



CALIFORNIA STATE SCIENCE FAIR
2004 PROJECT SUMMARY

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Project Title
Mono or Fluoro? Which Fishing Line (Monofilament or Fluorocarbon) Will Have the Higher Tensile Strength?

Abstract

Objectives/Goals
The objective is to gain knowledge of which type of fishing line is stronger. I will be testing monofilament and fluorocarbon fishing line. Each line will be tested for the tensile strength and the elasticity strength under tension.

Methods/Materials
I will be using the following: a spool of Stren#s six-pound monofilament fishing line, a spool of Stren#s eight-pound monofilament fishing line, a spool of Stren#s six-pound fluorocarbon fishing line, a spool of Stren#s eight-pound fluorocarbon fishing line, fishing spring scale, duct tape, ruler, dowel, tall item such as broom, two other slightly shorter items such as levels. In order to test the fishing line#s strength, I will wrap the fishing line around the weighing end of the spring scale, then move back slowly with my hand grasped around the handle of the spring scale until the fishing line snaps. I will see at which point of the ruler the fishing line snaps to find out how much the fishing line stretched. I will compare the results in order to find which type of fishing line is stronger.

Results

Type of Fishing Line	Test 1	Test 2	Test 3	Average
2.7kg (6lb.) Monofilament	3.1 kg	3.1 kg	2.9 kg	3.03 kg
2.7kg (6lb.) Fluorocarbon	2.7 kg	3.3 kg	3 kg	3 kg
3.6kg (8lb.) Monofilament	4.4 kg	4.2 kg	3.6 kg	4.07 kg
3.6kg (8lb.) Fluorocarbon	4.1 kg	3.5 kg	3.3 kg	3.63 kg

Type of Fishing Line	Test 1	Test 2	Test 3	Average
2.7kg (6lb.) Monofilament	20 cm	19 cm	18 cm	19 cm
2.7kg (6lb.) Fluorocarbon	18 cm	24 cm	23 cm	21.67
3.6kg (8lb.) Monofilament	36 cm	32 cm	26 cm	31.33
3.6kg (8lb.) Fluorocarbon	26 cm	21 cm	22 cm	23 cm

Conclusions/Discussion
It seems that the monofilament fishing line was able to endure more weight than the fluorocarbon fishing line. However, the monofilament line stretched more than the fluorocarbon fishing line. Perhaps the difference in size played a role in both of the tests. Each fishing line may have an advantage over the other, but they also have small flaws. Besides, with over two hundred fifty yards of line, some areas may have fallen victim to slight abrasion, or might have been improperly manufactured. The popular saying may not be true after all, because in this case, size did matter!

Summary Statement
I am testing monofilament and fluorocarbon fishing line to see which line has the greater tensile strength and most stretch.

Help Received