

## ARTS ENVIROCHALLENGER

### **EnviroCreatures: Invent an Insect**

### **Teaching Environmental Sustainability, Visual Arts, and Science**

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Grade Level: Second



### **Enduring Understanding**

Reused materials and objects in artistic compositions can communicate observations or ideas. Materials can be selected, altered and combined to construct 3-dimensional artistic and scientific models.

*Students learn about reducing "trash". Sculpture created with reused materials representing animals is introduced and artistic choices discussed. Students observe, as artists and scientists, the parts and attributes of insects, then draw insects with focus on parts and symmetry. Next, students alter and reuse materials to construct a 3-dimensional symmetrical soft sculpture insect using multiple techniques. Last, students create and share a description and story about their invented insect.*

### **Learning Targets and Assessment Criteria**

**Target:** Understands the EnviroChallenger message.

**Criteria:** Shares examples of ways to reduce, recycle, and reuse trash and show respect and responsibility for our environment.

**Target:** Observes and draws insects.

**Criteria:** Connects shapes and lines in reflection for head, thorax, abdomen plus 2 or 4 wings, 6 legs, and 2 antennae.

**Target:** Makes a symmetrical soft sculpture insect model.

**Criteria:** Forms 3-dimensional form with head, thorax, abdomen plus 2 eyes, 2 or 4 wings, 6 legs, and two antennae (has height, width, depth, and is same on both sides of midline).

**Target:** Uses craftsmanship in soft sculpture construction techniques.

**Criteria:** Stuffs, glues, wraps, and ties/sews insect parts into a secure, sturdy whole.

**Target:** Describes invented insect.

**Criteria:** Writes a description and story with insect name, where insect lives (habitat), what it eats, how it moves around and what it did today.

Vocabulary	Materials	Learning Standards
<p><u>Arts</u> 2-D, 3-D Circle Craftsmanship Form Oval Ovoid Soft sculpture Sphere</p> <p><u>Arts Infused</u> Balance Model Shape Symmetry Texture</p> <p><u>Science</u> Head, Thorax, Abdomen Antennae Legs Parts/whole Wings</p>	<p><b>Artworks:</b> Jeremy Meyer Insect Assemblage PET sculptures by Miwa Koizumi Photos/diagrams of insects</p> <p><b>Art Materials:</b> Pencils, 9x12" recycled white drawing paper; Thin, opaque trouser socks and tights; Fabrics, ribbons, string, Christmas tinsel, garlands; Nets that fruit comes in; Mesh, screens, lace; Costume jewelry: beads, earrings; Twist ties, wire, zip ties, Plastic bread closers, binder clips; 1 small ball of yarn per student; Soft plastic produce, grocery, or dry cleaning bags for stuffing; Scissors; Hole punches; Embroidery needles; Tacky glue</p>	<p><b>State Visual Art Learning Standards</b> 1.1.2 Elements: Shape/Form, 2-D to 3-D 1.1.7 Principles of Design: Balance/Symmetry 1.2.1 Skills and Techniques: Drawing, Soft Sculpture 2.1.1 Creative Process 2.3.1 Responding Process 4.2.1 Connection between Visual Arts, Science, Math, Writing</p> <p><b>Next Generation Science Standards</b> <a href="http://www.nextgenscience.org/next-generation-science-standards">http://www.nextgenscience.org/next-generation-science-standards</a> <b>Topic:</b> Interdependent Relationships in Ecosystems; Engineering Design <b>Disciplinary Core Ideas:</b> LS4.D: Biodiversity and Humans <b>Performance Expectations:</b> 2-LS4-1. Make observations of plants and animals to compare the diversity of life in different habitats. K-2-ETS1-2. Develop a simple sketch, drawing or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.</p> <p><b>Crosscutting Concepts:</b> Cause and Effect Structure and Function</p>

### ICON KEY:

- 📄 = Indicates note or reminder for teacher
- ✂ = Indicates materials preparation suggestions
- ☑ = Embedded assessment points in the lesson

### Pre-Teach

Class Reads: *The Lorax* by Doctor Suess

### Residency Steps Outline

#### Day One

#### TALK ABOUT THE ENVIROCHALLENGER MESSAGE

**1.** Introduce the 5 R's through class discussion. Reduce, Recycle, Reuse, Respect, and Responsibility.

**2.** Discuss what trash is composed of and where it goes.

☑ Criteria-based checklist: Student shares examples of ways to reduce, recycle, and reuse trash.

