Thin-film interference using a computer's screen and camera

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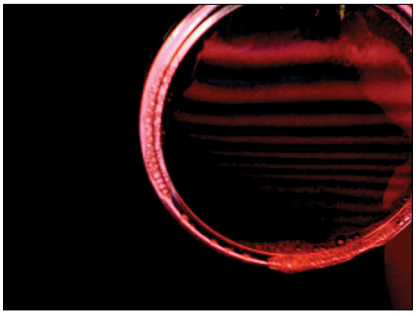
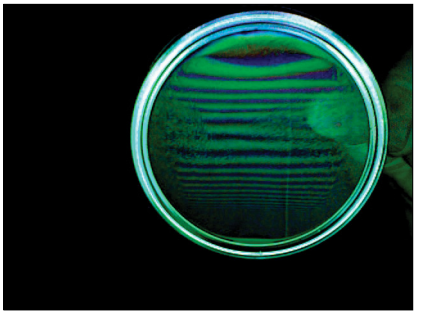
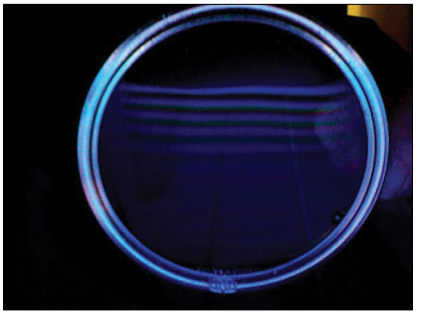

By using a laptop's built-in camera and creating a screen of one color (a solid red, green, or blue wallpaper), students can quickly and easily take a photo of thin-film interference by holding a soap film in front of the screen. The geometry of this setup is ideal for capturing the reflected light. We used a lid from a canning jar dipped in dish soap to create a thin film, covered the keyboard with a towel to protect it from spills, darkened the classroom, and turned off the computer's flash to take a picture of the reflection. While a computer screen's primary colors are not monochromatic and the images are not high quality, the photos clearly show constructive and destructive interference and reveal the longer red wavelengths and shorter green and blue wavelengths, in addition to the complete cancellation of waves for very thin films.

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