Life Cycle of Butterflies
integrated art/science lessons
kindergarten

Developed by ESD 105
Art Integration Mentor
participants

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The Art-Science Integration project

Art Integration Mentor Project
The ArtFusion Art Integration Mentors (AIM) project, in collaboration with Allied Arts of Yakima, has provided regional classroom teachers with indepth art integration training. AIM engages classroom teachers in the arts by providing hands-on visual arts experiences that teach them the elements of art and principles of design. Teachers team up with a regional art mentor who assists the teacher in developing and implementing an integrated art lesson to their students. Teachers demonstrate an understanding of the elements of art and principles of design which allows them to instruct students on those skills through integrated arts instruction.
Find more information at http://www.artfusion.us.

What is Art Integration?
Arts integration is instruction that integrates content, skills and specific state outcomes from the arts—dance, music, theater, and the visual arts—with other core subject area outcomes. Arts integration occurs when there is a seamless blending of the content and skills of an art form with those of a co-curricular subject.
Within the AIM project, art integration involves teachers of non-arts subjects working alongside arts specialists and teaching artists to create collaborative lesson plans that infuse the visual arts into non-arts subjects such as math, science, language arts and social studies. In arts integrated classrooms students score higher on achievement tests and demonstrate an increase in critical thinking skills, self-confidence and retention. Visit our Arts Education Research page for more information.
**Lesson Title** - Abstract Shape Class Caterpillar

**Author(s)** - Jennifer Lisle and Jennifer Jackson

**Grade** - Kindergarten

**Art EALRs** - 1- The student understands and applies arts knowledge and skills in visual arts

**Visual Arts Component** - 1.1: Understands and applies arts concepts and vocabulary

**Art GLE** - 1.1.2-shape & form

**Integrated Subject** - Science 1- Systems

**Subject EALR** - Systems thinking makes it possible to analyze and understand complex phenomena. Systems concepts begin with the idea of the part-to-whole relationship in the earliest grades, adding the ideas of systems analysis in middle school and emergent properties, unanticipated consequences, and feedback loops in high school.

**Visual Art Objective** - Student will be able to differentiate between the terms organic shape, geometric shape, and abstract shape.

**Integrated Subject Objective** - Students will be able to label the parts of a caterpillar, and understand the part to whole concept as it applies to a living creature.

**Vocabulary** - organic (a free form found in nature ie. people, animals etc.), geometric (a precise and regular shape such as triangle, rectangle, etc.) and abstract (simplified flat shapes of 3 dimensional things that we can recognize but which may not look real), segments, prolegs, true legs, antennae, head, eyes, spiracles, bristles, mouth, abdomen and thorax

**Materials** - For the paint version of the caterpillar: tempera paint, white construction paper, paint brushes, scissors. For the cut paper version of the caterpillar: green, brown, black construction paper, scissors. For both: vocabulary labels (included), stapler

**Historical Connection**

http://www.eric-carle.com/ECbooks.html#anchor017
Watch the video below that shows Eric Carle talking about his book “The Very Hungry Caterpillar” and also shows him creating some of the illustrations for the book.

http://www.eric-carle.com/short_video.html
Also, “Possible Creature Questions” by the Arts Council of Snohomish County has several great examples of painted paper that is cut into organic shapes to make an abstract shape of an animal.

http://www.artscouncilofsnoco.org
Henri Matisse used many organic shapes in his art to create abstract shapes. See “The Fall of Icharus” and “Open Window at Collioure” for specific examples.

http://www.henri-matisse.net/paintings/ea.html
http://www.henri-matisse.net/paintingselect/ac.html
FOR THE PAINT VERSION OF THE CLASS CATERPILLAR

*Note to teacher: Students are creating one piece of a whole class project. The finished result will be an abstract shaped class caterpillar, made from geometric and organic shapes.

**Step 1:** Have students observe various examples of Eric Carle’s art and specifically observe the shapes that each animal is made of. Identify the organic and geometric shapes that are used to make the abstract shapes of animals in his work. Specifically introduce the meanings of organic, geometric and abstract to your students.

**Step 2:** Using thinned out tempera paint, have each student paint one an 8x10 sheet of white paper with green or brown. Allow to dry.

