Wave Stations

Reflection: When waves bounce at angles caused by a solid surface
Absorption: When a material holds onto some of a wave's energy
Refraction: Light bending as it passes through different materials
Transmission: Waves moving through a material

Station 1: Fill the shallow pan about half full with water. Place the blocks (or other hard objects) in the pan close to one end. Create a wave at the other end by dropping water into the pan using the baster. Observe what happens to the waves as they travel to the other end of the pan.

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Station 2: Fill the glass or beaker about half full with water. Place the pencil in the glass or beaker. Look at the pencil in the glass from the side. What do you observe about the pencil?

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Station 3: Place all marbles except for one in between the meter sticks so that they are all touching each other. Make sure the marbles are near the center of sticks. Roll the other marble toward the rest so that it collides with the first marble in the line. Observe what happens to the marbles.

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Station 4: Turn the flashlight on and hold a piece of construction paper in front of the light. Look at the paper from the other side. What do you observe on the side of the paper away from the light?

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Station 5: Have one person stretch the slinky across the table. Create a wave by pulling sections of the slinky toward you and then releasing them (but keep the slinky stretched across the table). Watch the wave until you can no longer see it. What did you observe?

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Station 6: Hold the mirror close to the table or the wall and shine the flashlight on the mirror. Can to you tilt the mirror so that you light up the table or the wall?

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Station 7: Make observations about the noise you hear in the room. Place your hands over your ears or put in earbuds. What changes did you observe?

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Station 8: Make observations about the brightness and the light you see in the room. Put on the sunglasses. What changes did you observe?

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Wave Station Questions

1. Which of the stations involved mechanical waves?

2. Which of the stations involved electromagnetic waves?

3. Look at the following phrases, which station matches each.

_____Station 1 _____: Reflection of mechanical wave #1
_____: Transmission of mechanical waves
_____: Refraction of electromagnetic waves
_____: Reflection of mechanical waves #2
_____: Absorption of mechanical waves
_____: Transmission or absorption of electromagnetic waves
_____: Absorption of electromagnetic waves
_____: Reflection of electromagnetic waves

4. Describe what happens to waves when they are absorbed? Do they gain or lose energy?

5. Do electromagnetic waves and mechanical waves behave the same when they are reflected? How are they similar and different?