



## SupraEnvironmental

October 25, 2015 – January 24, 2016

Thank you for booking a tour for the thought-provoking exhibition *SuperEnvironmental*. We are excited to take your students on a journey into the unique perspectives of six artists who observe, respond to, and transform aspects of our natural and man-made environments.

Environmental issues are of utmost concern in our society and in our classrooms. From recycling and repurposing to sustainability and conservation, we are charged with giving greater attention to our impact on and protection of the environment. The artists on view have made the environment central to their works of art. Each responds to aspects of their own environment with different points of view, drawing our attention to various elements of aesthetic, conceptual, and environmental concerns. They use very different techniques to explore these ideas in unexpected ways.

Tours of this exhibition will ask students to join the dialogue the artists have created. Using skills aligned with the Common Core Standards in Visual Arts, English Language Arts, and Science, students will be asked to observe details, analyze and interpret meaning, voice their opinion, build knowledge and conversation as a group, and find evidence for their opinions in the artworks. In addition, artists in this exhibition embody the essence of a STEAM (STEM + Art) framework – thinking about environmental concerns, creating artistic visions that highlight these themes, and drawing on scientific resources to bring them to life.

Included in this packet are materials that we hope will help prepare you and your students for their visit:

- Introduction and object labels
- Glossary of central concepts, art terms, and scientific terms
- 2 images from the exhibition with questions for discussion
- Pre-visit activity: Encounter your Environment
- Connection to Common Core Standards
- Nametag (please have students wear the attached nametags, or any other form of nametag)

This packet is designed with upper elementary school students and teachers in mind; please adjust for your grade level by scaling up or down as appropriate. Let us know how you will be using your visit so that we may best serve you. Please call 914-232-9555, ext. 2969 to discuss the specifics of your tour. Thank you for choosing the KMA for your class visit.

Margaret Adasko  
Education Manager

**Introductory text**

This exhibition brings together the work of contemporary artists who transform natural and artificial materials and provide new vantage points onto our contemporary environment. Throughout the exhibition there is an abiding sense of how contemporary artists create enlightening and unexpected encounters with the objects and things that shape our day-to-day situations. Their work prompts deep experiences of the actual and imaginative relationships that we have with our environment and also our positions within it.

Cutting through the physical space of the atrium, David Brooks's elevated rock core evidences a geological timeline of millions of years, compressed into layers visible in the length of core. With his upside down photograph of a tree, Rodney Graham suggests the profound impulse to record our environment, as well as the essential history and mechanical workings of photography. Henrik Håkansson also presents a shifted axis with his horizontally-installed palm tree projecting from the wall. Like each artist in *SupraEnvironmental*, Håkansson provides a surprising encounter, here asking viewers to focus on the tree's survival.

Nick van Woert frames sections of bark from North American pine trees, which he hangs on the gallery wall, asking us to consider the bark's surface both aesthetically and anatomically. He also presents a sculpture crafted of Plexiglas boxes layered with natural and industrial materials that, together, call to mind both geological strata and the aesthetics of modern art. In Roger Hiorns's installation, sculptures made of found machine parts appear as unknown, hanging plant-like forms, while Wim Delvoye carves and twists car and bicycle tires into more organic forms, thereby disrupting our experience of familiar, mass-produced objects.

Curated by Charlotte Cotton, with assistance from Shilpi Chandra and Elizabeth Rooklidge



**David Brooks** (American, born 1975)

*Repositioned Core*, 2014

Rock core extracted from 5285 feet, and metal scaffolding

© David Brooks, Courtesy of the artist

While in residence at The University of Texas at Austin in 2014, David Brooks began an investigation into some of the overlooked material culture of the petroleum industry and encountered the vast holdings of rock cores at the Austin Core Research Center (CRC) that have been mined since the early 20th century in the process of prospecting for oil. Brooks has positioned a section of a decommissioned core that he acquired from the CRC archive through the KMA Atrium and into the ground of the Sculpture Garden. The core cuts through space as it descends, both literally and symbolically returning into the earth. Through microscopic and macroscopic vantage points, the dynamism of the core's demarcation creates a physical experience of geological time and space, manifest in the compacting of millions of years within the rock core. We are invited to contemplate this unfathomable notion within the present moment, as we navigate and synthesize Brooks's sculptural animation of both the core and the architecture of this site.

