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Cracking the Code

Download Full Lesson Plan

(Full teacher resource documents are included)

Lesson Focus

Lesson focuses on how computerized barcodes have improved efficiency in product distribution; explores the barcoding process and engineering design.

Lesson Synopsis

The Cracking the Code activity explores the concept of how computerized barcoding has simplified distributing and pricing of products. Students learn about encoding and decoding, the barcoding system, and how a mathematical formula is embedded in barcoding to safeguard against errors. Students use websites to identify product barcodes, test codes from everyday product, and work as an "engineering team" to come up with the next generation of information embedding systems.

Age Levels: 8-18

Objectives

- Learn about encoding systems -- specifically barcodes -- and decoding technology.
- Learn about how barcodes interface with computer systems.
- Learn about how barcodes have improved distribution efficiency and pricing accuracy of manufactured products.
- Learn how the development of barcodes has impacted everyday life.
- Learn about teamwork and engineering problem solving in groups.



Lesson Activities

Students learn about how computer coding systems have impacted everyday life, including distribution of products, management of inventory, and pricing at retail outlets and online websites. Topics examined include barcodes, and the impact of computerized scanning/pricing/inventory systems. Students work in teams to design an improved information embedding system, learn how the computer coding/decoding works, and solve underlying mathematical formulas to check barcodes.

Resources/Materials

- Teacher Resource Documents (attached)
- Student Resource Sheet (attached)
- Student Worksheets (attached)

Alignment to Curriculum Frameworks

Curriculum alignment sheet is included in [PDE](#).

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