

Teacher Lesson 9: Patterns that Contain Information

Next Generation Science Standard

Grade 4. Waves and their Applications in Technologies for Information Transfer

4-PS4-3. Generate and compare multiple solutions that use patterns to transfer information. [Clarification Statement: Examples of solutions could include drums sending coded information through sound waves, using a grid of 1's and 0's representing black and white to send information about a picture, and using Morse code to send text.]

In this lesson we can use the camera to give us specific information about an object based on a black and white pattern. Some cameras, such as the built-in camera in Windows 11, can use a pattern of black and white, such as a bar code, to identify the object. All you need to do is focus Flexi-Scope on the pattern and it will use that data to give you information.



After Flexi-Scope scans the QR code or bar code, it gives you a link based on the pattern of black and white dots that it detected. Clicking on the link will take you to a website about the product.

This is the same technology that your phone uses when you utilize its camera to scan a QR code. Did you know that your phone can also scan bar codes?

Talk with your students about other ways in which patterns can transfer information.

Just for fun, have your students try communicating in Morse code using sound.

Can they think of other ways that patterns of sound and light can provide information?