

## ARTS ENVIROCHALLENGER

### ***Protecting Our Salmon: Superstars of the Northwest*** **Teaching Environmental Sustainability, Visual Arts, and Science**

Author: Meredith Essex

Grade Level: Fifth



#### **Enduring Understanding**

Trash materials can be selected, altered, and reused in art. Shapes and symbols in an artistic composition can communicate about human impacts on ecosystems.

*Respect and responsibility for our environment is explored through analyzing the interaction of human and natural systems and subsystems. Salmon and their local ecosystems are a focus with students observing, drawing, and cutting out a template for a salmon. Paper and other trash materials are then reused for collage salmon shapes, details, habitat, and symbols showing positive or negative human impact in ecosystem. Last, students title their art and write an artist statement.*

#### **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:** Makes salmon template.

**Criteria:** Sketches shapes for body and parts, refines by adding a continuous contour line for outside edge and cuts precisely along outside contour.

**Target:** Represents interaction of human and natural systems in collage.

**Criteria:** Makes and overlaps shapes/symbols showing salmon in habitat, and positive or negative human activities impacting that ecosystem.

**Target:** Uses craftsmanship in collage techniques.

**Criteria:** Cuts cleanly, layers, and securely glues shapes to background.

**Target:** Presents art.

**Criteria:** Titles collage and writes artist statement about human impact on salmon ecosystem shown and creative process.

Vocabulary	Materials	Learning Standards
<u>Arts</u> Background Collage Composition Contour Craftsmanship Foreground Overlapping Symbol Template	<b>Artworks:</b> Paintings by Frank Samuelson, First Peoples Rattles, Paddles and Plates from British Columbia; Collages  <b>Resources:</b> Diagrams and photos of salmon at different points in life cycle to observe and draw; Endangered statistics; Maps  <b>Art Materials:</b> Repurposed manila file folders 9x12"; Recycled drawing paper; 2B drawing pencils; White vinyl erasers; Textures and color from pages from magazines and other printed materials: National Geographic, Smithsonian, textured wallpapers, packing materials, leather, copper, fabric; Scissors; Glue sticks; Recycled magazines for use as glue mats; 2-gallon Ziploc bags for storing materials; Assessment Checklists.	<b>State Visual Art Learning Standards</b> 1.1.1 Elements: Line 1.1.2 Elements: Shape/Form 1.2.1 Skills and Techniques: Drawing, Collage 2.1.1 Creative Process 2.3.1 Responding Process 4.2.1 Connection between Visual Arts, Science, and Writing  <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> Earth's Systems <b>Disciplinary Core Ideas:</b> ESS3.A: Natural Resources ESS3.C: Human Impacts on Earth Systems LS2.A: Interdependent Relationships in Ecosystems <b>Performance Expectations:</b> 5-ESS3-1. Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment. <b>Crosscutting Concepts:</b> Patterns Cause and Effect Systems and System Models <b>Science and Engineering Practices:</b> 1. Asking Questions and Defining Problems 2. Developing and Using Models 8. Obtaining, evaluating, and communicating information
<u>Arts Infused</u> Color Observation Paper Shape Texture		
<u>Science</u> Habitat Life cycle Steward Subsystem System		

## Pre-Teach

Class Reads: *Come Back, Salmon: How a Group of Dedicated Kids Adopted Pigeon Creek and Brought it Back to Life* by Molly Cone (Houghton Mifflin, Invitations to Literacy).

## 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.

3. Analyze and discuss examples of actions and attitudes that reflect respect and responsibility in the relationship between humans and the environment.

Criteria-based checklist: Student shares examples of ways to reduce, recycle, and reuse trash and show respect and responsibility for our environment.

#### FOCUS ON SYSTEMS

4. Define and discuss examples of "systems" and "subsystems" in the natural and human world. List on board.

#### DISCUSS HUMAN IMPACTS ON ECOSYSTEMS

5. Identify example of a negative or positive impact of humans on ecosystems.

6. Identify and discuss what we already know about Salmon. How are they important to our region, culture, economy, and history? Describe the ecosystems and habitat that salmon live within. Share ideas about negative or positive impacts of humans on their life cycle and ecosystems.

#### DRAW AND CUT OUT SALMON FOR COLLAGE TEMPLATES

7. Preview art-making concepts and process: Making a collage of a salmon within its ecosystem that communicates a positive or negative human impact on that ecosystem.

