

## Thematically Linked Integrated Item Set Visual Arts

### Task Administrator Information

#### Overview of Assessment Task

Among the various learning objectives that visual arts educators most often return to are those that focus on students' use of the elements of art and principles of design to create visual images that communicate ideas and feelings. In this assessment task, students will be asked to:

- Apply and extend skills and understandings in visual arts by using knowledge of science to explore a new medium and art form called “Earth Art”; and
- Render an artwork in which meaningful images are created by manipulating the amount of exposure that a grassy surface has to light and incorporating natural and found materials in the environment.

#### Recommended Instructional Context

This integrated, thematically linked item set may be implemented either as a formative or summative assessment to students enrolled in a grade 8 visual arts course at any point after they have addressed the visual arts objectives identified. The science content knowledge that they bring to bear in the context of this task has been addressed in grades leading up to grade 8, with the exception of the life science objectives that were addressed in the grade 7 curricula.

The task was intended to be administered within the timeframe and setting of students' visual arts class. However, other viable alternatives include the option to:

- Administer the task as part of a science unit;
- Team with one or more science teachers to each administer parts of the assessment task most relevant to their areas; and/or
- Assign science-specific tasks as outside activities (to be done in study period, after school, etc.).



**Voluntary State Curricula Objectives Addressed  
(by Content Area)****Grade 8 Visual Arts****Pre-Assessment Activity I**

Objective. 1.3. a: Analyze why artists may select specific design concepts to convey meaning in artistic exemplars

**Activity 1AB/Part I**

Objective 1.3.b: Explain reasons for selecting specific design concepts to convey meaning in planning personal artworks

**Activity 4/Part I**

Objective 3..2.a Communicate ideas and concepts by manipulating elements of art and principles of design to achieve specific visual effects

Objective 3.1.c Select and use tools, materials, processes, and techniques safely to solve specific visual problems

**Activity 3/Part II**

Objective 3.1.c: Select and use tools, materials, processes, and techniques safely to solve specific visual problems

Objective 3.3.a: Describe sources, references, and ideas used to solve visual problems

**Activity 4/Part II**

Objective 4.1.b: Apply established criteria to determine the historical, social, and cultural contexts of artwork

Objective 4.1.c: Analyze ways beliefs and values are communicated and reflected by the artworks of various cultures

**Science****Pre-Assessment Activity II**

Skills and Processes/Scientific Inquiry: Students will demonstrate the thinking and acting inherent in the practice of science by:

Objective 1.A.2.a (Grade 8): Recording and explaining observations of physical phenomenon that may be used to develop a hypothesis

**Activity 2/Part I**

Skills and Processes/Scientific Inquiry: Students will demonstrate the thinking and acting inherent in the practice of science by:

Objective 1.A.2.a (Grade 8): Recording and explaining observations of physical phenomenon that may be used to develop a hypothesis; and

Objective 1.A. 2.c (Grade 8): Developing hypotheses that can be tested through a well-designed investigation

**Activity 3/Part I**

Skills and Processes/Scientific Inquiry: Students will demonstrate the thinking and acting inherent in the practice of science by:

Objective 1.A.1.d (Grade 8): Using scientific resources to answer questions, make predictions, and support ideas

**Activity 1/Part II**

Skills and Processes/Critical Thinking: Students will demonstrate the thinking and acting inherent in the practice of science by:

Objective 1.B.5.d. (Grade 8): Verifying or modifying prior understandings based on an analysis of new information

**Activity 2/Part II**

Life Science/Biochemistry: Students will use scientific skills and processes to explain the dynamic nature of living things by:

Objective 3.D.2.a (Grade 7): Recognizing that green plants use carbon dioxide and water in the presence of sunlight to make food (sugar); and

Objective 3.D.2.c (Grade 7): Identifying photosynthesis and cell respiration as processes that capture/release energy

**Reading/English Language Arts (Optional)****Activity 4/Part II**

Objective 4.2.c (Grade 8): Compose to inform using relevant support and appropriate organizational structures while maintaining an objective perspective