**3.** Discuss why and what objects and materials are thrown away and ways to creatively reuse materials and objects.

#### ANALYZE ART MADE FROM REUSED MATERIALS

**4.** Share images of animal sculptures made of reused materials.

#### OBSERVE AND DRAW SYMMETRICAL INSECTS USING SHAPES

**5.** Demonstrate and guide using our senses as scientists and artists to observe differences and similarities in insects.

**6.** Guide class in making symmetrical shapes using both of our hands or whole body.

**7.** Guide practicing drawing symmetrical insects

☑ Criteria-based teacher checklist: Student connects shapes and lines in reflection for head, thorax, abdomen plus 2 or 4 wings, 6 legs, and 2 antennae.

## **Day Two**

### **CREATE 3-DIMENSIONAL FORMS IN SOFT SCULPTURE**

- 1.** Discuss concept of 2-dimensional versus 3-dimensional.
- 2.** Introduce soft sculpture examples and techniques.
- 3.** Demonstrate tying knots. Emphasize craftsmanship in stuffing and tying.
- 4.** Guide forming spheres or ovoid out of plastic bags for head, thorax, and abdomen. Demonstrate working with a partner to tie off each section securely.

Criteria-based teacher checklist: Student forms 3-dimensional form with head, thorax, and abdomen.

## **Day Three**

### **ATTACH INSECT PARTS**

- 1.** Demonstrate attaching antennae by wrapping, lacing, or using clips to attach materials to head form.
- 2.** Demonstrate sewing legs to thorax using a single stitch aligned with the line of symmetry.
- 3.** Demonstrate trimming and sewing, lacing, or clipping wings to thorax.
- 4.** Demonstrate and guides gluing eyes and adding additional details.

Criteria-based teacher checklist: Students adds 2 eyes, 2 or 4 wings, 6 legs, and 2 antennae.

## **Day Four**

### **TEST CRAFTSMANSHIP**

**1.** Guide craftsmanship test.

Criteria-based peer and self assessment: Student stuffs, glues, wraps, or ties/sews insect parts into a secure, sturdy whole.

### **DESCRIBE AND WRITE A STORY ABOUT YOUR INSECT**

**2.** Discuss insects as living systems within greater ecosystems.

**3.** Guide writing an insect description and story.

Criteria-based teacher checklist: Student writes a description and story with insect name, where insect lives (habitat), what it eats, how it moves around, and what it did today.

### **REFLECT ON STUDENT ART, SCIENCE AND ENVIROCHALLENGER MESSAGE**

**4.** Reflect on artistic process by having each student introduce his or her insect and description/story.

**5.** Close with affirmation of the EnviroChallenger message.

Group reflection

## LESSON STEPS

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### Day One

#### TALK ABOUT THE ENVIROCHALLENGER MESSAGE

##### 1. Introduce the 5 Rs through class discussion. Reduce, Recycle, Reuse, Respect, and Responsibility.

*We are learning about art, science, and ways that we can help take care of our planet earth through our choices and actions. Who can name the 5 Rs: lets talk about each of them!*

**Reduce** means make smaller: "make less trash by using less" how can we make less trash?

**Reuse** means "use again" what can we reuse to make less trash?

**Recycle** means to us change the material through some sort of proces (heat, water, mechanical) then form into into something usable again. What are some things we can recycle?

**Respect** means to value, admire and take care of our environment and living things. How can we show respect for our environment?

**Responsibility** means a sense of doing your part in daily actions, or a job that needs to be done to help take care of our environment. Who is responsible? YOU!

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##### 2. Discuss what trash is composed of and where it goes.

- *Where does trash go after we put it in the garbage can? Why would we want to reduce the amount of trash we create?*
- *How is plastic, metal, or paper made? ...Does making these materials impact the environment? How does trash harm plants, animals, and other humans?*

Criteria-based checklist: Student shares examples of ways to reduce, recycle, and reuse trash.

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##### 3. Discuss why and what objects and materials are thrown away, and ways to creatively reuse materials and objects.

- *What does obsolete mean? Why do we throw things away?*
  - *Why would someone make something out of trash materials?*
  - *Have you ever made something out of "trash" before?*
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#### ANALYZE ART MADE FROM REUSED MATERIALS

##### 4. Share images of animal sculptures made of reused materials.

*We are focusing on how the special properties of reused materials can communicate ideas.*

- *Do you recognize any of the materials the artist used?*
  - *Why do you think the artist chose them?*
  - *How can reusing materials help artists and the planet?*
  - *How does reusing a material in art transform it?*
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## OBSERVE AND DRAW SYMMETRICAL INSECTS USING SHAPES

### 5. Demonstrate and guide using our senses as scientists and artists to observe differences and similarities in insects.

