Physics- Monday, October 28th

Schedule

1. Turn in Unit 1 Final Model
2. Review Modeling
3. Get White Boards
4. Light Phenomenon
5. Present Models to classmates

Warm Up

- Take out your notebook.
- List at least 5 qualities of a great model

Standards

2.1 Wave Behavior: I can explain and model the behavior of waves including interactions between two waves and predict behavior.
2.2 Sound: I can determine how sound will travel and predict behavior between one or more sources of sound
2.3 Light Behavior: I can determine the interaction of light waves and predict behavior through different mediums.

Phenomenon Waves Light Sound

1. Shine Laser Across Room- Model
2. Sprinkle Powdered Sugar on Laser Light
3. Sprinkle Water on Laser Light
4. Sprinkle Oil on Laser Light

Phenomenon Question:
Which substance showed the laser light the best?

Physics- Tuesday, October 29th

Schedule

1. Pass Back Papers
2. Class Model
3. Class Questions
4. Hand out Calendar and SS
5. Pre-Assess Standards
6. What can we measure from a wave?
7. Wave Investigation

Warm Up

- Sit with your partner from yesterday and get model from teacher or take it out.

Standards

2.1 Wave Behavior: I can explain and model the behavior of waves including interactions between two waves and predict behavior.
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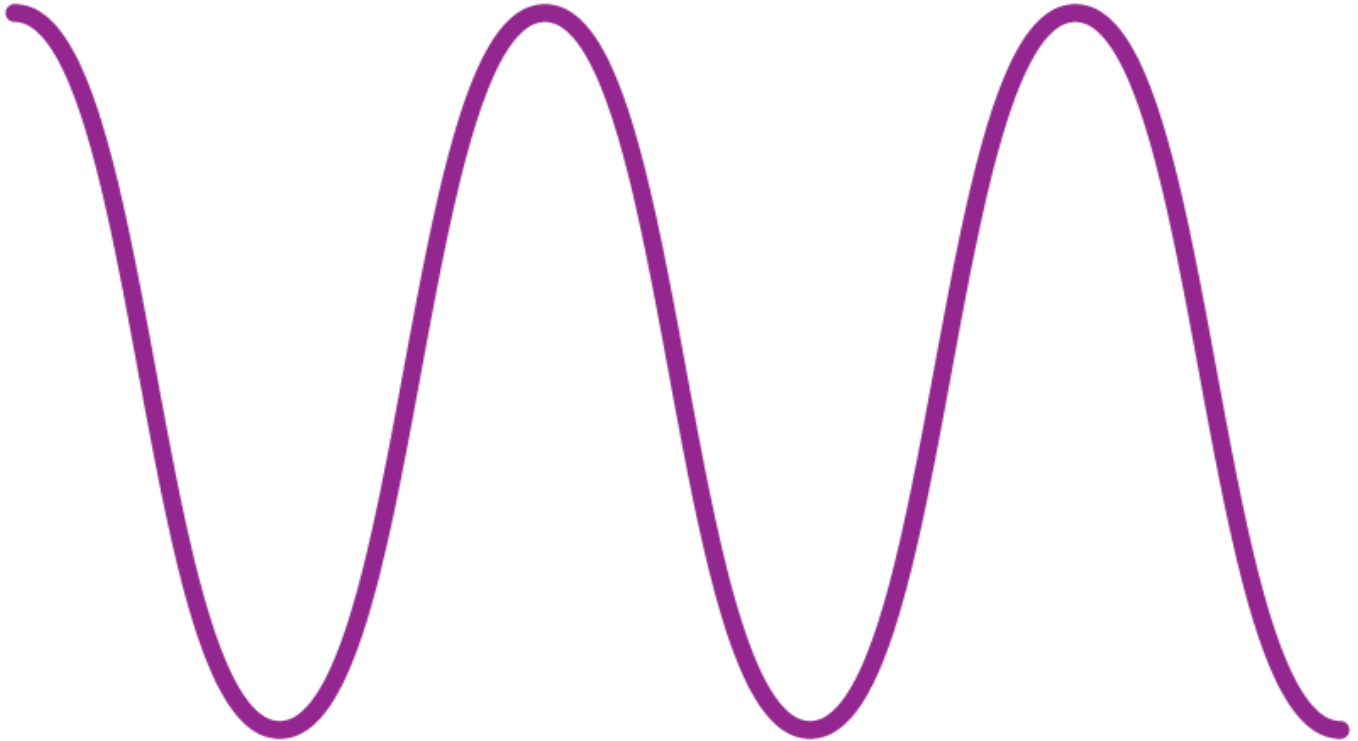
2.3 Light Behavior: I can determine the interaction of light waves and predict behavior through different mediums.

Per: 1 Physics S1 (HSSC330-1) **19/20 AHS**

Current Sem1 - Progress Rpt 2 Grade: B+ **Teacher: Wentzloff, Vanessa**

Detail	Date Due	Assigned	Assignment	Pts Possible	Score	Scored As	Extra Credit	Not Graded	Comments
	09/23/2019	09/23/2019	1.1 Electrostatics	4	2.8	2- Functional understanding towards proficiency			Balloon Labs CERs due 10/2
	09/23/2019	09/23/2019	1.2 Circuit Configuration	4	3.8	3.5 - Proficiency working towards mastery			Circuit Assessment
	09/23/2019	09/23/2019	1.3 Ohm's Law	4	3.2	2.5 - Functional understanding almost proficiency			Circuit Assessment
	09/23/2019	09/23/2019	1.4 Electricity and Magnetism	4	4	4- In depth mastery			Final Phenomenon Model
	09/23/2019	09/23/2019	M.1 Modeling Details	4	3.2	2.5 - Functional understanding almost proficiency			missing key details- Final Phenomenon Model
	09/23/2019	09/23/2019	A.1 Claim (CER)	4	3.6	3- Proficiency			Balloon Labs CERs due 10/2
	09/23/2019	09/23/2019	A.2 Evidence (CER)	4	4	4- In depth mastery			Balloon Labs CERs due 10/2
	09/23/2019	09/23/2019	A.3 Reasoning (CER)	4	3.6	3- Proficiency			Balloon Labs CERs due 10/2
	09/16/2019	09/16/2019	0.1 Measurements in the Metric System	4	4	4- In depth mastery			Hallway Scale Drawing Due 9/23
	09/16/2019	09/16/2019	0.2 Scale Drawings	4	3.2	2.5 - Functional understanding almost proficiency			missing measurements- Hallway Scale Drawing Due 9/23

What can we measure about this wave?



At WHS (Wavetown High School) there was a break in...
A wave destroyed classrooms.
Who was it?

Physics- Wednesday, October 30th

Schedule

1. Pass back papers + calendar/SS
2. Wave Investigation
3. Parts of a Wave
4. What makes a wave a wave?
5. Slinky Fun

Warm Up

- Take out your wave investigation from yesterday.

Standards

2.1 Wave Behavior: I can explain and model the behavior of waves including interactions between two waves and predict behavior.
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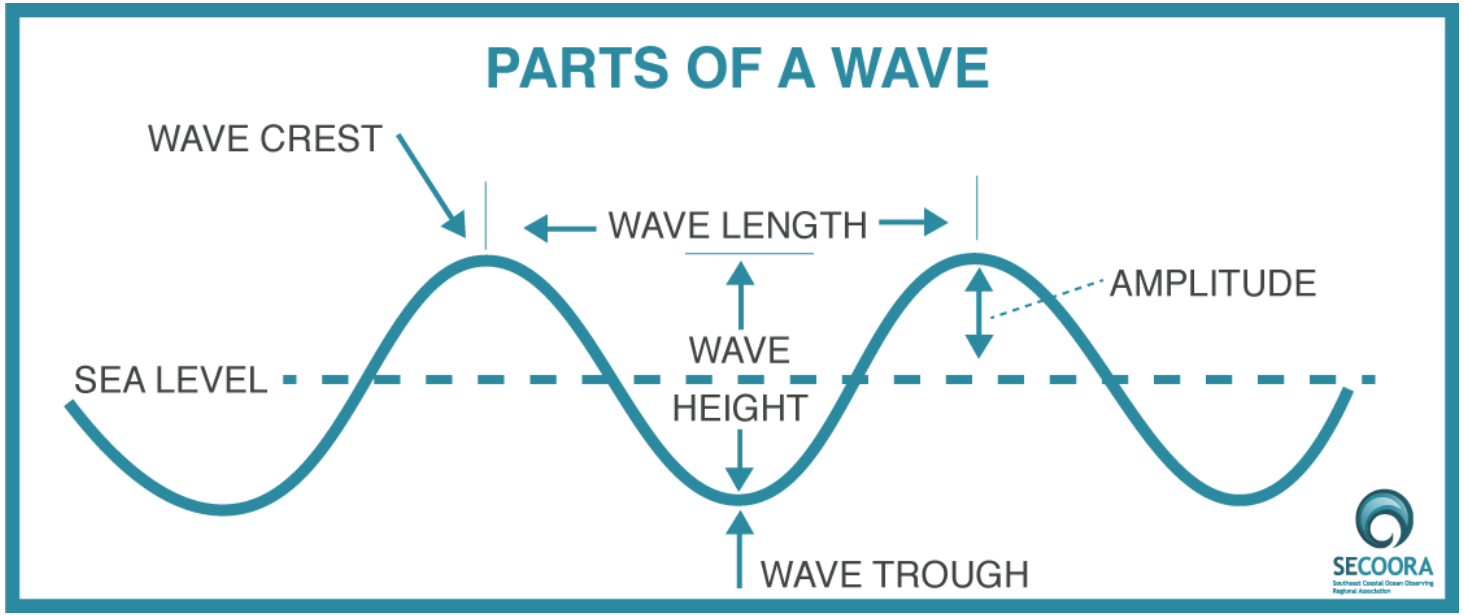
2.3 Light Behavior: I can determine the interaction of light waves and predict behavior through different mediums.

What is a wave?



Frequency:

Period:

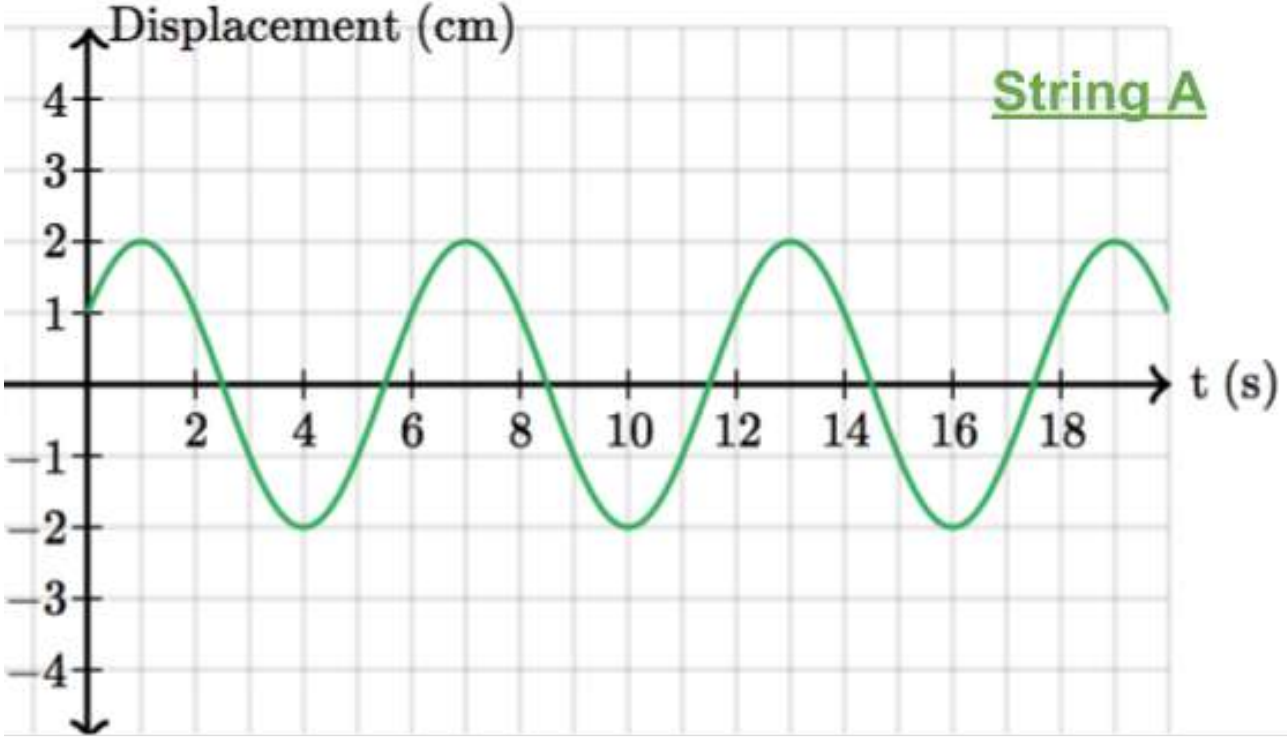
Wave Speed:

$$V = f \times \lambda$$

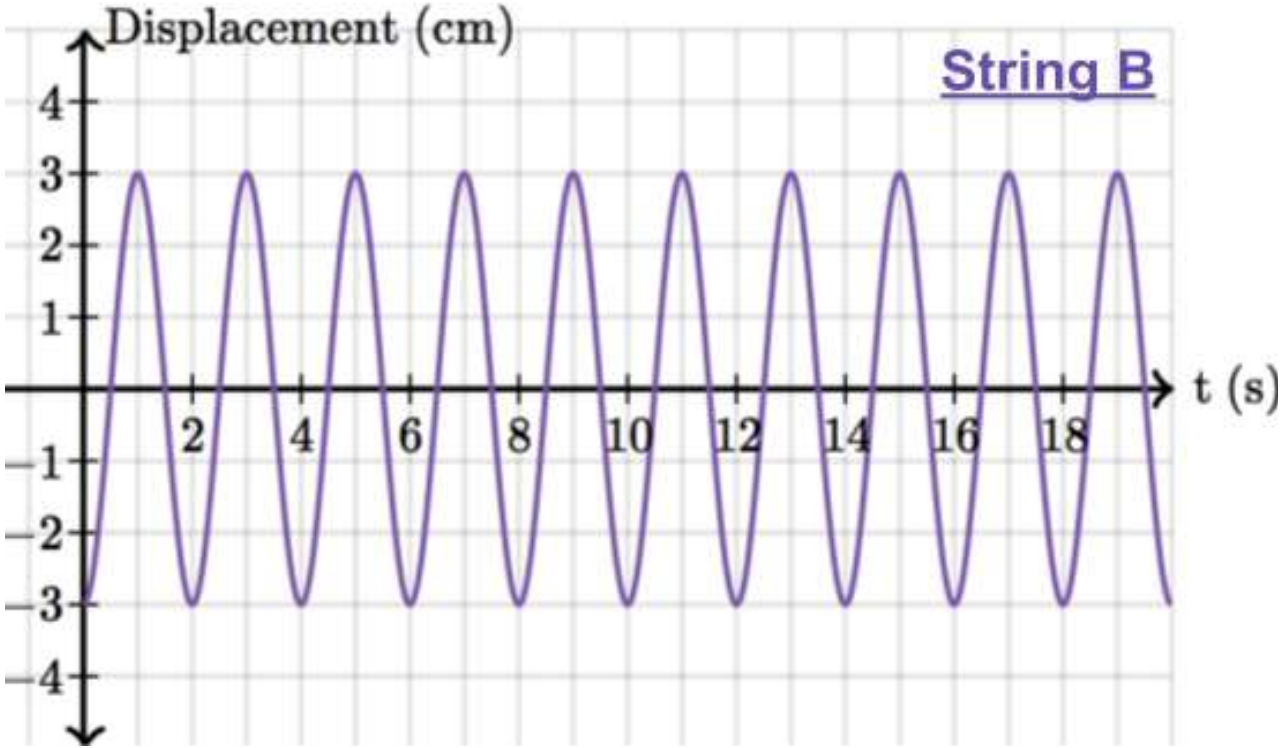
WAVE SPEED = FREQUENCY X WAVELENGTH

(m/s) (Hz) (m)

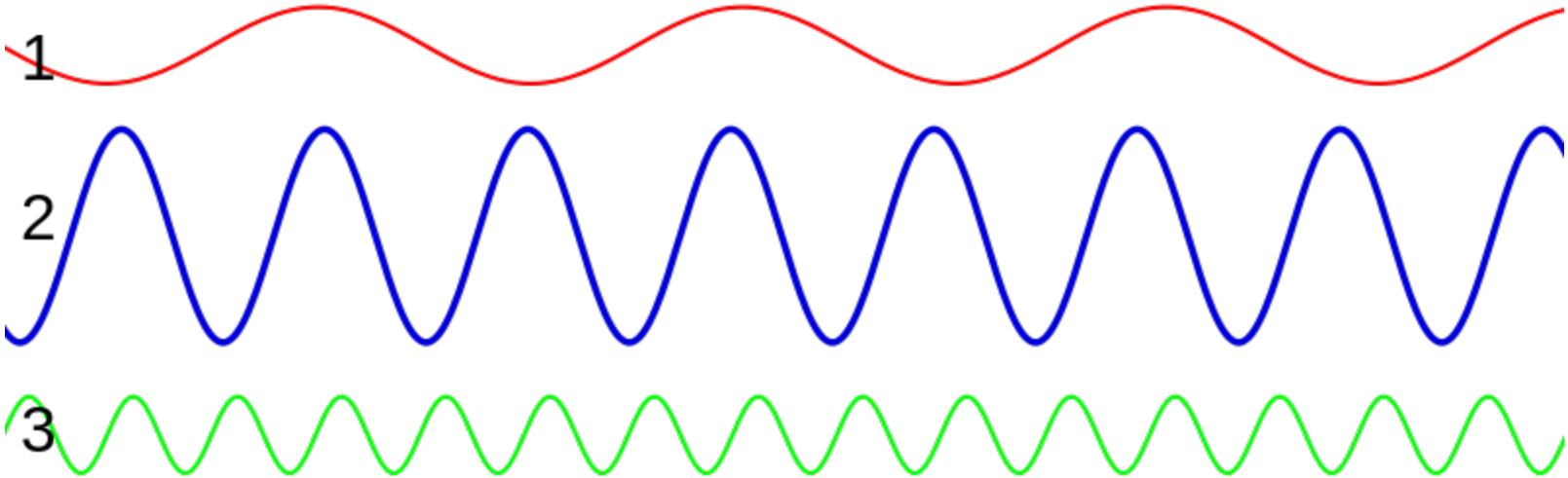
Frequency, amplitude, wavelength, wave speed



Frequency, amplitude, wavelength, wave speed



Rank smallest to biggest wavelength, frequency and amplitude



Physics- Thursday, October 31st

Schedule

1. Parts of a Wave Review and Practice
2. Partners for Slinkies
3. Review of Parts of a Lab
4. Slinky Design Lab

Warm Up

- Take out your wave investigation from yesterday.

Standards

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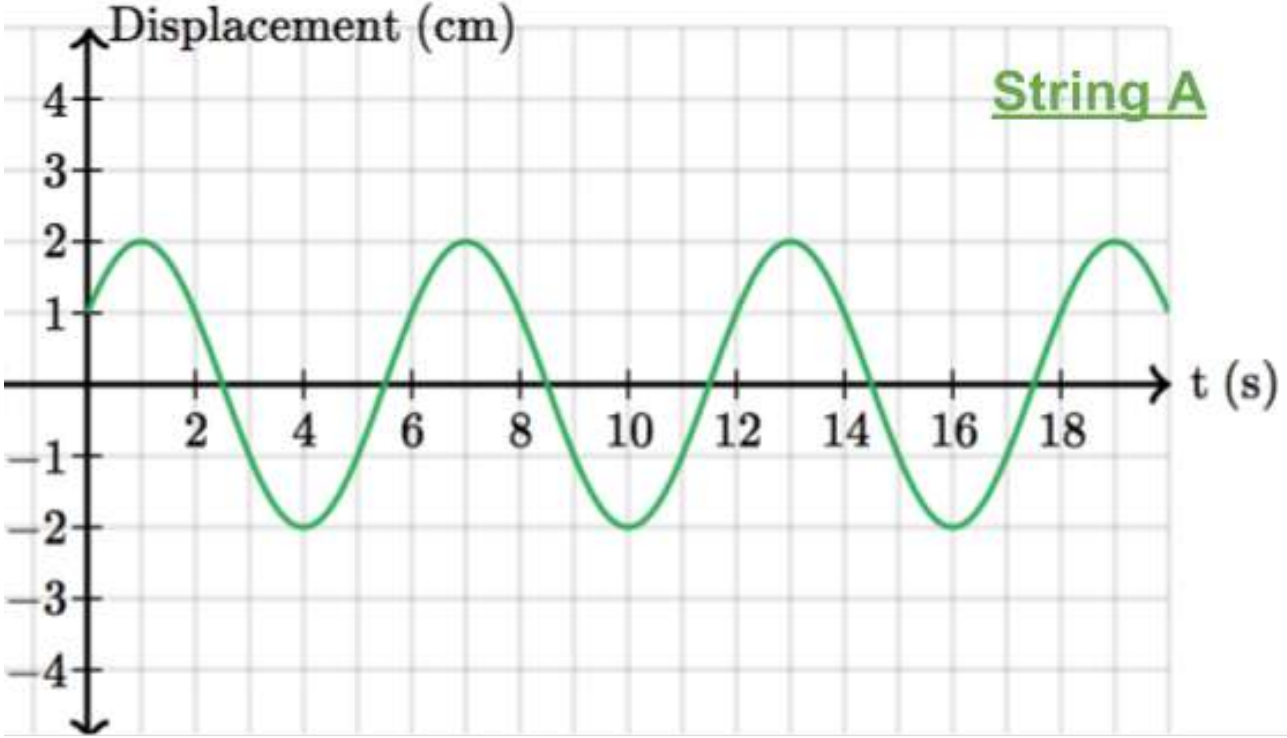
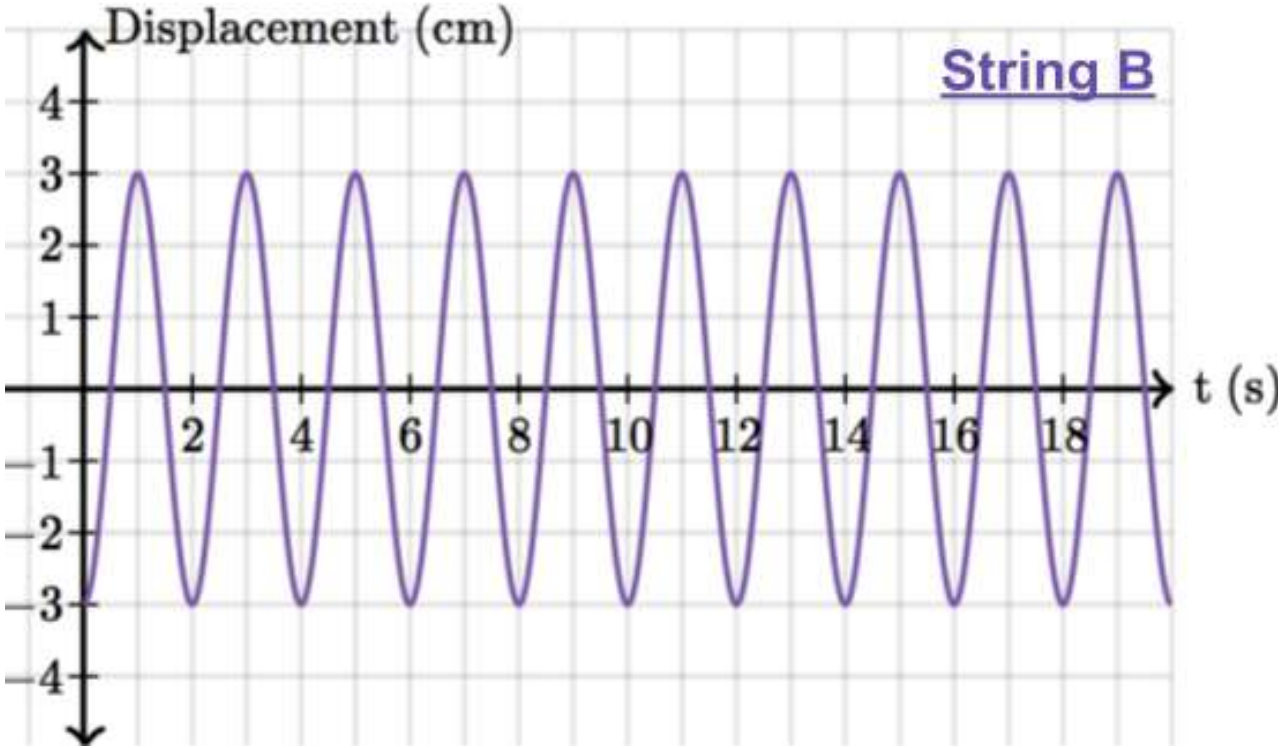
2.2 Sound: I can determine how sound will travel and predict behavior between one or more sources of sound
2.3 Light Behavior: I can determine the interaction of light waves and predict behavior through different mediums.

