



Visual Arts & Science



Dreams & Explorations

Twelve Standards-Based Lessons
for Classroom and Art Teachers K-6



In What Biosphere Will Bugs Thrive?

Grade Level

5-6

Classroom Time

Two or three 40-min. periods

Materials/Tools

- Corrugated cardboard, cut in to shapes
- Crayola® Glitter Glue Classpack®
- Crayola Model Magic® Classpack
- Crayola Overwriters® Markers
- Crayola School Glue
- Crayola Scissors
- Crayola Watercolor Brushes
- Crayola Watercolors
- Magnifying glasses
- Modeling tools
- Natural materials such as feathers, twigs, raffia, stones, leaves, or other found items
- Oak tag, cut in 3" x 4" rectangles
- Paper towels
- Recycled 1-liter or larger, clear plastic bottles
- Recycled newspaper
- Plastic coffee stirrers or chenille stems
- Water containers

Tips

Ask parent and student volunteers to recycle liter-size clear plastic bottles. Cut off the bottom 4 inches with scissors or a utility knife. Prepare one container for each student. Volunteers also can cut oak tag rectangles as well as cardboard shapes that are slightly greater than the circumference of the bottle openings. Cover the painting area with newspaper.

Resources

Living Jewels by Poul Beckmann
Old Cricket by Lisa Wheeler
The Very Clumsy Click Beetle by Eric Carle
The Very Quiet Cricket by Eric Carle

Visual Arts Standard 2

Reflecting upon and assessing the characteristics and merits of their work and the work of others.

Science Content Standard

Life Science

The characteristics of organisms

Unifying Concept & Process—Science As Inquiry

Evidence, models, and explanations

Abilities to do scientific inquiry

Objective

Students explore entomology, and then use their imaginations to create an insect model that is contained inside an enclosed environment.

Teacher Preparation

Classroom Teacher: Collect and display close-up photographs of insects on one half of a bulletin board and various types of natural environments where insects live on the other half. Have push pins and yarn available for students to match the two.

Art Teacher: Collect and display human-made habitats in which insects are typically contained for study or observation, such as simple cages, terrariums, ant farms, or other closed containers. Include mounted insects as well; show live insects if possible.

Discussion Starters

Classroom Teacher: Ask students to study the bulletin board and use the yarn to connect the insects to their habitats. Discuss the accuracy of the matches and list attributes that make a habitat a healthy place for insects to thrive.

Art Teacher: Ask students to recall the facts they listed that link insects to their natural habitats. Show and discuss artifacts or models that contain insects. Discuss new designs that could be created inside a bottle, based on observation of insects through a magnifying glass and knowledge about their activities.

Process

Create an Insect

1. Carefully observe insects with a magnifying glass. Study their shapes, colors, textures, and patterns. Look at Eric Carle's whimsical illustrations for inspiration.
2. Fold oak tag in half. Cut into the fold to create unusual and symmetric wings. Color the wings using Overwriters markers. Use the "under colors" first, then decorate the wings in elaborate patterns with the "over colors."
3. Shape Model Magic to create an insect body. Make sure it will fit in the bottle. Place wings over the body. Apply additional Model Magic to the wings' center to attach them to the insect body.
4. Embed cut chenille stems or plastic coffee stirrers into the insect for features. Use modeling tools to create texture. Air-dry the insect overnight.
5. Paint the insect with watercolors. Air-dry the paint.
6. Decorate your insect with glitter glue, feathers, or other craft materials. Air-dry the glue.

Design a Natural Habitat

1. Shape Model Magic to create a display base for your insect. Insert raffia, twigs, or other natural elements into the base. Air-dry it overnight.
2. Watercolor the modeled base to reflect your imagined environment. Air-dry the paint.
3. Glue the base to cardboard. Glue insect into the habitat. Air-dry the glue.
4. Place the plastic bottle over the model. Apply glue around the circumference of the bottle. Roll and then wrap a coil of Model Magic over and around the glue to seal the bottle to the cardboard. Air-dry the art.
5. Write a paragraph describing the model insect and its habitat.

Assessment

Display student insect models in their enclosed environments. Ask students to analyze and then match insect models and environments to descriptive writings. Summarize learning.