*We are going to reuse materials to make insect soft sculptures. We need to look closely at insects to notice all of the parts, shapes, textures, and colors we see to help us create a sculpture.*

*Work with an elbow buddy to answer these questions:*

- *Name the parts of insects.*
- *Why do insects need wings, or legs, or antennae?*
- *What shapes, do you see?*
- *What do all of these insects have in common? Symmetry!*

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### 6. Guide class in making symmetrical shapes using both of our hands or whole body.

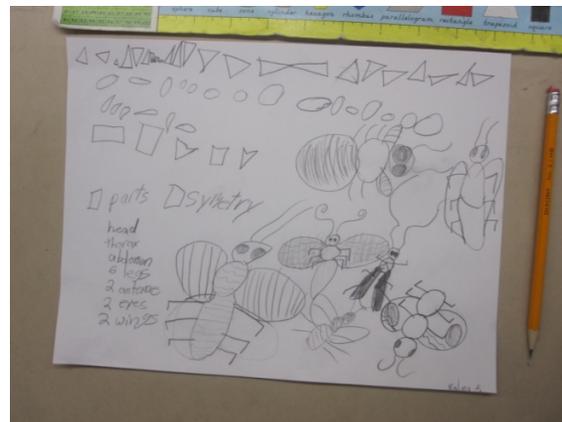
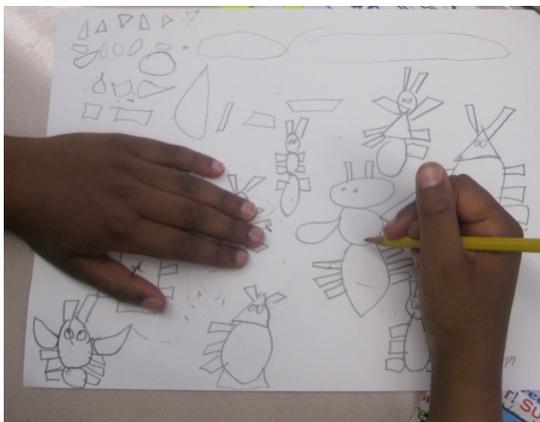
- *Can you show me symmetry with your bodies?*
- *Can you show what is not symmetrical with your bodies?*

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### 7. Guide practicing drawing symmetrical insects.

▣ Have students practice drawing shapes and combining them to create symmetrical insects. Cover your example to encourage students to generate their own ideas.

- *Sign your name in the lower right hand corner where artists traditionally sign their names first.*
- *Practice drawing shapes: ovals, triangles, rain-drop shapes, circles, squares, rectangles across the top of your paper. Practice pointing them in different directions.*
- *Connect shapes and lines to draw all different kinds of insects. Remember symmetry!*



☑ Criteria-based teacher checklist: Student connects shapes and lines in reflection for head, thorax, abdomen, plus 2 or 4 wings, 6 legs, and 2 antennae.

## Day Two

### CREATE 3-DIMENSIONAL FORMS IN SOFT SCULPTURE

#### 1. Discuss concept of 2-dimensional versus 3-dimensional.

*Our drawings yesterday were flat: 2-dimensional. Today, we start making sculpture—3-dimensional art with height, width, and length using soft materials—fabrics, mesh, ribbons, old socks, or nets, and flexible wires. We will be stuffing, tying, sewing, and/or gluing, to build our sculptures!*

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#### 2. Introduce soft sculpture examples and techniques.

*These are examples of insect soft sculptures. We are re-using old unwanted socks, tights, or nets for crafting the head, thorax, and abdomen of our insect sculpture. We are stuffing each of those three forms using plastic bags or other material, then tying each section off with string or yarn.*

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#### 3. Demonstrate tying knots. Emphasize craftsmanship in stuffing and tying.

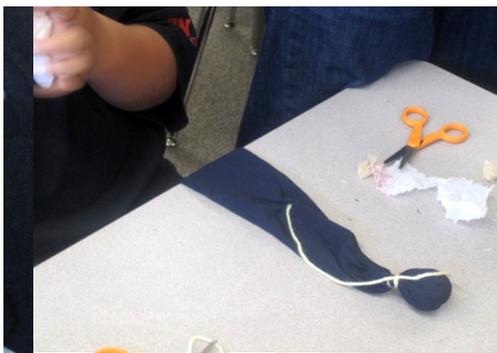
*Art needs to be sturdy and interesting to look at. Craftsmanship means care in all construction techniques: we are stuffing and tying.*

▣ Large diagrams of knot tying steps drawn on the board can help students

- *Measure and cut three lengths of yarn spanning from fingers to elbow.*
  - *Practice tying many knots with one length of yarn. Over and through the loop again and again.*
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#### 4. Guide forming spheres or ovoid out of plastic bags for head, thorax, and abdomen. Demonstrate working with a partner to tie off each section securely.