Brooks's larger practice probes the connection between ecological life and technological industry. He has joined ornithologists, ichthyologists, and herpetologists on trips throughout South Florida and the Amazonian rainforest, two sites profoundly impacted by human intervention. Through this first-hand observation, Brooks has gained perspective on the inextricable link between ecological, cultural, and economic dynamics. The artist lives and works in Brooklyn, NY.

Fossil fuel consumption produces numerous unexpected results, many of them troubling. One byproduct that defies judgment and works instead to confound our faculties of perception is the core sample. When a petroleum company prospects for oil, an extraction of earth is routinely done to determine the presence of hydrocarbons in that given area, and these extractions are known as cores. Single cores can be extracted in lengths upwards of 1,500 feet, from depths exceeding four miles, at a cost of more than four million dollars per sample. However costly and irreplaceable the cores might be, oil companies have no reason to keep them once the viability of a particular well or reservoir has been established. The University of Texas at Austin, however, has amassed a vast repository of these oil industry cast-offs over decades, finding another kind of value in the geological data they reveal. Exhibited here is one such core sample, extracted from precisely 5,285 feet down in Texas's vast Permian Basin. Before they were excavated, the stories buried within these stones lay dormant for 250 million years. Here this history is reactivated, asking us to reconcile the imagination of vast amounts of time and depth with the sensory experience of the present object as it transects the built environment of the gallery before plunging back to its subterranean origin.

- David Brooks



**Henrik Håkansson** (Swedish, born 1968)

*Untitled (Cocos Nucifera)*, 2006/2015

Cocos Nucifera palm tree, aluminum structure,  
watering system, and metal halide light

Courtesy of Rennie Collection, Vancouver

Henrik Håkansson's artistic output spans film and video, sound performances, installation, and painting. At the heart of his practice is keen observation of the natural world and its relationship to the deeply human desire to record and align ourselves with the natural environment and its biological behaviors. This untitled installation focuses our attention by shifting the axis of the Green Malayan palm tree (a common variety grown for pot planting in domestic conservatories), providing an unexpected vantage point from which to scrutinize this living entity. The formation of this installation asks us to consider whether or not the tree can survive and grow in its artificially suspended state. We are invited to ponder whether the tree will gravitate towards its artificial and gallery window light sources during the timeframe of the exhibition, finding a life source despite its intemperate situation.

This unorthodox presentation of a living element is a strategy common to Håkansson's larger practice. In past projects, he has created a techno club for frogs and staged a solo musical performance by a British songbird in a London concert hall. These surprising productions prime viewers to look at common biological entities anew and reconsider the complexities of the ecosystems surrounding us. Håkansson lives and works in London, Berlin, and Galtabäck, Sweden.



**Rodney Graham** (Canadian, born 1949)

*Black Cottonwood Tree, Spanish Banks Tree*, 2012

Transmounted monochromatic C-print

Courtesy of the artist and 303 Gallery, New York

Rodney Graham's inverted tree photograph, which is part of an ongoing project that he began in 1993, offers a disarmingly simple and unforgettable encounter. The work distills the history and nature of photography and its capacity to frame and capture a subject. It recalls the inversion of a view within a camera obscura—a Latin term for “dark chamber”—as light passes through an aperture and is reversed. By the 18th century, this ancient room-sized spectacle had been engineered into a portable device, using mirrors to reflect and right the projected image that would define the mechanics of the earliest photographic cameras. Graham's inverted tree consciously references the reversed image view that appears on the glass back of a large format camera, used by Graham to make this photograph and essentially unchanged since its development in the mid-19th century. Before our vision rights the axis of this magnificent tree, we are invited to experience the act of seeing the environment photographically.

