

The Wave Song

(to the tune of If You're Happy and You Know It)

by Mrs. Morin,

Nick Luminarias and

Justin Martin

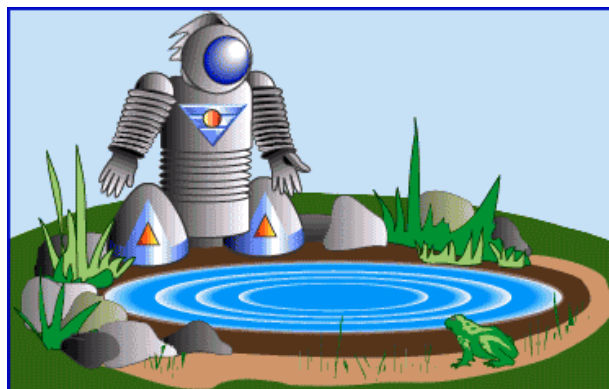
Jan 10-8:51 AM

^C A disturbance transferring energy is a wave. ^G

A disturbance transferring energy is a wave. ^C

^F Three types of waves transverse, surface longi-tu-di-nal

^G A disturbance transferring energy is a wave. ^C



Verse 1

5.D.1.a

Jan 10-8:51 AM

C G

Longitudinal waves require a medium.

C

Longitudinal waves require a medium.

F C

Compressions and rarefactions combine to make one wave.

G C

Longitudinal waves require a medium.

Air particles Spring

Verse 2 5.D.1.b

Jan 10-8:51 AM

Physics of sound

Vibrating body (tuning fork) Compression and expansion of air molecules produced by the vibration

Amplitude: Sine wave representation of the pressure waves above

Wavelength, one cycle

Greater amplitude of movement Amplitude doubled; frequency same as above

Greater frequency of movement Amplitude same as original; frequency doubled

Wavelength, one cycle

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Verse 2 graphic 5.D.1.b

Jan 8-9:00 AM

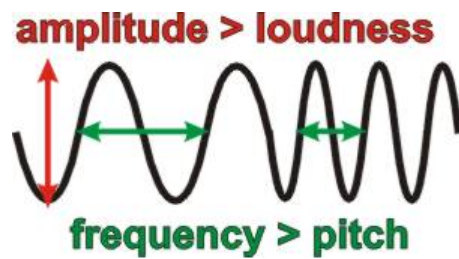
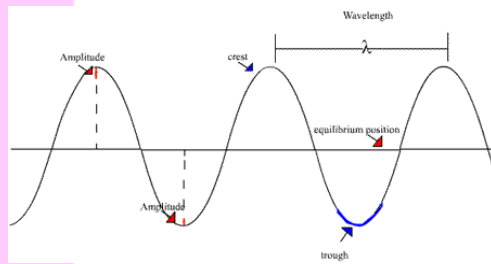
C G
All transverse waves have crests and troughs.

C
All transverse waves have crests and troughs.

F
Crest to crest or trough to trough

C
is how we measure one whole wave.

G C
All transverse waves have crests and troughs.



Verse 3

5.D.1.b

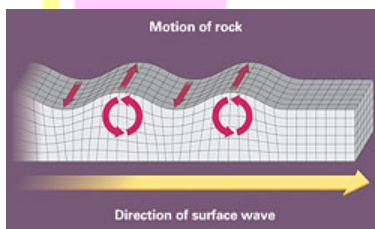
Jan 10-8:51 AM

C G
Surface waves combine the other two.

C
Surface waves combine the other two.

F C
Surface waves occur in oceans and earthquakes.

G C
Surface waves combine the other two.



Verse 4

5.D.1.a and b

Jan 10-8:51 AM

When the frequency is high the wave is short.
(speed is constant)

When the frequency is high the wave is short.
(speed is constant)

Speed is frequency times wavelength math-e-matically

When the frequency is high the wave is short.

$$S = f \times w$$

Verse 5 5.D.1.c

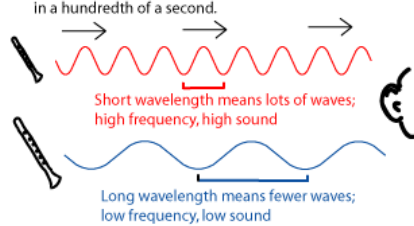
Jan 10-8:51 AM

Longer waves have a lower pitch (and lower frequency).
Longer waves have a lower pitch (and lower frequency).
The speed of sound is constant, so fewer waves will strike your ear.

