INTRODUCTION TO BATS & CAVES

Preschool - 1st Grade

Colorado Education State Standards for Science

Taught in "Introduction to Bats and Caves Tour"

STANDARDS COVERED IN THE "BAT ROOM"

PRESCHOOL STANDARD

Science Standard: 2. Life Science: 1. Living things have characteristics and basic needs. b. Observe and explore the natural processes of growing, changing, and adapting to the environment. c. Observe and explore the natural processes of growing, changing, and adapting to the environment.

KINDERGARTEN STANDARD

Science Standard: 2. Life Science: 1. Organisms can be described and sorted by their physical characteristics. a. Sort a group of items based on observable characteristics. b. Communicate and justify an evidence – based scientific rationale for sorting organisms into categories.

FIRST-GRADE STANDARD

Science Standard: 2. Life Science: 1. Organisms depend on their habitats, nonliving parts, to satisfy their needs. b. Analyze and interpret data about nonliving components of a habitat. c. Assess and provide feedback on other scientific explanations regarding why an organism can survive in its habitat.

STANDARDS COVERED IN THE "CAVE TOUR"

PRESCHOOL STANDARD

Science Standard: 3. Earth Systems Science: 1. Earth's materials have properties and characteristics that affect how we use those materials. a. Use senses to gather information about the Earth's materials. b. Make simple observations, explanations, and generalizations about Earth's materials based on real-life experience.

KINDERGARTEN STANDARD

Science Standard: 3. Earth Systems Science: 1. Earth's materials have properties and characteristics that affect how we use those materials. a. Use senses to gather information about the Earth's materials. b. Make simple observations, explanations, and generalizations about Earth's materials based on real-life experience.

FIRST-GRADE STANDARD

Science Standard: 1. Physical Science: a. Objects have properties and characteristics. Science **Standard: 3.** Earth Systems Science: 1. Earth's materials can be compared and classified based on their properties. a. Earth's materials have characteristics and properties that affect how we use these materials.

STANDARDS COVERED IN THE "CAVERS CRAWL CHALLENGE"

PRESCHOOL STANDARD

Earth Systems Science: 1. Earth materials can be compared and classified based on their properties.

KINDERGARTEN STANDARD

Life Science: 1. Objects can be sorted by physical properties, which can be observed and measured.

FIRST-GRADE STANDARD

Physical Science: 2. There are cause-and-effect relationships in everyday experiences.

STANDARDS COVERED IN THE "CRYSTAL ADVENTURE"

PRESCHOOL STANDARD

Physical Science: 1. Earth materials can be compared and classified based on their properties.
Earth Science: 1. Earth's materials can be compared and classified based on their properties.

KINDERGARTEN STANDARD

Physical Science: 1. Objects can be sorted by physical properties, which can be observed and measured.

FIRST-GRADE STANDARD

Physical Science: 1. Objects have properties and characteristics

Earth Systems Science: 1. Earth's materials have properties and characteristics that affect how we use those materials.

STANDARDS COVERED IN "FORCE OF NATURE – FIRE"

PRESCHOOL STANDARD

Science Standard: 2. Life Science: 1. Living things have characteristics and basic needs. b. Observe and explore the natural processes of growing, changing, and adapting to the environment.

Science Standard: 3. Earth Systems Science: 1. Earth's materials have properties and characteristics that affect how we use those materials. a. Use senses to gather information about the Earth's materials. b. Make simple observations, explanations, and generalizations about Earth's materials based on real-life experience.

KINDERGARTEN STANDARD

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FIRST-GRADE STANDARD

Science Standard: 2. Life Science: 1. Organisms depend on their habitats, nonliving parts, to satisfy their needs. b. Analyze and interpret data about nonliving components of a habitat. c. Assess and provide feedback on other scientific explanations regarding why an organism can survive in its habitat.

Science Standard: 1. Physical Science: a. Objects have properties and characteristics.

Science Standard: 3. Earth Systems Science: 1. Earth's materials can be compared and classified based on their properties. a. Earth's materials have characteristics and properties that affect how we use these materials.

INTERMEDIATE TO BATS & CAVES

2nd - 4th Grade

Colorado Education State Standards for Science

Taught in "Intermediate Bats and Caves Tour"

STANDARDS COVERED IN THE "BAT ROOM"

SECOND-GRADE STANDARD

Science Standard: 2. Life Science:

1. Organisms depend on their environments. a. Use evidence to develop a scientific explanation about how organisms depend on their habitat. b. Analyze and interpret data about nonliving components of a habitat. c. Assess and provide feedback on other scientific explanations regarding why an organism can survive in its habitat.

1. How do organisms depend on their environment?
2. How does an organism respond when basic needs are not met?
3. Do all organisms have the same needs?
4. Describe how an organism interacts with their environment.

2. Each plant or animal has different structures or behaviors that serve different functions.

THIRD-GRADE STANDARD

Science Standard: 2. Life Science: 1.Organisms depend on their habitat's nonliving parts to satisfy their needs.

FOURTH-GRADE STANDARD

Science Standard: 2. Life Science: 1.All living things share similar characteristics but they also have differences that can be described and classified. 2. There is interaction and interdependence between and among living and nonliving components of systems.