## Administration Of Assessment Task

**Task Title:** Nature by Design

**Overarching Idea:** Scientific processes that occur in nature may be used by artists as artistic media.

**Topic/Theme:** Manipulating Chlorophyll as an Artistic Medium

**Materials/Equipment Needed:**

For each student:

- Cardboard from a discarded box
- Scissors
- Rocks or bricks (for weights)
- Grassy area (at least 1 square yard per student) on school property or in another space (with prior approval)

For the teacher:

- One or more “before and after” color photographs showing a grass surface from which an object (brick, piece of garden furniture, planter, etc.) has been moved to reveal a change in the surface beneath.

## Task Administrator Script

### Directions

[NOTE: INSTRUCTIONS TO THE TASK ADMINISTRATOR APPEAR IN BOLD AND/OR CAPITAL LETTERS AND SHOULD NOT BE READ TO STUDENTS.]

PROVIDE STUDENTS WITH THE FOLLOWING DIRECTIONS AND SAY:

Follow along as I read aloud.

“Earth Art” is a term used to refer to artworks in which natural processes and materials are manipulated for creative purposes. Such artworks are often created to express ideas and feelings about the relationship among living things and the planet that is their home.

Over the next few days, you will have the opportunity to create a piece of Earth Art that uses a natural phenomenon you learned about in science. Your artwork should convey an idea or feeling that reflects the environmental medium in which you will be working.

After your artwork is completed and you have had a chance to reflect on your work and the work of your classmates, you will be asked to respond in writing to several related questions.

### Pre-Assessment Activity I

**Pre-assessment activity I is a non-scored activity and addresses the following grade 8 VSC objective:**

Objective 1.3. a: Analyze why artists may select specific design concepts to convey meaning in artistic exemplars

PROVIDE STUDENTS WITH THE FOLLOWING DIRECTIONS AND SAY:

Follow along as I read aloud.

Andy Goldsworthy is a British artist who uses the natural environment as his artistic medium. He says that “Movement, change, light, growth, and decay are the lifeblood of nature, the energies that I try to tap through my work. I have become aware of how nature is in a state of change and how that change is the key to understanding. I want my art to be sensitive and alert to changes in material, season, and weather.”<sup>1</sup>

Before you begin any other activities, you will get to look at the work of a few artists who use the environment as an artistic medium. Working in pairs (or small groups), you should analyze their designs to identify how their choice and organization of materials communicate ideas about the relationship of living things and the earth.

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<sup>1</sup> Andy Goldsworthy, *A Collaboration with Nature* (New York: Harry N. Abrams, Inc., Publishers, 1990).

PROVIDE AN OPPORTUNITY FOR STUDENTS TO SEE SOME EXAMPLES OF EARTH ART. AN EXAMPLE OF A NEWLY INSTALLED WORK BY GOLDSWORTHY WORK MAY BE SEEN AT THE NATIONAL GALLERY OF ARTS IN WASHINGTON, DC. FOR MORE INFORMATION:

[www.nga.gov/exhibitions/goldsworthyinfo.shtm](http://www.nga.gov/exhibitions/goldsworthyinfo.shtm)

IF POSSIBLE, ARRANGE FOR STUDENTS TO ACCESS EXAMPLES OF EARTH ART USING THE INTERNET. ONE WEBSITE THAT HIGHLIGHTS THE WORK OF ENVIRONMENTAL ARTISTS IS:

[www.greenmuseum.org](http://www.greenmuseum.org)

ALTERNATIVELY, OBTAIN AND DISPLAY STILL IMAGES. BESIDES GOLDSWORTHY, SOME OTHER ARTISTS WHOSE WORK MIGHT BE CONSULTED ARE:

- DANIEL SANCER
- AGNES DENES
- GLORIA LAMSON
- URS-P. TWELLMANN
- STRIJDOM VAN DERMERVE

THESE LATTER TWO ARTISTS HAVE A LINKED WEBSITE WITH ADDITIONAL EXAMPLES OF THEIR WORK.