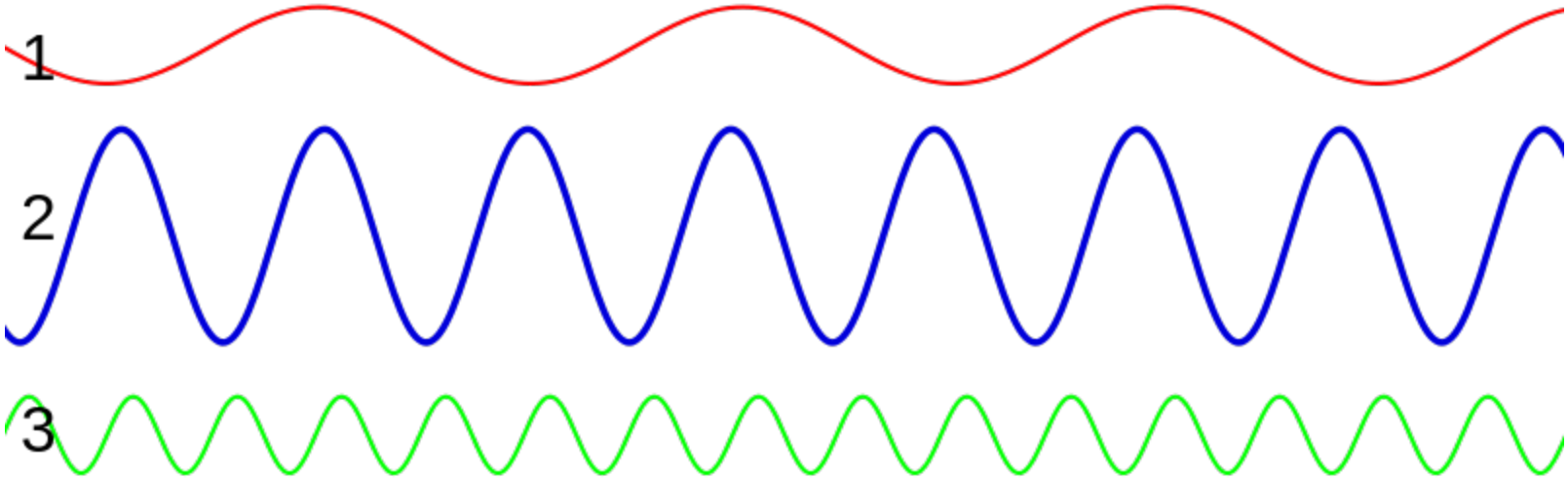
Frequency, amplitude, wavelength, wave speed



Frequency, amplitude, wavelength, wave speed



Rank smallest to biggest wavelength, frequency and amplitude



Slinky Waves

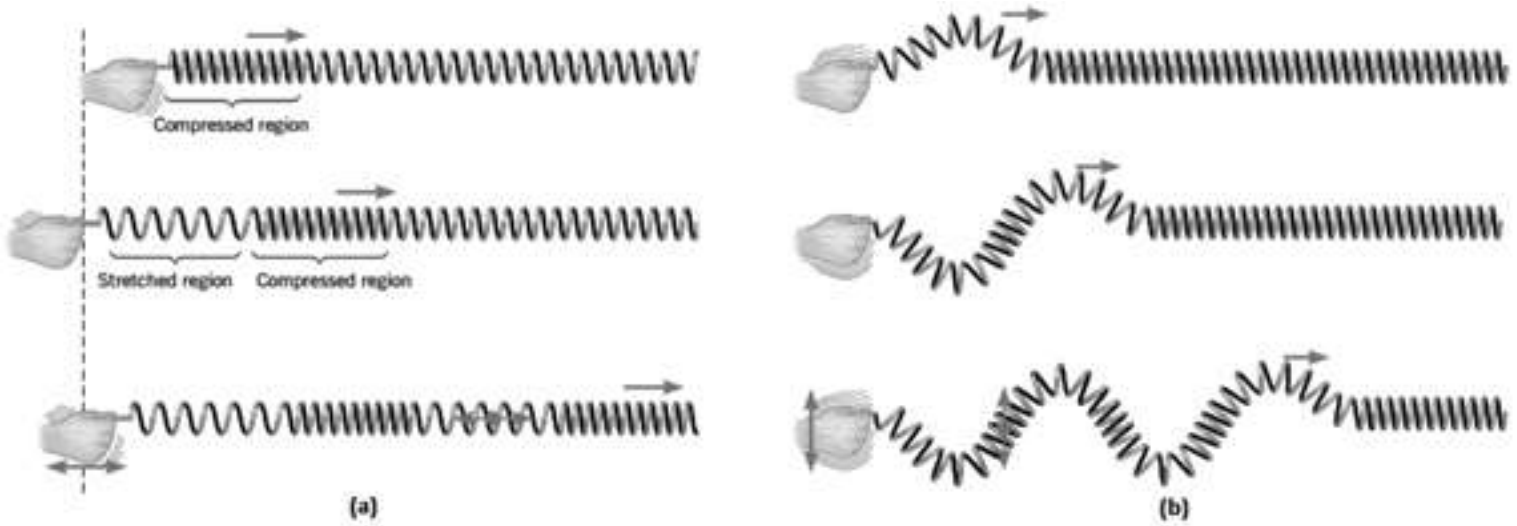


Figure 4. *Propagation in longitudinal and transverse waves generated using a Slinky®*
(a) longitudinal, (b) transverse (Cutnell & Johnston, 2012)

What are parts of a lab?

Writing a great procedure

1) Units
2) Exactly what you are doing with measurements
3) Reference a diagram
4) Never assume

Variables

Independent

Dependent

Controls

Create Your Lab

When you done, show your teacher.

Then we will swap labs and try it out to get feedback

Maximum Stretch of 2m

Physics- Friday, November 1st

Schedule

1. Slinky Design Lab Create, Feedback and Improve
2. Interference, Destruction of Waves with Slinkies
3. What do waves need to travel through?
4. Star Wars Video
5. Examples of Waves in Everyday Life
6. Sound Waves Intro

Warm Up

- Sit with you Slinky Partner from yesterday!

Standards

2.1 Wave Behavior: I can explain and model the behavior of waves including interactions between two waves and predict behavior.
2.2 Sound: I can determine how sound will travel and predict behavior between one or more sources of sound
2.3 Light Behavior: I can determine the interaction of light waves and predict behavior through different mediums.

Create Your Lab

When you done, show your teacher.

Then we will swap labs and try it out to get feedback

Maximum Stretch of 2m

Try out the other group’s lab.
Give feedback. What worked? What didn’t?

Physics- Monday, November 4th

Schedule

1. Practice Procedures
2. Interference, Destruction of Waves with Slinkies
3. Examples of Waves in Everyday Life
4. What do waves need to travel through?
5. Star Wars Video
6. Particle Diagrams
7. Sound Wave Group Demo

Warm Up

- Sit with you Slinky Partner and take out your slinky lab.

Standards

2.1 Wave Behavior: I can explain and model the behavior of waves including interactions between two waves and predict behavior.
2.2 Sound: I can determine how sound will travel and predict behavior between one or more sources of sound
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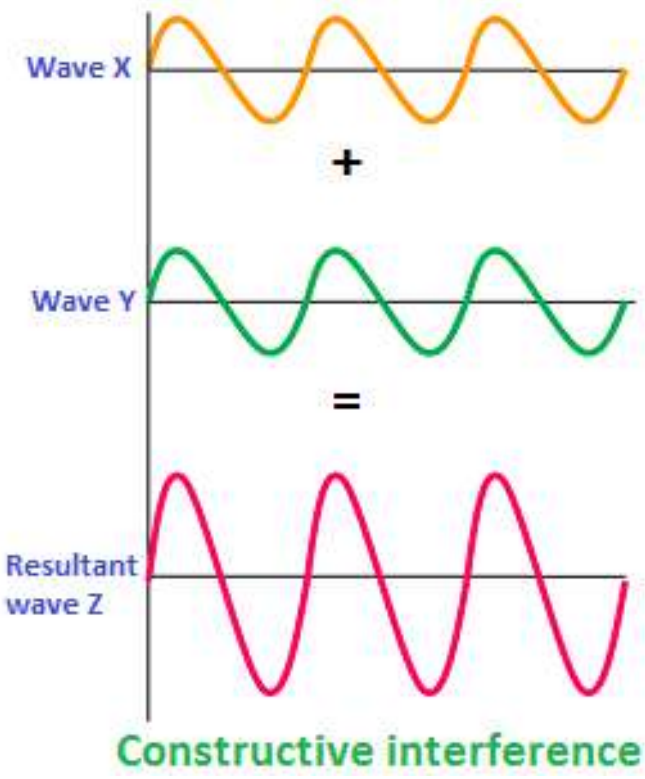
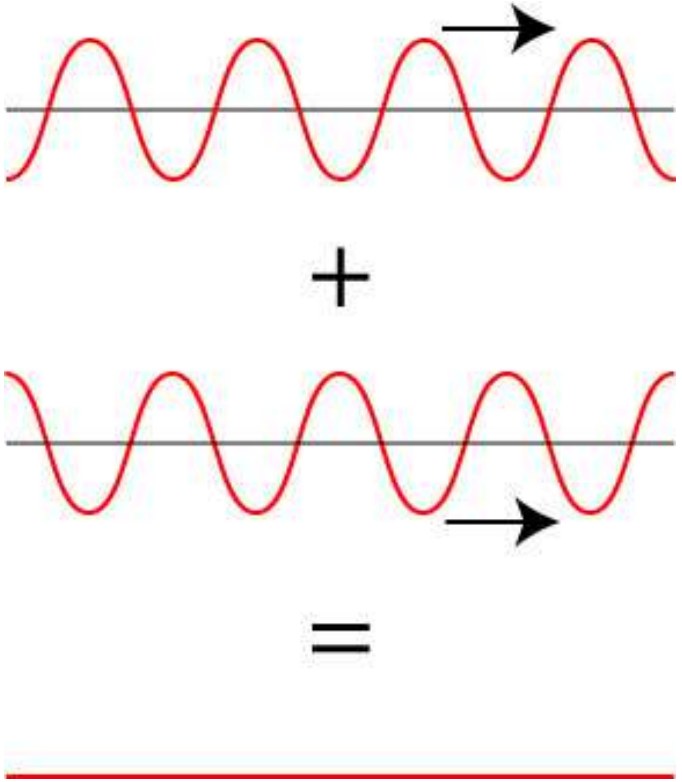
Procedure Practice:
Write a procedure of how to walk from my room to the language hall


Wave X
+
Wave Y
=
Resultant
wave Z
Constructive interference



What will happen to the wave after the two waves meet (middle) and after they meet (after)?

