



Wavelength and Frequency

Materials: pasta machine, recipe for making pasta (eggs, flour, salt, oil)

Demonstration: Run some of the pre-made pasta dough through the pasta machine. Repeat the process and produce a shape with a different length. Repeat for other shapes (lengths.)

Related Physics: The pasta dough (analogous to the entire electromagnetic spectrum) looks the same going into the machine and comes out looking different (analogous to the different bands of radiation within the spectrum.) The only difference is in the length of the pasta shapes (analogous to the wavelength.) If the different lengths of pasta come out of the machine at the same rate, students can easily see that fewer long shapes come out in the same amount of time it takes for more short shapes to come out (analogous to frequency.) This is a simple demonstration of the relationship between speed, wavelength, and frequency, or $C = f\lambda$; the speed of light equals wavelength times frequency.