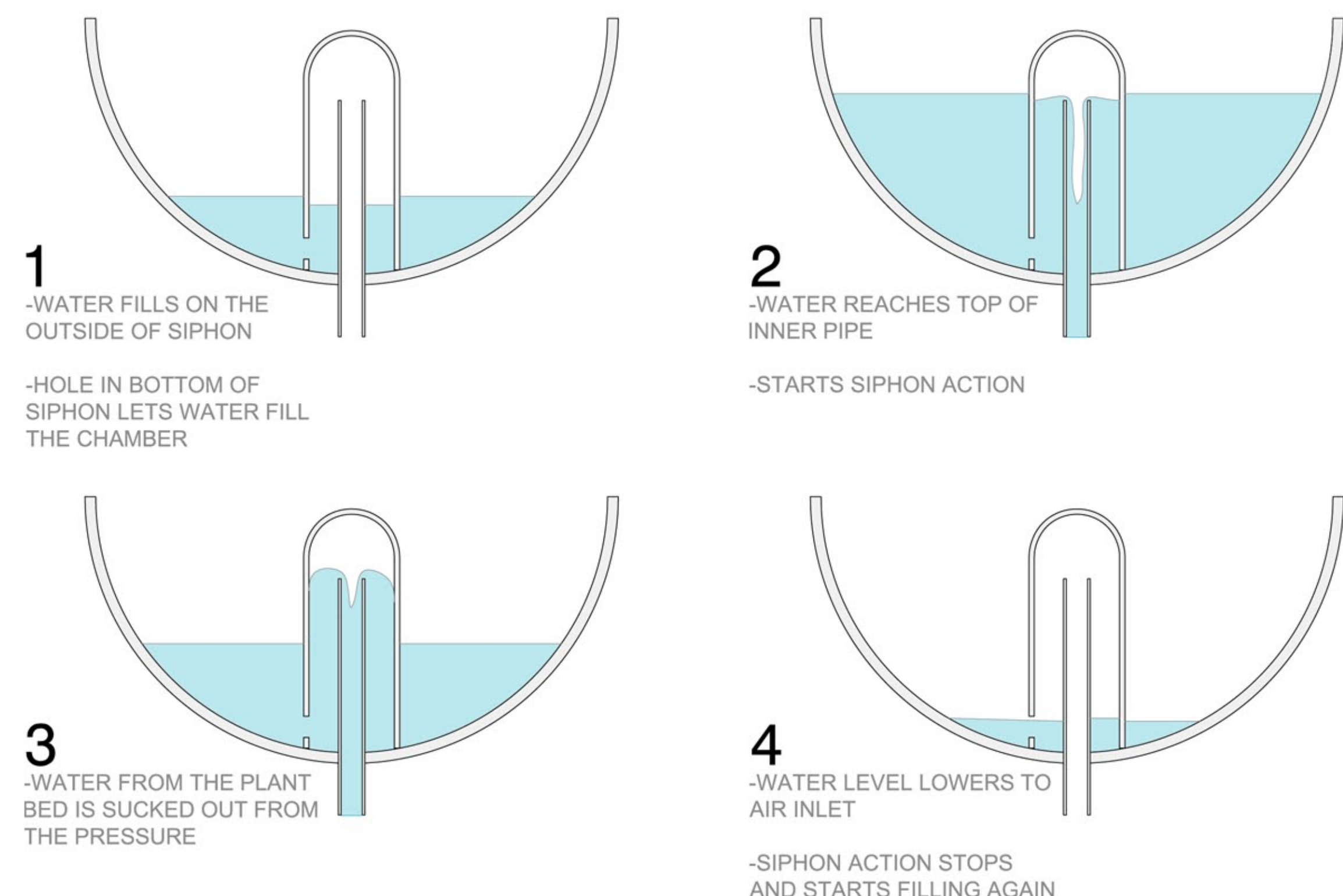


HOW OUR SYSTEM WORKS



- (1) Pump
- (2) 4-way Splitter
- (3) Soil Plant Bed
- (4) Pea Gravel Plant Bed
- (5) Hydroton (clay pebbles) Plant Bed
- (6) Additional Aeration for Fish
- (7) Bell Siphon
- (8) Pipe to Filtration Plant
- (9) Watercress Plant Bed
- (10) Fish Tank

HOW THE BELL SIPHON WORKS



1
 -WATER FILLS ON THE OUTSIDE OF SIPHON
 -HOLE IN BOTTOM OF SIPHON LETS WATER FILL THE CHAMBER

2
 -WATER REACHES TOP OF INNER PIPE
 -STARTS SIPHON ACTION

3
 -WATER FROM THE PLANT BED IS SUCKED OUT FROM THE PRESSURE

4
 -WATER LEVEL LOWERS TO AIR INLET
 -SIPHON ACTION STOPS AND STARTS FILLING AGAIN