While such inverted tree images have become a kind of trademark of Graham's, his practice includes an array of forms. In photography, sculpture, film, painting, music, and performance, the artist references genres of culture past. Graham often appears in his own tableaux-like photographs and films, and has taken up roles from gambler to hermit to mid-20th century abstract painter. Graham's medium varies widely, but his work is unified by an often humorous investigation of the history of art and its modes of making. The artist lives and works in Vancouver, Canada.



**Nick van Woert** (American, born 1979)

*Journey To The Surface of The Earth (Boyle Family) #2, 2015*

North American Pine, MDF, and stainless steel frame

© Nick van Woert, Courtesy of the artist and Moran Bondaroff, Los Angeles

*Journey To The Surface of The Earth (Boyle Family) #3, 2015*

North American Pine, MDF, and stainless steel frame

© Nick van Woert, Courtesy of the artist and Moran Bondaroff, Los Angeles

Nick van Woert's framed tree bark works beautifully and strangely to register as both topographic and anthropomorphic. Akin to flattened skins and relief maps of geographical terrains, they invite us to consider their individual characteristics and ornamentation as the physical impact of the trees' growing environments, made visible by their flattening into such unexpected presentations. Van Woert's dissection and alteration of the trees' natural state lays bare the effect of light, moisture, and the symbiotic relationships of lichen and fungus that inhabit the bark surfaces. This anatomical approach allows us to truly experience an element of the natural environment – to engage, analyze, and imagine.



**Nick van Woert** (American, born 1979)

*Untitled, 2015*

Cat litter, coal slag, base coat, plaster, joint compound, pulverized plastic, steel, bronze, and Plexiglas

Courtesy of the artist and Moran Bondaroff, Los Angeles

Nick van Woert's untitled sculpture is constructed with Plexiglas boxes into which are layered natural and industrial materials, drawn from our everyday environments. The ornamental patterns created by the pressing together of naturally occurring and industrially produced substances recall the patterns in rock formations caused by the accrual of matter over time. The sculpture's appearance conflates the combustible possibilities and chemical reactions of the layered materials with the pressures, ruptures, and natural order of geological time. The patterning also references the aesthetics of modern art—particularly that of abstraction—just as the uniform proportions of the Plexiglas boxes cite conventions of minimalist sculpture, and create a physical engagement between the story of art and the contemporary environment.

Considering this untitled sculpture in conjunction with van Woert's works in the Righter Gallery suggests one of the overarching themes in the artist's practice. Van Woert aims to employ materials from his everyday landscape, and because he lives in an urban environment, they often manifest as highly artificial. Created by industrial processes, these materials suggest the ways in which we have constructed our built environment at the stake of naturally-occurring ecology. Van Woert lives and works in Brooklyn, NY.



**Roger Hiorns** (British, born 1975)

*Untitled, 2014*

Plastic car parts, compressor, and foam

Courtesy of the artist; Luhring Augustine, New York; Corvi-Mora, London; and Marc Foxx Gallery, Los Angeles

Roger Hiorns's installation of anthropomorphic forms offers an experience that is simultaneously one of surreal delight and also discomfort. These bizarre entities dangle in mid-air, like otherworldly hanging plants with their own, unknowable ecology. Each suspended sculpture is idiosyncratically constructed from used car parts, devoid of their original function and purposeful only in their gentle excretion of pristine soap bubbles, generated by an electric air compressor. As with many of Hiorns's installations, defunct materials and forms that carry a deathly charge are counterpointed by the sense of animation created by chemical reaction or action determined by the installation environment, generating forms and experiences that are not fully controlled by the artist.

Hiorns often combines elements that initially seem opposite each other in their materiality but are then activated as they interact. He frequently works with a copper sulfate solution, which he has applied to everything from a BMW car engine to an entire apartment interior. The solution's chemical process grows brilliant blue crystals, which appear both beautiful and slightly menacing. Like in much of Hiorns's work, the living element transforms its own inert environment. The artist lives and works in London.



