

SCIENCE SCENARIO

Directions: Use the information presented on pages 25 and 26 to answer questions 13 through 16.

C.2.1.3

13. Which sequence correctly shows the energy conversions that allow the testing device to attract a metal weight with magnetic properties?
- A battery (chemical to heat) → wire coil (heat to magnetic) → metal weight (magnetic to frictional)
 - B battery (chemical to electrical) → wire coil (electrical to magnetic) → metal weight (magnetic to mechanical) *
 - C battery (electrical to magnetic) → wire coil (magnetic to heat) → metal weight (heat to mechanical)
 - D battery (electrical to mechanical) → wire coil (mechanical to magnetic) → metal weight (magnetic to gravitational)

- A *Heat is not a useful form of energy in this sequence, so it does not play a role in this setup.*
- B *Key: Chemical energy from the battery is converted into electrical energy, which moves through the wire; the electrical energy is converted to magnetic energy in the electromagnet, which in turn, pulls and holds the cube to the rod.*
- C *Heat is not a useful form of energy in this sequence, so it does not play a role in this setup.*
- D *There is no direct transformation from electrical energy to mechanical energy in this setup.*