IMI has a long-standing corporate commitment to helping educate students. Not only does our industry depend upon the education of the next generation, but so does our society as a whole. For that reason, we have created these web pages to help educators teach children in the states where we operate.

How to use this web site with your students

1. Find your state standards on the following pages.
2. Note that the specific standard is underlined and the activity on our web site that meets that standard is listed in blue.
3. Instruct your students to our web site: www.irvmat.com and click on the IMI Classroom link.
4. Choose the Science tab
5. Find the activity that meets your standard and let your students begin. Our science page is designed to be interactive and engaging, but also fact filled with information our children need.

Project Points

Many of our activities have a Project Point icon at the end of the page. Project points are additional resources, science experiments and facts that you may find useful in extending your students' learning experience.

Writing Prompts

Some of our projects lend themselves to student expression of written ideas. You will find a Writing Prompt icon at the bottom of these activities. These links will download a pdf file to your computer with questions related to the activity. You may print these for student instructional use.

We would welcome your response to our site. Feel free to contact us by e-mail at info@irvmat.com.

Contents

Science Standards

Illinois

Climate Changes

Grades 4, 5, 6 – Stage E

12E - Students who meet the standard know and apply concepts that describe the features and processes of Earth and its resources.

1. Apply scientific inquiries or technological designs to analyze global topographic features modeling the effect of glaciation on a surface with applications to Illinois topography, or using satellite pictures, various topographic and thematic maps to indicate demographic, economic and weather patterns, and/or their interrelationships to each other.
2. Apply scientific inquiries or technological designs to analyze weather and climatic conditions, comparing historic and current precipitation, barometric, and temperature records, and trends, projecting future trends based on past and current records, or making inferences about cloud formations and weather conditions.

Pipe Creek Jr. video, Fossil Matching Game, What are Fossils?

Grades 5, 6, 7 – Stage F

12B - Students who meet the standard know and apply concepts that describe how living things interact with each other and with their environment.

1. Apply scientific inquiries or technological designs to apply the competitive, adaptive and survival potential of organisms, describing how fossils are used to determine patterns of evolution, observing how plant and animal characteristics help organisms survive in their environments, or analyzing how environmental factors threaten or enhance the survival potential of populations.

Science Standards

Indiana

Grade 4

Climate Changes

4.3.5 Describe how waves, wind, water, and glacial ice shape and reshape Earth's land surface by the erosion* of rock and soil in some areas and depositing them in other areas.

How to Make Concrete

4.3.6 Recognize and describe that rock is composed of different combinations of minerals.

Grade 5

Pipe Creek Jr. video, Fossil Matching Game, What are Fossils?

5.1.2 Begin to evaluate the validity of claims based on the amount and quality of the evidence cited.

5.4.8 Observe that and describe how fossils can be compared to one another and to living organisms according to their similarities and differences.

Grade 6

Pipe Creek Jr. video, What are Fossils?

6.1.5 Identify places where scientists work, including offices, classrooms, laboratories, farms, factories, and natural field settings ranging from space to the ocean floor.

How to Make Concrete

6.6.1 Understand and explain that from the earliest times until now, people have believed that even though countless different kinds of materials seem to exist in the world, most things can be made up of combinations of just a few basic kinds of things. Note that there has not always been agreement, however, on what those basic kinds of things are, such as the theory of long ago that the basic substances were earth, water, air, and fire. Understand that this theory seemed to explain many observations about the world, but as we know now, it fails to explain many others.

6.3.18 Investigate and describe that when a new material, such as concrete, is made by combining two or more materials, it has properties that are different from the original materials.

Grade 7

Climate Changes

7.3.3 Give examples of some changes in Earth's surface that are abrupt, such as earthquakes and volcanic eruptions, and some changes that happen very slowly, such as uplift and wearing down of mountains and the action of glaciers.

7.3.8 Describe how sediments of sand and smaller particles, sometimes containing the remains of organisms, are gradually buried and are cemented together by dissolved minerals to form solid rock again.

7.3.10 xplain how the thousands of layers of sedimentary rock can confirm the long history of the changing surface of Earth and the changing life forms whose remains are found in successive layers, although the youngest layers are not always found on top, because of folding, breaking, and uplifting of layers.

Science Standards

Kentucky

Grade 4 – Science

Pipe Creek Jr. video, Fossil Matching Game, What are Fossils?