### **ICON KEY:**

 = Indicates note or reminder for teacher

 = Indicates materials preparation suggestions

 = Embedded assessment points in the lesson

**8.** Demonstrate and guide sketching basic salmon shapes on tag or card stock paper.

**9.** Demonstrate and guide refining drawing by adding contour lines, and cutting it out for use as a template.

Criteria-based teacher checklist: Student sketches shapes for body and parts, refines by adding a continuous contour line for outside edge and cuts precisely.

## Day Two

### DESCRIBE, ANALYZE, AND INTERPRET ART

**1.** Analyze and interpret diverse salmon art examples, discuss craftsmanship and message.

### FOCUS ON SALMON LIFE CYCLE AND THREATS

**2.** Share the endangered salmon list, migration maps, and life cycle information. Guide small group study and whole class discussion about salmon life cycle phases. Talk about the salmon life cycle and possible human impacts, both positive and negative, at each phase of their life cycle. List impacts on the board.

Criteria-based process assessment: Student shares knowledge of salmon life cycle and analyzes human impacts.

### BRAINSTORM AND DRAW SYMBOLS

**3.** Guide students in identifying a common language of symbols representing positive and negative human impacts on salmon life cycles and ecosystems (on the board).

Criteria-based process assessment: Student shares ideas for symbols showing positive and negative human impacts to salmon ecosystems.

**4.** Guide students in finding ways to visually communicate positive or negative impacts on Salmon ecosystems through sketching ideas for their collages.

**5.** Demonstrate and guide selecting colors and textures of paper collage materials for salmon, ecosystem/habitat, and symbols of human impact.

### CUT OUT SHAPES AND SYMBOLS

**6.** Demonstrate cutting out and combining simple shapes representing salmon, ecosystem, and positive or negative human impacts. Emphasize craftsmanship in collage techniques. Guide student creative process.

Criteria-based teacher checklist: Student cuts cleanly and layers shapes.

## **Day Three**

### **COMBINE MESSAGE AND CRAFT IN COLLAGE**

**1.** Demonstrate and guide arranging final composition with focus on communicating a story or message. Emphasize craftsmanship.

Criteria-based teacher checklist: Student securely glues shapes to background.

### **REFLECT ON AND REFINE ART**

**2.** Demonstrate and guide reflecting in pairs and refining collage.

Criteria-based peer assessment: Student makes and overlaps shapes/symbols showing salmon in habitat, and positive or negative human activities impacting that ecosystem.

## **Day Four**

### **TITLE AND WRITE ABOUT YOUR COLLAGE**

**1.** Guide students in writing a title and artist statement about the salmon and positive or negative human ecosystem impacts portrayed in their collages.

Criteria-based teacher checklist: Student titles collage and writes artist statement about human impact on salmon ecosystem shown and creative process.

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

**2.** Reflect as a whole class on artistic process by having each student share collage and artist statement.

Criteria-based self-assessment: Student titles collage and writes artist statement about human impact on salmon ecosystem shown and creative process. Student makes and overlaps shapes/symbols showing salmon in habitat, and positive or negative human activities impacting that ecosystem.

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

Group reflection: Discuss protecting our environment and the salmon.

## 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?*
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#### 3. Analyze and discuss examples of actions and attitudes that reflect respect and responsibility in the relationship between humans and the environment.

- *What do the 5 R's look like in action in your life?*
- *What are examples of responsible actions on a larger global scale—businesses, cities, countries?*
- *What are ways we can protect natural resources like oil (which becomes gasoline), or water, or electricity?*

Criteria-based checklist: Student shares examples of ways to reduce, recycle, and reuse trash and show respect and responsibility for our environment.

