BALTIMORE
ARTS INTEGRATION
PROJECT
A PROGRAM OF ARTS EVERY DAY

EARTH'S SYSTEMS
BAIP OVERLAY

An Overview of How to Apply Brain-Targeted Teaching® and Arts Integration to the Baltimore City SABES Classroom

SABES Content: **Grade 5, "Earth's Systems"**

Artform Focus: **Land Art**

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Welcome Message

Dear educator,

Welcome to the Baltimore Arts Integration Project! We are excited to share resources and activities that help you bring the arts and brain-based pedagogy directly to your classroom with content that integrates seamlessly with your existing curriculum.

Studies show again and again how the arts are an ideal method for teaching for mastery because of their direct association with supporting long-term memory of content knowledge and skills. What is more, they bring more joy, connection, and a greater sense of belonging to learning experiences.

The Brain-Targeted Teaching® model (BTT) is an instructional model that guides educators in applying brain research for highly effective instruction. Arts integration is an approach to teaching in which students learn through the creative process of art making. Both concepts are the driving force behind the content below.

Happy teaching!

Sincerely,
The BAIP Team

Learning Unit Overview

Welcome! In the SABES Earth's Systems unit, 5th graders will be able to **connect** the job of being an environmental engineer with the work of a land artist.

This arts integration overlay targets three main arts and science skills: **Observation**, **Adaptation**, and **Innovation**.

In this BAIP overlay, Land Art becomes a natural vehicle for teaching and learning the different parts of the earth's systems (geosphere, biosphere, hydrosphere, and atmosphere) and observing the ways that these different spheres interact and affect each other.

Creating land art will provide students with tactile, real-world experience with these systems and the effect that humans can have.

Benefits of this arts-integrated/BTT approach include:

- Hands-on, place-based experiences with what students are learning about in the Amazon Rainforest.
- Opportunities to make connections between where students live and other places around the world.
- Allowing students to see firsthand the effects humans have on the earth and its systems.

Brain Target 1:
The Emotional Climate

BTT prioritizes building positive and affirming learning environments. This allows the brain and body to be more receptive to the learning activities.

To set up the emotional climate for learning and approaching these arts-integrated experiences, we suggest:

- The arts integration throughline of this unit is adapt and innovate. Therefore we encourage teachers to **highlight the importance of mistakes** in this process for both artists and scientists to foster a growth mindset.
  - We suggest the following resources about Growth Mindset and the process of learning from mistakes.
    - The Power of the Growth Mindset
    - 19 Growth Mindset TED Talks for Kids
    - Big Life Journal Teaching Guides:

- An important part of this arts-integrated unit is observation, teachers should encourage and **foster the slowness of observation**. Taking time to observe, process, and document is an important part of both understanding environmental climate change and their own emotional climate change.

- Teachers may opt for students to work as a group on this project. *Group work is an important life skill but also one that can be new and challenging for 5th graders*. To support the emotional climate of group work students will have **roles** within the group that will rotate throughout the unit allowing students to all play an important role in the group. Students will also have the opportunity throughout to reflect and adapt their works as a group.