What do waves need?

Waves need a medium

Does sound travel faster through steel, wood, water, air or space?

Particle Diagrams

Physics- Tuesday, November 5th

Schedule

1. Particle Diagrams and Particle Demos
2. Sound Wave Group Demo

Warm Up

- Take out your notebook!

Standards

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Try it as a group

1 student- sound wave

Make if from one side to another- but must go from one particle to another

Dominoes?

Physics- Tuesday, November 5th

Schedule

1. Particle Diagrams and Particle Demos
2. Sound Wave Group Demo

Warm Up

- Take out your notebook!

Standards

2.1 Wave Behavior: I can explain and model the behavior of waves including interactions between two waves and predict behavior.
2.2 Sound: I can determine how sound will travel and predict behavior between one or more sources of sound
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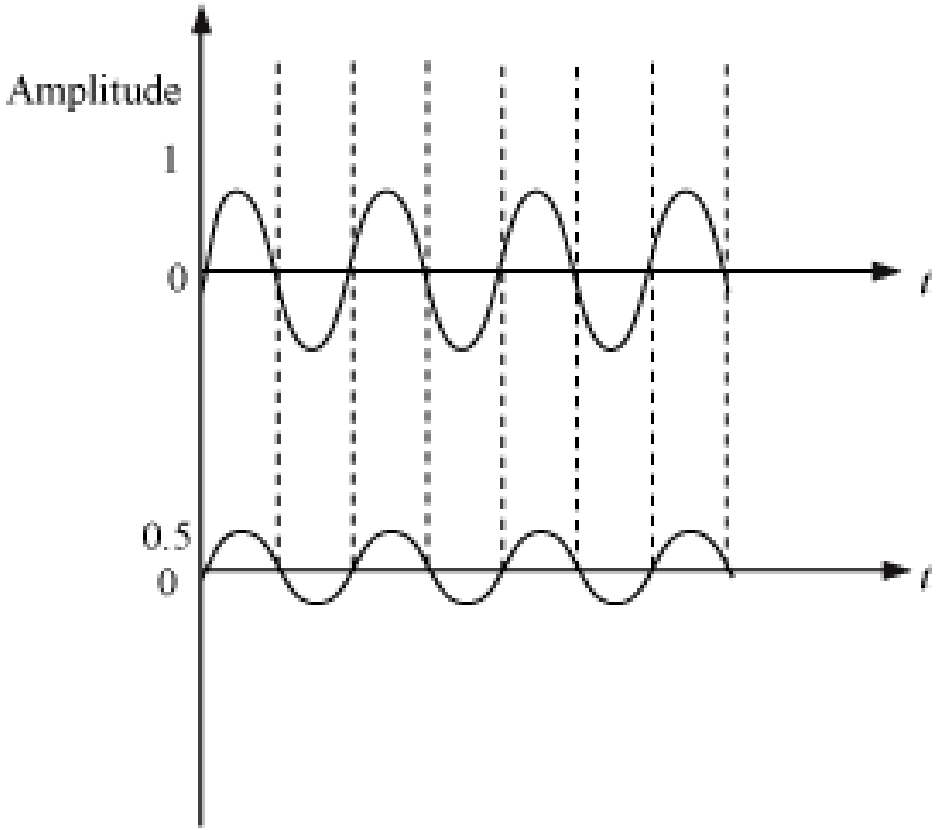
Compare particle diagrams

But why can’t I hear it as well through brick?

Amplitude is different from speed. Amplitude is LOUDNESS


Amplitude
1
0
t
0.5
0
t

Big Ideas:

- More dense, faster to move through
- Loudness = Amplitude

Physics- Wednesday, November 6th

Schedule

1. Sound Bath
2. Sound Wave Exploration
3. Class Consensus Circle
4. Doppler Effect

Warm Up

- Take out your notebook and find somewhere to sit!

Standards

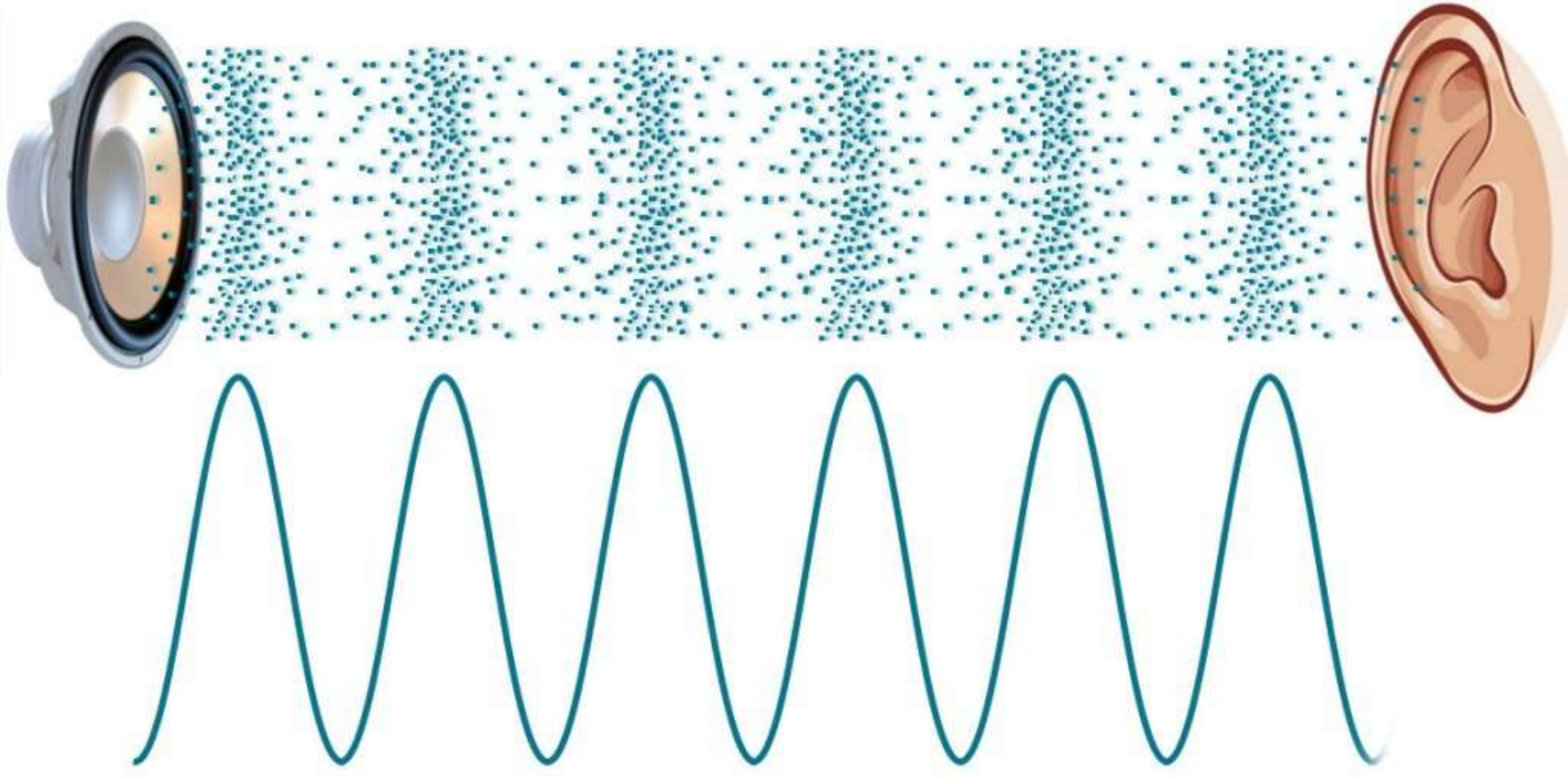
2.1 Wave Behavior: I can explain and model the behavior of waves including interactions between two waves and predict behavior.
2.2 Sound: I can determine how sound will travel and predict behavior between one or more sources of sound
2.3 Light Behavior: I can determine the interaction of light waves and predict behavior through different mediums.

What does sound “look like”

Tuning Forks- Drums and Water Observations

Observations

- Frequency?
- Loudness?
- Compare splashes and vibrations of salt



Consensus Meeting

Purpose: To formally and informally discuss findings from a scientific discovery.

Goal: Share your findings. Listen to others. Experience discourse and disagreeing. Find out what you agree on.

- Timed 15 minutes.
- Student led discussion- I will not intervene at any time (except to put students on mute) but will be taking notes on discussion and keeping track of which students speak.
- Questions need to be said out loud before we start. This is an opportunity to talk!

https://academo.org/demos/virtual-oscilloscope/

Sound Waves Consensus Circle

Questions to Answer:

- **What did you notice about frequency and loudness when the tuning forks got close to the salt? To the water?**
- **Why do you think this is happening?**
- Why are the tuning forks made of steel and not another material?
- Do you think the size or material of the water containers mattered?
- What situations in real life can you relate this to?
- Sources of errors? How to make it more controlled?

Sentence Stems:

- (Name), what do you think?
- I agree/disagree because…
- What do you mean by that?
- Does anyone want to respond to this idea?
- What is your evidence?
- Can you give me an example?
- Why do you think that?
- The next question to discuss is...

Physics- Thursday, November 7th

Schedule

1. Consensus Circle Wrap Up
2. Doppler Effect
3. Waves and Sound Assessment

Warm Up

- Question: What were some positives from the consensus from yesterday? What can your class work on?

Standards

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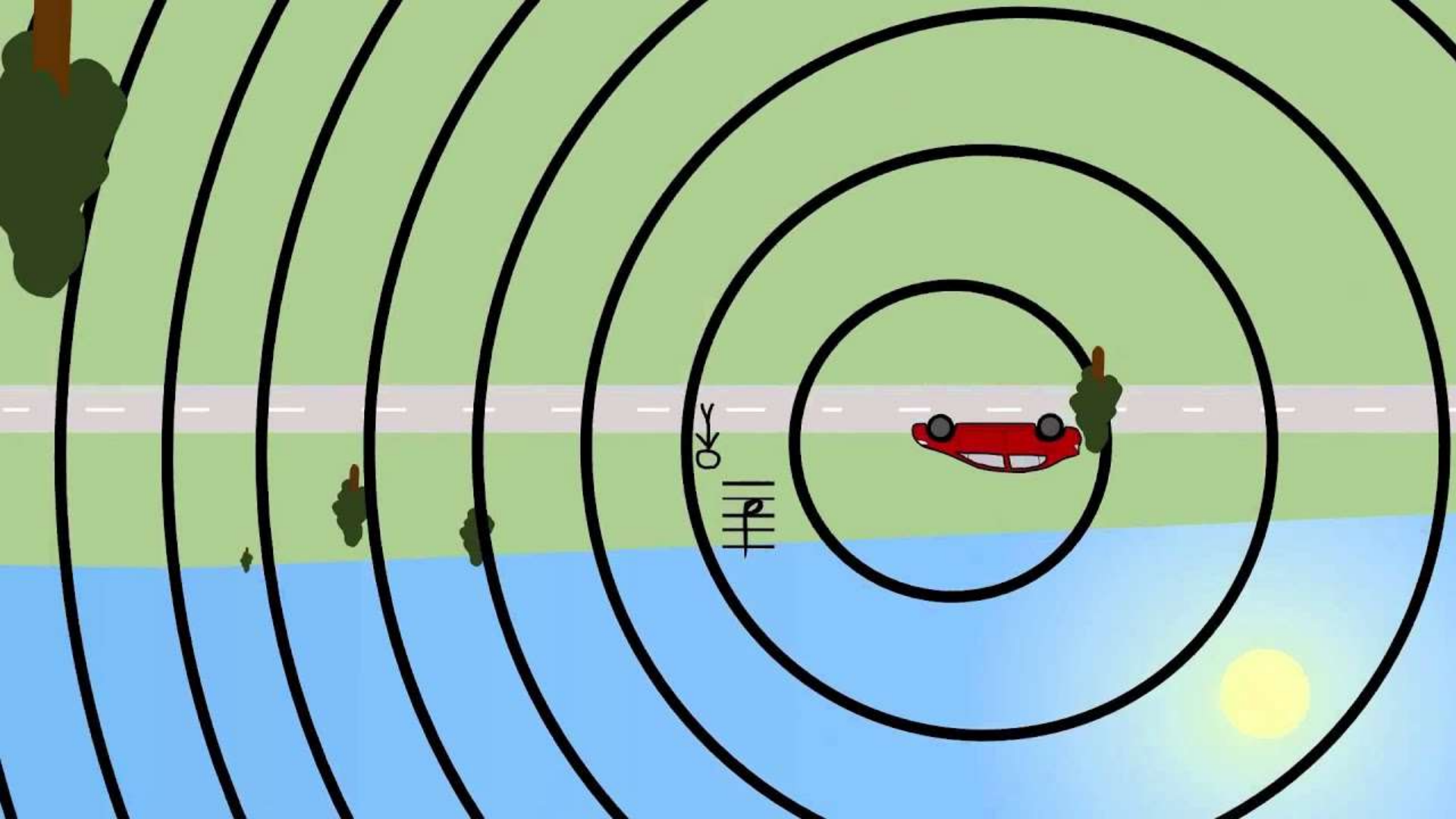
Doppler Effect