ALLOW STUDENTS ADEQUATE TIME TO ACCESS AND DISCUSS AT LEAST TWO-THREE EXAMPLES OF EARTH ART. IF YOU WISH, YOU MAY ELICIT KEY IDEAS OR GUIDE STUDENTS IN A SUMMARY OR SYNTHESIS OF THEIR OBSERVATIONS AND ANALYSES.

**Pre-Assessment Activity II**

**Pre-assessment activity II is a non-scored activity and addresses the following grade 8 VSC science objective:**

Objective 1.A.2.a: Recording and explaining observations of physical phenomenon that may be used to develop a hypothesis

DISPLAY “BEFORE” AND “AFTER” PHOTOGRAPH(S) OF GRASSY SURFACE ON WHICH OBJECT HAD RESTED, BUT WAS THEN REMOVED.

STUDENTS MAY RESPOND TO THIS ACTIVITY ORALLY OR IN WRITTEN FORM. THE FORMAT PRESENTED BELOW MAY BE USED AT THE DISCRETION OF THE TASK ADMINISTRATOR.

Look at these photographs that show something observed at two different points in time. On the lines below, describe the differences you see between the first and second photograph.

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Stop and wait for further information and instructions.

IF ADMINISTERED ORALLY:

ELICIT A FEW RESPONSES FROM STUDENTS. RESPONSES SHOULD DESCRIBE AREAS WHERE THE OBJECT WAS REMOVED AS LIGHTER, FADED, BLEACHED IN COLOR, ETC. IF SUCH RESPONSES ARE NOT FORTHCOMING, TEACHER MAY DESCRIBE HIS/HER OWN OBSERVATION.

THEN, INSTRUCT STUDENTS TO OPEN THEIR RESPONSE BOOKLETS AND COMPLETE ACTIVITIES 1-4 BY THEMSELVES.

**Part I****Activity 1**

**Activity 1 addresses the following grade 8 VSC visual arts objective:**

Objective 1.3.b: Explain reasons for selecting specific design concepts to convey meaning in planning personal artworks

In general, people do not usually set about trying to purposefully create a naturally occurring effect like the one you have just observed. As an artist, however, you might do so to create a work of Earth Art to make an image or design to appear on a grassy surface.

Typically, Earth Art expresses ideas about living things and their relationship to the environment. Such works might convey the idea that humans sometimes act in ways that are harmful to other living things; that the environment is a fragile entity in danger of being destroyed; or that nature, unlike humankind, is timeless. Artists sometimes use natural or environmental media such as stones, fields of grain, or sand, to convey these ideas.

Think about your own ideas about living things (e.g., humans, animals, insects, and/or plants) and the earth. To express those ideas, you might create a composition that uses representational shapes, symbolic shapes, and actual objects found in the environment.

**Part A**

On the lines below, identify shapes you might use in a composition that expresses your ideas about the relationship between living things and the earth. Explain how the shapes you select would help communicate your ideas. Shapes may be solid shapes or they may have other shapes cut out from them. They may be made from man-made materials such as cardboard or they may be objects found in the environment.

Representational shape: \_\_\_\_\_

\_\_\_\_\_

Symbolic shape: \_\_\_\_\_

\_\_\_\_\_

Objects that I may find in the environment to consider: \_\_\_\_\_



**Part B**

Select one of the shapes or objects you described in Part A and explain how it could be used to express an idea or feeling about the relationship between living things and the earth.

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**Activity 2**

**Activity 2 addresses the following grade 8 science objectives:**

- Objective 1.A.2.a: Recording and explaining observations of physical phenomenon that may be used to develop a hypothesis
- Objective 1.A.2.c: Developing hypotheses that can be tested through a well-designed investigation

You will have an opportunity to create a piece of Earth Art by intentionally leaving behind an image on a grassy surface. First, read the following directions on how to do so, and then respond to the question that follows.