Background Information

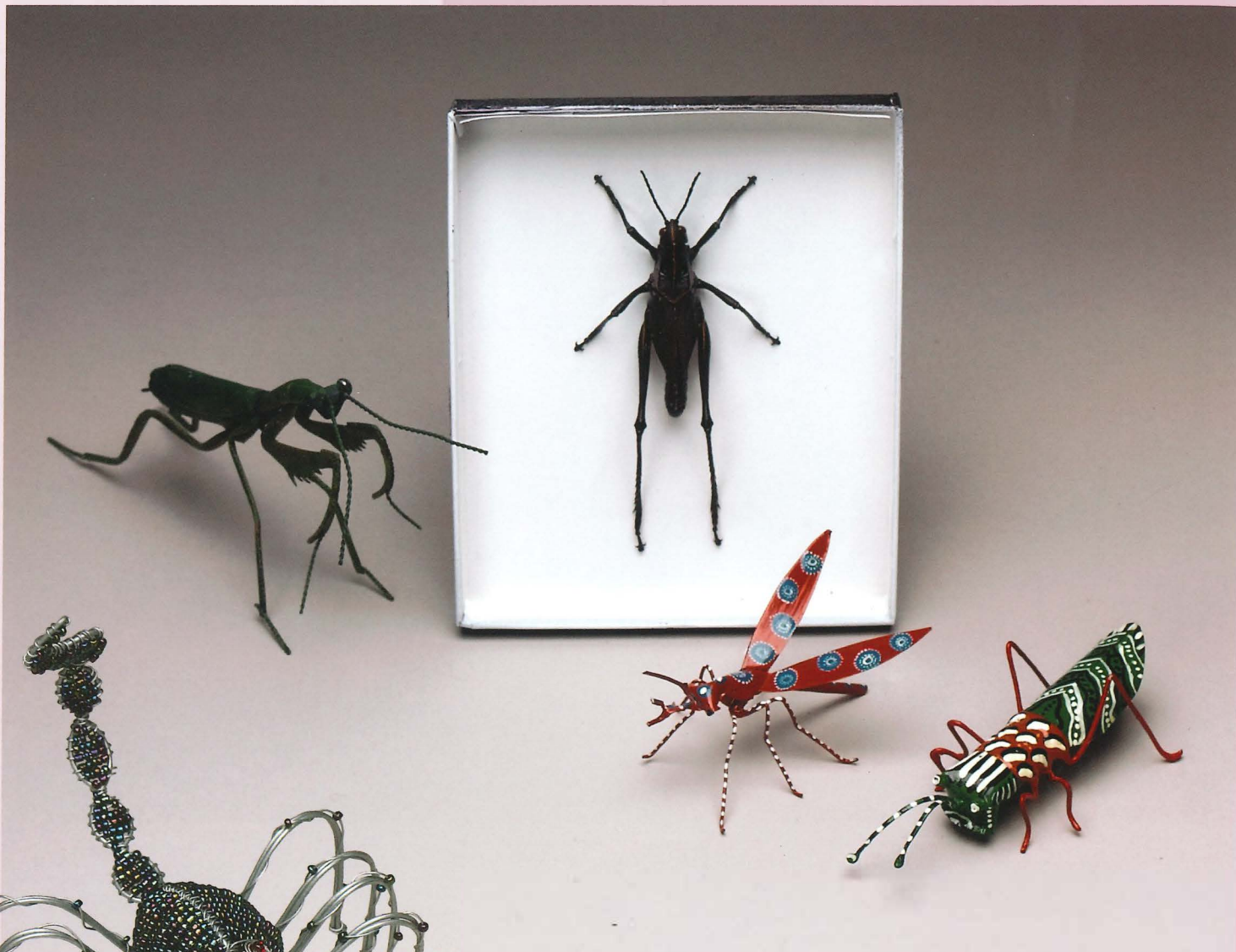
A biosphere is a zone where life naturally occurs. Earth's biosphere extends from the deep crust to the lower atmosphere. Insects account for more than 50% of all animal and plant life on Earth. For the most part, insects lead their lives quietly and go about their business unnoticed.

Beetles are just one species of insect. "Evolving over 250 million years, shaping themselves to fit every conceivable climate and landscape on Earth, the order of Coleoptera—the beetles—has developed a phantasmagorical diversity of shapes and sizes, colors, patterns and textures," according to Poul Beckman in *Living Jewels*. More than a million species of every shape and form have been identified and several times that number remain unnamed.