MANAGEMENT TIP: Either cover student tables with butcher paper before placing paint out, or have one table dedicated to painting (use as a station and rotate student through) and cover with butcher paper or newspaper. You can tape the paper down if you like.

**Step 3:** After it dries, have the student draw with pencil an oval on the back side of the painted paper. Make sure that they understand to draw a LARGE oval. Teacher should model this prior to allowing students to cut. Then, have students cut the oval out.

NOTE TO TEACHER: THE HEAD, ANTENNAE AND LEGS CAN BE EITHER THE SAME COLORS OR DIFFERENT IF YOU CHOOSE. YOU MAY ASSIGN A STUDENT TO PAINT A DIFFERENT COLOR IF YOU WANT THEM TO BE SOMETHING OTHER THAN GREEN OR BROWN. YOU MAY WANT TO PREPARE THE SPIRACLES, BRISTLES AND LEGS AHEAD OF TIME.

**Step 4:** Assemble the segments of the caterpillar onto a bulletin board or wall with a stapler. Take students through a mini-lesson on labeling the parts of the caterpillar. Use the provided labels and review the vocabulary with students. Attach vocabulary words to each part of the caterpillar with the stapler.

If you choose not to paint, you can modify this activity by doing the following:

Have students cut the ovals from green and brown construction paper or from magazines.

Assemble the caterpillar the same way as above and include vocabulary.

**Assessment Criteria**

RUBRIC SCORING:

3: Student can identify the three shape names (organic, geometric and abstract) as they relate to the caterpillar they have created.

2: Student can identify two of the three shape names.

1: Student can only identify one or cannot identify any of the shape names.
Symmetrical Butterfly

Lesson Title - Symmetrical Butterfly

Author(s) - Jennifer Lisle and Jennifer Jackson

Grade - K

Art EALRs - 1- The student understands and applies arts knowledge and skills in visual arts

Visual Arts Component - 1.1: Understands and applies arts concepts and vocabulary

Art GLE - 1.1.2-shape & form  Integrated Subject - Science 1- Systems

Subject EALR - Systems thinking makes it possible to analyze and understand complex phenomena. Systems concepts begin with the idea of the part-to-whole relationship in the earliest grades, adding the ideas of systems analysis in middle school and emergent properties, unanticipated consequences, and feedback loops in high school.

Visual art Objective - Students will be able to create a symmetrical butterfly.

Integrated Subject Objective - Students will be able to label the parts of a butterfly.

Vocabulary - symmetry, organic shape, abstract shape, geometric shape, thorax, abdomen, head, eyes, antenna, proboscis, legs, wings

Materials - For the paint version of the butterfly: 1 sheet of white construction paper (8”X10”) for each student, various colors of tempera paint, paint brushes, brown construction paper for the butterfly body, black construction paper for the legs, antenna, and proboscis (2”X4” piece for each student), paper plates or cups for paint For the construction paper version of the butterfly: black construction paper (8”X10”sheet for each student), orange and white construction paper (any size scraps for each student), brown construction paper for the body, black construction paper for the legs, antenna, and proboscis (2”X4” piece for each student)

Historical Connection
Artwork of Stephen Pitts
http://www.symmetricaluniverse.com/

Artwork of Elizabeth Austin-Craig
http://www.imagekind.com/galleryprofile.aspx?gid=225d2339-9bce-4c5a-a849-3a1930741df1

Various nature books with photographs of butterflies can used for preteaching symmetry in the pattern of their wings

Several works by M.C. Escher illustrate symmetry, such as “Drawing Hands” and “Development 1” in the links below.
http://www.mcescher.com/Gallery/switz-bmp/LW300.jpg
Symmetrical Painted Butterfly:
Students are creating a symmetrical butterfly by painting on half of a sheet of paper, folding and pressing the two halves together, then opening to let dry. When the paint has dried, students will cut a butterfly from the paper.

PRE-LESSON PREPARATION: Fold all construction paper in half ('hamburger fold'), cover tables with butcher paper or newspaper and tape down. You can also designate one table as a paint station and rotate students through. Photocopy butterfly body on brown construction paper, if available. If not, use regular copy paper and have the students color the body. Copy butterfly vocabulary words for labeling (1 set for each student).