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## FOCUS ON SYSTEMS

**4. Define and discuss examples of “systems” and “subsystems” in the natural and human world: List on board.**

*Systems have parts that work together as a whole. If a part does not work or is missing, there is an impact. Systems contain subsystems.*

- *What is an example of a subsystem in nature? Animals? Plants?*
  - *What is an example of a bigger system in nature? Ecosystems?*
  - *What is an example of a mechanical subsystem? Cars? Boats? (brakes, steering, etc)*
  - *What is an example of a bigger system in the human world?*
  - *What happens when a part is missing in a subsystem or system? Does it function correctly?*
- 

**DISCUSS HUMAN IMPACTS ON ECOSYSTEMS**

**5. Identify example of a negative or positive impact of humans on ecosystems.**

- *A negative example could be: An oil tanker is a subsystem that is part of a greater shipping/transportation system traveling on the ocean—which is an ecosystem. When it crashes on the rocks, its parts are damaged, it cannot function, and it sinks. The oil spills into the ocean; the ecosystem is damaged because the oil kills some of its parts: animals, plants.*
  - *A positive example could be restoring animal habitat: planting native plants where areas might have been destroyed by logging or mining.*
- 

**6. Identify and discuss what we already know about Salmon. How are they important to our region, culture, economy, and history? Describe the ecosystems and habitat that salmon live within. Share ideas about negative or positive impacts of humans on their life cycle and ecosystems.**

*Now we are going to focus on our own region: the Pacific Northwest and its ecosystems.*

- *What do you know about salmon? Why are they important?*
  - *Where do salmon live?*
  - *Name examples of human impacts, both positive and negative on salmon ecosystems? (pollution, deforestation, construction; fishery management, dam removal)*
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**DRAW AND CUT OUT SALMON FOR COLLAGE TEMPLATES**

**7. Preview art-making concepts and process: Making a collage of a salmon within its ecosystem that communicates a positive or negative human impact on that ecosystem.**

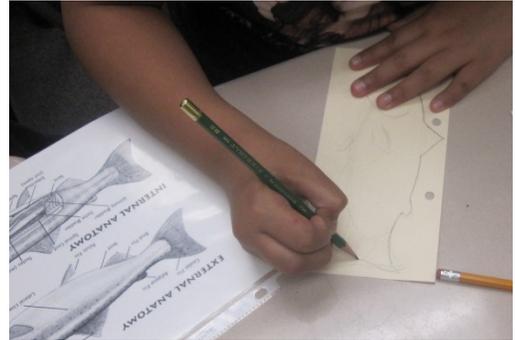
*We are observing and studying salmon pictures as artists and scientists first in order to create a drawing for a salmon template. Every specie of animal is a unique combination of shapes, colors, and textures.*

- *Look at the pictures: name the parts of the salmon you see.*
  - *Describe the shapes you see: (ovals, triangles, circles).*
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## 8. Demonstrate and guide sketching basic salmon shapes on tag or card stock paper.

*We are learning about salmon by drawing them. Observation means eyes on the subject more than the paper. We are going to start with holding our pencils on their sides "sketcher style"—to stay light and loose in roughing in our salmon shapes.*

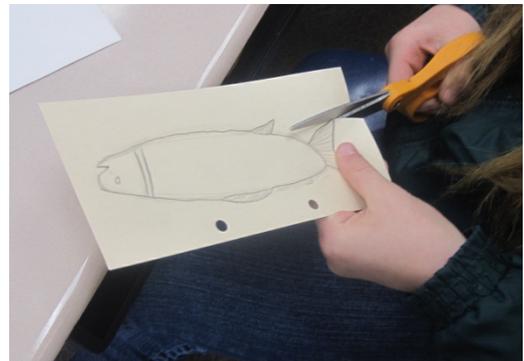
- *In a corner of your paper, practice drawing ovals, circles, triangles...*
- *Draw your salmon body shape light, loose, and long enough to touch the ends of your paper.*
- *Lightly add shapes for other parts: eye, gills, fins, tail.*



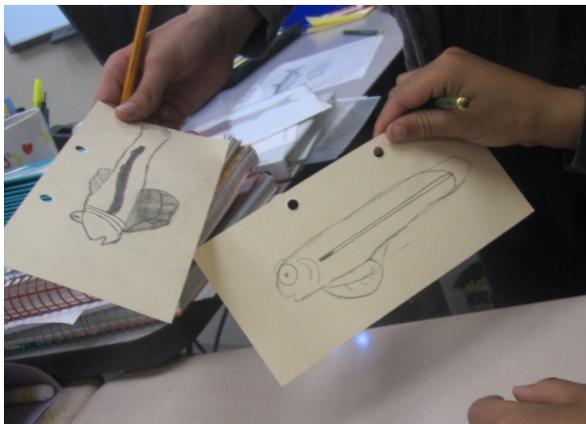
## 9. Demonstrate and guide refining drawing by adding contour lines, and cutting it out for use as a template.

