

# Improving Student's Attitudes Toward Physics

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- Hypothesis: After participating in an open-ended unit, student attitudes toward physics will become more positive and will more closely resemble the attitudes of science experts.

# “The Physics Experiment”



- Authentic inquiry
- Student interest driven
- Original experimentation

Students assessed by:

- Research notebook
- Teacher meetings
- Class Presentations



# The CLASS Survey

10. There is usually only one correct approach to solving a physics problem.

Strongly Disagree 1 2 3 4 5 Strongly Agree



not answered

11. I am not satisfied until I understand why something works the way it does.

Strongly Disagree 1 2 3 4 5 Strongly Agree



not answered

- Colorado Learning Attitudes about Science Survey
- 42 questions
- 1 – 5 (agree - disagree)

## Survey Categories

- Personal Interest
- Real World Connection
- PS Confidence

A	B	C	D	E	F
Categories	ALL	Number: 7		(Diff of Avgs)	(Avg of diffs)
(Explained on "Categories" worksheet)	Status	PRE	POST	SHIFT	SHIFT
<b>Overall</b>	fav	51.7	53.7	2.0	0.8
(All 36 Q's with expert response)	unfav	25.6	25.1	-0.5	-3.2
<b>All categories</b>	fav	50.6	50.2	-0.5	1.8
(26 Q's that appear in below categories)	unfav	26.5	26.0	-0.5	-4.6
<b>Personal Interest</b>	fav	45.2	40.5	-4.7	4.8
	unfav	30.1	38.1	8.0	-4.8
<b>Real World Connection</b>	fav	54.4	67.9	13.4	14.3
	unfav	24.3	14.3	-10.0	-14.3
<b>PS General</b>	fav	59.6	61.0	1.4	5.6
	unfav	19.9	20.2	0.2	-6.6
<b>PS Confidence</b>	fav	65.4	67.9	2.4	14.3
	unfav	16.5	14.3	-2.2	-10.7
<b>PS Sophistication</b>	fav	53.5	47.6	-5.9	-4.8
	unfav	25.5	28.6	3.0	2.4
<b>SensesMaking/Effort</b>	fav	52.3	51.0	-1.3	-2.0
	unfav	23.1	24.5	1.4	-4.1
<b>Conceptual understanding</b>	fav	52.8	51.0	-1.9	-3.8
	unfav	24.1	22.4	-1.7	-3.8
<b>Applied Conceptual understanding</b>	fav	45.6	42.9	-2.8	-2.4
	unfav	33.1	28.6	-4.5	-3.7