**Wim Delvoye** (Belgian, born 1965)

*Untitled (Car Tyre), 2011*

Hand carved car tire

Courtesy of the artist and Galerie Perrotin, New York

*Dunlop Geomax 100/90-19 57M 720° 2x, 2013*

Polished and patinated stainless steel

Wim Delvoye creates art works and installations that rely on our common knowledge of everyday objects and situations. Often pleasurably ironic and highly iconoclastic, Delvoye invites us to experience the "unreality" of transformed objects and materials and question our expectations of craftsmanship. He repurposes a used car tire into an excessively decorative object, hand carved with foliage and fruit that borrows from the exquisite simulation of natural forms made in the 18th century Rococo and the late 19th and early 20th century Art Nouveau movements. Similarly, Delvoye takes the tire track and spoke patterns designed for a bicycle or wheelchair and creates a medieval Gordian knot, the use value that we automatically give to the wheel form now lost in this mocking and ambivalent translation into an ancient and organic motif.

Often with a mischievous eye, Delvoye's work brings together elements of high and low-brow culture, challenging the definitions of "fine art" and what has historically been excluded from that title. In many works, including these tire sculptures, the artist introduces examples of craftsmanship—a highly skilled application of refined technique, usually by hand—historically derided by early 20th century Modernist artists as without serious merit. Delvoye typically uses such techniques to mark mass-produced objects, questioning the intersection of luxury, art, and popular culture. The artist lives and works in Brighton, UK.



This way up ↑

## Artists surprise us. Artists make us wonder.

Look carefully at this artwork (Yes, the tree should be upside down!)

What do you see? Name and describe some of the elements in this photograph.

Consider the artist's choices. What specific choices did the artist make about:

color?

composition (the placement and layout of the picture)?

scale (how big)?

what he included or did not include in the picture?

How would you describe the mood of this photo?

Think about sound, temperature, feelings. What elements of the picture give you those feelings?

In what way is this a traditional photograph? In what way has the artist surprised us?

What bigger ideas does this picture invite you to think about?

(Environmentalism, subject/viewer, memory, perception)



Start a discussion – is this a landscape or portrait of a tree?

### About the artwork:

**Rodney Graham**, *Black Cottonwood Tree, Spanish Banks Tree*, 2012

Transmounted monochromatic C-print, Courtesy of the artist and 303 Gallery, New York

This large (7.7 x 6.1 ft) photograph offers a close and personal encounter with an image of an inverted tree, recalling the history of photography. The artist has inverted the tree, consciously referring to camera obscura as well as the reversed image view that appears on the glass back of a large format camera, which in turn was used by Graham to make this photograph. The viewer is invited to experience the act of seeing the environment photographically. The inverted view and the large scale of the work call into question our perception of the world. It allows the viewer to focus on the artist's choices, such as the way the tree is centered in the frame, the simple palette, and the large size of the print; together, all these elements influence our perception of this specific moment in time and how we view an image as familiar as a tree.



# Transformation: from ordinary to extraordinary

Look carefully at this artwork.

What do you see?

Describe this artwork, use words that are as specific as possible.

Consider shape, pattern, line, texture, negative and positive space.

What object has the artist used?

Describe the intended purpose of this object. Talk about how it is used.

How or why may it have been selected by the artist?

How has the artist transformed this object?

Describe the patterns and decorations you see.

Think about the artist's process. Imagine what it was like for the artist to do this work?

What tools do you think were used?

Where have you seen decorations like these?

What does it remind you of?

What are some of the comparisons or contrasts that come to mind when you think about the original object and how the artist has transformed it?

(Dirty tire/beautiful art, usefulness/decoration, manufactured/handmade, discarded/displayed, mass produced/unique)



Start a discussion: What bigger issue does this artwork bring to mind?

(Recycling, hand-made craftsmanship, making something beautiful out of waste)

## About this artwork:

**Wim Delvoye**, *Sans titre (Car Tyre) / Untitled (Car Tyre)*, 2011, Hand carved car tire

© 2015 Studio Wim Delvoye, Artists Rights Society (ARS), New York / SABAM, Brussels, Courtesy Galerie Perrotin

Artist Wim Delvoye has repurposed a utilitarian, every-day object – a used car tire – into a highly-decorated work of art by hand-carving exquisite patterns of foliage and fruit that are inspired by earlier artistic movements such as Art Nouveau and Art Deco. Delvoye's work brings together elements of high and low-brow culture, challenging the definitions of "fine art." Delvoye invites viewers to experience transformed objects and materials and question our expectations of craftsmanship.

