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Crash Course Physics #39: Light is Waves

Name: _____ Date: _____

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1. The bright spot in the center of a circular shadow demonstrates that light behaves like a _____.
2. According to _____' principle, each point on a wavefront acts as a source of its own wavelet.
3. When waves bend around the edges of obstacles or openings, this phenomenon is called _____.
4. The small circular waves that form around individual points on a wavefront are called _____.
5. _____ occurs when two or more waves meet and combine into a single wave.
6. When two waves meet in such a way that their crests and troughs align, they interfere _____.
7. When the crest of one wave meets the trough of another, causing them to cancel out, they interfere _____.
8. The pattern of alternating bright and dark lines produced when light passes through slits is called a _____ pattern.
9. The _____ experiment showed that light produces an interference pattern when passing through two narrow slits.
10. A key factor that determines whether light waves interfere constructively or destructively is the _____ difference.
11. The path difference between rays from a single slit equals the slit's width times the _____ of the angle to the screen.
12. Light with higher frequency and shorter wavelength appears more _____ in color.
13. The _____ of a wave is the amount of energy it transports per unit area per unit time.
14. In a single-slit pattern, when the path difference is one full wavelength, the waves interfere _____.
15. The central maximum in a double-slit experiment is the _____ and most intense bright spot on the screen.

Crash Course Physics #39: Light is Waves KEY

1. The bright spot in the center of a circular shadow demonstrates that light behaves like a **wave**.
2. According to **Huygens'** principle, each point on a wavefront acts as a source of its own wavelet.
3. When waves bend around the edges of obstacles or openings, this phenomenon is called **diffraction**.
4. The small circular waves that form around individual points on a wavefront are called **wavelets**.
5. **Interference** occurs when two or more waves meet and combine into a single wave.
6. When two waves meet in such a way that their crests and troughs align, they interfere **constructively**.
7. When the crest of one wave meets the trough of another, causing them to cancel out, they interfere **destructively**.
8. The pattern of alternating bright and dark lines produced when light passes through slits is called a **diffraction** pattern.
9. The **double-slit** experiment showed that light produces an interference pattern when passing through two narrow slits.
10. A key factor that determines whether light waves interfere constructively or destructively is the **path** difference.
11. The path difference between rays from a single slit equals the slit's width times the **sine** of the angle to the screen.
12. Light with higher frequency and shorter wavelength appears more **blue** in color.
13. The **intensity** of a wave is the amount of energy it transports per unit area per unit time.
14. In a single-slit pattern, when the path difference is one full wavelength, the waves interfere **destructively**.
15. The central maximum in a double-slit experiment is the **brightest** and most intense bright spot on the screen.

15 Questions

Answer Key Included

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