

Facilitate Exploration

Paul Doherty



Who?

Is your audience?



Who?



Make Science: Interesting



Interesting : Learning about yourself is always interesting!



Relevant



Fun



Fun



and Correct

Speak and write so that what you say in “Not Wrong”
There must be at least one way to understand what you say
that is correct.

Unlike Scientists who must write so that it is
difficult to misunderstand
and so, often
difficult to understand.

Experience
the
Real Phenomenon





**You Gotta have heart!
Let your passion show.**

If you can't go to the moon model it



To facilitate: Provide Materials



Modesto Tamez

Begin with a
“provocacione”

Imperfect Instructions
lead to creativity

What we do is Jazz



Provocazione

People “Know” what is going to happen, surprise them!



What we do is Jazz
Facilitate learning by listening to the students,
The path of each class will be different.



What do you see?

My favorite question, with no wrong answers.

And sometimes students see things no one has seen before.



Classic Storytelling

Do it in 3s

And on the third occurrence

add a twist.

A scientist looks at something that everyone has looked at
and sees something that no one has seen

A teacher helps students to see things
they have never noticed before.

Students ask questions that will help teachers
see things they have never noticed before.

Keep it simple



Making a square wheels exhibit with toilet paper tubes!



The world continuously
changes:

Losses

Phone Cords
Film Cans
Magnetic Tape

Going

Compact Disks

Gains

Camera phones
Neodymium Magnets
Apps

Share with the world





Mind and Science Across Cultures
Exploratorium

The Exploratorium Science Snackbook
Exploratorium

THE BRAIN EXPLORER
PUZZLES, RIDDLES, ILLUSIONS, AND OTHER MENTAL ADVENTURES
Exploratorium

the science explorer
AN EXPLORATORIUM AT HOME BOOK
Exploratorium
Pat Murphy, Ellen Klages, Linda Shore, and the Staff of the Exploratorium

Exploratorium
Exploratorium

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Make it Big: Giant Slinky

Make it Big: Giant Bell on a straw oboe
Of course this was the 3rd bell added.





Make it Big: Get inside a musical instrument.

Regular moonwalk



Make it Big: Giant moonwalk



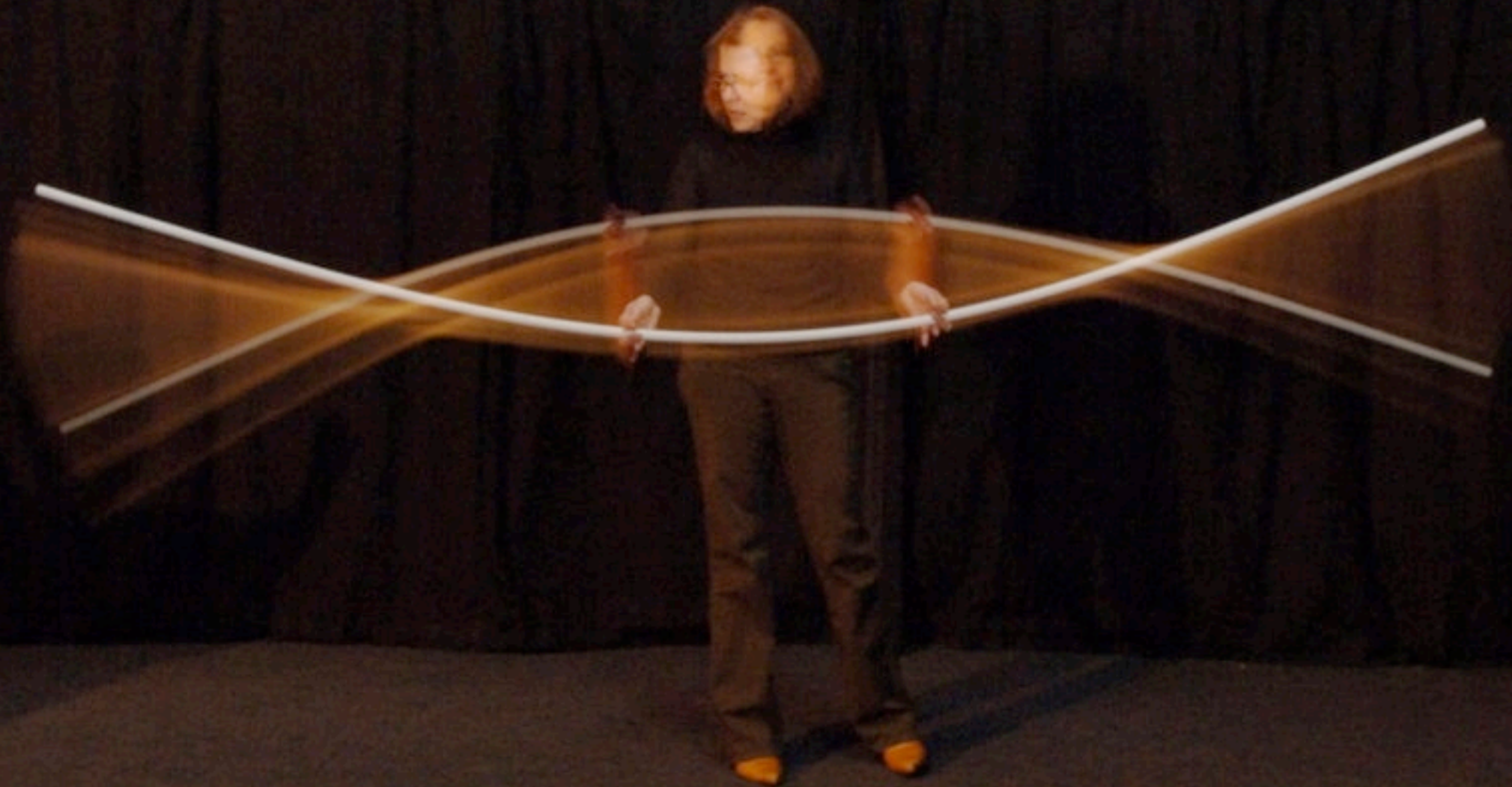
Listen to students: They discovered orbits could be explored with a giant conical moonwalk.