*Now hold your pencil as if writing with it. Keep eyes on the paper only 20% of the time, and the other 80% on your salmon photograph/diagram resource.*

- *Slowly draw the outside and inside shapes of your salmon using continuous lines.*
- *We want accurate shapes, but we do not need any other details since this drawing is going to become a template that we trace around on collage paper.*
- *Now, keeping scissors still and moving paper, cut out your salmon drawing/template very slowly and accurately.*



✂ Distribute 2-gallon Ziploc bags for each student to store their templates, sketches, cut out shapes, background paper, and paper for future use.



Criteria-based teacher checklist: Student sketches shapes for body and parts, refines by adding a continuous contour line for outside edge and cuts precisely along outside contour.

## Day Two

### DESCRIBE, ANALYZE AND INTERPRET ART

#### 1. Analyze and interpret diverse salmon art examples, discuss craftsmanship, and message.

- *Observe and describe what you see in this art.*
- *Analyze what sorts of material, shapes, colors, and textures the artist chose.*
- *Interpret: what do you think the artist is communicating about salmon?*
- *What did you observe that supports your interpretation?*
- *Craftsmanship is care and thought dedicated to making art beautiful and sturdy. Where you see evidence of craftsmanship in this art?*

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### FOCUS ON SALMON LIFE CYCLE AND THREATS

#### 2. Share the endangered salmon list, migration maps, and life cycle information. Guide small group study and whole class discussion about salmon life cycle phases. Talk about the salmon life cycle and possible human impacts, both positive and negative, at each phase of their life cycle. List impacts on the board.

*Salmon are in trouble for many reasons. Their unique life cycle, which can include travelling many miles through many different habitats, makes them especially vulnerable.*

☐ Distribute pictures with descriptions of salmon at different points in life cycle to groups of 3-4 students.

- *How many species of salmon live in the northwest?*
- *What happens in the life cycle of salmon? (each group shares research and plots phase on a circle drawn on the board)*
- *What environmental conditions do salmon need to migrate to their birth place? (Water levels, unobstructed waterways...)*
- *What environmental conditions do salmon need to reproduce? (Gravel, oxygen, cool temperatures, clear water...)*
- *What ecosystem are salmon a part of in the life cycle phase you studied? (stream, estuary, river, ocean)*
- *How do you think humans could improve or protect salmon ecosystems?*
- *How do you think humans are damaging salmon ecosystems?*

☑ Criteria-based process assessment: Student shares knowledge of salmon life cycle and analyzes human impacts.

## BRAINSTORM AND DRAW SYMBOLS

### 3. Guide students in identifying a common language of symbols representing positive and negative human impacts on salmon life cycles and ecosystems (on the board).

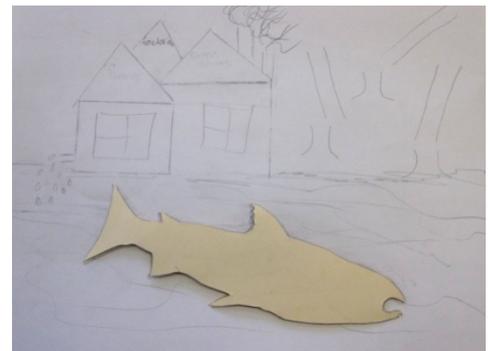
▣ Draw symbols that students identify on the board and encourage individual sketching of collective symbols.

- *Let's define symbols. Name a symbol for something we all know...McDonald's arches, Nike, Liberty Bell, stop sign....*
- *We are all starting with one shared symbol: a salmon shape.*
- *Let's brainstorm for some more symbols or shapes that can be used in our salmon collages to communicate a positive or negative impact on their ecosystem.*
- *Let's review what we know about impacts to salmon ecosystems.*
- *How could we show deforestation? How could we show reforestation?*
- *How could we show over-fishing? Or fishery management?*
- *What about silt or nonpoint pollution in streams?*
- *What about oxygen and water temperature in streams?*
- *What about access to spawning grounds?*

☑ Criteria-based process assessment: Student shares ideas for symbols showing positive and negative human impacts to salmon ecosystems.

### 4. Guide students in finding ways to visually communicate positive or negative impacts on salmon ecosystems through sketching ideas for their collages.