- Plan a composition of one or more cardboard shapes and/or found natural object that will be arranged on a 6”x6” grassy area. These may include the shapes or objects you have already considered using or one or more different shapes or objects.
- Cut your cardboard shapes from a discarded box and arrange the shapes and selected found objects if you decide to use them within the 6x6 inch format.
- Place a rock, brick, or other heavy and non-destructible object on each cardboard shape to hold it in place.
- Keep the shapes in place for at least 3-4 days. If it rains during that time, keep them in place a day or two longer.
- Lift the shapes to reveal the grass underneath.

What do you think you will see when you lift up your shapes? What similarities and differences are there between your Earth Art design and the art of the environmental artists you looked at?

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**Activity 4**

**Activity 4 addresses the following grade 8 VSC visual arts objectives:**

Objective 3.2.a: Communicate ideas and concepts by manipulating elements of art and principles of design to achieve specific visual effects

Objective 3.1.c: Select and use tools, materials, processes, and techniques safely to solve specific visual problems

Now, before actually proceeding with the project, use your knowledge of the elements of art and principles of design to plan your composition.

Remember that you are creating a piece of Earth Art to express an idea or feeling about the relationship between living things and the earth.

Consider the following as you plan your design:

- What shape or shapes do you want to emphasize?
- How will you unify the shapes within the frame?
- How will you arrange the shapes to convey your ideas about the relationship between living things and the earth?
- What ideas from the Earth Art you looked at can you incorporate in your own work?
- How different and similar from the Earth Art you looked at will your final piece be?

You may use the 6" X 6" square format to help you plan your composition.

**WHEN STUDENTS ARE DONE PLANNING THEIR DESIGN, THEY MAY PROCEED BY FOLLOWING THE DIRECTIONS FOR ACTIVITY 2 AS SCHEDULING PERMITS.**

**BECAUSE THE ACTUAL DESIGN WILL BE PLACED WITHIN A 1 SQUARE YARD FORMAT, STUDENTS SHOULD BE PROVIDED WITH CARDBOARD PIECES THAT ARE AT LEAST 18"X24" FROM WHICH THEY CAN CUT THEIR SHAPES. IF STUDENTS INTEND TO USE NATURAL OBJECTS IN THEIR DESIGN, THEY MAY NEED TO COLLECT SEVERAL SMALL PIECES OR LARGER OBJECTS TO FILL THE SPACE PLANNED FOR IN THE SKETCH. STUDENTS SHOULD BE GIVEN TIME TO LOOK AT THE ACTUAL SPACE BEFORE THEY BEGIN CUTTING CARDBOARD. THEY SHOULD BE REMINDED TO USE THEIR SKETCH AS A GUIDE AND TO THINK ABOUT HOW THEY WILL PROPORTIONATELY ENLARGE THEIR SHAPES AND GROUP NATURAL OBJECTS, IF USED, TO FIT THE LARGER FORMAT.**

**BE SURE TO HAVE ARRANGED PERMISSION AHEAD OF TIME TO USE THE INTENDED GRASSY AREA. A BARRIER OF SOME SORT (YELLOW TAPE, SAW HORSES, CONES, ETC.) SHOULD BE SET UP AND A SIGN POSTED TO ENSURE THAT THE ASSEMBLAGES ARE NOT DISTURBED FOR THE REMAINDER OF THE TIME NEEDED TO COMPLETE PARTS I AND II.**

**Part II**

AFTER THE DESIGNATED TIME HAS PASSED, HAVE STUDENTS RETURN AND REMOVE THEIR CARDBOARD SHAPES OR NATURAL OBJECTS AND MAKE NOTE OF THEIR OBSERVATIONS. AFTER THEY HAVE HAD A CHANCE TO OBSERVE THEIR OWN AND THEIR CLASSMATES' EARTH ART, THEY SHOULD RETURN TO THE CLASSROOM AND CONTINUE WITH THE FOLLOWING ACTIVITIES.

**Activity 1**

**Activity 1 addresses the following grade 8 VSC science objective:**

Objective 1.B.5.d: Verifying or modifying prior understandings based on an analysis of new information

Re-read your response to Activity 2 in Part I. On the lines below, compare your prediction with what you actually observed when you and your classmates lifted up and removed the cardboard shapes.