Step 1: Teacher will model the painting of half of the sheet of paper and the folding and pressing of the two halves together. MANAGEMENT TIP: Students need to cover the paper with paint as quickly as possible and use plenty of paint to prevent drying and to get the best symmetrical print as possible.

Step 2: Students paint one half of a sheet of construction paper (as quickly as possible and using plenty of paint). Teacher folds and presses the two halves of the paper together with the student and then quickly opens the paper to dry. Set aside to dry and complete Step 3 the following day.

Step 3: Using the half butterfly template, the teacher helps each student trace the tempate on the fold of the dried, painted paper. Teacher models tracing and cutting first, then students complete butterfly with help.

Step 4: Students will cut out the brown body and glue it to their painted butterfly wings. Students will then use black construction paper to create (cut) legs, antenna, and proboscis and glue them on the body.

Step 5: Students will cut out and glue the science vocabulary on the butterfly.

SYMMETRICAL CONSTRUCTION PAPER BUTTERFLY:
(If you do not want to make the painted butterflies you can use this as another option.)
Students will create a symmetrical butterfly by folding and cutting construction paper and gluing "pieces" to mirror eachother on a butterfly body.

PRE-LESSON PREPARATION: Fold all black construction paper in half ('hamburger fold'). Trace butterfly outline on black construction paper for students to cut. Photocopy butterfly body on brown construction paper, if available. If not, use regular copy paper and have the students color the body. Copy butterfly vocabulary words for labeling (1 set for each student).

Step 1: Using the half butterfly template, the teacher helps each student trace the tempate on the fold of the black paper. Teacher models tracing and cutting first, then students complete butterfly with teacher help.

Step 2: Teacher will model cutting and gluing of symmetrical pieces of orange and white scrap paper. TEACHER NOTE: You will need to explicitly model how to fold the paper in half and cut two symmetrical shapes for the butterfly. (See sample photo)

Step 3: Students will cut the black butterfly shape and brown body shape. Glue the brown body on black butterfly shape. Students will then add orange and white symmetrical organic shapes to each side of the wings.

Step 4: Students will cut and glue the vocabulary words to the butterfly.

Assessment Criteria
SCORING RUBRIC:
3: Students are able to independently identify a symmetrical print when compared to an asymmetrical print.

2: Students identify a symmetrical print when compared to an asymmetrical print with teacher support.

1: Students are not able to identify a symmetrical print when compared to an asymmetrical print.
Lesson 1

Lesson 2
The elements of art are the components that artists use to create visual art.

**Line** - The path of a point through space. There are many different types of lines, i.e. thick, thin, short, vertical, horizontal, broken, etc. Contour lines show the edges of an object, either exterior or interior.

**Shape** - Two-dimensional area enclosed by a line: geometric (square, rectangle, star, etc.) and organic (closed curved lines).

**Form** - Three-dimensional object that has height, width and depth, i.e. sphere, cube, prism, cylinder, cone, etc.

**Color** - The visible range of reflected light made up of hue (color name), intensity (brightness or dullness) and value (lightness or darkness).

Tint = color with white, Shade = color with black

**Value** - The lightness or darkness of a line, shape or form.

**Texture** - The perceived surface quality of an artwork, i.e. hatching, cross-hatching, scribbling, stippling, etc.

**Space** - The area around, below, above, and within and artwork; the illusion of depth or space on a flat surface, i.e. overlapping, 1-point perspective, positive and negative space, etc.

Visit the ArtFusion website at www.artfusion.us for more information

The principles of design describe how the elements of art listed above can be arranged and organized.

**Repetition and Pattern** - The repeated use of an art element to create a pattern.

**Contrast** - Emphasizing differences in art elements, i.e. light/dark, rough/smooth, etc.

**Emphasis and Dominance** - Emphasizing a focal point or highlighting an art element in an artwork.

**Variety** - Combining art elements differently to create interest, detail and focus.

**Balance** - The distribution of art elements to provide visual weight in an artwork (symmetrical, asymmetrical and radial)

**Movement/Rhythm** - Creating a sense of direction to move the viewer’s eye across an artwork.

**Proportion** - The relationship of art elements to the whole artwork and to each other.

**Harmony/Unity** - Emphasizing specific aspects of art elements to unify elements in an artwork.

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