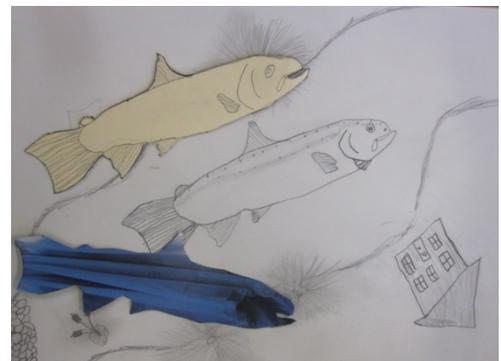
- *Work out some of your collage ideas by sketching first.*
- *Place and trace around your salmon template...add elements of the ecosystem/habitat your salmon is in.*
- *Sketch some of the shapes and symbols for positive or negative human impacts you are planning to communicate about in your art.*



### 5. Demonstrate and guide selecting colors and textures of paper collage materials for salmon, ecosystem/habitat, and symbols of human impact.

*I am thinking about my message, my salmon and the habitat I am showing...*

✂ Student groups can select 5 pieces of paper from paper center/table to start with. Time each group (2 minute limit) to expedite selection process. Also equity in materials is



important: replenish supplies for fair distribution and allow students to return to paper center/table after all have chosen initially if more paper is needed.

- *Look for materials that say "salmon" to you. Think about symbols you are using also. What colors or textures would be best for them?*
- *What is around your salmon? If you are showing the ocean, look for colors and textures that say "ocean." Do the same with streams, rocks, plants, forests.*

### CUT OUT SHAPES AND SYMBOLS

**6. Demonstrate cutting out and combining simple shapes representing salmon, ecosystem and positive or negative human impacts. Emphasize craftsmanship in collage techniques. Guide student creative process.**

*Collage allows us to move all of the parts around until we are happy with our composition. Craftsmanship is care in crafting a beautiful and sturdy finished product.*

- *Trace around your salmon template on paper that looks "salmon to you" and cut it out. You can also cut apart the template to make templates for tail and fin.*
- *When you cut, move the scissors, not the paper—you have more control this way.*
- *Check the board for ideas and reference your sketch to decide how you will show a positive or negative human impact on salmon ecosystem.*
- *Cut out shapes in colors and textures for your Salmon's habitat.*
- *Overlap shapes to show what is close and what is far away.*



✂ Have students cut every usable paper scrap left into a square or rectangle so that paper is ready for the next artist: Sort paper (by predominant color) into 2-gallon Ziploc bags. Place Ziploc bags out with paper inside for student access (keeping paper in bags helps with organization).



Criteria-based teacher checklist: Student cuts cleanly and layers shapes.

## Day Three

### COMBINE MESSAGE AND CRAFT IN COLLAGE

#### 1. Demonstrate and guide arranging final composition with focus on communicating a story or message. Emphasize craftsmanship.

- *Arrange your composition and share with teacher (who will provide a glue stick to glue or suggest more development).*
- *Turn cut out shapes upside down on your glue mat and run glue stick around the edges.*
- *Rub firmly down in place on background paper to glue securely.*



Criteria-based teacher checklist: Student securely glues shapes to background.

### REFLECT ON AND REFINE ART

#### 2. Demonstrate and guide reflecting in pairs and refining collage.

*Step back and reflect on your collage. Remember that you can always add details to improve your collage.*

✂ Providing additional interesting textural, patterned, metallic, or iridescent material cut into very thin strips (1/4" or less) at this point in the process can provide inspiration for refining areas by adding interior details or outlines to shapes (especially helpful for those with low cutting skills).

- *Ask a partner to describe, analyze, and interpret your collage.*
- *Can your partner tell if you are showing a positive or negative salmon ecosystem impact?*
- *Is their interpretation consistent with your intent or message?*
- *Can you add anything else to complete or improve your work?*
- *Check for good craftsmanship: no ragged edges and securely glued down paper.*



Criteria-based peer assessment: Student makes and overlaps shapes/symbols showing salmon in habitat, and positive or negative human activities impacting that ecosystem.