- *Roll plastic (or form other material) into a tight sphere or ovoid for the head.*
- *Stuff and pull tightly. Have a partner hold your insect sections while you tie off each section. Make many knots. Trim yarn to a thumb width long.*
- *Now stuff and tie off the thorax.*
- *Now stuff and tie off the abdomen (using yarn or extra sock material). Extra sock or net material can be trimmed off.*



Criteria-based teacher checklist: Student forms 3-dimensional form with head, thorax and abdomen.

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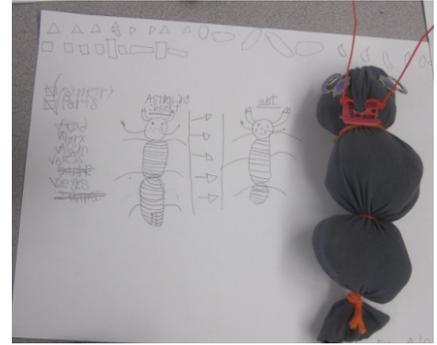
## Day Three

### ATTACH INSECT PARTS

#### 1. Demonstrate attaching antennae by wrapping, lacing, or using clips to attach materials to head form.

✂ Antennae can be made from all sorts of materials—twist-ties, zip-ties, chenille stems, wire—and attached to binder clips or threaded through the head form (depends on materials used).

- *Remember symmetry in all construction and attachment.*
- *If attaching with a clip, be sure to center it on top of the head and make sure it clips both sock and stuffing layers.*



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#### 2. Demonstrate sewing legs to thorax using a single stitch aligned with the line of symmetry.

*Big needles are blunt, safe, and easy to use.*

✂ Emphasize keeping track of needles: count to recover all distributed at the end of class

- *Measure and cut one length of yarn spanning from fingers to shoulder.*
- *Thread the needle through, match the yarn ends, and make a knot with both strands at once.*
- *Push needle through at least one inch on thorax line of symmetry.*
- *Place three long legs centered across the insect and tie securely with threaded yarn to complete the stitch and create 6 total symmetrical legs*

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#### 3. Demonstrate trimming and sewing, lacing, or clipping wings to thorax.

*A piece or pieces of material can be sewn or laced on for wings.*

- *Trim bits off of net material (or use alternate translucent plastic materials with holes punched in them) to make a symmetrical wing shape(s).*
- *If sewing, use the same needle threading technique (for sewing legs on) and run the needle over and under the mesh material with a running stitch (or through holes), and tie the wings on between the head and thorax tightly and symmetrically like a Superman cape.*



#### **4. Demonstrate and guides gluing eyes and adding additional details.**

*When you tie or glue something on, make sure it does not fall off! Select symmetrical eyes and one or two additional details that can become parts of your insect.*

- *When we glue, it is important to use enough glue to firmly adhere eyes and details.*
- *Make a dot at least the size of a dime with tacky glue then squish the eyes or details into it.*
- *Once we glue it is important to let our insects be still and rest (nap time) until the glue dries.*

Criteria-based teacher checklist: Students adds 2 eyes, 2 or 4 wings, 6 legs, and 2 antennae.

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**Day Four**  
**TEST CRAFTSMANSHIP**

**1. Guide craftsmanship test.**

*Work with an elbow buddy to give your insects a good shake and a test flight (while still in your hand) to test for sturdiness.*

- *If parts are loose or fall off—this is your chance to repair and correct poor craftsmanship.*

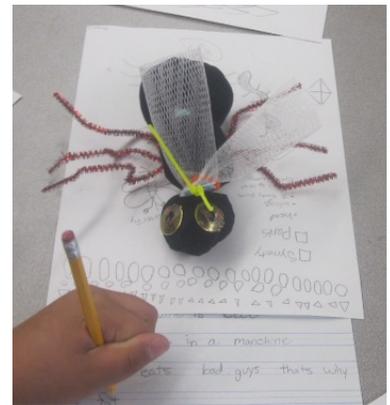
Criteria-based peer and self assessment: Student stuffs, glues, wraps, or ties/sews insect parts into a secure, sturdy whole.