Science 4 36 **Academic Expectations** **2.2** Students identify, analyze, and use patterns such as cycles and trends to understand past and present events and predict possible future events. **2.3** Students identify and analyze systems and the ways their components work together or affect each other. **2.4** Students use the concept of scale and scientific models to explain the organization and functioning of living and nonliving things and predict other characteristics that might be observed. **2.5** Students understand that under certain conditions nature tends to remain the same or move toward a balance. **2.6** Students understand how living and nonliving things change over time and the factors that influence the changes.	**Program of Studies** **S-4-ESS-2** Students will understand that fossils provide evidence about organisms that lived long	**Core Content for Assessment** **SC-E-2.1.3** Fossils found in Earth materials provide evidence about organisms that lived long ago and the nature of the environment at that time.

Climate Changes

Science 4 42 **Academic Expectations** **2.2** Students identify, analyze, and use patterns such as cycles and trends to understand past and present events and predict possible future events. **2.3** Students identify and analyze systems and the ways their components work together or affect each other. **2.4** Students use the concept of scale and scientific models to explain the organization and functioning of living and nonliving things and predict other characteristics that might be observed. **2.5** Students understand that under certain conditions nature tends to remain the same or move toward a balance. **2.6** Students understand how living and nonliving things change over time and the factors that influence the changes.	**Program of Studies** **S-4-ESS-8** Students will understand that Earth's surface changes are due to slow (e.g., weathering) and rapid (e.g., volcanic eruptions) processes.	**Core Content for Assessment** **SC-E-2.3.1** The surface of the Earth changes. Some changes are due to slow processes such as erosion or weathering. Some changes are due to rapid processes such as landslides, volcanic eruptions, and earthquakes.

Grade 7

Climate Changes

Science 7 78 **Academic Expectations**	**Program of Studies**	**Core Content for Assessment**
2.2 Students identify, analyze, and use patterns such as cycles and trends to understand past and present events and predict possible future events. **2.3** Students identify and analyze systems and the ways their components work together or affect each other. **2.4** Students use the concept of scale and scientific models to explain the organization and functioning of living and nonliving things and predict other characteristics that might be observed. **2.5** Students understand that under certain conditions nature tends to remain the same or move toward a balance. **2.6** Students understand how living and nonliving things change over time and the factors that influence the changes.	**S-7-ESS-3** Students will examine Earth's processes (e.g., erosion, deposition) and catastrophes (e.g., asteroid impact).	**SC-M-2.2.1** The Earth's processes we see today, including erosion, movement of lithospheric plates, and changes in atmospheric composition, are similar to those that occurred in the past. Earth's history is also influenced by occasional catastrophes such as the impact of an asteroid or comet. **SC-M-2.1.2** Landforms are a result of a combination of constructive and destructive forces. Constructive forces include crustal deformation, volcanic eruption, and deposition of sediment, while destructive forces include weathering and erosion.

Pipe Creek Jr. video, Fossil Matching Game, What are Fossils?

Science 7 79 **Academic Expectations** **2.2** Students identify, analyze, and use patterns such as cycles and trends to understand past and present events and predict possible future events. **2.3** Students identify and analyze systems and the ways their components work together or affect each other. **2.4** Students use the concept of scale and scientific models to explain the organization and functioning of living and nonliving things and predict other characteristics that might be observed. **2.5** Students understand that under certain conditions nature tends to remain the same or move toward a balance. **2.6** Students understand how living and nonliving things change over time and the factors that influence the changes.	**Program of Studies** **S-7-ESS-4** Students will examine evidence (e.g., fossils) for changes in life and environmental conditions.	**Core Content for Assessment** **SC-M-2.2.2** Fossils provide important evidence of how environmental conditions and life have changed.

Grade 8

What are Fossils?

Science 8 88 **Academic Expectations** **2.2** Students identify, analyze, and use patterns such as cycles and trends to understand past and present events and predict possible future events. **2.3** Students identify and analyze systems and the ways their components work together or affect each other. **2.4** Students use the concept of scale and scientific models to explain the organization and functioning of living and nonliving things and predict other characteristics that might be observed. **2.5** Students understand that under certain conditions nature tends to remain the same or move toward a balance. **2.6** Students understand how living and nonliving things change over time and the factors that influence the changes.	**Program of Studies** **S-8-ESS-2** Students will analyze Earth's history (e.g., Earth processes, catastrophes, evidence for changes).	**Core Content for Assessment** **SC-H-2.3.2** Techniques used to estimate geological time include using radioactive dating, observing rock sequences, and comparing fossils to correlate the rock sequences at various locations.