In What Biosphere Will Bugs Thrive?

See lesson on page 26



Beaded Scorpion

2004

Artist unknown

Aluminum wire, glass beads

8" x 4" x 5 1/4"

South Africa

Private Collection

Praying Mantis

1995

Artist unknown

Painted assembled metals

8 1/2" x 2" x 3 3/4"

Pennsylvania

Private Collection

Lubber Grasshopper

2004

Insect specimen

Species - Romaka guttatal

Southern USA

Private Collection

Tiny Tins Cricket

2004

Artist: Njabga brothers, painted by

Weya community

Painted and assembled tin

3/4" x 4 1/2" x 1 3/8"

Zimbabwe, Africa

Private Collection

Tiny Tins Red Fly

2004

Artist: Njabga brothers, painted by

Weya community

Painted and assembled tin

3 1/2" x 2 1/4" x 2 1/4"

Zimbabwe, Africa

Private Collection



Red Orange Butterfly

2004

Insect specimen

2" x 1 1/2" x 1/16"

South American Rainforest

Private Collection

Iridescent Blue, Red & White Beetle

2004

Species - *Chrysochroa rugicollis*

3 1/4" x 1 3/4" x 3/4"

Malaysia

Private Collection

Iridescent Blue Butterfly

2004

Insect specimen

Species - *Morpho peleides* l.

4 1/2" x 3 1/2" x 1/16"

South America

Private Collection

Dragonfly Fossil

2002

5" x 5 1/2" x 3/16"

Private Collection





Visual Arts & Science



Dreams & Explorations

Twelve Standards-Based Lessons
for Classroom and Art Teachers K-6



How Can You Contribute to a Healthy Ecology?

Grade Level

5-6

Classroom Time

Two or three 40-min. periods

Materials/Tools

- Crayola® Erasable or Regular Colored Pencils
- Crayola Fine Line Marker
- Crayola Overwriters® Marker Classpack®
- White drawing paper

Tip

Ask parent volunteers to help collect, clean, and cut scrap lumber into blocks that students will use to visualize, assemble, and draw three-dimensional forms.

Resources

Frank Gehry by Jason Miller

Frank O. Gehry Outside In by Jan Greenberg & Sandra Jordan

Metropolis: Ten Cities—Ten Centuries by Albert Lorenz with Joy Schleh

Tall Buildings from The Museum of Modern Art
The Chelsea House Library of Biography Frank Lloyd Wright by Yona Zeldis McDonough

Objective

Students think about, visualize, and then create an urban architectural design that incorporates features to ecologically sustain life on Earth.

Teacher Preparation

Classroom Teacher: Create a bulletin board with a title such as “What Does Urban Architecture Look Like?”. Ask students to help collect and display photographs of various urban landscapes that include buildings, parks, transportation systems, gardens, industrial zones, and more.

Art Teacher: Contact your local city planners and ask if you can borrow blueprints of buildings that have been erected in your community. Invite residential, commercial, and landscape architects who live in your community to talk with your students about design planning. Ask architects to bring examples of their work in print or model form.

Discussion Starters

Classroom Teacher: Invite students to discuss the bulletin board. Tell students that ecology is the branch of biology that deals with the relationship of living things to their environment. Ask students to write a list of everything they see in the photos that links structures and other elements to the environment. Encourage students to identify reasons why the designs were good (or unwise) ecological choices.

Art Teacher: Challenge students to think about, visualize, and then draw an urban environment. Encourage them to include buildings, parks, transportation systems, industrial parks, and more as part of healthy design solutions that will contribute positively to the world’s ecology. Suggest that they consider that plant, animal, and human life must co-exist in their plans.

Process

1. Think about and then visualize what elements are part of an ecologically-sound urban design.
2. Sketch buildings, living areas, parks, transportation systems, gardens, industrial zones, and other community spaces using erasable colored pencils and white drawing paper.
3. Emphasize sections of your design by filling shapes with Overwriters “under colors.” Create lines, shapes, and textures with “over colors.” Add details with fine line markers.
4. Prepare a legend that identifies the components of your design using colored pencils.

Assessment

Ask students to identify the ecological features that are illustrated in their urban designs. Encourage classmates to check each other’s art to identify one or more environmentally friendly solutions illustrated in the work that will contribute to a healthy environment. Summarize learning.