## Pre-visit: Encounter your environment with new points of view

Take a nature walk or walk around your school campus. Find an object or viewpoint that interests you and sparks your curiosity. Document it: draw what you see, write about it, or photograph it in these different perspectives.

<b>Up Close</b> look at the details	<b>From a Distance</b> with its larger surroundings
<b>Altered perspective</b> look at it from above, look down at it, look from an angle or sideways	<b>Distorted/ unrecognizable</b> Can you alter the perspective so we no longer recognize the object? For example: look through something, add movement, distort the light, change the scale

Write a few sentences about how this process changed your understanding of the subject or object. What did you learn? What new questions do you have?

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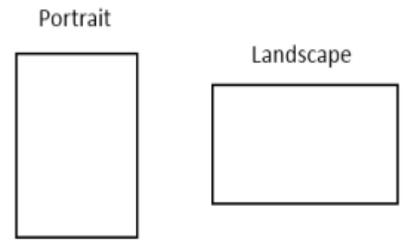
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## Glossary

### Art Terms

**Landscape** - a work of art that portrays an outdoor nature scene. The term also refers to the way in which a picture is oriented in space; a landscape picture will have the longer edge laying horizontally.

**Portrait** - an image of a person. The term also refers to the way in which a picture is oriented in space; a portrait picture will have the shorter edge laying horizontally.



**Horizontal** - something that is parallel to the horizon; a horizontal line would be lying flat.

**Vertical** - something that is at a right angle to the horizon; a vertical line would be standing up straight.

**Line** - one of the basic elements of art. A line can be made by connecting two dots. Lines can be straight, jagged, curvy, horizontal, vertical, diagonal, thick, thin.

**Texture** - the way the surface of an object feels to the touch, or looks as if it will feel if one were to touch it.

**Pattern** - a series of lines, shapes, or pictures that create a repeated design.

**Scale** - refers to the size of an object in relation to another object. For works of art, scale may refer to the size of the work of art as compared to the size of the human body; or to the size of the art object in relation to the size of the real object.

**Natural materials** - natural materials are the things we find in nature (animals, parts of plants, minerals, rocks, etc.). They are not made by people.

**Man-made materials** - are made by people. They are the opposite of natural materials, which are found outdoors. Man-made materials are also referred to as synthetic and artificial.

**Contemporary art** - is the latest art that is produced, by artists who are living today.

**Installation art**- works of art that are created in order to change the way a particular space is experienced.

### Central Concepts

**Anthropomorphic** - something that resembles the human form. Or has attributes that resemble human characteristics

**Environment** - the surroundings in which we live; the natural world.

**Perception** - the ways in which people use their senses in order to experience the world. It also refers to our unique, personal ways of experiencing things.

**Perspective** - the way in which we see something; a point of view.

**Recycle** - a process of taking useless material (trash) and making it into something that can be used again.

**Transformation** - change; a process through which one thing becomes another.

### Scientific Terms:

**Archive**- a collection of records, such as documents and pictures that provide information about something- a place, a thing, a person (or a group of people). Archives are usually stored in special places, such as libraries and museums.

**Camera obscura**- a dark box which uses light and a small opening in order to create a projected image

**Core sample**- a vertical section of the earth obtained through the process of drilling.

**Ecology**- is the relationship between organisms and their environment (for example people and the Earth)

**Geology**- is the science that studies the history, structure and composition of the earth.

## SUPPLEMENTAL RESOURCES

If you're interested, feel free to investigate these sites for additional information. The artist interviews and videos sometimes relate directly to the pieces we'll have on display, but more often you'll hear the artists speak in a broad sense about their creative pursuits.

