

Content Subscore Topics

PHYSICAL SCIENCE

1. **Matter** - Properties and changes of properties in matter

- a. physical properties (e.g. density, boiling point, solubility), mixtures, physical vs. chemical change
 - b. chemical reactions, compounds, conservation of mass, chemical families
 - c. elements & atomic structure
 - d. states of matter, kinetic theory, and gas laws
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2. **Motion and Forces**

- a. position and direction of motion, speed & velocity, graphical representation of motion
 - b. force & acceleration (includes friction, weight, $f = ma$, gravity), addition of forces, balanced & unbalanced forces, momentum and impulse (includes action-reaction)
 - c. Newton's first law of motion (inertia)
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3. **Energy**

- a. energy as ability to do work/change, mechanical energy, kinetic and potential energy, simple machines, systems & conservation of energy
- b. waves, sound, light (refraction, absorption, scattering & reflection), color and vision, electromagnetic spectrum, and sunlight
- c. static electricity, electric current & circuits, magnetism, electromagnetism
- d. thermodynamics, heat, temperature, and temperature scales
- e. chemical energy, nuclear energy (radioactivity, fusion, fission)

Content Subscore Topics

LIFE SCIENCE

1. **Structure/Function** of Living Systems

- a. complimentary nature of structure and function, increase in complexity: cell-tissue-organ
 - b. cells
 - c. animal organ systems
 - d. plant organ systems
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2. **Internal Regulation** and Behavior

- a. organisms convert energy (photosynthesis, respiration, metabolism)
 - b. homeostasis; behavior from cellular to organ levels
 - c. cellular communication (hormones), immune system, and disease fighting
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3. Reproduction and **Heredity, Diversity** and Adaptation of Organisms

- a. plant and animal reproduction (sexual & asexual)
 - b. genetics
 - c. fitness and survival (nature vs. nurture), adaptations, evolution (change over time), extinction
 - d. taxonomy
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4. **Interdependence** of Organisms (Ecology, Populations)

- a. organisms obtain and use resources (consumers, producers, parasitism, mutualism, etc.)
 - b. cycling of nature
 - c. populations/ biomes/ ecosystems
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Content Subscore Topics

EARTH/SPACE SCIENCE

1. Atmosphere, Hydrosphere

- a. atmosphere composition & properties
 - b. weather/weather hazards/cloud formation
 - c. climate, oceans & water cycle
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2. Lithosphere

- a. rock/mineral/soil properties
 - b. rock/mineral cycle & processes (weathering, erosion, glaciers)
 - c. movements of plates/ earthquakes/volcanoes & Earth's layers
 - d. history of the Earth: geologic time/ uniformitarianism fossils as evidence
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3. Space – Earth in the Solar System

- a. solar system
- b. phases, motion and eclipses
- c. sun as energy and reason for seasons
- d. gravity and tides