Brain Target 2:
The Physical Environment

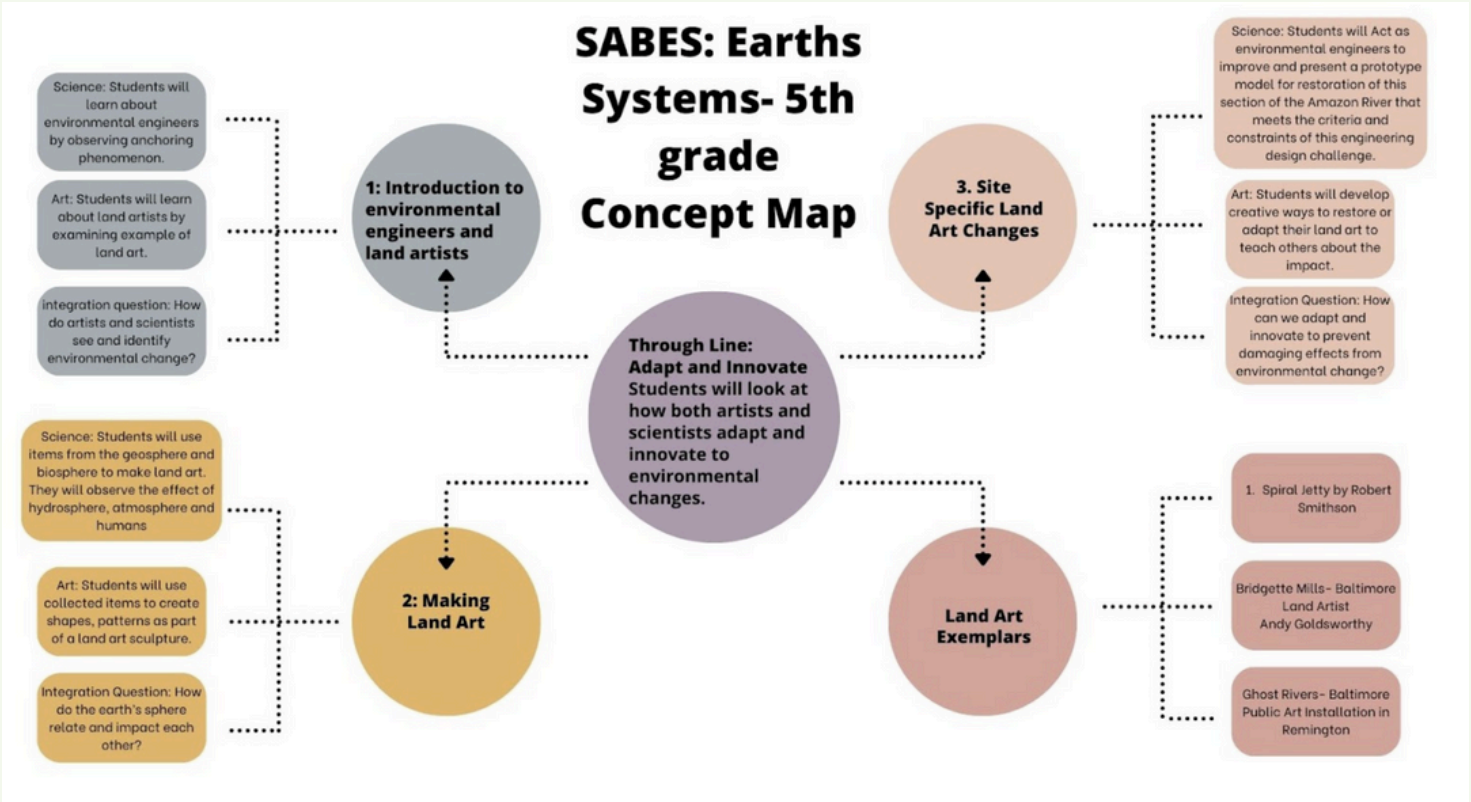
A conducive learning environment is prepared through deliberate planning that incorporates novelty, order, and aesthetic elements in each unit. The balance between consistency and novelty is crucial: novelty stimulates creativity, while a familiar foundation provides stability.

For this overlay, we suggest the following for setting up your optimal physical environment:

- Outdoor space differs from school to school, therefore materials could be brought from home or near the home. They do not need to come from the actual school environment.
- Depending on class size and environmental constraints, students can make land art **individually**, **in groups**, or **as a class**.
- Students will need to return several times throughout the unit to observe and record their observations, so land art sites should be somewhat easily accessible within the class period.
- Classroom **displays** of images of land art and some images of the four earth systems.
- Students will also have the option to draw or write their responses in their **Environmental Engineer workbook**.

Brain Target 3:
Big Picture Learning Design

Concept mapping is a pictorial method of big picture planning. By using a thematic graphic organizer, we show how Brain Targets 4, 5, and 6 work together with arts integrative activities to achieve this SABES unit's learning goals and objectives.



Arts Standards:

Anchor Standard 4 Analyze, interpret, and select artistic work for presentation.

- I:3-5:1: Make judgments and decisions to justify which works of art express ideas about self, other people, places, and events that will be meaningful in presentations.

Anchor Standard 6 Convey meaning through the presentation of artistic work.

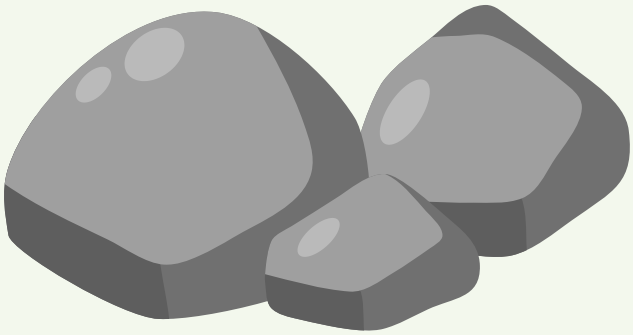
- I:3-5:1: Make judgments and decisions to determine ways in which works of art express ideas about self, other people, places, and events.

Anchor Standard 7 Perceive and analyze artistic work. How do images influence our views of the world?

- E:3-5:1: Analyze components in visual imagery that convey messages and compare personal interpretations.