STANDARDS COVERED IN THE "CAVE TOUR"

SECOND-GRADE STANDARD

Science Standard: 3. Earth Systems Science: Weather and changing seasons impact the environment and organisms such as humans, plants, and other animals.

THIRD-GRADE STANDARD

Science Standard: 3. Earth Systems Science: 1. Earth's materials can be broken down and /or combined into different materials such as rocks, minerals, rock cycle, formation of soil, and sand – some of which are usable resources for human activity.

FOURTH-GRADE STANDARD

Science Standard: 2. Physical Science: 1. Energy comes in many forms such as movement of water, heat, magnetic, and chemical.

STANDARDS COVERED IN THE "CAVERS CRAWL CHALLENGE"

SECOND-GRADE STANDARD

Science Standard: 3. Earth Systems Science: Weather and changing seasons impact the environment and organisms such as humans, plants, and other animals.

THIRD-GRADE STANDARD

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STANDARDS COVERED IN "FORCE OF NATURE – FIRE"

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FOURTH-GRADE STANDARD

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GEOLOGY 101

5th - 8th Grade

Colorado Education State Standards for Science

Taught in "Underground Adventure – Geology 101 Tour"

FIFTH-GRADE STANDARD

Science Standard: 2. Physical Science: 1. Mixtures of matter can be separated regardless of how they were created; all weight and mass of mixture are the same as the sum of weight and mass of its parts.

Science Standard: 3. Earth Systems Science: 2. Earth's surface changes constantly through a variety of processes and forces. 3. Weather conditions change because of the uneven heating of the Earth's surface by the Sun's energy. Weather changes are measured by differences in temperature, air pressure, wind and water in the atmosphere and type of precipitation.

SIXTH-GRADE STANDARD

Science Standard: 2. Physical Science: 3. The physical characteristics and changes of solid, liquid, and gas states can be explained using particle model. 4. Distinguish among, explain, and apply the relationships among mass weight, volume, and density.

Science Standard: 3. Earth Systems Science: 1. Complex interrelationships exist between Earth's structure and natural processes that over time are both constructive and destructive. 2. Water on the earth is distributed and circulated through oceans, glaciers, rivers, ground water, and the atmosphere. 3. Many human resources are nonrenewable on human time scales.

SEVENTH-GRADE STANDARD

Science Standard: 2. Physical Science: 1. Mixtures of substances can be separated based on their properties such as solubility, boiling point, magnetic properties, and densities.

Science Standard: 2. Earth systems Science: Geologic time, history, and changing life forms are indicated by fossils and successive sedimentation, folding, faulting, and uplifting of layers of sedimentary rock.

STANDARDS COVERED IN THE "CAVERS CRAWL CHALLENGE"

FIFTH-GRADE STANDARD

Science Standard: 3. Earth Systems Science: 2. Earth's surface changes constantly through a variety of processes and forces. 3. Weather conditions change because of the uneven heating of the Earth's surface by the Sun's energy. Weather changes are measured by differences in temperature, air pressure, wind and water in the atmosphere and type of precipitation.

SIXTH-GRADE STANDARD

Science Standard: 2. Physical Science: 4. Distinguish among, explain, and apply the relationships among mass weight, volume, and density.
Science Standard: 3. Earth Systems Science: 1. Complex interrelationships exist between Earth's structure and natural processes that over time are both constructive and destructive. 3. Many human resources are nonrenewable on human time scales.

SEVENTH-GRADE STANDARD

Science Standard: 2. Earth systems Science: Geologic time, history, and changing life forms are indicated by fossils and successive sedimentation, folding, faulting, and uplifting of layers of sedimentary rock.

STANDARDS COVERED IN THE "CRYSTAL ADVENTURE"

FIFTH-GRADE STANDARD

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STANDARDS COVERED IN "FORCE OF NATURE – FIRE"

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SEVENTH-GRADE STANDARD

Science Standard: 2. Physical Science: 1. Mixtures of substances can be separated based on their properties such as solubility, boiling point, magnetic properties, and densities.

CAVING 101

9th - 12th Grade

State Standards For Science in
Colorado Education

Taught in "Caving 101 Tour"

This tour was created as an Educational Tour for High School Students: Including Classroom Study Groups, ROTC, Scouting Troops, Science Groups, Youth Groups, and more.

HIGH-SCHOOL STANDARD

Science Standard: 1. Physical Science:

2. Matter has definite structure that determines characteristic physical and chemical properties.

5. Energy exists in many forms such as mechanical, chemical, electrical, radiant, thermal, and nuclear, that can be quantified and experimentally determined.

6. When energy changes form, it is neither created not destroyed; however, because some is necessarily lost as heat, the amount of energy available to do work decreases.

Science Standard: 2. Life Science:

1. Matter tends to be cycled within an ecosystem, while energy is transformed and eventually exists in an ecosystem (organisms and their environment they inhabits and depend on).

2. The size and persistence of populations depend on their interactions with each other and on the abiotic (physical and chemical aspects of an organism's environment) factors in an ecosystem.

CAVE OF THE WINDS