Visual Arts Standard 6

Making connections between visual arts and other disciplines.

Science Content Standard

Science in Personal and Social Perspectives

Populations, resources, and environments

Unifying Concept & Process—Science As Inquiry

Systems, order, and organizations Abilities necessary to do scientific inquiry



Artwork by students from
Mont Prospect School, Basking Ridge, New Jersey.
Teacher: Susan Bivona

Background Information

People have lived together in cities for thousands of years. Many cities are designed so they are a few stories high and stretch outward in unwinding sprawl for miles. One designer's solution to this urban sprawl is to design communities so they "implode" rather than "explode" on open, green space. In the 1960's Paolo Soleri combined the design of cities with the concept of ecology. His term "archology" proposes a highly integrated and compact three-dimensional urban form that joins architecture and ecology and focuses on stopping urban sprawl. His city designs encourage and fuse conservation of land, energy and resources.

How Can You Contribute to a Healthy Ecology?

See lesson on page 30



Arpillera

2003

Artist unknown

Appliqué textiles, cotton, colored thread, yarn

19 ½" x 19 ½"

Peru

Private Collection



Visual Arts & Science



Dreams & Explorations

Twelve Standards-Based Lessons
for Classroom and Art Teachers K-6



How Can Your Design Help Save Endangered Species?

Grade Level

5-6

Classroom Time

Two or three 40-min. periods

Materials/Tools

- Colored/black construction paper
- Crayola® Gel FX Marker Classpack®
- Crayola Glitter Glue Classpack
- Crayola Paint Brushes
- Crayola Watercolor Colored Pencils
- Paper towels
- Recycled newspaper
- Water containers
- White drawing paper

Tips

Draw with dry watercolor pencils and then apply water washes over the drawing to generate painterly effects. Repeat the process to create layered effects. Cover the art area with newspaper.

Resources

Beaks by Sneed B. Collard III

Our Wet World by Sneed B. Collard III

The Forest in the Clouds by Sneed B. Collard III

The Living Rain Forest—An Animal Alphabet by

Paul Kratter

Winged Migration—The Junior Edition by Stephane

Durand and Guillaume Poyet

Visual Arts Standard 5

Reflecting upon and assessing the characteristics and merits of their work and the work of others.

Science Content Standard

Science & Technology

Abilities to distinguish between natural objects and objects made by humans.

Unifying Concept & Process—Science As Inquiry

Evolution and equilibrium

Understanding about scientific inquiry

Objective

Students use knowledge about endangered species and their habitats to design promotional literature that communicates, through text and illustrations, how people might take action to help save endangered species.

Teacher Preparation

Classroom Teacher: With students, research, collect, and display photographs of insects, plants, and animals that are on the extreme endangered species list. Design a chart with two columns and about 15 rows. Label one column "Endangered Species" and the second column "Solutions to Avoid Extinction." Use the chart to begin a class discussion around the topic.

Art Teacher: Design a display of various advertising and design formats such as tri-folds, brochures, mini-booklets, pamphlets, and one-page flyers. Demonstrate step-by-step watercolor pencil drawing and painting techniques that best illustrate earth, sea, sky, and animals. Include dry brush, wet-on-wet, and dry-on-wet techniques.

Discussion Starters

Classroom Teacher: Discuss what the word *endangered* means. "Endangered species are plants and animals that are in danger of becoming extinct. *Extinct* means they will no longer live on Earth." Invite children to research the most critically endangered plants and animals. Invite them to add species to the chart if they can offer practical solutions that will help avoid extinction of the animal.