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### Activity 2

**Activity 2 addresses the following grade 7 VSC science objectives:**

Objective 3.D.2.a: Recognizing that green plants use carbon dioxide and water in the presence of sunlight to make food (sugar)

Objective 3.D.2.c: Identifying photosynthesis and cell respiration as processes that capture/release energy

Other students who have observed your class during your creation of Earth Art are very curious about what you have been doing and why. On the lines below, write the text of a notice you could post that would explain this activity. Use what you know and have learned in science to explain how you made your artwork, what natural phenomenon occurred to do so, and what ideas you were trying to communicate.

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**Activity 3**

**Activity 3 addresses the following grade 8 VSC visual arts objectives:**

Objective 3.1.c: Select and use tools, materials, processes, and techniques safely to solve specific visual problems

Objective 3.3.a: Describe sources, references, and ideas used to solve visual problems

As an artist, where might you find other natural materials that can be used to create Earth Art and how might you use these materials? Give specific examples in your explanation on the lines below and include a sketch to illustrate how the artwork might look.

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Add your sketch below.

**Activity 4**

**Activity 4 addresses the following grade 8 VSC visual arts objectives:**

- Objective 4.1.b: Apply established criteria to determine the historical, social, and cultural contexts of artwork
- Objective 4.1.c: Analyze ways beliefs and values are communicated and reflected by the artworks of various cultures

**Activity 4 also addresses the following grade 8 reading/English language arts objective:**

- Objective 4.2.c: Compose to inform using relevant support and appropriate organizational structures while maintaining an objective perspective

Write a text for a display card that could accompany an exhibit of your sketch for a proposed Earth Art piece. Note how your design follows a tradition of contemporary artists who use the environment as an artistic medium. Discuss the ways in which your design follows and reflects this tradition, how similar and different it is from other Earth Artists' work, and how it adds social value by communicating your ideas and feelings about the relationship of living things to the earth.

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## Thematically Linked Integrated Item Set

### Visual Arts

#### Student Instructions

**Task Title:** Nature by Design

**Overarching Idea:** Scientific processes that occur in nature may be used by artists as artistic media.

**Topic/Theme:** Manipulating Chlorophyll as an Artistic Medium

#### Materials/Equipment Needed:

For each student:

- Cardboard from a discarded box
- Scissors
- Rocks or bricks (for weights)
- Grassy area (at least 1 square yard per student) on school property or in another space (with prior approval)

#### Directions

“Earth Art” is a term used to refer to artworks in which natural processes and materials are manipulated for creative purposes. Such artworks are often created to express ideas and feelings about the relationship among living things and the planet that is their home.

Over the next few days, you will have the opportunity to create a piece of Earth Art that uses a natural phenomenon you learned about in science. Your artwork should convey an idea or feeling that reflects the environmental medium in which you will be working.

After your artwork is completed and you have had a chance to reflect on your work and the work of your classmates, you will be asked to respond in writing to several related questions.

#### Pre-Assessment Activity I

Andy Goldsworthy is a British artist who uses the natural environment as his artistic medium. He says that “Movement, change, light, growth, and decay are the lifeblood of nature, the energies that I try to tap through my work. I have become aware of how nature is in a state of change and how that change is the key to understanding. I want my art to be sensitive and alert to changes in material, season, and weather.”

Before you begin any other activities, you will get to look at the work of a few artists who use the environment as an artistic medium. Working in pairs (or small groups), you should analyze their designs to identify how their choice and organization of materials communicate ideas about the relationship of living things and the earth.



**Pre-Assessment Activity II**

Look at these photographs that show something observed at two different points in time. On the lines below, describe the differences you see between the first and second photograph.

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Stop and wait for further information and instructions.

**Part I**

In general, people do not usually set about trying to purposefully create a naturally occurring effect like the one you have just observed. As an artist, however, you might do so to create a work of Earth Art to make an image or design to appear on a grassy surface.

