









# GO FISH!

S T A R T	 Draw a card		 Draw a card		Alevin Stage! go ahead 2 spaces		 Draw a card
<p><b>Roll the die to move forward. Your opponent will read you questions.</b>  <b>If you cannot answer a question correctly, you must move back ONE space.</b>  <b>The first "angler" to end their movement on the final square WINS!</b></p>							
Over feeding go back 6 spaces	 Draw a card		Ammonia Spike! go back 1 space		 Draw a card		Swim-up fry! go ahead 1 space
 Draw a card							
Nitrite Spike! go back 4 spaces	Tank cycling! go ahead 3 spaces		 Draw a card		 Draw a card	Nitrates at 160 ppm! go back to start	F I N I S H

**What are the percents used in the “wild” survival pyramid?**

ANSWER:  
10%, 20%, 50%



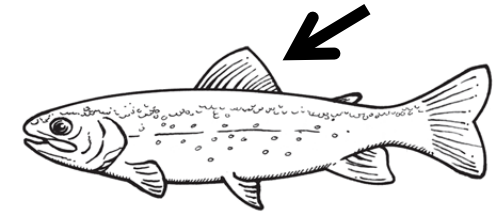
S1

**What are the percents used in the “hatchery” survival pyramid.**

ANSWER:  
98%, 68%, 45%



S1



**A: Dorsal Fin**

S2

**Describe 3 parts of the brook trout’s natural habitat.**

POSSIBLE ANSWERS:

- Cold water (50°F)
- Darkness (in beginning)
- High oxygen (riffles)
- Vegetation and insects
- Places to hide (tree roots, fallen logs, rocks, undercuts)

S1

**What are the 4 types of tests that we perform on the water in our trout tank?**

ANSWER:  
pH, ammonia, nitrite, nitrate



S1

**Name Pennsylvania’s 6 river basins.**

ANSWER:  
Erie, Genesee, Potomac, Susquehanna, Delaware, Ohio



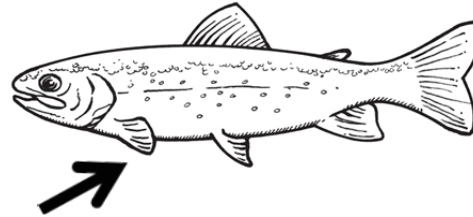
S2

**Name 2 threats that wild brook trout face that hatchery raised fish do not.**

Possible Answers:

- Predators
- Pollution from humans
- Sediments from runoff
- Water that is too warm
- Loss of habitat

S1



**ANSWER:  
Pectoral Fin**

S2

**Which PA river provides drinking water to the most people?**

ANSWER:  
Delaware River



S2

**Which PA river covers the most land?**

ANSWER:  
Susquehanna River



S2

**Name 4 organic components of the trout tank ecosystem.**

ANSWER:  
Trout  
Nitrosomonas  
Nitrobacters  
Plants

S1

**Name 6 inorganic components of the trout tank's ecosystem.**

ANSWER:  
water  
oxygen  
ammonia, nitrite, nitrate  
rocks

S1

**What watershed is our school located in?**

ANSWER:  
Juniata River



S2

**What river basin is our school located in?**

ANSWER:  
Susquehanna



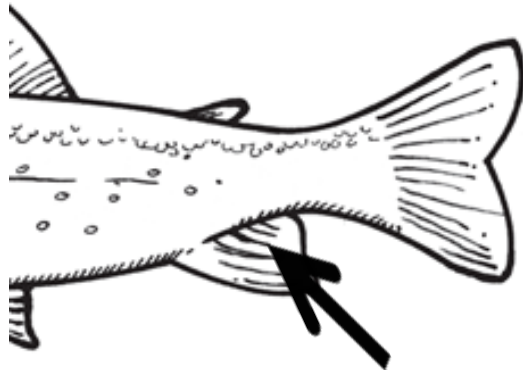
S2

**Name 2 adaptations that a brook trout has to help it blend into its environment?**

POSSIBLE ANSWERS:

- Light colored bellies
- Stripes (as fry)
- Spots on their sides (as adults)
- Color is brown/green like the environment

S1



**ANSWER:**  
**Rays**

S2

**What do nitrobacters do?**



ANSWER:  
Convert nitrite into nitrate

S1

**How do you test pH?**



ANSWER:  
Add 3 drops of the test solution and invert the tube several times before taking a reading

S1

**What is the scientific name of the rainbow trout?**

ANSWER:

*Oncorhynchus mykiss*

If handwritten, must be underlined!

S1

**What is the difference in appearance between an adult brook trout and an adult rainbow trout?**

ANSWER:

Rainbow trout have pink and green sides, brook trout have red spots with blue halos.

