WAVE INTERFERENCE LAB

Learning Goals:

* Interpret a 2D top view picture of a wave
* Identify areas of constructive and destructive interference in 2D
* Predict the behavior of water, sound, or light when you have two sources
  + What will happen in constructive areas
  + What will happen in destructive areas

1. Open the “Wave Interference” simulation from the PhET website (in Sound & Waves)
2. On the water simulation, what does the crest (peak) of the wave look like in the top view? What does the trough look like?
3. When you add two drips, what changes about the waves’ patterns?
4. What does the wave look like in the area that the two waves constructively interfere? Describe both the top view and what the side view would look like.
   1. TOP:
   2. SIDE:
5. What does the wave look like in the area that the two waves destructively interfere? Describe both the top view and what the side view would look like.
   1. TOP:
   2. SIDE:
6. Switch to the sound simulation.
   1. What do you think will happen when you put two speakers next to each other?
   2. Why do you think this will happen?
   3. Try it (putting two speakers together) and tell me what happened.
7. Now switch to the light simulation.
   1. What do you think will happen when you put two light sources next to each other?
   2. Why do you think this will happen?
   3. Try it (putting two light sources together) and tell me what happened.
   4. What happens when you use one light source and two slits?
8. What is similar about all three of these simulations (i.e. water, sound & light)?
9. How do I know that these things are waves and not particles? (Think about what would happen in the two slit experiment if they were particles).