Typically, Earth Art expresses ideas about living things and their relationship to the environment. Such works might convey the idea that humans sometimes act in ways that are harmful to other living things; that the environment is a fragile entity in danger of being destroyed; or that nature, unlike humankind, is timeless. Artists sometimes use natural or environmental media such as stones, fields of grain, or sand, to convey these ideas.

Think about your own ideas about living things (e.g., humans, animals, insects, and/or plants) and the earth. To express those ideas, you might create a composition that uses representational shapes, symbolic shapes, and actual objects found in the environment.

**Activity 1**

**Part A**

On the lines below, identify shapes you might use in a composition that expresses your ideas about the relationship between living things and the earth. Explain how the shapes you select would help communicate your ideas. Shapes may be solid shapes or they may have other shapes cut out from them. They may be made from man-made materials such as cardboard or they may be objects found in the environment.

Representational shape: \_\_\_\_\_  
\_\_\_\_\_

Symbolic shape : \_\_\_\_\_  
\_\_\_\_\_

Objects that I may find in the environment to consider: \_\_\_\_\_

**Part B**

Select one of the shapes or objects you described in Part A and explain how it could be used to express an idea or feeling about the relationship between living things and the earth.

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**Activity 2**

You will have an opportunity to create a piece of Earth Art by intentionally leaving behind an image on a grassy surface. First, read the following directions on how to do so, and then respond to the question that follows.

- Plan a composition of one or more cardboard shapes and/or found natural object that will be arranged on a 6”x6” grassy area. These may include the shapes or objects you have already considered using or one or more different shapes or objects.
- Cut your cardboard shapes from a discarded box and arrange the shapes and selected found objects if you decide to use them within the 6x6 inch format.
- Place a rock, brick, or other heavy and non-destructible object on each cardboard shape to hold it in place.
- Keep the shapes in place for at least 3-4 days. If it rains during that time, keep them in place a day or two longer.
- Lift the shapes to reveal the grass underneath.

What do you think you will see when you lift up your shapes? What similarities and differences are there between your Earth Art design and the art of the environmental artists you looked at?

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**Activity 3**

What do you think will happen over the next week or so after your cardboard shapes have been removed? Explain your answer using what you know and have learned about photosynthesis.

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**Activity 4**

Now, before actually proceeding with the project, use your knowledge of the elements of art and principles of design to plan your composition.

Remember that you are creating a piece of Earth Art to express an idea or feeling about the relationship between living things and the earth.

Consider the following as you plan your design:

- What shape or shapes do you want to emphasize?
- How will you unify the shapes within the frame?
- How will you arrange the shapes to convey your ideas about the relationship between living things and the earth?
- What ideas from the Earth Art you looked at can you incorporate in your own work?
- How different and similar from the Earth Art you looked at will your final piece be?

You may use the 6" X 6" square format to help you plan your composition.



**Activity 2**

Other students who have observed your class during your creation of Earth Art are very curious about what you have been doing and why. On the lines below, write the text of a notice you could post that would explain this activity. Use what you know and have learned in science to explain how you made your artwork, what natural phenomenon occurred to do so, and what ideas you were trying to communicate.

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**Activity 3**

As an artist, where might you find other natural materials that can be used to create Earth Art and how might you use these materials? Give specific examples in your explanation on the lines below and include a sketch to illustrate how the artwork might look.

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Add your sketch below.

**Activity 4**

Write a text for a display card that could accompany an exhibit of your sketch for a proposed Earth Art piece. Note how your design follows a tradition of contemporary artists who use the environment as an artistic medium. Discuss the ways in which your design follows and reflects this tradition, how similar and different it is from other Earth Artists' work, and how it adds social value by communicating your ideas and feelings about the relationship of living things to the earth.

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## Thematically Linked Integrated Item Set Scoring Information

### Part I

#### Activity 1 (Visual Arts)

This activity is scored using the following rubric.

