The Tyndall Effect in Jell-o®

Annotation:
This lesson demonstrates the Tyndall Effect by shining a laser pointer through Jell-o® of varying colors. Using different colors of Jell-o® changes the diffraction rate and thus changes the way the Tyndall Effect is observed. Mirrors and lenses can also be used to include the study of reflection and refraction.

Primary Learning Outcome
Students better understand the Tyndall effect and the characteristics of light in different colloids and solutions, and the behavior of light with mirrors and lenses.

Assessed GPS
SCSh3- Students will identify and investigate problems scientifically
SPS6- Students will investigate the properties of solutions
SPS9-Students will investigate the properties of waves

Total Duration
Jell-o® requires three hours to form, so make samples the night before
Actual demo takes 10-20 minutes

Materials & Equipment
- Prepared Jell-o® (not sugar free). Use clear and other light colors so laser beam can be seen. Cut samples into large squares
- Laser pointer
- Mirrors and lenses are optional

Procedure
- Night before lab prepare the Jell-o® samples and put on plate after it has formed
- Shine light through the air of a darkened room to demonstrate that the Tyndall effect is not seen in a solution of air
- Shine laser through the Jell-o® and observe the Tyndall Effect in the different colors of Jell-o®, a colloid.
- Discuss how the light beam is still present in a solution of air, but only becomes visible to us when the molecules bounce off colloidal molecules.
- Use mirrors and lenses to further demonstrate reflection and refraction (optional)

Assessment
This is a short demonstration so no assessment is attached, but the concept of characteristics of solutions, mixtures, and colloids can be discussed on a unit test.

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1. Look in your book- What is the Tyndall Effect and what does it demonstrate?

2. What did you observe when the laser was shined through the clear Jell-o®? What did you observe when the light passed through the other colors? Mention the colors used and your observations.

3. What are other real life examples of the Tyndall Effect?