Longer waves will have a lower pitch.

Wavelength, Frequency, and Pitch

The waves are all travelling at about the same speed, so this is the number of each wave that will reach the ear in a hundredth of a second.



Short wavelength means lots of waves;
high frequency, high sound

Long wavelength means fewer waves;
low frequency, low sound

Figure 5: Since the sounds are travelling at about the same speed, the one with the shorter wavelength "waves" more frequently; it has a higher frequency, or pitch. In other words, it sounds higher.

Verse 6 5.D.2.a




Jan 7-1:41 PM

Energy in a wave is its amplitude.

Energy in a wave is its amplitude.

When the amplitude is large
(think tsunami or very loud sound)
waves have lots of energy.

Because the energy in a wave's its amplitude.

Verse 7 5.D.2.b

Jan 10-8:51 AM

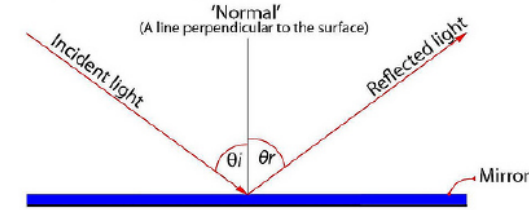
Angle of reflection equals angle of incidence.

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A wave bounces off a surface at the angle that it strikes.

Angle of reflection equals angle of incidence.

Diagram showing the "Law of Reflection"



The angle θ_i is equal to the angle θ_r
The angle of incident light is equal to the angle of reflected light

Verse 8 5.D.3.a

Jan 10-8:51 AM

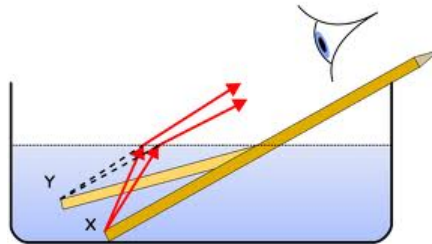
I was dumb enough to put a pencil in some water.

I was dumb enough to put a pencil in some water.

It appeared broken and enlarged, showing me the light waves bent (refracted).

I was smart enough to put a pencil in some water.

by: Nick Luminarias



Verse 9

5.0 Physics

D. Wave Interactions

3. Investigate and cite the rules that govern behaviors of light.
 - b. Based on observations predict the change in the direction (refraction) of light as it travels from one material to another.

5.D.3.b

Jan 7-1:41 PM

The color you see is the wave reflected.

The color you see is the wave reflected.

When you see red reflected, all the other waves absorb.

The color you see is the wave reflected.

By: Justin Martin



Verse 10

5.0 Physics

D. Wave Interactions

3. Investigate and cite the rules that govern behaviors of light.
 - c. Cite evidence that the amount of light energy absorbed or reflected depends on the color of the object illuminated.

5.D.3.c

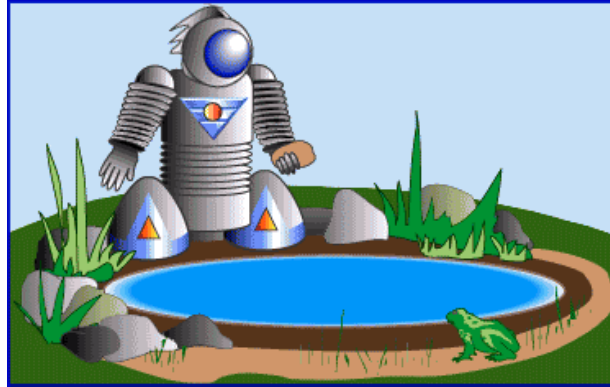
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Verse 1

5.D.1.a

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