Make it Big: Giant Mirror



Make it visual
Use imagery
Make it dynamic!



Make it a whole body experience:
What is the surface area of a human?



Make it multiple?

5 Slinkies show earthquake motion better than 1



John Lahr

Make it Visual

Polarized light and polarizers model



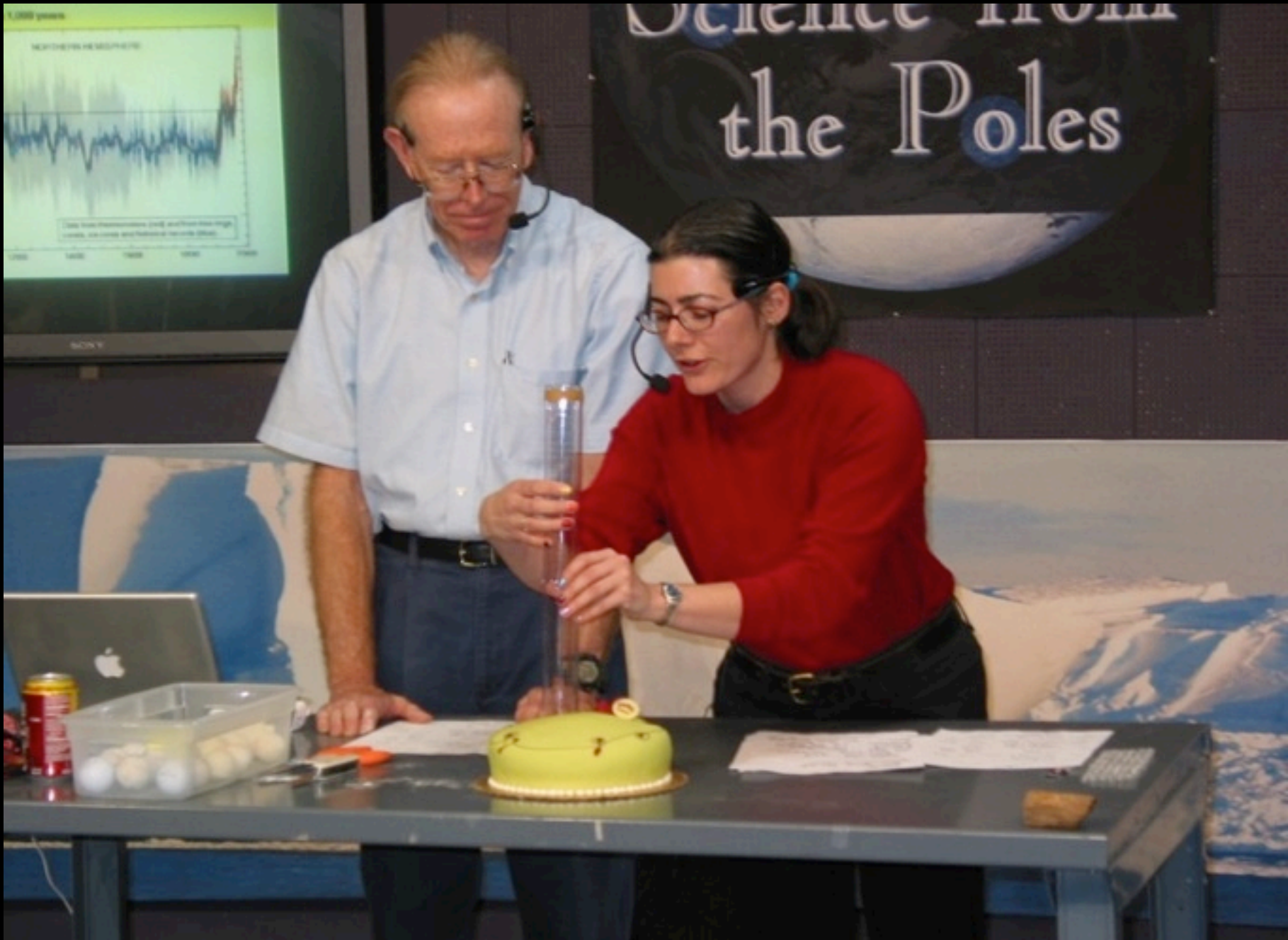
Be willing
to dump the old
and start again

A new polarized light
and polarizer model





Apprentice learning:
See one, do one together, Do one alone.



Learn from those around you
Who have new skills.
Stephanie Chasteen Master Podcaster



Make it Social



Food is important