### David Brooks:

Interview: <http://bombmagazine.org/article/1000088/david-brooks>

Video: <http://www.art21.org/newyorkcloseup/films/david-brooks-is-in-his-element/>

### Wim Delvoye:

Interview: [https://www.wimdelvoye.be/medialibrary/370a00d0-d1ee-37ef-8309-fe3c6ca0257f\\_1934.pdf?download=true](https://www.wimdelvoye.be/medialibrary/370a00d0-d1ee-37ef-8309-fe3c6ca0257f_1934.pdf?download=true)

Video: <https://www.youtube.com/watch?v=beNn8YY-utY>

### Rodney Graham:

Interview: <http://bombmagazine.org/article/2670/rodney-graham>

Video: <https://vimeo.com/105790876>

### Henrik Håkansson:

Interview: <http://moussmagazine.it/articolo.mm?id=477>

Video: [https://www.youtube.com/watch?v=GUC\\_iOwhbkw](https://www.youtube.com/watch?v=GUC_iOwhbkw)

### Roger Hiorns:

Interview: [http://www.artangel.org.uk/projects/2008/seizure/a\\_conversation\\_with\\_roger\\_hiorns/q\\_a#](http://www.artangel.org.uk/projects/2008/seizure/a_conversation_with_roger_hiorns/q_a#)

Video: <http://www.luhringaugustine.com/artists/roger-hiorns/video>

### Nick van Woert:

Interview: <http://artobserved.com/2013/03/ao-interview-los-angeles-nick-van-woert-no-mans-land-at-ohwow/>

Video: <https://www.youtube.com/watch?v=t4yLEuBpcQo>

**General overview of oil creation and production:** [www.priweb.org/ed/pgws](http://www.priweb.org/ed/pgws)

**The Permian Basin:** <https://tshaonline.org/handbook/online/articles/ryp02>

**Documentary about the camera obscura and how Vermeer might have used one:**

“Tim’s Vermeer” <http://sonyclassics.com/timsvermeer/>

**General information about Boyle Family:** [www.boylefamily.co.uk/boyle/about](http://www.boylefamily.co.uk/boyle/about)

## KMA Museum Visits and the Common Core standards

Class visits to the KMA enable you and your students to expand on the 21<sup>st</sup> century skills emphasized in your classroom learning. Museums provide an alternative environment for students to strengthen skills supported by the Common Core Standards. Using art objects and installations as **visual text**, we lead students in inquiry-driven discussions requiring close observation, integrating content, and analyzing what they see (CCRA.R.1, 6, 7, 9). These conversations encourage students to make connections, communicate, and support their ideas using evidence and acquired vocabulary (CCRA.SL.1, 2, 3, L.4, 6). Tours also include an opportunity for your students to create their own artistic work based on the ideas and concepts of the exhibition. (CCVA.Cr.1)

**Some of the Common Core standards addressed on a school tour include:**

### English Language Arts Standards:

#### Key Ideas and Details:

[CCSS.ELA-Literacy.CCRA.R.1](#): Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.

[CCSS.ELA-Literacy.CCRA.R.2](#): Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.

[CCSS.ELA-Literacy.CCRA.R.3](#): Analyze how and why individuals, events, or ideas develop and interact over the course of a text.

#### Comprehension and Collaboration:

[CCSS.ELA-Literacy.CCRA.SL.1](#): Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.

[CCSS.ELA-Literacy.CCRA.SL.2](#): Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally.

[CCSS.ELA-Literacy.CCRA.SL.3](#): Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric.

#### Presentation of Knowledge and Ideas:

[CCSS.ELA-Literacy.CCRA.SL.4](#): Present information, findings, and supporting evidence such that listeners can follow the line of reasoning and the organization, development, and style are appropriate to task, purpose, and audience.

#### Vocabulary Acquisition and Use:

[CCSS.ELA-Literacy.CCRA.L.4](#): Determine or clarify the meaning of unknown and multiple-meaning words and phrases by using context clues, analyzing meaningful word parts, and consulting general and specialized reference materials, as appropriate.

[CCSS.ELA-Literacy.CCRA.L.5](#): Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.

