

➤ Main Ideas, Key Points, Questions:

After watching the video segment, write down key points, main ideas, and big questions.

➤ Objective(s):

- *Recognize what happens to light waves when constructive and destructive interference takes place.*
- *Understand how light behaves when it passes through a thin slit.*

➤ Notes:

During the video segment, use words, phrases, or drawings to take notes.

➤ Summary:

After watching the video segment, write at least three sentences explaining what you learned. You may ask yourself: "If I was going to explain this to someone else, what would I say?"

Answer the following.

1. Define diffraction in your own words.

Diffraction occurs when waves bend around a barrier.

2. Do light waves bend on a larger scale or a smaller scale than sound waves? Explain.

Light waves bend on a smaller scale than sound waves because they have much smaller wavelengths.

3. Define interference in your own words.

Interference occurs when two waves are in the same place at the same time,

resulting in an increase or decrease in the amplitude of the combined wave.

4. When the crest of one wave overlaps with the trough of another, this is called destructive interference.

5. When two waves combine for constructive interference, the resulting amplitude of the combined wave is greater than the individual amplitudes of the two waves that come together.

6. State Huygens' principle in your own words.

Individual points on a light wave act as individual waves called wavelets.

7. When light diffracts and then interferes, what kind of interference do the bright spots indicate?

The bright spots indicate constructive interference taking place.

8. When light diffracts and then interferes, what kind of interference do the dark spots indicate?

The dark spots indicate destructive interference taking place.

9. What are the bright and dark areas on the interference diagram called?

The bright spots are called maxima, and the dark spots are called minima.

Answer the following.

10. If the distance between the two slits in the double slit experiment increases, what happens to the distance between the maxima?

If the distance between the two slits in the double slit

experiment increases, the distance between the maxima decreases.

11. What happens to light when it reaches a half-silvered mirror, also called a beamsplitter?

When light reaches a beamsplitter mirror, half of the

light passes through and half of the light is reflected.

12. What concepts of physics are the basis for creating holograms?

Holograms are created based on the concepts of diffraction and interference.