- Speaker Spinning Demo
- Model
- Discuss
- Video



$$f' = \frac{v}{(v - v_s)} f$$

f' = observed frequency

f = actual frequency

v = velocity of sound waves

v_s = velocity of the source

Work on Waves and Sound Assessment

Due MONDAY beginning of class

Physics- Friday, November 8th

Schedule

1. Waves and Sound Assessment Due Monday beginning of class

Warm Up

- Take out your wave and sound assessment.

Standards

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Physics- Monday, November 11th

Schedule

1. Waves and Sound Assessment Turn In
2. What's a laser & Laser Safety
3. Light Exploration
4. Class Conclusons

Warm Up

- Take out your wave and sound assessment.

Standards

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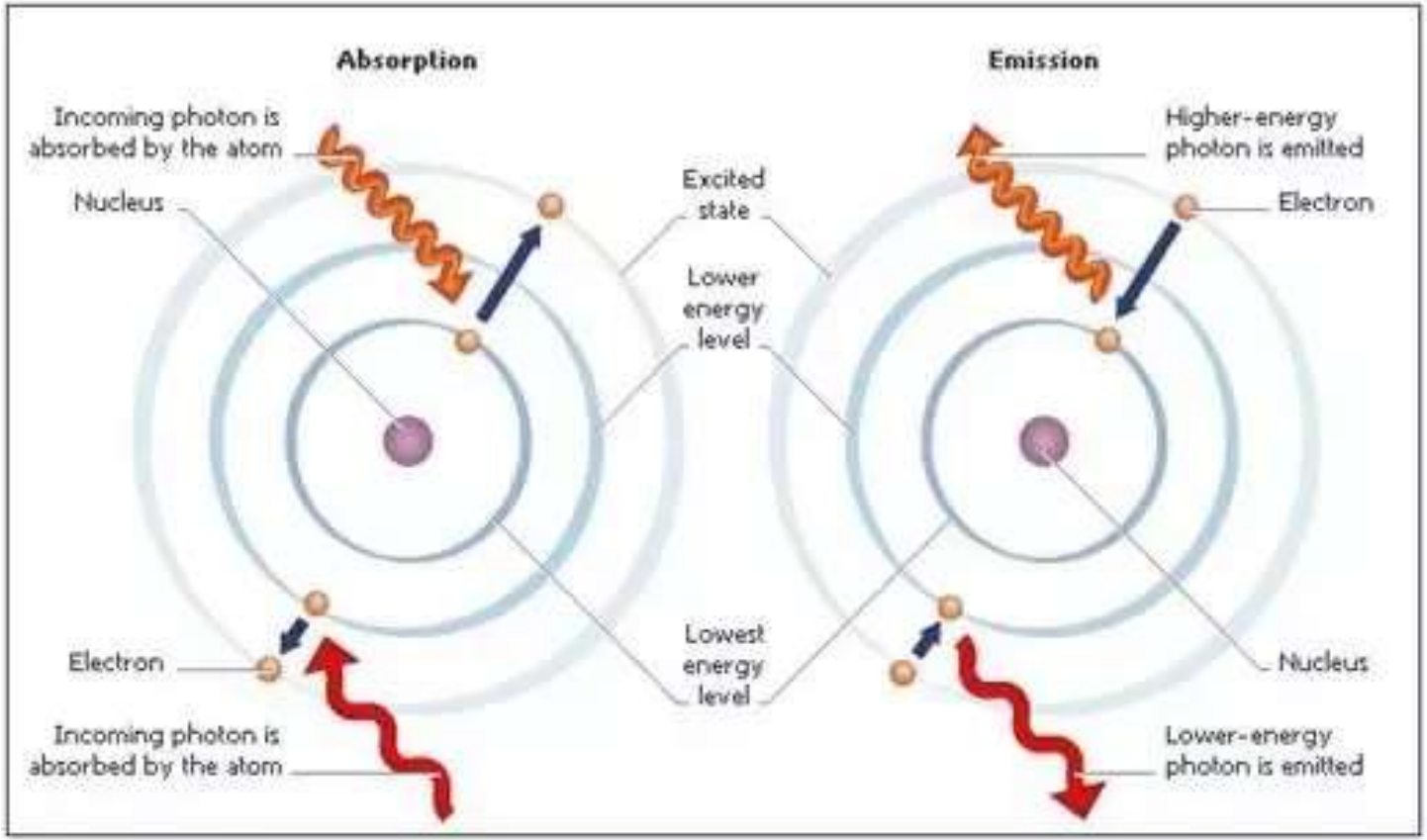
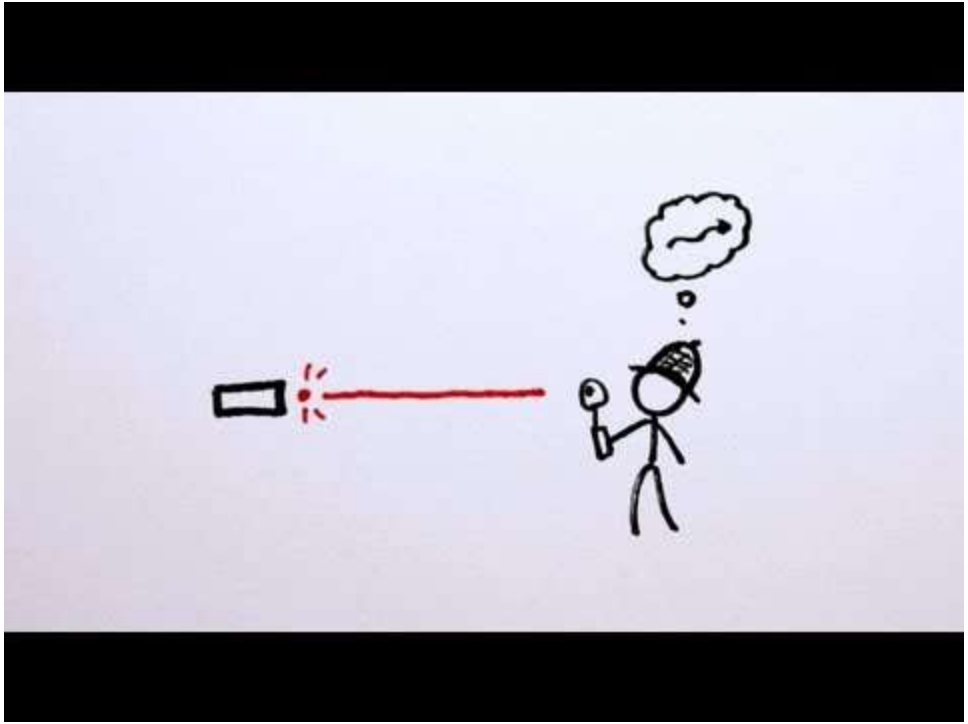

Absorption
Emission
Incoming photon is absorbed by the atom
Nucleus
Excited state
Lower energy level
Lowest energy level
Electron
Incoming photon is absorbed by the atom
Higher-energy photon is emitted
Electron
Nucleus
Lower-energy photon is emitted



Laser Safety

- Do not EVER direct them across the room or at someone (eyes or body)
- You will have one warning and then be sent out
- Do not steal the lasers- we had one stolen last year :(

Light Waves Exploration

Four “Stations”

Mirrors, Lenses, Prisms and Color

How does the flashlight and laser interact through each based on shape? What happens when you look through it?

Physics- Wednesday, November 13th

Schedule

1. Light Exploration Wrap Up
2. Class Conclusions
3. What is light?
4. Reflection Lab Intro

Warm Up

- Take out your notebook with your observations from Monday!

Standards

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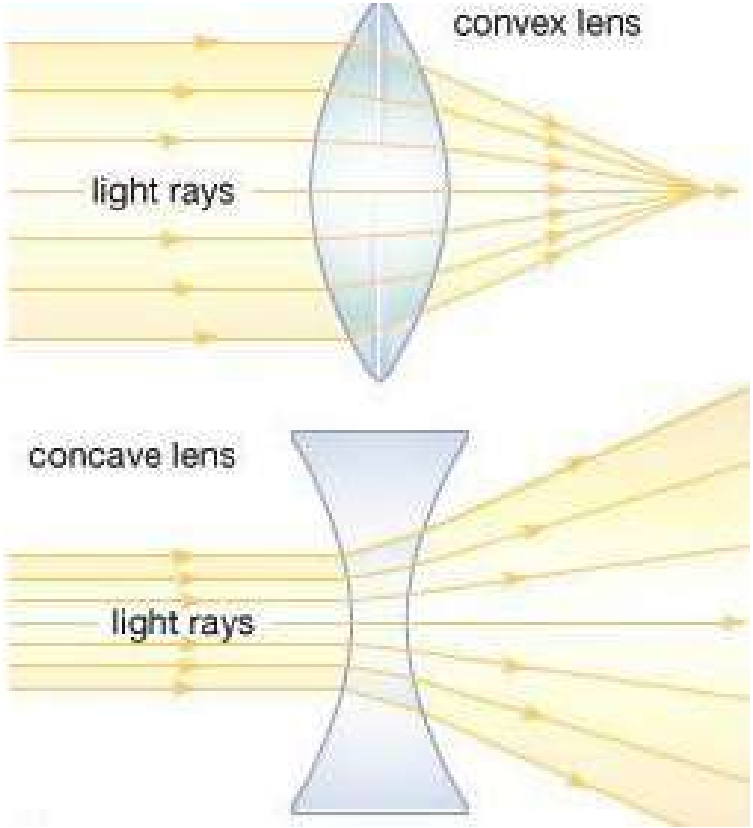
Conclusions: What is the difference in the image or reflection?