[CCSS.ELA-Literacy.CCRA.L.6](#): Acquire and use accurately a range of general academic and domain-specific words and phrases sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when encountering an unknown term important to comprehension or expression.

### Visual Arts Standards:

[CCVA.Cr.1](#): Generate and Conceptualize artistic ideas and artwork

[CCVA.Re.7](#): Perceive and analyze artistic work

[CCVA.Re.8](#): Interpret intent and meaning in artistic work

[CCVA.Re.9](#): Apply criteria to evaluate artistic work

The *SupraEnvironmental* exhibition will also connect to these science standards:

### **INQUIRY AND PROCESS SKILLS BASED ON ALL STANDARDS**

The application of these skills allows students to investigate important issues in the world around them.

**Classifying** – arranging or distributing objects, events, or information representing objects or events in classes according to some method or system

**Communicating** – giving oral and written explanations or graphic representations of observations

**Comparing and contrasting** – identifying similarities and differences between or among objects, events, data, systems, etc.

**Gathering and organizing data** – collecting information about objects and events which illustrate a specific situation

**Generalizing** – drawing general conclusions from particulars

**Identifying variables** – recognizing the characteristics of objects or factors in events that are constant or change under different conditions

**Inferring** – drawing a conclusion based on prior experiences

**Observing** – becoming aware of an object or event by using any of the senses (or extensions of the senses) to identify properties

**Predicting** – making a forecast of future events or conditions expected to exist

### **STANDARD 1: Analysis, Inquiry, and Design**

#### **SCIENTIFIC INQUIRY:**

*Key Idea 1:* The central purpose of scientific inquiry is to develop explanations of natural phenomena in a continuing, creative process.

S1.1 Ask "why" questions in attempts to seek greater understanding concerning objects and events they have observed and heard about.

S1.1a Observe and discuss objects and events and record observations

S1.1b Articulate appropriate questions based on observations

S1.2 Question the explanations they hear from others and read about, seeking clarification and comparing them with their own observations and understandings.

S1.2a Identify similarities and differences between explanations received from others or in print and personal observations or understandings

S1.3 Develop relationships among observations to construct descriptions of objects and events and to form their own tentative explanations of what they have observed.

S1.3a Clearly express a tentative explanation or description which can be tested

### **STANDARD 4: The Physical Setting**

Students will understand and apply scientific concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science.

S4 Key Idea 2: Many of the phenomena that we observe on Earth involve interactions among components of air, water, and land. The water cycle, weather, erosion, deposition, and extreme natural events involve interactions among air, water, and land. Students should observe and describe naturally occurring changes in their world involving these phenomena. They can also investigate these phenomena in classroom experiments. Younger students should be engaged in observation of their immediate surroundings with emphasis on recognizing change around them. As students mature, they can begin to recognize cycles and identify the processes and natural events which are causing the changes they are observing.

2.1d Erosion and deposition result from the interaction among air, water, and land.

#### **STANDARD 4: The Living Environment**

Students will understand and apply scientific concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science.

**Key Idea 1:** Living things are both similar to and different from each other and from nonliving things.

Major Understandings:

1.1b Plants require air, water, nutrients, and light in order to live and thrive.

**Key Idea 3:** Individual organisms and species change over time.

Throughout time, plants and animals have changed depending on their environment. In learning how organisms have been successful in their habitats, students should observe and record information about plants and animals.

They should begin to recognize how differences among individuals within a species can help an organism or population to survive. Students at this level will identify the behaviors and physical adaptations that allow organisms to survive in their environment.

3.1b Each plant has different structures that serve different functions in growth, survival, and reproduction.

- roots help support the plant and take in water and nutrients
- leaves help plants utilize sunlight to make food for the plant
- stems, stalks, trunks, and other similar structures provide support for the plant
- some plants have flowers
- flowers are reproductive structures of plants that produce fruit which contains seeds
- seeds contain stored food that aids in germination and the growth of young plants

**Key Idea 5:** Organisms maintain a dynamic equilibrium that sustains life. Describe some survival behaviors of common living specimens.