**Day Four**

**TITLE AND WRITE ABOUT YOUR COLLAGE**

**1. Guide students in writing a title and artist statement about the salmon and positive or negative human ecosystem impacts portrayed in their collages.**

*Give your collage a title that reflects what you now know about salmon: life cycle, species, threats, history, etc. Your artist statement helps those who look at your art to understand your ideas and creative process.*

**MY SALMON COLLAGE: ARTIST STATEMENT**

**Artist** \_\_\_\_\_

**Title** \_\_\_\_\_

**Your Message:** What is your art about? Describe the ways that people are helping or harming salmon in your collage.

**Your Artistic Choices:** How do your shapes, colors, and symbols help communicate ideas in your collage?

Criteria-based teacher checklist: Student titles collage and writes artist statement about human impact on salmon ecosystem shown and creative process.

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

**2. Reflect as a whole class on artistic process by having each student share collage and artist statement.**

- *Share your art and artist statement.*
- *Describe why you chose shapes and symbols for your collage and how they communicate a positive or negative human impact on an ecosystem.*
- *Describe your creative process. Did your ideas change as you worked on your collage?*



- *Describe how you used good craftsmanship to make your collage.*

Criteria-based self-assessment: Student titles collage and writes artist statement about human impact on salmon ecosystem shown and creative process. Student makes and overlaps shapes/symbols showing salmon in habitat, and positive or negative human activities impacting that ecosystem.

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### **3. Close with affirmation of the EnviroChallenger message.**

- *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?*
- *How can we take better care of ecosystems all around us?*
- *Describe actions you will take to protect salmon now and in the future.*

Group reflection: Discuss protecting our environment and the salmon.

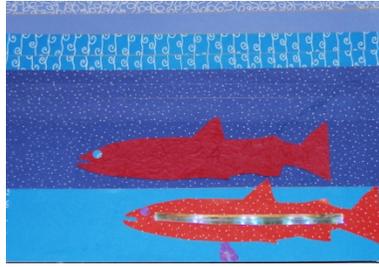
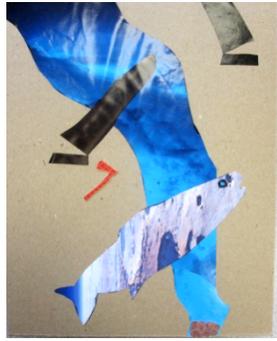
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# ARTS ENVIROCHALLENGER

## *Protecting our Salmon: Superstars of the Northwest*

### Assessment Checklist

Disciplines	ENVIRONMENTAL SUSTAINABILITY	SCIENCE/ART		ART	LITERACY	Total 5
Concept	Awareness/ Action	Observation	Ecosystems	Craftsmanship	Writing	
Criteria	Shares examples of ways to reduce, recycle, and reuse trash and show respect and responsibility for our environment.	Sketches shapes for body and parts, refines by adding a continuous contour line for outside edge and cuts precisely along outside contour.	Makes and overlaps shapes/symbols showing salmon in habitat, and positive or negative human activities impacting that ecosystem.	Cuts cleanly, layers, and securely glues shapes to background paper.	Titles collage and writes artist statement about human impact on salmon ecosystem shown and creative process.	
Student						



## ARTS ENVIROCHALLENGER

### *Protecting our Salmon: Superstars of the Northwest* 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 identified **human and natural systems** and how there are parts that work together to form systems. Systems also have **subsystems**. We talked about how systems cannot function effectively if parts are missing or subsystems are damaged or missing.
- We discussed examples of how humans can make **positive and negative impacts on ecosystems**. We learned about **salmon species, life cycle, and habitat**. We talked about how positive and negative impacts are created by humans on local salmon ecosystems.
- We looked at **art** about salmon. We also focused on how **shapes and symbols** can communicate.
- We **observed** and **drew** salmon **shapes** and **contours**, then cut out our salmon drawing to use as a **template** or **pattern** for our collage. We **selected, cut up,** and **reused trash papers** and other materials in our collages based on their colors and textures. We showed our salmon and positive or negative human impacts to its ecosystem using **overlapping**.
- We focused on using good **craftsmanship** in **cutting** and **gluing** our collages.
- We reflected on what we learned about salmon and **titled our artwork**. We also wrote an **artist statement** about the human impacts on salmon shown in our collage, and our creative process.

### Enduring Understanding

Trash materials can be selected, altered and reused in art. Shapes and symbols in an artistic composition can communicate about human impacts on ecosystems.