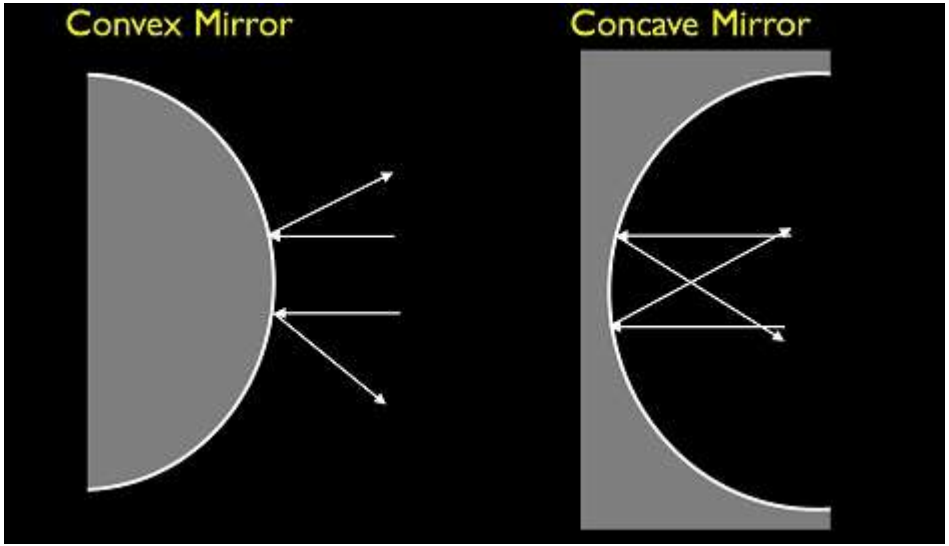
Lenses: Convex vs. Concave vs. Flat

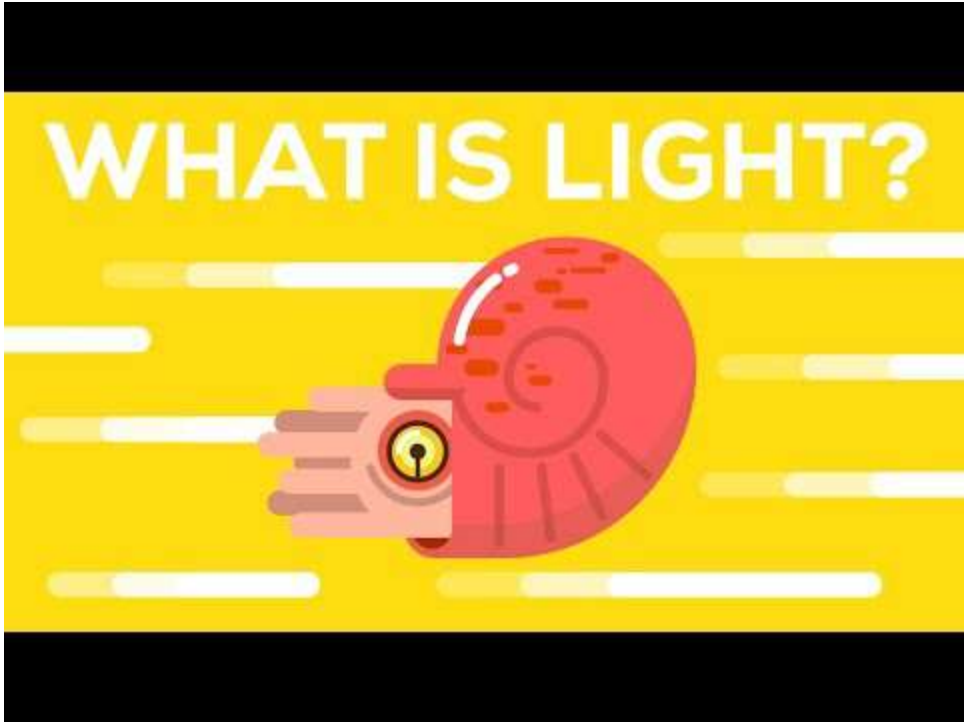
Mirrors: Convex vs. Concave vs. Flat

Prisms: How does the shape affect the light? At least 4 examples

Color: How do the color lenses affect the light? At least 4 examples


convex lens
light rays
concave lens
light rays

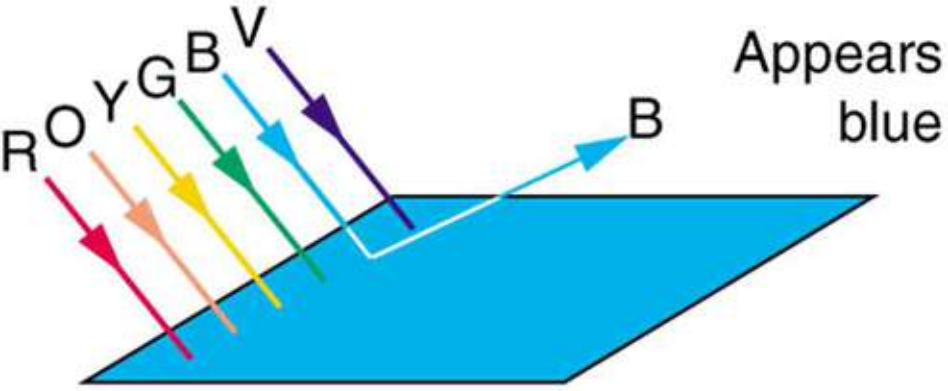

Convex Mirror
Concave Mirror


WHAT IS LIGHT?


24
LIGHT

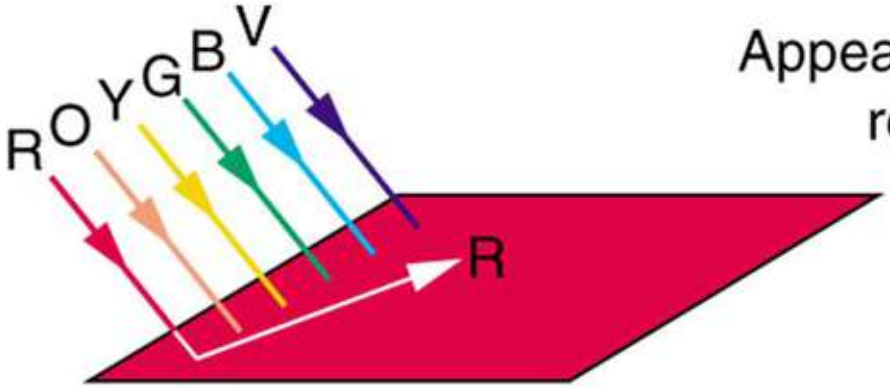
Do waves carry energy, particles or both?