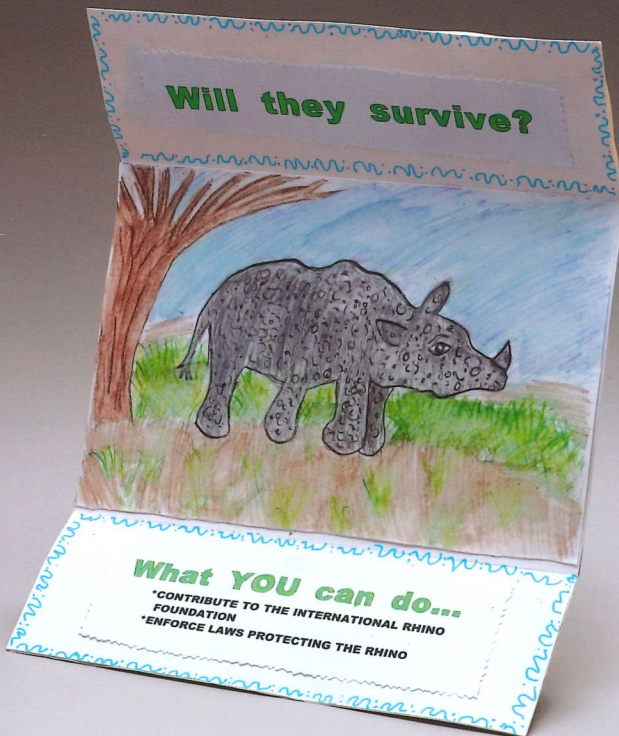
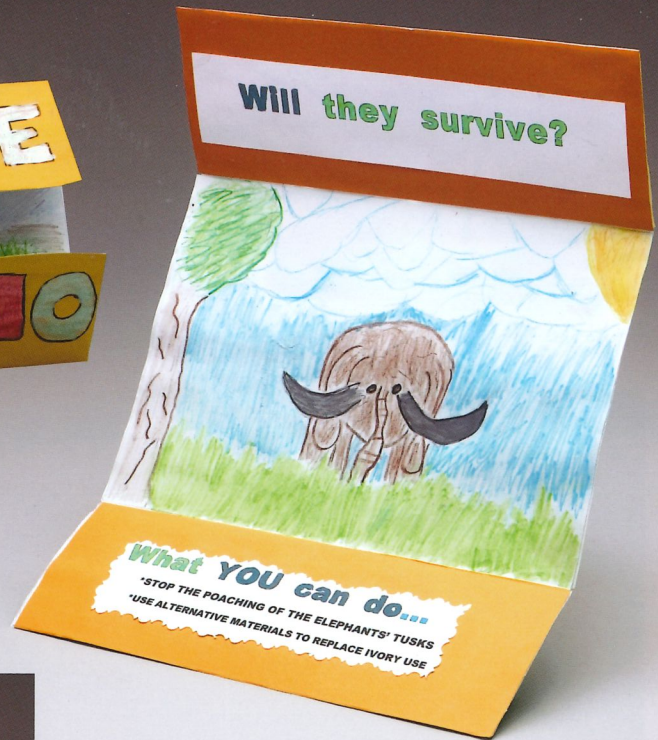
Art Teacher: Ask students to reflect on their knowledge about endangered species. Invite them to design a piece of literature whose text and illustrations call out solutions that help keep endangered species from becoming extinct. Design formats can vary.

Process

1. Select a species listed on the extreme endangered list. Your charge is to reverse a grave situation that exists for an insect, plant, or animal.
2. Visualize and then create a promotional brochure that addresses the issues using watercolor pencils. Consider various design formats, text, and illustrations. Include three or more watercolor drawing and painting techniques in your design format.
3. Clearly articulate and detail your solution so that the literature becomes an effective public relations tool and captures the audience's attention. Analyze your work for its attention-getting effectiveness and attributes.

Assessment

Display all designs. Invite students to rank which designs most effectively communicate and address the cause, and then list reasons that support each student's choice. Arrange to exhibit the artwork at a local bank or community center. Check to see that three or more watercolor pencil techniques were used to create the art. Summarize learning.



Artwork by students from Bullard Talent School, Fresno, California.
Teacher: Ann Winters-Canfield



Background Information

Every living being contributes to the balance of life on this planet. An estimated 74 species of plants and animals become extinct every day, critically challenging the balance the Earth struggles to maintain. Actions of humans are mostly to blame for this dilemma, and it is also our actions that can begin the movement back towards ecological health.

Fewer than 1,000 pandas remain in the mountainous bamboo forests of Southwestern China. The chances of this animal rebounding are diminished by factors such as habitat destruction, poaching, and the panda's low reproductive capacity.

Sea turtles are able to migrate hundreds and sometimes thousands of miles, traveling from their feeding ground to their nesting beach, which is usually the same beach on which they were born. Out of seven species of sea turtles, four are classified as endangered: the green turtle, the leatherback, the hawksbill, and Kemp's Ridley.