North American Rhino

Science 8 94 **Academic Expectations** **2.2** Students identify, analyze, and use patterns such as cycles and trends to understand past and present events and predict possible future events. **2.3** Students identify and analyze systems and the ways their components work together or affect each other. **2.4** Students use the concept of scale and scientific models to explain the organization and functioning of living and nonliving things and predict other characteristics that might be observed. **2.5** Students understand that under certain conditions nature tends to remain the same or move toward a balance. **2.6** Students understand how living and nonliving things change over time and the factors that influence the changes.	**Program of Studies** **S-8-LS-5** Students will analyze diversity and adaptations (e.g., changes in structure, behaviors, or physiology).	**Core Content for Assessment** **SC-H-3.4.1** Species change over time. Biological change over time is the consequence of the interactions of (1) the potential for a species to increase its numbers, (2) the genetic variability of offspring due to mutation and recombination of genes, (3) a finite supply of the resources required for life, and (4) natural selection. The consequences of change over time provide a scientific explanation for the fossil record of ancient life forms and for the striking molecular similarities observed among the diverse species of living organisms.

Science Standards

Ohio

Grade 4

Climate Changes

Earth and Space Science

8. Describe how wind, water and ice shape and reshape Earth's land surface by eroding rock and soil in some areas and depositing them in other areas producing characteristic landforms (e.g., dunes, deltas and glacial moraines)

The Pipe Creek Jr. video, Fossil Matching Game, What are Fossils?

Life Sciences

4. Observe and explore that fossils provide evidence about plants that lived long ago and the nature of the environment at that time.

Scientific Inquiry

2. Analyze a series of events and/or simple daily or seasonal cycles, describe the patterns and infer the next likely occurrence.

Grade 6

How to Make Concrete

Earth and Space Science

1. Describe the rock cycle and explain that there are sedimentary, igneous and metamorphic rocks that have distinct properties (e.g., color, texture) and are formed in different ways.

2. Explain that rocks are made of one or more minerals.

Grade 7

Climate Changes

Life Sciences

5. Explain that some environmental changes occur slowly while others occur rapidly (e.g., forest and pond succession, fires and decomposition).

8. Investigate the great diversity among organisms.

Grade 8

The Pipe Creek Jr. video, Climate Changes

Earth and Space Sciences

13. Describe how landforms are created through a combination of destructive (e.g., weathering and erosion) and constructive processes (e.g., crustal deformation, volcanic eruptions and deposition of sediment).

Climate Changes, North American Rhino

Life Sciences

6. Investigate how an organism adapted to a particular environment may become extinct if the environment, as shown by the fossil record, changes.

Science Standards

Tennessee

Grade 4

The Pipe Creek Jr. video, Fossil Matching Game, What are Fossils?

4.6.1 Realize that fossils show connections between organisms that lived in the past and those that live in the present.

• Examine fossils and explain how they provide information about the types of organisms that lived in the past.

North American Rhino

4.6.2 Recognize that extinction has occurred in the past and continues today.

•Identify certain animal and plant populations as thriving, threatened, endangered, or (extinct e.g., elephants, sea turtles, dodo bird, dinosaur).

How to Make Concrete

4.10.1 Recognize that earth materials have a variety of practical uses.

• Classify earth materials according to their use**.**

Grade 5

How to Make Concrete

5.10.1 Recognize that earth materials have a variety of practical uses.

• Choose the appropriate use for an earth material (e.g., fuel, monument, house foundation).

5.13.1 Describe the types of changes that result from interactions of matter.

• Distinguish between physical and chemical changes.

The Pipe Creek Jr. video, Fossil Matching Game, What are Fossils?

5.6.1 Realize that fossils show connections between organisms that lived in the past and those that live in the present.

• Explain how fossils provide information about the past.

Grade 6

The Pipe Creek Jr. video, Fossil Matching Game, What are Fossils?

6.6.1 Investigate the fossil evidence found in sedimentary rock layers.

• Differentiate between the relative age of fossils in a sedimentary rock diagram.

• Determine the geologic age of an object using a diagram or a time line.

Climate Changes

6.6.3 Reason how environmental changes are associated with the extinction of a species.

- Predict how a specific environmental change might affect the survival of a plant or animal species.
- Evaluate possible causes of extinction.

Grade 8

Climate Changes

8.9.2 Describe the forces and processes that shape the earth.

- Compare and contrast processes that shape the earth in the past with those shaping the earth today (e.g., plate movements, human activity, mountain building).

8.10.2 Describe the rock cycle.

- Explain how fossils are used to understand the earth's past.

How to Make Concrete

8.10.1 Investigate the characteristics of minerals and their uses.

- Distinguish between common minerals found in rock samples using test kits, descriptive charts, etc.
- Describe how various minerals are used.