CER



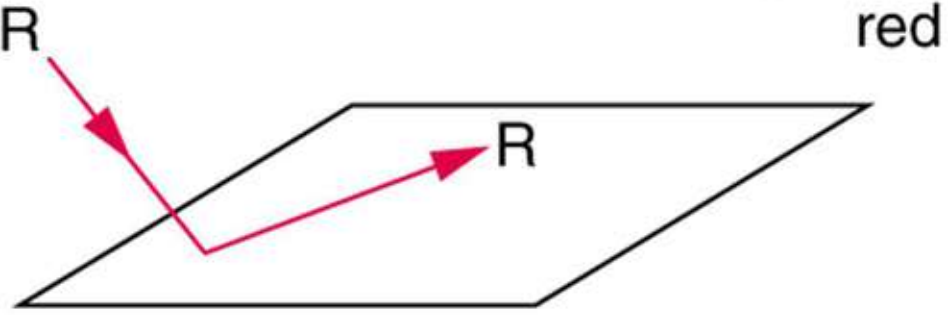
Appears blue

Blue object



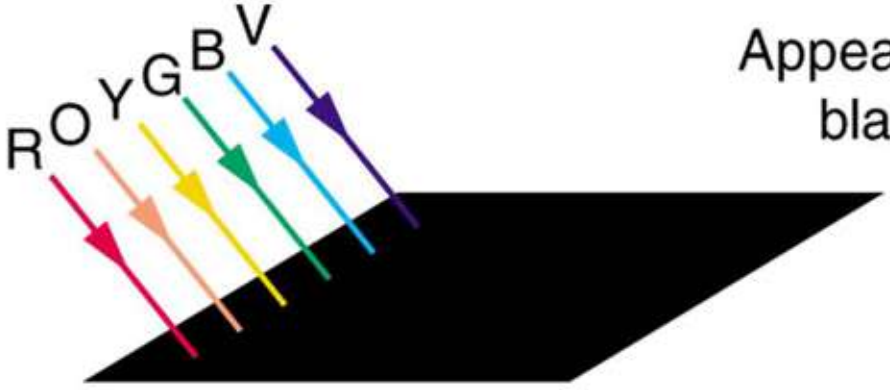
Appears red

Red object



Appears red

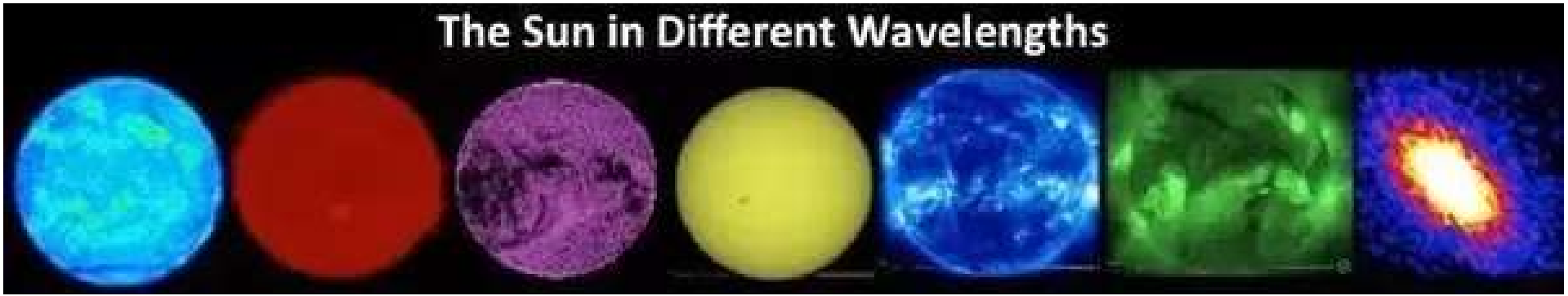
White object



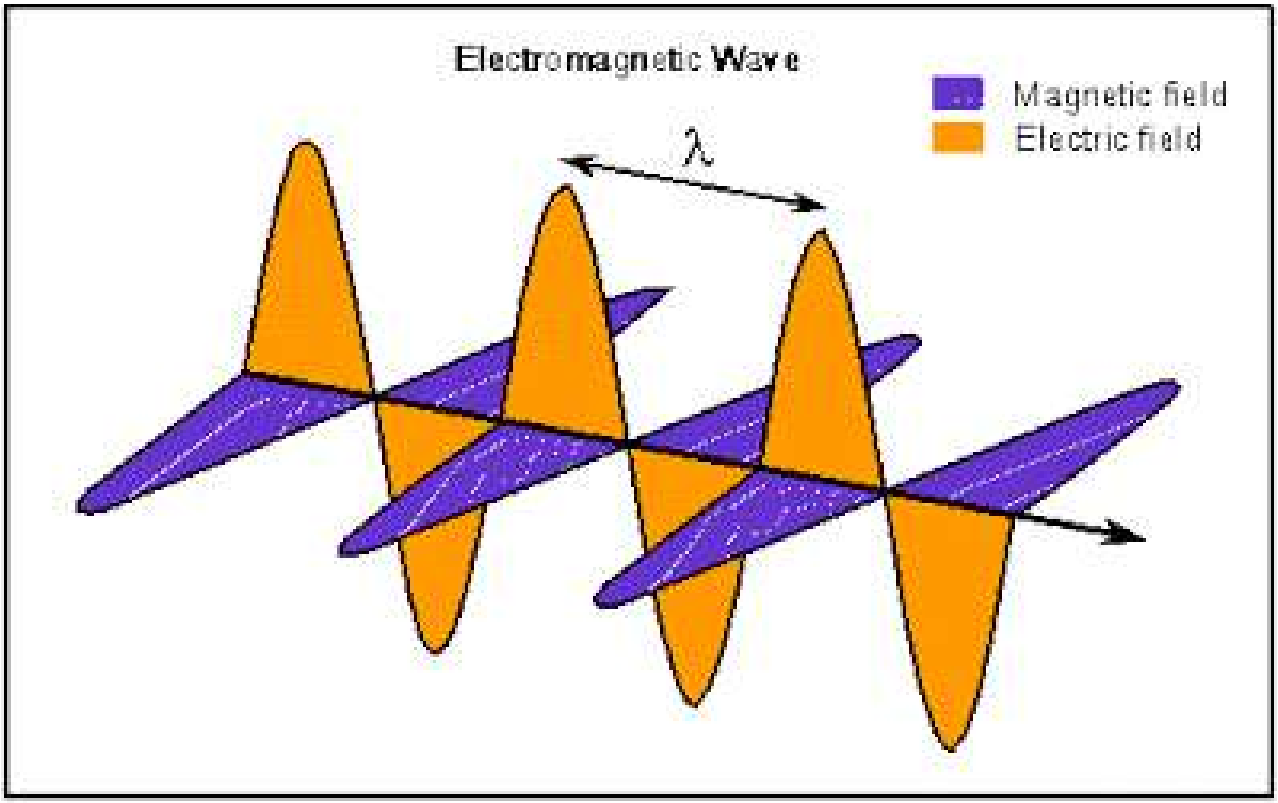
Appears black

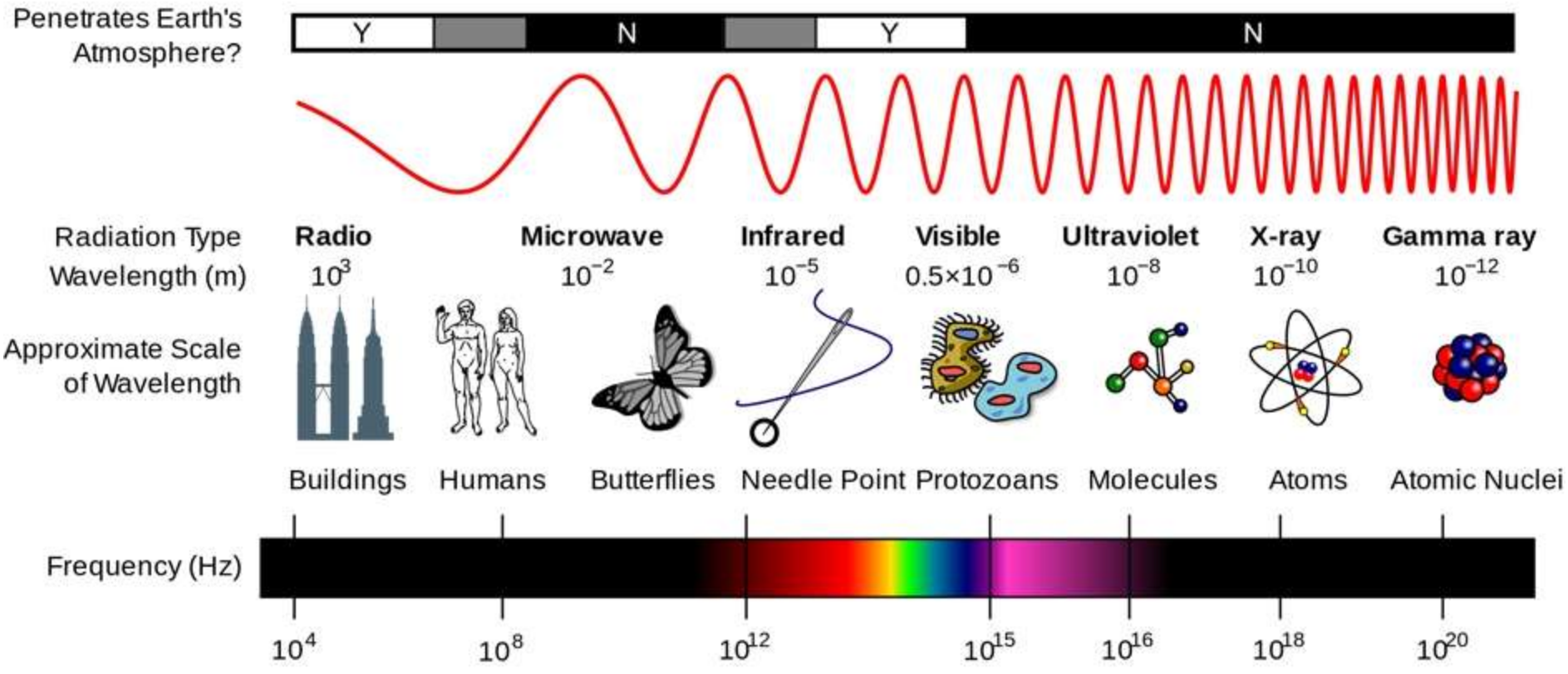
Black object


COSMIC
SPECK
PHOTOGRAPHY


The Sun in Different Wavelengths

If waves need a medium to travel through, why can we see light from space?


Electromagnetic Wave
Magnetic field
Electric field
λ


Penetrates Earth's Atmosphere?
Y
N
Y
N
Radiation Type
Wavelength (m)
Approximate Scale of Wavelength
Radio
10^{3}
Microwave
10^{-2}
Infrared
10^{-5}
Visible
0.5×10^{-6}
Ultraviolet
10^{-8}
X-ray
10^{-10}
Gamma ray
10^{-12}
Buildings
Humans
Butterflies
Needle Point
Protozoans
Molecules
Atoms
Atomic Nuclei
Frequency (Hz)
10^{4}
10^{8}
10^{12}
10^{15}
10^{16}
10^{18}
10^{20}

Physics- Thursday, November 14th

Schedule

1. Pre-Lab Check
2. Groups
3. Lab Intro
4. Data
5. Work on final product (1 per group)

Warm Up

- Take out your Reflection Lab and notebook

Standards

2.1 Wave Behavior: I can explain and model the behavior of waves including interactions between two waves and predict behavior.
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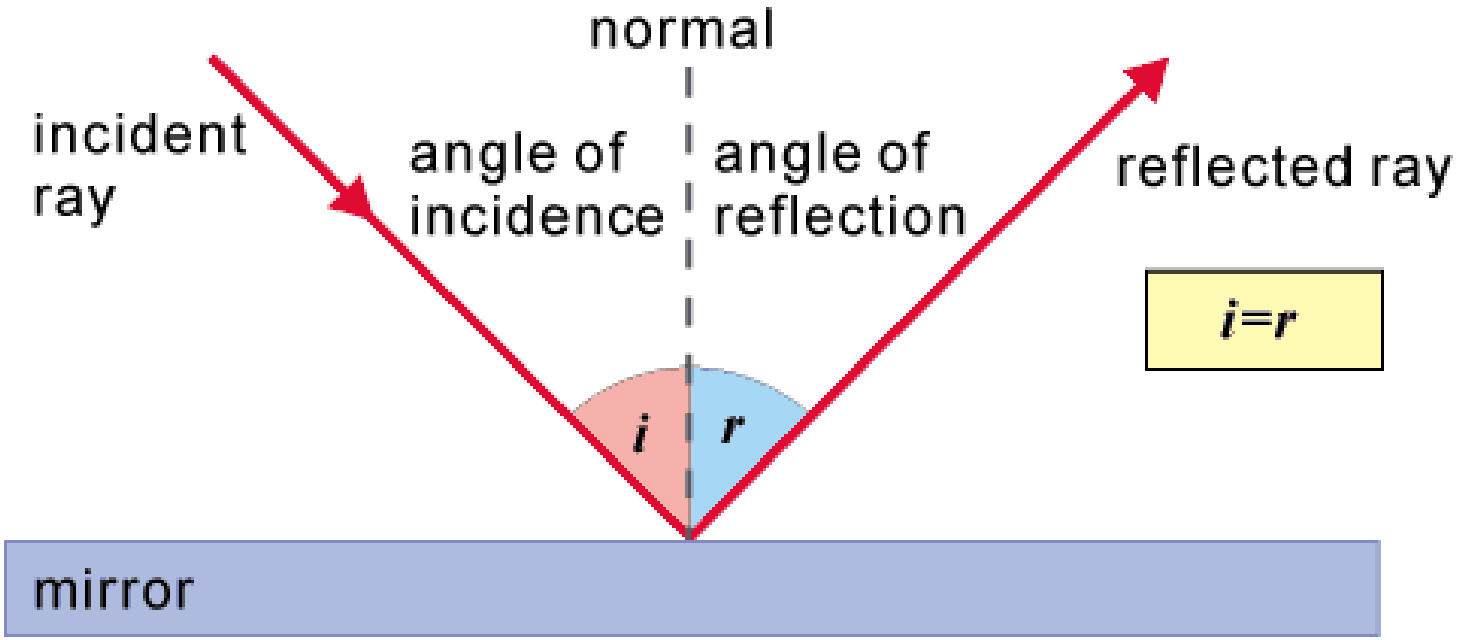

normal
incident ray
angle of incidence
angle of reflection
reflected ray
i=r
i
r
mirror

Lab Report

- On copy paper or graph paper
- 1 per group
- Neat, organized, outlined in pen or marker.
- All components of the lab

Physics- Friday, November 15th

Schedule

1. Finish Reflection Lab- due at the end of the hour

Warm Up

- Take your Reflection Lab and notebook

Standards

2.1 Wave Behavior: I can explain and model the behavior of waves including interactions between two waves and predict behavior.
2.2 Sound: I can determine how sound will travel and predict behavior between one or more sources of sound
2.3 Light Behavior: I can determine the interaction of light waves and predict behavior through different mediums.

Physics- Monday, November 18th

Schedule

1. Reflection Lab Peer Rubric Assessment
2. Refraction Lab Pre-Lab

Reflection Lab due Thursday

Warm Up

- Take your Reflection Lab write up and sit with your partner.

