A Summer of Outreach: Captivating Kids with Physics …

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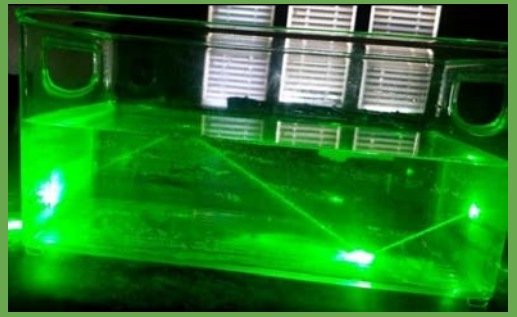
SPS: Outreach

1: SOCK

2: Demos



3: Psi*

4: Chapter Activities

1: Science Outreach Catalyst Kits (SOCK)

Purpose: start or expand an outreach program

2020-2021: Acoustics and Sound

Partnership: Acoustical Society of America (ASA)

Expanded 2020 SOCK:

- Doppler Ball Demonstration
- Elastic Waves Demonstration
- Vocal Folds with Videos
- Soundscapes Examples

2021-2022 SOCK

2: Demos

Purpose: affordable, engaging, and educational demonstrations for outreach

- Each demo is less than $20
- Over 40 demos
- Designed for undergrads

Setup:

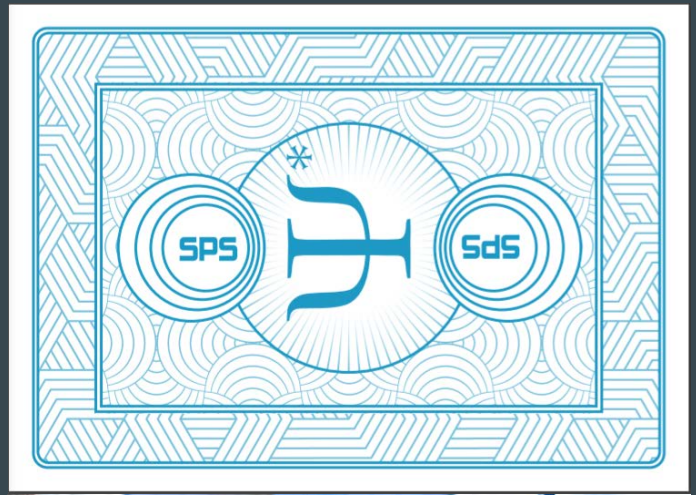
1. There are 3 different phases that can be setup: subcritical, critical, supercritical.
2. Prior to setting up the mousetraps, move the bin to the desired location.
3. To set up the mousetraps, first arm the mousetrap. Carefully place the ping pong ball on the mousetrap. See Figure 1 for an example.
    a. One way to effectively move a large number of armed mousetraps is to place them on a board and then slide them into the box that the demo will take place in.
    b. Note that this can take a significant amount of time to setup.
4. Subcritical:
    a. In the large box, place only a couple of mouse traps (2-5 depending on the size of your box)
    b. Place ping pong balls on the mousetraps.
    c. Once those ping pong balls are set, you can throw a ping pong ball into the box in any random spot. This may set off one or two of the mousetraps, but most likely not all of them.
5. Critical
    a. In the large box, place a decent number of mouse traps (7-15 depending on the size of your box)
    b. On those mousetraps, *carefully* place ping pong balls
    c. Once those ping pong balls are set, you can throw a ping pong ball into the box in any random spot. This will likely set off a slow chain reaction of ping pong balls flying around.
6. Supercritical
    a. In the large box, place as many mouse traps as you can(15-30 depending on the size of your box). See Figure 2.
    b. On those mousetraps, *carefully* place ping pong balls
    c. Once those ping pong balls are set, you can throw a ping pong ball into the box in any random spot. This will set off a fast, almost instantaneous, chain reaction of ping pong balls flying around.

Astronomy	Acoustics	Optics	General Physics	Mechanics	Electricity Magnetism
Eclipse Model	Straw Oboe	Variable Index of Refraction	Borate Glass	Density Column	Ferrofluids
Composition of the Universe	Tuning Fork	Polarization of Light	Liquid Nitrogen Ice Cream	Egg Drop	Cell-Phone Charger
Fabric of the Universe	Chladni Plates Bow & Speaker	The Speed of Light	Vortex Cannon	Egg Crusher	Homopolar Motor
Fabric of the Universe 2	Ruben's Tube	Light Fountain	Passive Pasta	*Racing Cylinders*	Eddy Currents
Pinhole Projector	Rijke Tube	Hair Diffraction	Slimy Spaghetti and Meatballs		Simple Motor
Gravitational Waves	Oscilloscope & Microphone	*Reflection and Refraction*	Ice and Salt Slushies		Audio Amplifier
Cakeraters	Longitudinal & Transverse Waves		*Rodent Reactor*		
Straw Landing	*Doppler Ball*				
	Elastic Wave				
	Vocal Folds				

3: Psi*

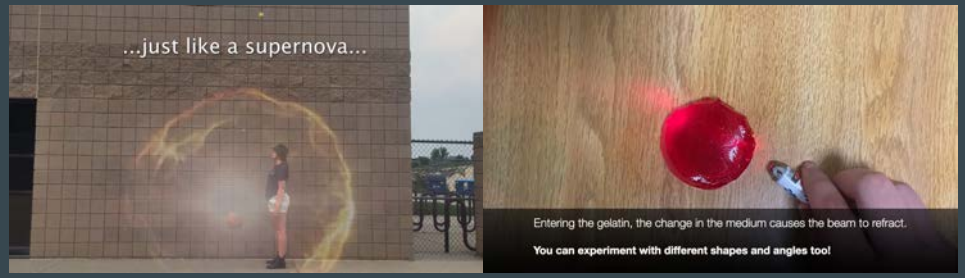
Goal: Physics students use what they learn to save the world

- Created by Randy Tagg (UC Denver)
- Manufacturing version created by Casey Roepke (NIST Intern)
- Audience: Undergraduate students



4: AAPT Summer Meeting Demo Competition & Jeopardy

Organized and Compiled AAPT Demo Competition



AAPT 2021 VIRTUAL SUMMER MEETING
July 31 - August 4
PHYSICS EDUCATION®

Created and Revised 3 Jeopardies

- Elementary Physics
- General Physics
- Acoustics

The Future

- 2 Years of college remaining
- SPS E-Board
- Focus on outreach in the NYC area
- Pursue a career in education and outreach