

APES- "Happy Fishing Game"  
Student Copy  
(you can use this as your title for your lab report)



**Background Information:** For your lab report you will write a brief (2-3 paragraphs) on the Tragedy of the Commons and Dr. Garrett Harden.

**Purpose:** Write purpose statement.

**Materials:** List all materials

**Scenario:** Each one of you represents the head of a family (*fisherman*) where the only source of income is to sell your daily fish catch. In order for your family to survive, you must catch enough fish to pay your *operating costs* and make profit to pay for your *living expenses*\*. The only food source is a small local lake, which can accommodate up to **16** fish. You must catch the fish by sucking up the "fish" from the lake with straws (*fishing pole*) or using a spoon to scoop up the fish (*net*). Each student will get a chance to fish once a year (*which lasts 30 seconds*). **It is your choice of how many fish you take.** Each fish has a different "redemption value" based on color. After the annual fishing season has ended, any remaining fish will reproduce **once** during the off-season- each remaining fish is able to reproduce and make one new fish (*based on color- a maximum total of 16*). If you are unable to catch enough fish to support your fishing activity your game is over. **The student with the most "money" at the end will win a prize.**

**Activity Procedures:**

1. Each student will start with **\$25** in ocean currency
2. Students are given the option of fishing gear:
  - a. **Fishing pole (straw)** – cost \$1 **one-time fee**
  - b. **Fishing net (spoon)** – cost \$5 **annual fee**
3. Students will get 30 seconds to fish. **Remember, you must catch enough to support your family and pay your annual expenses (at least \$20 per year).**
4. At the end of each year (*round*), the teacher will add an additional goldfish for each fish remaining in the lake. Make sure to add according to the colors remaining. **Each fish can replicate x 1 each (for a maximum of 16 in bowl).**
5. At the end of the first fishing season, fill in your worksheet. If you are unable to cover your annual expenses, you are unable to fish the next year. **You have gone bankrupt and must sit out of the game.**

6. If your group still has fish remaining in the lake, continue to run another annual fishing season (**Year 2a**).
7. Repeat steps 2 – 5. *Again, if you are unable to cover your annual expenses, you are unable to fish the next year.*
8. Once the fish are exhausted - total up your worksheet.

### Student Rules

#### **9. NO TALKING DURING ACTIVITY**

10. Fisherman can only “fish” **one fish at a time**.
11. *No “hitting” or “knocking” other fisherman- will result in a fine (see teacher for details)*
12. Keep all catch fish in front of you- *for teacher to count after round*
13. If you are out of fish or out of money- *you will have to sit out!*
14. **There is a PRIZE for the player that has the most money at the end of the game!!**

Data/Observations: Happy Fishing Budget Sheet

Fisherman Name: \_\_\_\_\_

Year 1- Operating Costs/Profits-      Starting Amount- \$25      \$25

Annual (*once a year*) Fishing Fees      *Minus*

- Fishing Permit – \$5 per year      \$ \_\_\_\_\_
- Boat Maintenance/Fuel/Slip Fees- \$5 per year      \$ \_\_\_\_\_
- Cost of Living (Rent, Food, etc.) - \$10 per year      \$ \_\_\_\_\_

*Option- Choose which type of fishing equipment you will use*

- Fishing Pole (Straw)- \$1 initial fee (*no annual charges*)      \$ \_\_\_\_\_
- Large Fishing Nets (Spoon)- \$5 *annual fee*

TOTAL Operating Costs (year one)      \$\$ \_\_\_\_\_

*\* Need at LEAST \$20 worth of fish each year to survive*

Year 1- Fishing Profits

- Goldfish- \$5 Each      x \_\_\_\_\_ =      \$ \_\_\_\_\_
- Greenfish- \$6 Each      x \_\_\_\_\_ =      \$ \_\_\_\_\_
- Redfish- \$8 Each      x \_\_\_\_\_ =      \$ \_\_\_\_\_
- Bluefish- \$12 Each      x \_\_\_\_\_ =      \$ \_\_\_\_\_

Total Profits      \$\$ \_\_\_\_\_

*Operating Costs (Subtract from profits)*      *Minus -*  
\$ \_\_\_\_\_

Total (+-) for Year 1:      \$ \_\_\_\_\_

*Question: Did you make a profit? Did you go bankrupt? Explain what happened.*

For each subsequent year you are to create a sheet like the one above.

*Question: Did you make a profit? Did you go bankrupt? Explain what happened. Did you change your strategy for the 2<sup>nd</sup> round? How?*

Happy Fishing Lab- Tragedy of the Commons

**DISCUSSION QUESTIONS**

1. Did anyone in your group take too many fish? How did that make you feel? Did everyone try to take as many as possible? Why or Why not? ***Does society reward those with the “most”?***
2. Did anyone sacrifice the # of fish, *for the good of the community?* ***Why or why not? Does society ever reward that type of person?***
3. In Game two... **how** did your strategy change, if at all? ***Does it make a difference to know what the rewards are?***
4. Is it possible to maximize the number of fish caught/person **AND** the number of fish remaining in the pond **at the same time?** ***Why or Why not?***
5. Think of a **local commons** that you are familiar with. [*parking lots, bathrooms, bookstalls, etc.*] Do similar situations arise? **Explain. HOW might those problems be solved?**
6. What are some **natural resources** that are **common** resources?
7. What are the **global commons?** Are these being used wisely? ***Why or why not?***
8. ***What can people do to use these resources most wisely?***
9. Did a particular “type” of fish disappear faster than others? ***How does this relate to “economically valuable” species in nature and their extinction rates?***
10. In a few paragraphs explain what happened in the final/bonus rounds. What did Ms. Anderson’s actions represent? Who do you think actions like this more frequently affect?
11. What modifications could you make to this lab to represent natural selection? Pick another environmental concept that you could incorporate in this lab and explain how you would.
12. What did you like about this lab? What did you dislike?

**Conclusion:**

***Briefly summarize*** the results of this simulation, and discuss the implications of this simulation on the management of common resources in the environment. ***What were the main ideas of the simulation- what did you learn?*** In your summary please ***discuss relationships between human societies and the environment*** as well as ***possible methods to remediate overuse*** through cooperation. ***What other resource management examples can you think of where this topic is relevant? What would you suggest in these situations? Remember this explanation should be college level!***