Science Standards:

SEP 2: Developing & Using Models
ESS2.A: Earth Materials & Systems
CCC 4: System Models



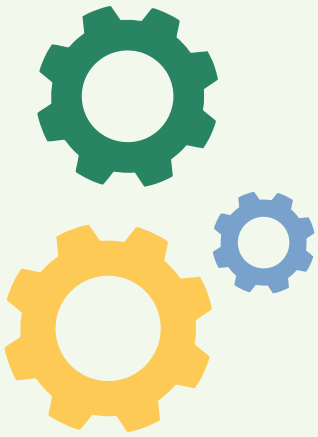
Brain Target 4:
Mastery of Content, Skills, and Concepts

Brain Target 4 speaks to the educator's aim to facilitate knowledge acquisition where information transitions from short-term to long-term memory. Brain research highlights how neural networks for memory grow stronger with use. Therefore, the teacher's goal is to "hardwire" vital content by utilizing diverse learning experiences that allow for "repeated rehearsal" of core skills and knowledge areas. Arts integration is an ideal approach to teaching and learning to meet these aims.

On the following pages is a summary of the BTT + Arts Integration Activities for mastering content, skills, and concepts included in this overlay. Step-by-step directions via printable activity guides and facilitation videos are included in this resource set.

SABES Lesson 1 (Unit Introduction): Introduction to Land Art - Looking and Planning

SABES Learning Objectives: (Unit Introduction)



Students will understand the engineering design challenge for the unit, including the criteria and constraints, and the related STEM career.

- The engineering design challenge for this unit is for students to work as environmental engineers to design and build a terrarium to model the restoration of a section of the Amazon River and the impact of the water cycle on Earth's major systems.
- Environmental engineers develop solutions to environmental problems.

Suggestion Associated SABES Lesson(s) for Implementation:

Lesson 1 or pre-Lesson 1 as part of the unit introduction

Arts Integration Overlay Summary

This arts integration overlay introduces 5th graders to Environmental Engineers *and* Land Artists, exploring how both address environmental challenges through problem-solving and creative expression. By observing Land Art and engaging in Harvard Project Zero thinking routines, students will develop divergent thinking skills, preparing them for their own Land Art projects that integrate science and art, fostering motivation and a deeper connection to Earth's systems.

Evaluation

Environmental Engineer Artist Booklet entry.

SABES Chapters 1 - 4 (Hydrosphere, Geosphere, Biosphere, and Atmosphere): Making Land Art

SABES Learning Objectives:

Students will use items from the geosphere and biosphere to make land art. They will observe the effects of the hydrosphere, atmosphere, and humans.

Suggestion Associated SABES Lesson(s) for Implementation:

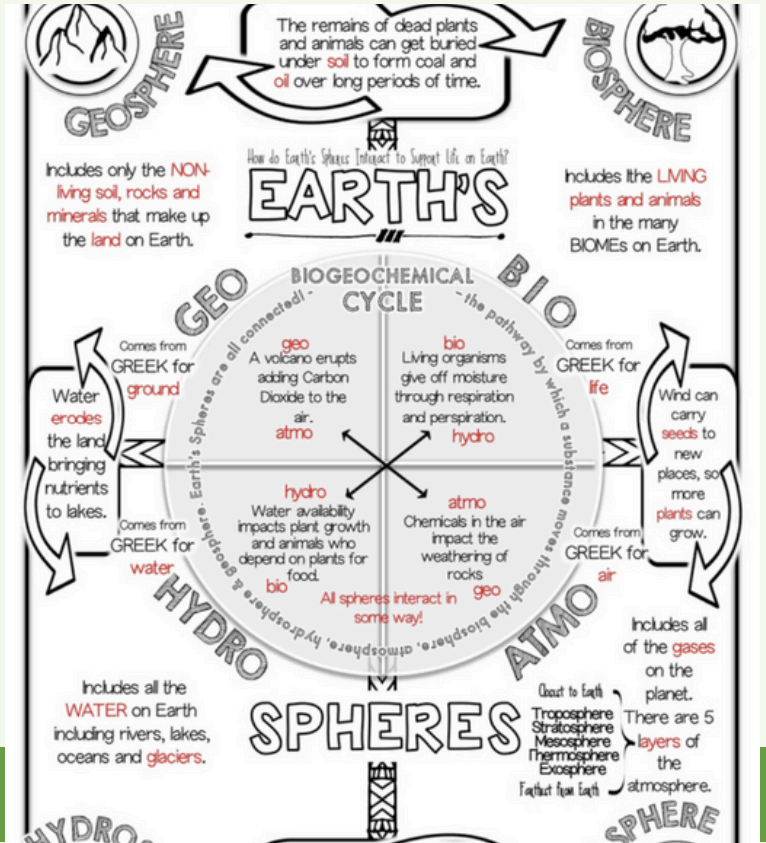
Teachers' discretion, can be integrated throughout SABES Chapters 1 - 4.