**DESCRIBE AND WRITE A STORY ABOUT YOUR INSECT**

**2. Discuss insects as living systems within greater ecosystems.**

*Animals depend on other animals and plants for food and shelter. Insects live everywhere: think of all of the different places you have seen insects! Insects live in different habitats and have different needs: pond, river, desert, rainforest, mountain, city?*

- *What is the name of your insect? Where will your insect live? What parts of insects help it live in its environment?*
- *What parts of your insect help it get food? What does it eat?*
- *How will your insect move or travel mostly? Swim? Hop? Fly? What parts of your insect help it travel?*



**3. Guide writing an insect description and story.**

*Think about all of your ideas so far about your own insect. Describe your insect and then write a short story about what they did today. You may also want to add a drawing of your finished insect sculpture showing all of its parts and details.*

**MY INSECT**

My insect's name is \_\_\_\_\_.

My insect lives in \_\_\_\_\_.

My insect eats \_\_\_\_\_.

My insect likes to move around by \_\_\_\_\_.

Today, my insect...

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Criteria-based teacher checklist: Student writes a description and story with insect name, where insect lives (habitat), what it eats, how it moves around and what it did today.

## REFLECT ON STUDENT ART, SCIENCE AND ENVIROCHALLENGER MESSAGE

### 4. Reflect on artistic process by having each student introduce their insect and description/story.

- *Who is your insect? Introduce and share your insect description and story.*
  - *Describe why you chose to reuse a certain material in your insect?*
  - *Is your insect symmetrical? Is your insect 3-dimensional?*
  - *Describe how you used good craftsmanship to make your insect model sturdy?*
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### 5. Close with affirmation of the EnviroChallenger message.

- *What are the EnviroChallenger 5 R's?*
- *Name one way you can protect our environment using the 5 R's?*
- *What did you discover about reusing materials in art?*
- *How can you use trash materials to make something else in the future?*
- *Why do artists choose to reuse materials in art?*

Group reflection

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# ARTS ENVIROCHALLENGER

## *EnviroCreatures: Invent an Insect*

### Assessment Checklist

Disciplines	ENVIRONMENTAL SUSTAINABILITY	SCIENCE/ART		ART	LITERACY	Total 5
Concept	Awareness/ Action	Observation/ Drawing	Model	Craftsmanship	Descriptive Writing	
Criteria	Shares examples of ways to reduce, recycle, and reuse trash and show respect and responsibility for our environment.	Connects shapes and lines in reflection for head, thorax, abdomen plus 2 or 4 wings, 6 legs, and 2 antennae.	Forms 3-dimensional form with head, thorax, abdomen plus 2 eyes, 2 or 4 wings, 6 legs, and two antennae	Stuffs, glues, wraps, ties/sews insect parts into a secure, sturdy whole.	Writes a description and story with insect name, where insect lives, what it eats, how it moves around and what it did today.	
Student						



## ARTS ENVIROCHALLENGER

### *EnviroCreatures: Invent an Insect*

### Teaching Environmental Sustainability, Visual Arts, and Science

- We worked with a **teaching artist** and learned about art, science, and ways that we can help take care of our planet earth through our choices and actions. We learned about the **5 R's** of the **EnviroChallenger message**:
  - **Reduce** means make smaller: "make less trash by using less".
  - **Reuse** means "use again" instead of throwing away.
  - **Recycle** means to us change the material through some sort of process (heat, water, mechanical) then form it into something usable again.
  - **Respect** means to value, admire, and take care of our environment and living things.
  - **Responsibility** means a sense of doing your part in daily actions, or a job that needs to be done to help take care of our environment. Who is responsible? YOU!
- We talked about what trash is composed of, where it goes, and why it is a threat to our planet.
- We talked about why many things become obsolete and are thrown away instead of being reused.
- We looked at **sculpture** (3-dimensional art) representing animals that were made from **reused materials**. We identified familiar objects that the artists used based on their properties. We also talked about why artists choose to reuse materials in art.
- We talked about how scientists and artists **observe** nature to learn more. We observed **insects**, identified their **different parts**, and studied their **shapes, colors, and textures**.
- We noticed that insects are **symmetrical**, and have a **head, thorax, and abdomen** as well as **two antennae, six legs, and two or four wings**.
- We reused materials and altered them to suggest the parts of an insect. We made a **soft sculpture** of an insect by stuffing a sock, tube, or net (from fruit) and tying off parts to form a **3-dimensional head, thorax, and abdomen**.
- We used **craftsmanship** in attaching our insect parts and **details** through **gluing, wrapping, and tying or sewing techniques**. Our insects are sturdy.
- We created an **insect description and story** for our insect using our imaginations to name, describe, and place our insects in a habitat.

### Enduring Understanding

Reused materials and objects in artistic compositions can communicate observations or ideas. Materials can be selected, altered, and combined to construct 3-dimensional artistic and scientific models.