

1. Open the Quantum Tunneling and Wave Packets PhET linked on the course schedule for today.
2. Start with the following settings:
  - a) Make a finite well potential.
  - b) Look at the real and imaginary parts of the wavefunction
  - c) Choosing the right-pointing arrow for the direction of the incoming wave.
  - d) Choose to look at the “plane wave”
  - e) Choose to display the Incoming/Reflected waves separately

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3. Why do you think the probability density of the transmitted wave is flat?
4. Hit “Play” to see the motion of the incoming and outgoing waves. Then stop and reset the time.
5. Check “Show energy values” and “Show reflection and transmission probabilities.”
6. Change the energy by dragging the green line on the energy graph.
  - a) As the total energy increases, what happens to the wavenumber and amplitude of the:
    - i. incoming wave?
    - ii. reflected wave?
    - iii. transmitted wave?
  - b) What are the resonant energies for your well?
  - c) What’s happening with the reflected wave at the resonances?
7. What happens to the waves as you change with width or depth of the well?
8. Can you find an energy where the transmission coefficient goes to zero?