The response to this activity provides evidence of the student's ability to explain reasons for selecting specific design concepts to convey meaning in planning personal artworks.

- 3 Provides a plausible description of how student's choice and organization of materials communicate ideas about the relationship of living things and the earth. Identifies both a representative and a symbolic shape that might be used in the Earth Art composition and provides a plausible and well-developed explanation of how one of the shapes could be used to express an idea or feeling about the relationship between living things and the earth
- 2 Provides a partial description of how student's choice and organization of materials communicate ideas about the relationship of living things and the earth. Identifies both a representative and a symbolic shape that might be used in the Earth Art composition and provides a partial (partially developed or only somewhat plausible) explanation OR identifies only one shape and provides a plausible, well-developed explanation
- 1 Provides a vague description of how student's choice and organization of materials communicate ideas about the relationship of living things and the earth. Identifies either a representative or symbolic shape that might be used in the Earth Art composition and provides a vague or overly general explanation of how it could be used to express an idea or feeling about the relationship between living things and the earth
- 0 Other

#### Activity 2 (Science)

This activity is scored using the following rubric.

The response to this activity provides evidence of the student's ability to record and explain observations of physical phenomenon that may be used to develop a hypothesis; and developing hypotheses that can be tested through a well-designed investigation.

- 2 A clearly expressed and plausible hypothesis based on the text of the investigation and prior knowledge
- 1 A partial (only somewhat complete and/or plausible) or overly general hypothesis based on the text of the investigation and prior knowledge
- 0 Other



**Sample Response**

Since the grass underneath the cardboard shapes will not have been exposed to the sun for 3-4 days, I hypothesize that if it's been sunny during that time, when the shapes are lifted up, they will leave behind pale areas (where the grass has faded) in corresponding shapes.

**Activity 3 (Science)**

This activity is scored using the following rubric.

The response to this activity provides evidence of the student's ability to use scientific resources to answer questions, make predictions, and support ideas.

- 2 A clearly expressed and plausible hypothesis based on prior knowledge
- 1 A partial (only somewhat complete and/or plausible) or overly general hypothesis based on prior knowledge
- 0 Other

**Sample Response**

If it is sunny for a couple of days after the cardboard shapes have been removed, I think that the faded areas will gradually gain back more of their green color because the grass is able to make chlorophyll again from the sunlight it receives.

**Activity 4 (Visual Arts)**

This activity is scored using the following rubric.

The response provides evidence of the student's ability to communicate ideas and concepts by manipulating elements of art and principles of design to achieve specific visual effects and to select and use tools, materials, processes, and techniques safely to solve specific visual problems.

- 2 Shapes have been purposely placed and organized to create a design with strong visual impact as evidenced by the contrast of color and shapes on a background
- 1 Shapes have been placed with little care and attention to placement resulting in ill-defined areas and less contrast of color
- 0 Shapes are barely evident and lacking in contrast to background

## Part II

### Activity 1 (Science)

This activity is scored using the following rubric.

The response provides evidence of the student's ability to verify or modify prior understandings based on an analysis of new information.

- 2 An accurate and thorough comparison of prediction and actual observation, through which hypothesis was appropriately verified or modified
- 1 A partial (partially complete or partially correct) or overly general comparison of prediction and actual observation; verification or modification may be only implied rather than explicit
- 0 Other

### Activity 2 (Science)

This activity is scored using the following rubric.

The response provides evidence of the student's ability to use scientific skills and processes to explain the dynamic nature of living things by recognizing that green plants use carbon dioxide and water in the presence of sunlight to make food (sugar); and identifying photosynthesis and cell respiration as processes that capture/release energy.