Standards

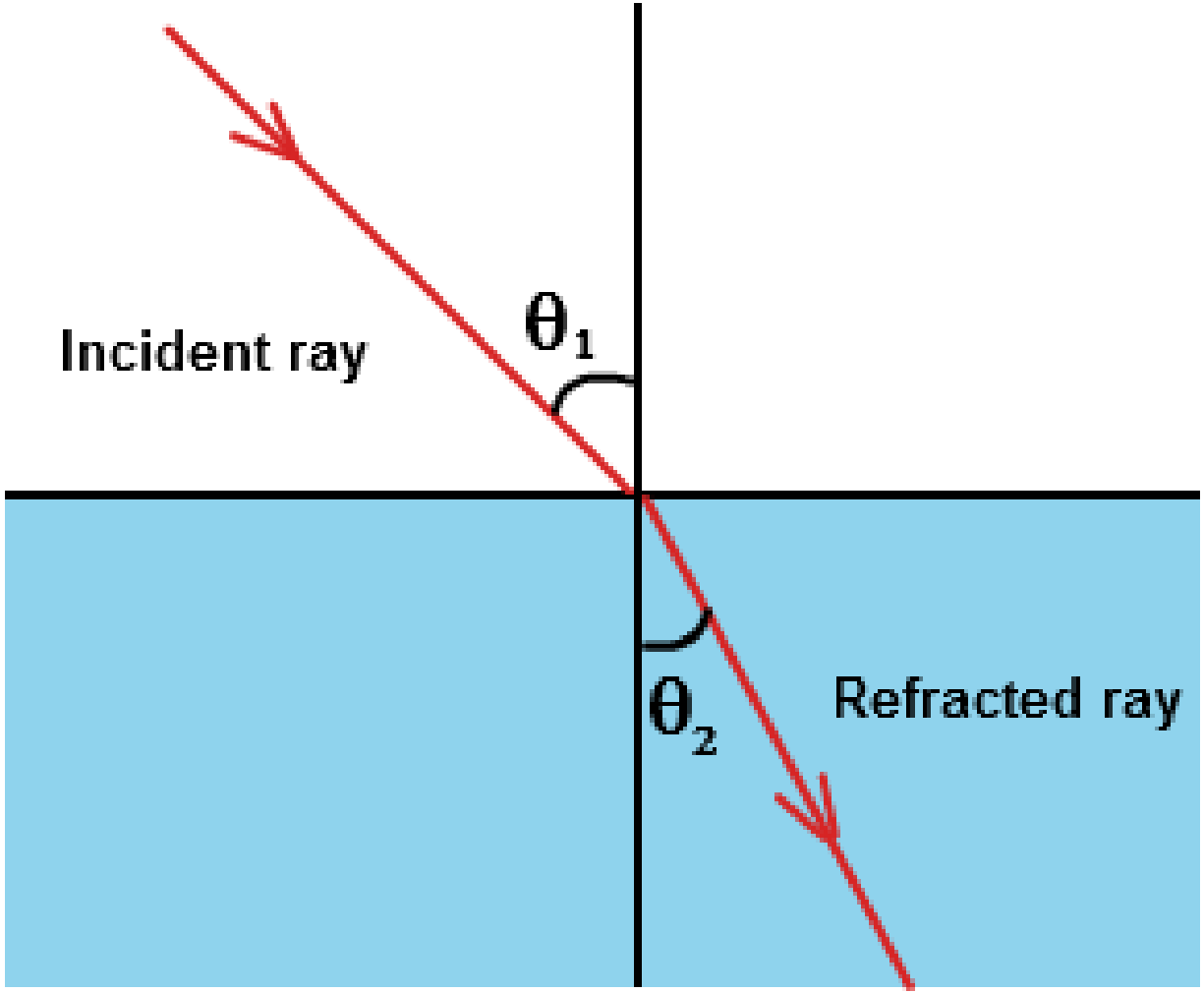
2.1 Wave Behavior: I can explain and model the behavior of waves including interactions between two waves and predict behavior.

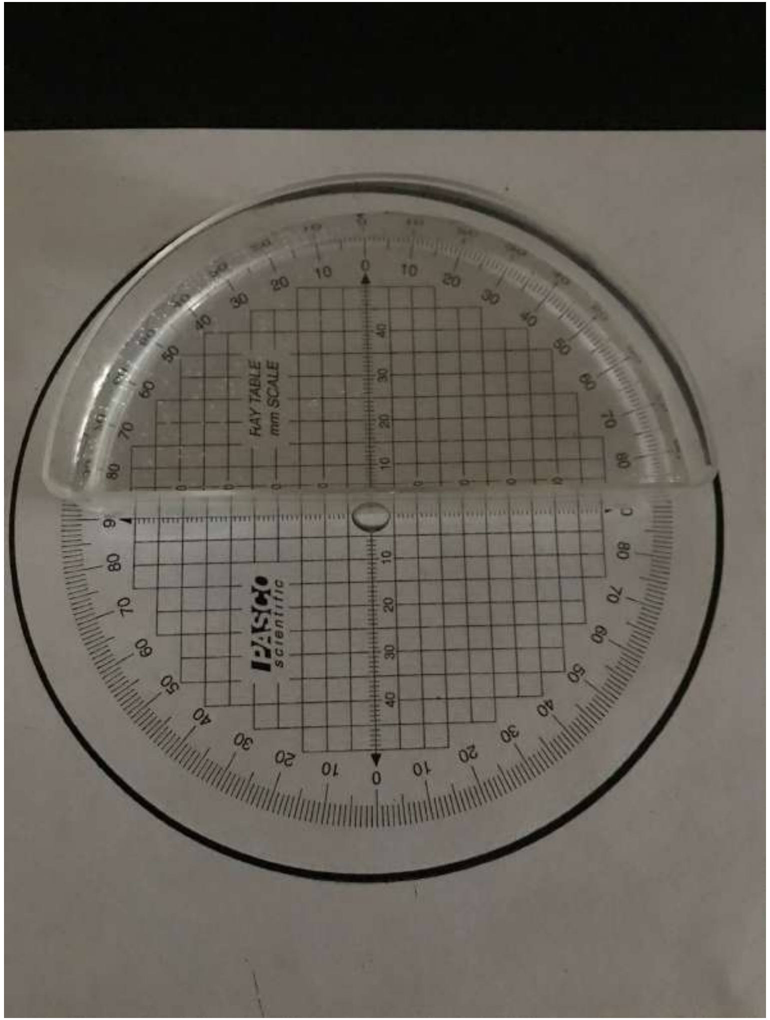
2.2 Sound: I can determine how sound will travel and predict behavior between one or more sources of sound

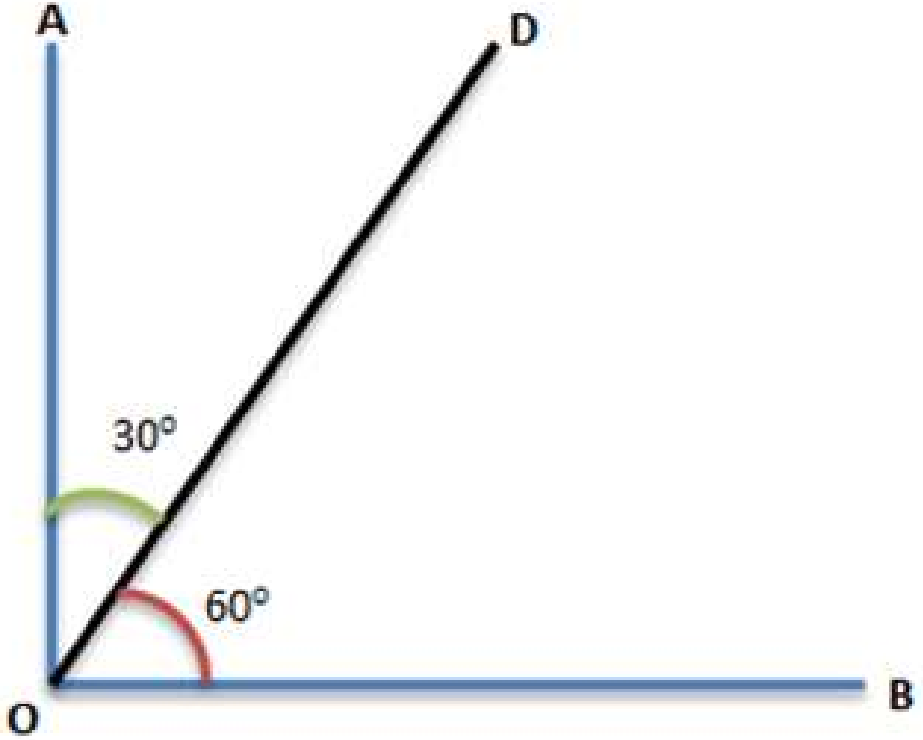
2.3 Light Behavior: I can determine the interaction of light waves and predict behavior through different mediums.

What are sources of error?


pour the
magic
liquid....


Incident ray
θ1
θ2
Refracted ray


RAY TABLE
mm SCALE
PASCO
scientific


A
D
30°
60°
O
B

Physics- Tuesday, November 19th

Schedule

1. Refraction Lab Pre-Lab due beginning of class **Wednesday**

Refraction Lab due **Friday- Individual**

Warm Up

- Take your **Refraction Lab** and sit with your chosen group/partner

Standards

2.1 Wave Behavior: I can explain and model the behavior of waves including interactions between two waves and predict behavior.

2.2 Sound: I can determine how sound will travel and predict behavior between one or more sources of sound

2.3 Light Behavior: I can determine the interaction of light waves and predict behavior through different mediums.

Pre-Lab Requirements

- Purpose- One sentence in your own words
- Background- Theory of the Law of Refraction (drawn and explained)
- Materials
- Procedure
- Set Up/Diagram with labels
- Variables- Independent, Dependent, Controls with explanations
- Data Table

Hour 1

1. Izzy, Cam, Alex
2. Sia, Brenna
3. Jack, Evan
4. Smilee, Ashley, Kimber
5. Max, Josh R
6. Zach, Cara
7. Jaelyn, Samantha, Mikayla
8. Rema, Farrah
9. Niah, Amarea, Faith
10. Teddy, Nathan
11. Emily, Madison, Josh G
12. Javonn

Hour 3

1. Evan
2. Isaiah, Megan, Kory
3. Tyler, Lane, Jibril
4. Iniya, CJ, Laila
5. Daniel, Gabe
6. Lauren, Claire
7. Leslie, Ahjaynay, Nora
8. Christian, Stephanie
9. Steven, Joe
10. Q
11. Shane
12. Keziah

Hour 4

1. Joey, Jake
2. Yamama, Hufsah
3. Emma, Lily
4. Gavin, Richard
5. Angelo, Nico
6. Joanna, Shannon
7. Andre, Luke
8. Monet, AD, Citlaly
9. Devonte, Liam, Sydney
10. Emmy, Kelli
11. Austin, Skye, Bryseida

Hour 5

1. Hannah, Teagan
2. Adam, Connor G
3. Nitya, Madilyn, Alyssa
4. Nathan, Connor R
5. Anthony P, Jamiere, Larry
6. Brian, Tanner
7. Jessie, Ligia
8. Jack, Natalie
9. Sade, Mya
10. Nick
11. Jake, Drevon
12. Jacob, Anthony E

Physics- Wednesday, November 20th

Schedule

1. Pass back papers
2. Refraction Lab Data
3. Work on Lab Report

Refraction Lab due **Friday (with draft)- Individual**

Warm Up

- Take your **Refraction Lab** and sit with your group/partner

Standards

2.1 Wave Behavior: I can explain and model the behavior of waves including interactions between two waves and predict behavior.

2.2 Sound: I can determine how sound will travel and predict behavior between one or more sources of sound

2.3 Light Behavior: I can determine the interaction of light waves and predict behavior through different mediums.

Physics- Thursday, November 21st

Schedule

1. Review Lab "Report" Expectations and how to find refraction index
2. Work on Refraction Lab Report

Refraction Lab due **Friday (with draft)- Individual**

Warm Up

- Take your **Refraction Lab** and sit with your group/partner

Standards

2.1 Wave Behavior: I can explain and model the behavior of waves including interactions between two waves and predict behavior.

2.2 Sound: I can determine how sound will travel and predict behavior between one or more sources of sound

2.3 Light Behavior: I can determine the interaction of light waves and predict behavior through different mediums.

Post Data

- Find refraction index for all data points (water and vegetable oil)
- Take out any **clear outliers**
- Find average refraction index for water and vegetable oil
- Find percent error for each using the known/theoretical values on back
- Show your teacher
- Work on your FINAL DRAFT on copy and/or graph paper

Physics- Friday, November 22nd

Schedule

1. Review Expectations and Rubric
2. Work on Refraction Lab Report

Refraction Lab due **Monday end of class (with draft attached)**

Warm Up

- Take your **Refraction Lab** and sit with your group/partner

Standards

2.1 Wave Behavior: I can explain and model the behavior of waves including interactions between two waves and predict behavior.

2.2 Sound: I can determine how sound will travel and predict behavior between one or more sources of sound

2.3 Light Behavior: I can determine the interaction of light waves and predict behavior through different mediums.

Physics- Monday, November 25th

Schedule

1. Turn in refraction lab by the end of class
2. Start to work on final model for light (Part 1)

Warm Up

- Take out your refraction lab

Standards

2.3 Light Behavior: I can determine the interaction of light waves and predict behavior through different mediums.

Physics- Tuesday, November 25th

Schedule

1. Turn in refraction lab (if you have not already)
2. Work on final model for light

Warm Up

- Find somewhere to sit and take out your notebook

Standards

2.3 Light Behavior: I can determine the interaction of light waves and predict behavior through different mediums.