LEVEL 7: BIOLOGICAL EVOLUTION

Earth Science

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

Evidence Outcomes:

1. Students can describe the geologic time scale and why it is used.
2. Students can identify and describe major developments of life on Earth.
3. Students can identify and describe major events in Earth's geologic history.
4. Students can use direct and indirect evidence to determine sequence of events in geologic time.

Inquiry:

- How can we "read" the rock layers?
- What is geologic time?

Applying Science in Society and Using Technology:

- Consider how knowledge of Earth's structure helps mankind locate and extract resources.
- Recognize how dating fossils absolutely, and relatively, helps assemble the story of the evolution of life on Earth.

Nature of Science:

- Describe how scientists study fossils and suggest ways that understanding fossil evidence contributed to our knowledge about life on Earth over geologic time.

Source:
http://www.cde.state.co.us/cdeassess/UAS/DraftStandards.html

LEVEL 7: BIOLOGICAL EVOLUTION

Life Science

1. Individual organisms with certain traits are more likely than others to survive and have offspring.

Evidence Outcomes:

1. Students can develop, communicate and justify an evidence-based explanation as to why a given organism with specific traits will or will not survive and have offspring in a given environment.
2. Students can analyze and interpret data about specific adaptations to provide evidence and develop claims about differential survival and reproductive success.
3. Students can critique the reasoning in scientific explanations about the relationship between adaptations and survival/reproduction, by differentiating between fact and opinion while also identifying when conclusions are not logically supported by the evidence given.

Inquiry:

- What is the relationship between an organism's adaptations and its potential for survival and reproduction?
- How is the use of the word "adaptation" different in everyday usage than it is in biology?

Applying Science in Society and Using Technology:

- Explore how bacteria have evolved to survive in the presence of the environmental pressure of antibiotics.

Nature of Science:

- Follow and describe sound experimental designs to collect data around survival and genetic traits.
- Describe several ways in which scientists would study genetics and suggest ways that this has contributed to our understandings about survival and populations.

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LEVEL 7: BIOLOGICAL EVOLUTION

Life Science

2. Changes or constancy in groups of organisms over geologic time can be revealed through evidence.

Evidence Outcomes:

1. Students can interpret and analyze data from the fossil record to provide evidence supporting a claim that organisms and environments have changed over time.
2. Students can analyze and critique the reasoning behind arguments regarding the causes/effects of a mass extinction event, by identifying when opinion and fact are intermingled, or when conclusions are not logically supported by the evidence given.

Inquiry:

- What was life on Earth like in the distant past and how do we know?
- Has the frequency of changes in life on Earth always occurred at a constant rate?
- How does the evidence of how life has changed on Earth in the past tell us about Earth today?

Applying Science in Society and Using Technology:

- Evaluate current concerns over the extinction of organisms around the world, and explore the possible consequences of these extinctions.

Nature of Science:

- Share data and conclusions, respectfully discussing discrepant interpretations (alternate explanations), describing their work as emulating the practice of scientists.
- Consider the historical context and impact of early fossil research and the potential implications for current organism studies.

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