MS-PS4

DCI: Waves and Their Applications in Technologies for Information Transfer

MS.PS4.A: Wave Properties

A simple wave has a repeating pattern with a specific wavelength, frequency, and amplitude. (MS-PS4-1)

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MS.PS4.A: Wave Properties

A sound wave needs a medium through which it is transmitted. (MS-PS4-2)

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MS.PS4.B: Electromagnetic Radiation

When light shines on an object, it is reflected, absorbed, or transmitted through the object, depending on the object's material and the frequency (color) of the light. (MS-PS4-2)

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MS.PS4.B: Electromagnetic Radiation

The path that light travels can be traced as straight lines, except at surfaces between different transparent materials (e.g., air and water, air and glass) where the light path bends. (MS-PS4-2)

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MS.PS4.B: Electromagnetic Radiation

A wave model of light is useful for explaining brightness, color, and the frequency-dependent

bending of light at a surface between media. (MS-PS4-2)

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MS.PS4.B: Electromagnetic Radiation

However, because light can travel through space, it cannot be a matter wave, like sound or water waves. (MS-PS4-2)

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MS.PS4.C: Information Technologies and Instrumentation

Digitized signals (sent as wave pulses) are a more reliable way to encode and transmit information. (MS-PS4-3)