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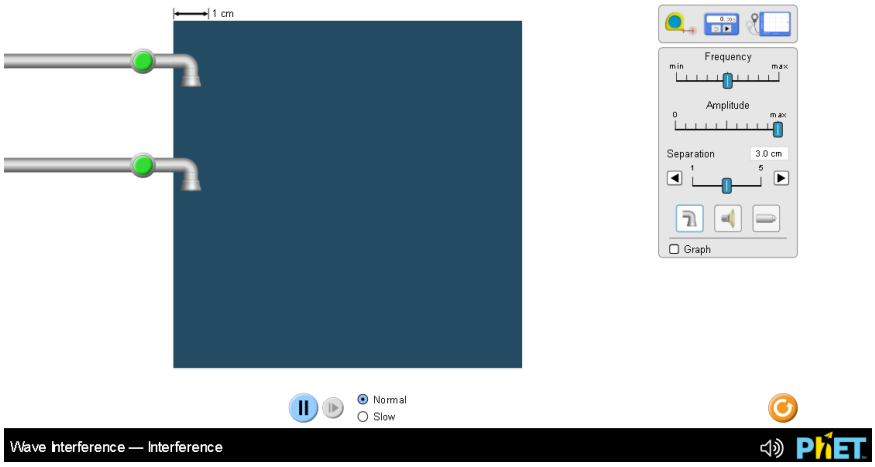
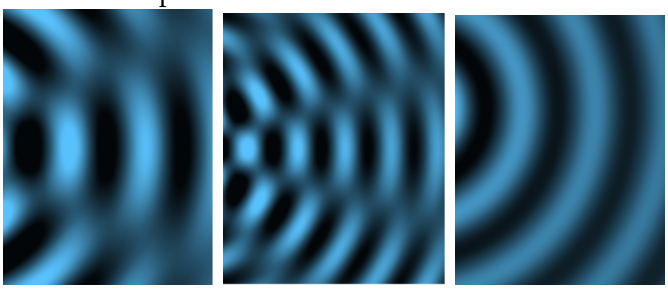
Waves Interference

Develop your understanding: Open the Interference screen, then explore to make water waves with varying patterns.



1. Consider these three patterns of water waves:



A B C

a. Describe the similarities and differences of the three patterns of water waves.

Similarities	Differences
all are spreading outward	c has a straight forward ripple B seems like it has more waves A has one extra wave

b. Experiment to make similar patterns, then explain how you can use the simulation to make A, B, and C from above.

A	B	C
1 ripple	multiple waves	One straight wave

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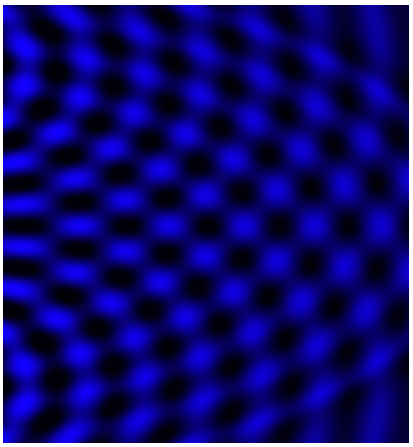
Two waves interacting will create a third type of wave: the **Resultant Wave**
Waves interacting can either have Constructive or Destructive Interference. Make a quick prediction below about what Constructive and Destructive Interference mean for the Resultant Wave

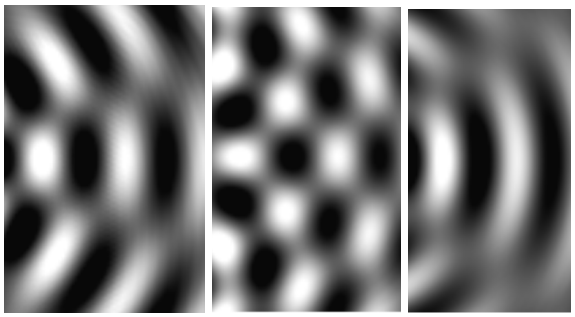
Constructive Interference	Destructive Interference

2. Consider the light pattern on the right:



   a. Describe where the points of constructive and destructive interference are in the image on the right.

5. These three patterns were made with sound waves by varying only one property.



A B C

   a. What do you think was varied?

Frequency

   b. Test your idea by making similar patterns.

   c. Try to make similar patterns with light. Describe your observations and ideas.

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Looks the same but moves a little faster

Open the Slits screen, then explore to make water waves with varying patterns.

7. How do waves made by a dripping faucet compare to the waves seen passing through slits? You may want to have both Interference and Slits open (or open the full simulation Waves Interference), so that you can easily compare the waves and their patterns.

    - The difference between

8. Do the same concepts apply when you compare the sound and light waves in Interference and Slits screens?

9. Summarize your understanding of waves as they pass through slits.