Arts Integration Overlay Summary

In part two of the overlay, students will work together to create and observe a Land Art installation. They will gather natural items to design shapes and patterns for a collaborative sculpture, using their Environmental Engineer Artist Booklet to guide their reflections and observations over time.

Evaluation

Environmental Engineer Artist Booklet entry.



SABES Chapter 5 (Working Together): Specific Land Art Changes

SABES Learning Objectives:

Students will explore Earth’s systems through investigation and modeling, learning how the atmosphere, geosphere, hydrosphere, and biosphere interact to shape weather, support life, and influence the environment. They will analyze natural processes like weathering, erosion, and carbon dioxide release, assess human impact on Earth's systems, and construct evidence-based arguments to deepen their understanding of these dynamic interactions.

Suggestion Associated SABES Lesson(s) for Implementation:

Within Chapter 5, before moving on to the Engineering Design Challenge

Arts Integration Overlay Summary

In the final design challenge of the SABES Earth’s Systems unit, 5th-grade students will act as environmental engineers to improve a prototype for restoring a section of the Amazon River, meeting specific criteria and constraints. Through an art overlay, they will adapt their land art sculptures to teach others about environmental change, using inspiration from the Ghost River Public Art Installation and their knowledge of environmental engineering to create a plan for preserving, documenting, or altering their work.

Evaluation

Art Piece, Environmental Engineer Artist Booklet entries.

Brain Target 5: Application of Knowledge

BT 5 seeks to strengthen deeper thinking and learning by applying skills and content in meaningful, active, real-world tasks.

Provided below is a Design Challenge extension opportunity to allow students greater application of what they have learned throughout the SABES unit.

Science Objectives

ENGINEERING DESIGN CHALLENGE

- Lesson 20: Revisit the anchoring phenomena, the role of environmental engineers, and the engineering design challenge for the unit, including the criteria (rubric) and constraints.
- Lesson 21: Act as environmental engineers to develop, test, and improve a prototype model for the restoration of this section of the Amazon River and identify the impact of the water cycle on Earth's major systems within the Amazon.
- Lesson 22: Act as environmental engineers to improve and present a prototype model for the restoration of this section of the Amazon River that meets the criteria and constraints of this engineering design challenge.

Arts Integration Extension

Land Art Design Challenge: How can artists change or adapt their land art sculpture to preserve the work so others can view and learn from it?

Extension Activity Summary

After several visits to their land art sculpture to observe and document changes caused by the hydrosphere, atmosphere, and humans, students will learn about the creative ways that some artists preserve, restore, recreate, or document land art to teach others about the effects of humans and climate. Students will learn about the Ghost Rivers Public Art Installation in Remington as an example. Students will then come up with a creative solution for how they would like to preserve, restore, recreate, or document their land art. Giving students the options to preserve, restore, recreate or documents will help to foster divergent thinking and encourage students to see the problem not as something with a right answer, but as something with many possible answers.

Recommended Evaluation Style

Art Piece, Environmental Engineer Artist Booklet entries, Land Art Rubric, Group worksheet.

Brain Target 6:
Evaluation and Assessment

Evaluating instruction is as important to the learning process as meaningful learning activities. BTT emphasizes that relevant and timely evaluation is an ongoing, two-way process that begins almost as soon as the students' first introduction to a learning unit.

For this reason, aligned evaluation methods and materials that meet the criteria of both the science and arts standards are included throughout the resources.

On the following page is the evaluation rubric for the EDC extension. A downloadable version can be found in the final section of the resource bundle.

Design Challenge Extension: Land Art Preserve, Restore or Recreate Proposal Rubric

Criteria	3 Points	2 Points	1 Point
Collaboration Graded by fellow group members for each member	Worked effectively with group members, actively listened, to and contributed ideas.	Participated in group discussions and activities, but could improve on listening and cooperation.	Had difficulty collaborating with group members and did not contribute significantly.
Creativity	Demonstrated innovative and original ideas in the presentation for restoration, preservation, or recreation. Also, the actual presentation showed creativity to engage fellow 5th graders.	Presented some creative ideas, but more variety or originality could be done on the actual presentation or plan ideas for restoration, preservation, or recreation.	Lacked creativity in the proposed plan for restoration, preservation, or recreation.
Plan Execution	The plan effectively shows attention to important details on restoration, preservation, or recreation as well as details on how to follow through with the proposed plan.	The plan partially shows attention to important details for restoring, preserving, or recreating with some gaps in detail on how to follow through with the proposed plan.	Struggled to give necessary information on their plan for restoring, preserving, or recreating with significant gaps in completion.