

# Welcome Parents!

## Elementary Science

Milt Huling, Ph.D. – Curriculum Specialist

# Our Results

- Gibbons St. El 37 to 61
- Griffin El 22 to 42
- Kingsford El 45 to 61
- Lena Vista El 28 to 50
- Lewis Anna Woodbury El 16 to 39
- Palmetto El 29 to 62
- Philip O'Brien El 28 to 43
- McLaughlin Middle 30 to 52

*Examples of schools where teachers embraced inquiry. Most places were from a partial year of implementation.*

# What About All Kids?

## *Dispelling the reading myth?*

2010-2011 (direct instruction)

Level	Percent Proficient
Regular	11%
Advanced	95%
Total	24%

2013-2014 (w/inquiry)

Level	Percent Proficient
Honors	100%
Regular	50%
Total	58%


An example of an 8th grade teacher.

# Why Reading About Science is NOT Enough

Professor Linton first brought the ritual of the Nacirema to the attention of anthropologists twenty years ago (1936:326), but the culture of this people is still very poorly understood. They are a North American group living in the territory between the Canadian Cree, the Yaqui and Tarahumare of Mexico, and the Carib and Arawak of the Antilles. Little is known of their origin, although tradition states that they came from the east. According to Nacirema mythology, their nation was originated by a culture hero, Notgnihsaw, who is otherwise known for two great feats of strength—the throwing of a piece of wampum across the river Pa-To-Mac and the chopping down of a cherry tree in which the Spirit of Truth resided.



Is Science Obvious?



Dealing With  
Student  
Misconceptions  
and  
Preconceptions of  
Traditional  
Concepts



# Even Harvard Engineering Grads Struggle with Physics

[Click Here To Feel Smart](#)



Teachers with excellent content knowledge are just as ineffective in the classroom as teachers with little content knowledge (when misconceptions are not known about and dealt with explicitly).

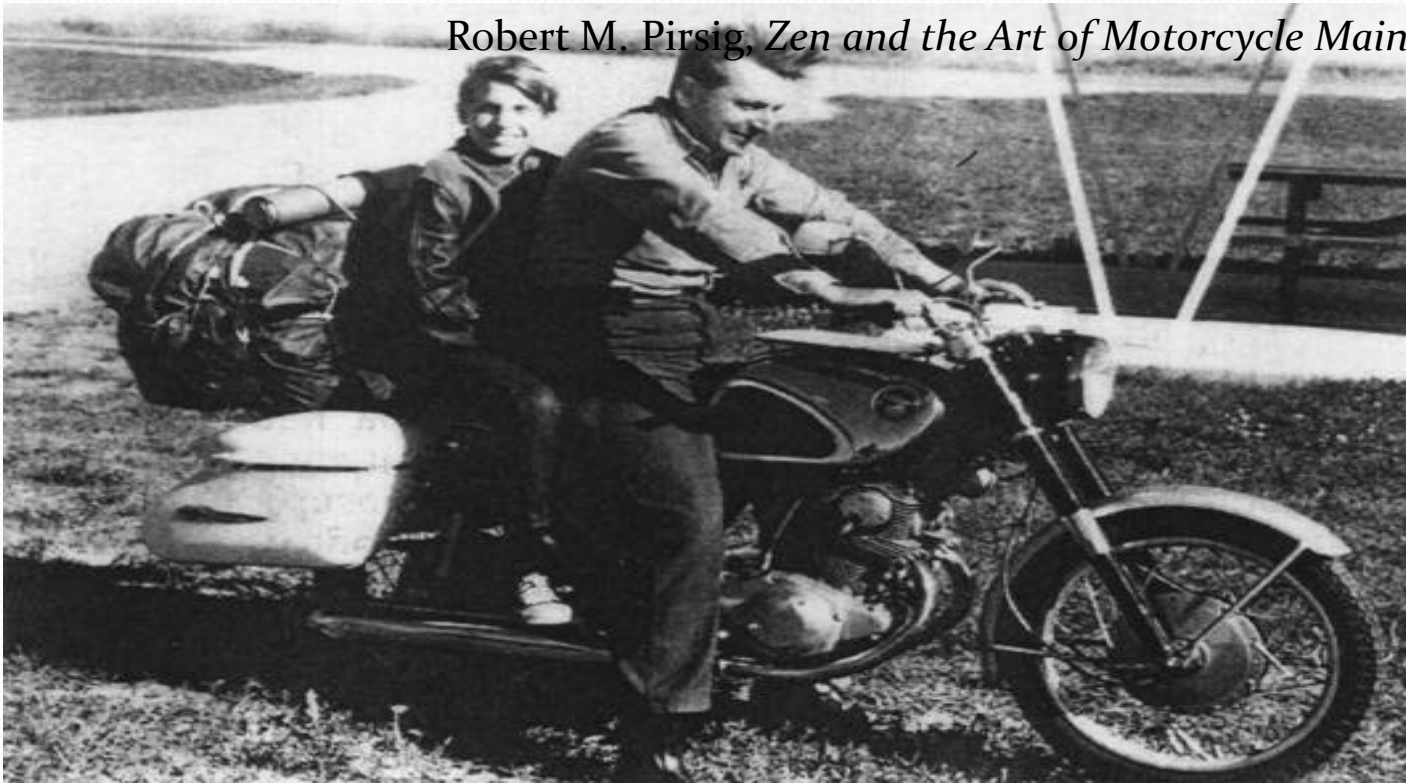
WHY????????????