S1

**How do we know that the sanitizer is working?**

ANSWER:

If the light is green, it's working. If the light is flashing it needs maintenance or replaced



S1

**Make up your own question relating to the "Fashion a Fish" lesson and answer it correctly!**



S2

**Make up your own question relating to day-to-day tank maintenance and answer it correctly!**



S1

**You are an expert angler!  
Move ahead 4 spaces!!!**



S1

**What is the evolutionary advantage of a lateral line?**



ANSWER:

The lateral line allows brook trout to sense movement of prey (and predators) in the water

S2

**Why aren't there neon colored fish in PA waters? Where WOULD you find fish colored in this way?**

ANSWER:

Being a neon color would not help a PA fish blend into the environment because there are not many neon colors in our PA waterways. Neon fish are found in coral reefs.

S2

**At what point do nitrates become toxic to fish?**

ANSWER:  
80 ppm

S1

**What are the 3 largest rivers in PA?**

ANSWER:

Delaware, Susquahanna, and Ohio



S2

**Describe 2 places in the tank where our trout like to be the most.**

ANSWER:

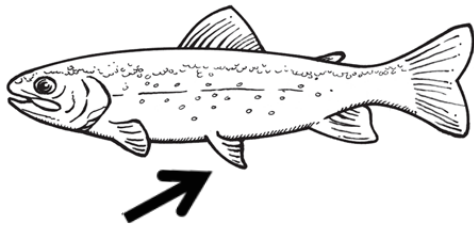
They like to be in the pools (in the corners) and under the rocks

S2

**Make up your own question relating to the "6 ways to the Sea" lesson and answer it correctly!**



S2



**ANSWER:  
Pelvic Fin**

S2

**Why do we add Special Blend to the tank?**



ANSWER:

To add helpful bacteria that will help the ammonia, nitrite, and nitrate levels cycle

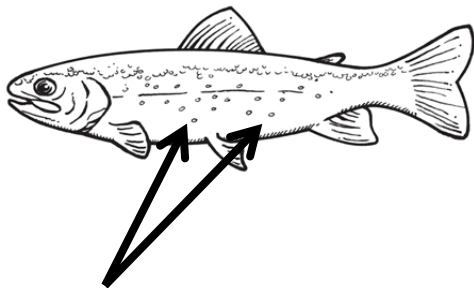
S1

**Name 3 solutions to the reducing high nitrate levels in the tank.**

POSSIBLE ANSWERS:

- Nite Out II
- Reduce feeding
- Replacing the carbon
- Lower the water level to increase aeration
- More frequent water changes
- Add Special Blend

S1



**ANSWER:  
Scales**

S2

**How do you test ammonia?**



ANSWER:

Add 8 drops of solution 1  
Add 8 drops of solution 2  
Cap and shake tube for 5 sec  
Wait 5 min before reading

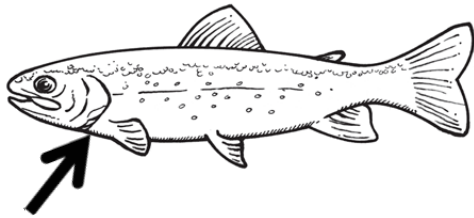
S2

**List the 4 stages of a trout's life cycle.**

ANSWER:

- Egg/Alevin
- Fry
- Fingerling
- Adult

S1



**ANSWER:  
Gill Cover**

S2

**Where does the ammonia come from in the tank?**



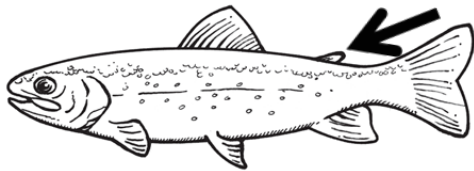
**ANSWER:**  
It comes from the fish's waste.  
As they eat, more ammonia is produced.

S1

**What is the smallest river basin in PA?**

**ANSWER:**  
Genesee

S2



**ANSWER:  
Adipose Fin**

S2

**Where does the nitrite come from in the tank?**



**ANSWER:**  
Nitrite comes from the nitrosomonas as they utilize the ammonia in the tank.

S1

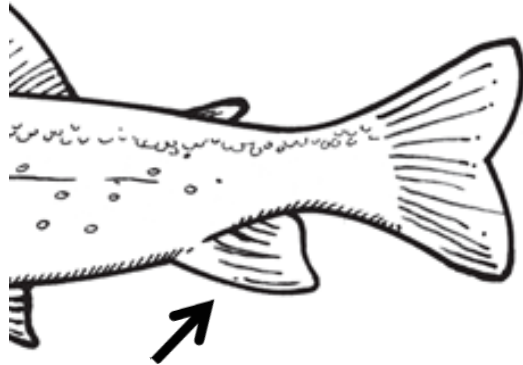
**Where does the nitrate come from in the tank?**