- 3 An accurate and thorough explanation of the scientific basis for the creation of the Earth Art project; explanation includes materials, methods, observations and conclusion
- 2 A generally accurate and adequate explanation of the scientific basis for the creation of the Earth Art project: explanation may be missing one or two components or those components may be implied rather than explicit
- 1 A partial (partially complete/partially correct) or overly general explanation of the scientific basis for the creation of the Earth Art project
- 0 Other

### Sample Response

By manipulating the amount of sunlight to which grass was exposed, I created an Earth Art design with various shapes. The cardboard shapes that I arranged blocked the light. The grass contains a substance called chlorophyll that helps the plant use sunlight to make energy and gives plants their green color. When the sunlight is blocked, the amount of chlorophyll is reduced and the plant starts to turn yellow or fade. Eventually, if kept from sunlight long enough, the plant will die, but with renewed light, it will turn green again.

**Activity 3 (Visual Arts)**

This activity is scored using the following rubric.

The response to this activity provides evidence of the student's ability to select and use tools, materials, processes, and techniques safely to solve specific visual problems and to describe sources, references, and ideas used to solve visual problems.

- 3 Sketch and text collectively demonstrate a plausible solution to the given visual problem (using natural media to create Earth Art) and a plausible and well-developed explanation of potential sources and planned use of particular natural media to convey meaning
- 2 Sketch and text collectively demonstrate a generally plausible solution to the given visual problem (using natural media to create Earth Art) and a somewhat developed explanation of potential sources and planned use of particular natural media to convey meaning
- 1 Sketch and/or text demonstrate an at least somewhat plausible solution to the given visual problem (using natural media to create Earth Art) but provide only a vague or overly general idea of potential sources and planned use of particular natural media to convey meaning
- 0 Other

**Activity 4 (Visual Arts)**

This activity is scored using the following rubric.

The response to this activity provides evidence of the student's ability to apply established criteria to determine the historical, social, and cultural contexts of artwork and analyze ways beliefs and values are communicated and reflected by the artworks of various cultures.

- 3 A plausible and well-developed discussion of the relationship of the student's artwork to the contemporary tradition of using the environment as an artistic medium; includes clear justification of the work's social value in communicating personal ideas and feelings about the relationship of living things to the earth
- 2 A generally plausible and at least somewhat developed discussion of the relationship of the student's artwork to the contemporary tradition of using the environment as an artistic medium; includes generally plausible/developed justification of the work's social value in communicating personal ideas and feelings about the relationship of living things to the earth
- 1 An only somewhat plausible and partial or overly general discussion of the relationship of the student's artwork to the contemporary tradition of using the environment as an artistic medium; includes only partial/overly-general justification of the work's social value in communicating personal ideas and feelings about the relationship of living things to the earth
- 0 Other

**Answer Cues**

Ideas expressed by using the environment as an artistic medium may include:

- Nature should be preserved;
- The environment needs protection;
- The environment is fragile;
- Living things and nature must be in balance;
- We must stop “consuming” natural resources indiscriminately; or
- Any other plausible ideas.

Response will vary based on sketch and written explanation of planned artwork, but may include ideas/details presented below.

Personal ideas and feelings about the relationship of living things to the earth may include:

- Overcrowding;
- Scarcity of resources;
- Urban sprawl;
- Reduced “green” spaces; or
- Other plausible ideas.

Social values:

- Art can appear all around us;
- Art not just for an elite;
- Art can change people’s viewpoints;
- The environment is fragile;
- The environment needs protection; or
- Other plausible ideas.

Available resources:

- Discarded building material;
- Cuttings (grass, leaves, branches);
- Soil, sand, gravel, pebbles, rocks;
- Water, light, wind; or
- Other plausible natural materials.

**Activity 4 (Reading/English Language Arts–Optional)**

NOTE: Teachers may wish to use either the “Writing to Inform” scoring rule below or any other 0-2 or 0-3 scoring tool designed to evaluate brief informative texts scored for informative writing.

- 2 Consistently addresses audience’s needs by using purposeful and specific information to fully explain the topic. Text is uniformly organized, and language choices often enhance the text
- 1 Sometimes addresses audience needs by using purposeful and mostly specific information to adequately explain the topic. Text is generally organized, and language choices sometimes enhance the text
- 0 Rarely or never addresses audience’s needs by using purposeful or specific information to explain the topic. Text lacks organization, and language choices seldom, if ever, enhance the text