

Bycatch Game



Objective

The students will explore the advantages and disadvantages of different fishing techniques.

Materials

Per five students:

- garden rake
- wooden dowel
- two-foot string
- four-foot string
- child's sand pail
- magnetic craft strips
- child's sand pail

Per class:

- about 35 red, 35 white, and 35 blue poker chips
- glue
- magnetic craft strips
- playing field

Background

Humans have gathered fish for food since prehistoric times. Today, fish are a main source of protein for nearly half the world's population. Through time, new techniques have made it easier to catch fish. Spears were more successful than bare hands. Hooks were an improvement over spears. But it was the fishing net that made fishing an economic venture rather than a way to feed just your own family.

Modern fishing methods have greatly improved the fisher's catch rate. But they've also introduced new problems: nets and longlines catch everything, regardless of species or size. When the nets are hauled in, fishers try to toss back the non-targeted, accidentally caught species called the 'bycatch.' Thousands of sea turtles drown in commercial nets each year. Shrimp nets accidentally entangle turtles that are foraging where trawlers are working. Since 1989, United States fishers are required to use Turtle Excluder Devices (TEDs) in trawl nets, which can allow most turtles to escape.



Material Preparation

1. Divide your class into groups of five to determine how many sets you have. For example, a class of 30 students will have 6 groups or sets.
2. Evenly (or as close as possible) split the sets or groups into three sections. For example, a class of 30 students will have 6 groups split into 3 sections. (Each section has two student groups or sets for a total of 10 students in each section.). One section will use rakes to simulate fishing nets, another section will use single fishing lines, and the remaining section will use long lines.
3. To make single fishing lines, glue a small piece of a magnetic strip to the end of a two-foot long piece of string. Tie the other end of the string to the dowel. Make one dowel for each group in this section.
4. To make long-line pole, glue four small pieces of magnetic strip to a four-foot piece of string. Tie the other end of the string to the dowel. Make one dowel for each group in this section.
5. Finally, glue a piece of magnetic strip to one side of both the white and blue chips.

Action

1. Explain to students that this is a fishing game. Scatter poker chips over the playing field; these represent fish. Divide class into predetermined groups (see Material Preparation) and gather groups together in their sections. Give each group a bucket and their fishing equipment (rakes or dowels). Explain their fishing method:
 - Netters use rakes and target red chips: Whole group goes out, holding onto one another. One person rakes, two people scoop chips into first bucket, the other two put only red chips into final bucket. All white and blue chips caught must be dumped outside the play area—they are no longer a resource.
 - Single-line fishers use dowels and target blue chips: Players take turns going out hooking a blue chip, returning, and placing it in the bucket as they hand the fishing pole off to next player.
 - Long-line fishers use dowels and target white chips: Whole group goes out, holding on to one another. One person pulls line through chips, three people remove chips and place white chips in the last person's bucket and toss any blue or red chips outside of the play area—they are no longer a resource.
2. When sections are ready, the teacher calls out "The fish are running." Student groups go out and fish. All groups must leave the playing field promptly when teacher calls out "Back to port." Any groups fishing after the back-to-port call are fishing illegally and lose their catch from the last round.
3. Play until all chips are collected off the playing field. At the end of the activity, gather students to discuss their experience.