**ANSWER:**  
Nitrate comes from the nitrobacters as they utilize the nitrite in the tank.

S1





**ANSWER:  
Anal Fin**

S2

**How do you test nitrite?**



ANSWER:

Add 5 drops of the test solution  
Cap and shake tube for 5 sec  
Wait 5 min before reading

S1

**You are an expert  
angler!**

**Move ahead 4 spaces!!!**



S1

**What 2 locations does all  
of the water in PA  
eventually end up?**

ANSWER:

Gulf of Mexico  
(western half of state)

Atlantic Ocean  
(eastern half of state)

S2

**How do you test nitrate?**

ANSWER:

- Add 10 drops of solution # 1
- Cap and invert tube several times
- Shake solution # 2 for 30 sec
- Add 10 drops of solution # 2
- Cap and shake tube for 60 sec
- Wait 5 min before reading

S2

**What type of  
reproduction do trout  
do?**

- A) Eggs deposited on vegetation
- B) Eggs deposited on bottom and covered with gravel
- C) Free floating eggs
- D) Live births

**ANSWER: B**

S2

**Tell one distinguishing feature of a brook trout coloration when it's at the fry stage.**

ANSWER:

Verticle stripes or parr marks  
(dark brown)



S2

**Name 2 things a brook trout's mouth is adapted to eat.**



POSSIBLE ANSWERS:

insects  
small fish  
crustaceans  
aquatic plants

S2

**Name 2 immediate solutions for reducing stress on a classroom trout tank.**

POSSIBLE ANSWERS:

- Put on the front cover
- Salt bath
- Lower the lights in the room
- Limit activity near tank
- Reduce feeding/water temp

S2

**Make up your own question relating to the "Fashion a Fish" lesson and answer it correctly!**



S2

**Make up your own question relating to day-to-day tank maintenance and answer it correctly!**



S1

**You are an expert angler!  
Move ahead 4 spaces!!!**



S1

**You are an expert angler!**

**Move ahead 4 spaces!!!**



S2

**Brook trout are calssified as part of the (?) family of fish**

ANSWER:  
charr (or salmon)

S1

**Someone who catches fish for sport is called a ?**

ANSWER:  
angler

S1

**Before they are shipped to our classroom, fertilized eggs are sterilized with ?**

ANSWER:  
iodine



S1



**What is this?**

ANSWER:  
Where water leaves the tank and goes to the filter

S1



**What is this?**

ANSWER:  
powerhead

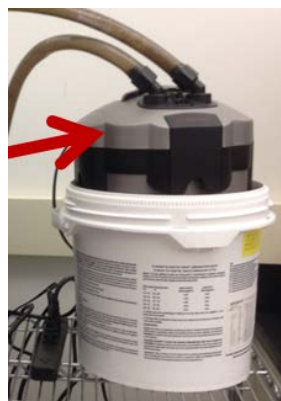
S1



**What is this?**

ANSWER:  
chiller

S1



**What is this?**

ANSWER:  
filter

S1

**What are the 5 layers of the filter?**

ANSWER:  
Polishing pad  
Charcoal  
Ceramic tiles  
Bioballs  
Black sponge

S1

**Write the formula for ammonia?**

ANSWER:  
 $\text{NH}_3^{1+}$



S1

**Write the formula for nitrite?**

ANSWER:  
 $\text{NO}_2^{1-}$



S1

**Write the formula for nitrate?**

ANSWER:  
 $\text{NO}_3^{1-}$



S1

**Describe the nitrogen cycle in our TIC tank.**

ANSWER:

1. Fish produce ammonia.
2. Nitrosomonas take in ammonia and produce nitrite.
3. Nitrobacters take in nitrite and produce nitrate.
4. Watercress uses nitrate.

S1

**What is the acceptable pH range for rainbow trout?**

ANSWER:  
5.5 to 9.5



S1



**What controls the rate of respiration and growth in trout?**

ANSWER:  
Temperature of the water

S1

**How do we provide proper pH range in our TIC tank?**



ANSWER:  
By using spring water

S1

**Why do we return the shipping box?**

ANSWER:  
Styrofoam never breaks down in a landfill so we reuse the boxes to reduce waste and save money.



S1

**How do we provide clean water in our TIC tank?**

ANSWER:  
Don't over feed,  
Adding beneficial bacteria,  
Use watercress, start with release site stream water and use spring water afterwards,  
water changes

S1

**How do we provide limited light in our TIC tank?**

ANSWER:  
Insulation board  
Gravel  
Cover op top  
Overhead lights down

S1

**How does nature provide limited light for trout?**

ANSWER:  
Undercuts, fallen leaves, deep pools, rocks, female covers eggs with gravel using her tail, over hanging trees



S1



**How do we provide oxygen in our TIC tank?**

ANSWER:  
riffles at output and power head, air stone/air pump, lower the level of the water in the tank

S1