Lesson Plan

Objective: The wavelength and frequency of a wave are related to one another by the speed of travel of the wave, which depends on the type of wave and the medium through which it is passing.

Exploration:

Ask question about shaking slinky,

What will happen if…

Speed increase?

Frequency increase?

Invention:

Let them test it with slinky.

Explain/present terms.

Expansion:

Use rope instead, question medium.

Lesson Plan

Objective: The wavelength & frequency of a wave are related to one another by the speed of travel of the wave, which depends on the type of wave and the medium through which it is passing.

Exploration:

-Use springs to assess students previous knowledge on types of waves.

“How many types of waves can we produce using the springs?”

Invention:

Give examples of each of the different types of waves. i.e. Rock in lake, movement of snake,

Expansion:

Have students experiment with springs taking note of the effects on speed at different tensions and then at different force.

List

3-Three things you knew that was confirmed by the experiments

2-Two things you learned from the experiments.

1-One question you still have and could you design an experiment to answer that question.

Lesson Plan

Objective: Describe the phenomenon resonance in which waves add up in place in a structure, growing in amplitude due to energy input.

Exploration:

-Video click of Boomsticks (prior knowledge)

-KWL (What is Sound)

Invention:

-Sound sticks (stations)

-Discussion of what was needed to create sound.

Expansion

Explore various station

Lesson Plan

Objective: Relate previous experiences of waves with tubes and sounds to Mathematical values. waves

Exploration: Tubes make noise. Wind chimes, paper towels, etc.

Invention: Using the color tubes, by ear, create a recognizable version of a popular song. (i.e. Jingle Bells, Happy Birthday)

Expansion: Measurements of tube lengths etc. can be used to calculate A to F. Compare these values to actual note values for the song.

Lesson Plan

States of Matter and Changes in State

Objective: States of matter

Exploration:

Glass cube or container w/ balls to demonstrate energy changes in phase changes (different states)

Invention:

Lab-start with beaker of ice and measure temperature up to gas

Exploration:

Make Dip N’ Dots with LN2

-discuss how the N2 because liquid

-what happens to liquid ice cream when it goes to LN2

States of Matter/Changes of State-

Activities

1. Index Card
2. Introduce:
* Carousel-6 state changes on Butcher paper
* each group =10 cards describing a change of state example (Ex. ice to water)
* paste card on the correct Butcher Paper
1. phet simulation

Lesson Plan

Diffusion

Objective: Diffusion

Exploration:

Air freshner experiment

Food coloring, water, jello

Invention:

Draw a diagram of what is happening. Explain diffusion

Expand:

Dialysis Experiment. Predict what they think will happen since they know about diffusion now.

Diffusion-Activities

1. Egg in vinegar & Karo syrup
2. Spray Air Freshner
3. Paper Chromatography
4. Jello with Food coloring & Beaker of H20 with food coloring

Lesson Plan

Activation Energy

Objective: Students will be able to relate the need of activation energy for a reaction to occur

Exploration:

Explain the effect of energy transfer in a pinball game (hand held)

Invention:

Glow sticks- in boiling water, room temp H20, and ice.

Red Phosphorus from matchbook cover. (Melt phosphorus onto foil, brown sticky resin, take up onto finger, press between finger and thumb, in the dark fingers will glow depending on body heat)

Exploration:

Enzyme activities:

Lactaid>milk

Pepsin>Bacon

Beno>beans.

Activation Energy-Activities

1. Glow sticks in varying temps. of water
2. red phosphorous from matchblocks w/body heat
3. hand-held pinball machines
4. enzyme activities

lactaid & milk

pepsin & bacon

beano & beans