# Can We Believe Our Senses?

The real purpose of “scientific method” is to make sure Nature hasn't misled you into thinking you know something you don't actually know (i.e. Misconceptions).

Robert M. Pirsig, *Zen and the Art of Motorcycle Maintenance*





# Students are blank slates or are they filled with misconceptions?

What Are Some Common Misconceptions and What Do You Do To Correct Them?

- The Earth is flat.
- **Heavy items fall faster than light items.**
- There is no gravity on the Moon or in space.
- It is warmer in the summer because Earth is closer to the Sun.
- Faster moving fluids have lower pressure.
- **If HOT Air rises, why is it colder on a mountain?**



# Mirror, Mirror, on the Wall...Say What?

## Pick Your Corner!!!!


1. In a flat mirror do you see more, less or the same of yourself.

# Playing With Spoons

(Compare & Contrast)

- How Do You See Yourself in a Curved Mirror?

	Concave	Convex
Far Away		
Close Up		

- 
- What type of mirror do you have on the right-hand side of your car?
  - What does it say...and why does it say that?

# Nemo Writes

- Nemo finds kitchen utensils floating down from a passing cruise ship. He finds the spatula (flat mirror) and the spoons very interesting. He spends many hours investigating his appearance in each.
- After his new discoveries he can't wait to tell his friends about his new found knowledge. He writes a letter to his friends, the turtles to explain mirrors.
- Your task is to write the letter and include specific examples or evidence from your investigations.

# RAFT

- Role - Nemo
- Audience – Turtle Friends
- Format – A Letter (could be a narrative)
- Topic - Mirrors

# Explicit – Reflective Instruction

- [SC.3.P.10.3 Benchmark Resource Page](#) Demonstrate that light travels in a straight line until it strikes an object or travels from one medium to another.
- [SC.3.P.10.4 Benchmark Resource Page](#) Demonstrate that light can be reflected, refracted, and absorbed.





# How Do We Need To Teach Science To Be Effective?

## 5E Instructional Model

- Engage
- Explore
- Explain
- Elaborate
- Evaluate

# How Can Parent's Support Their Children

- [Upper Elementary Science Student Site](#) (videos, articles, games, vocabulary cards & practice quizzes). *See Student's Teacher or Guidance Counselor for Access.*
- Polk County science textbooks (4<sup>th</sup> & 5<sup>th</sup> grade) available at [CK12.org](#) (Keyword Search: *Polk*, then *click Community Contributed tab*).



# Thank You!!

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