5.2a Plants respond to changes in their environment. For example, the leaves of some green plants change position as the direction of light changes; the parts of some plants undergo seasonal changes that enable the plant to grow; seeds germinate, and leaves form and grow.

5.2g The health, growth, and development of organisms are affected by environmental conditions such as the availability of food, air, water, space, shelter, heat, and sunlight.

**Key Idea 7:** Human decisions and activities have had a profound impact on the physical and living environments.

Humans are dependent upon and have an impact on their environment. Students should recognize how human decisions cause environmental changes to occur. Students should be given opportunities to identify and investigate the factors that positively or negatively affect the physical environment and its resources.

Identify ways in which humans have changed their environment and the effects of those changes.

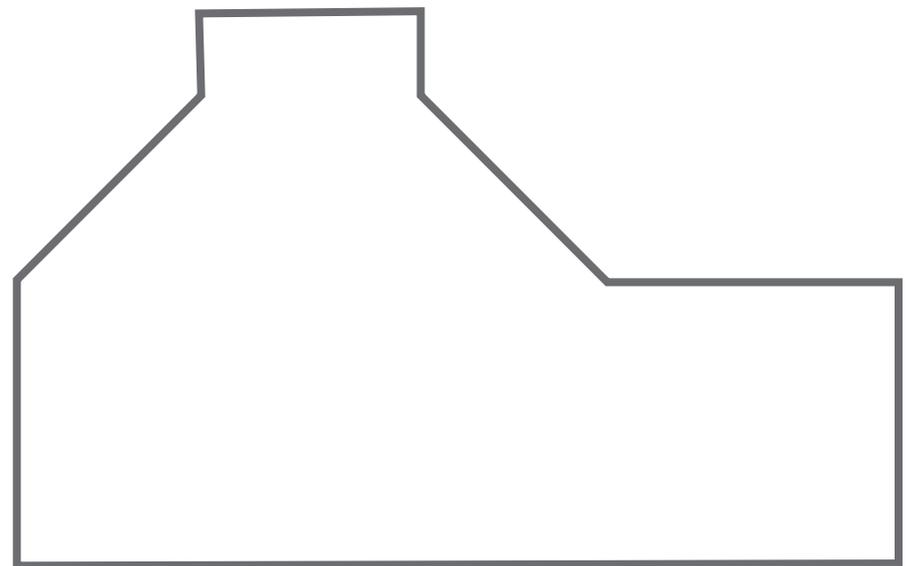
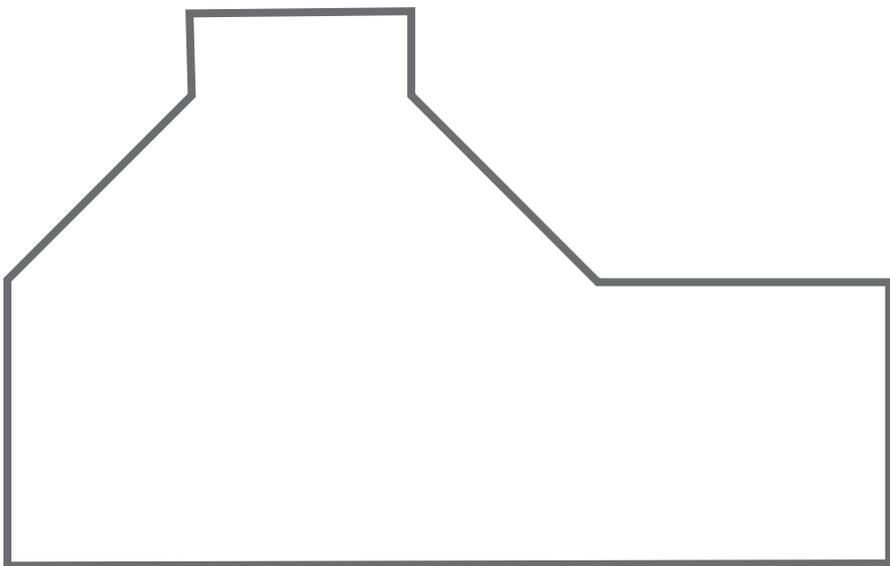
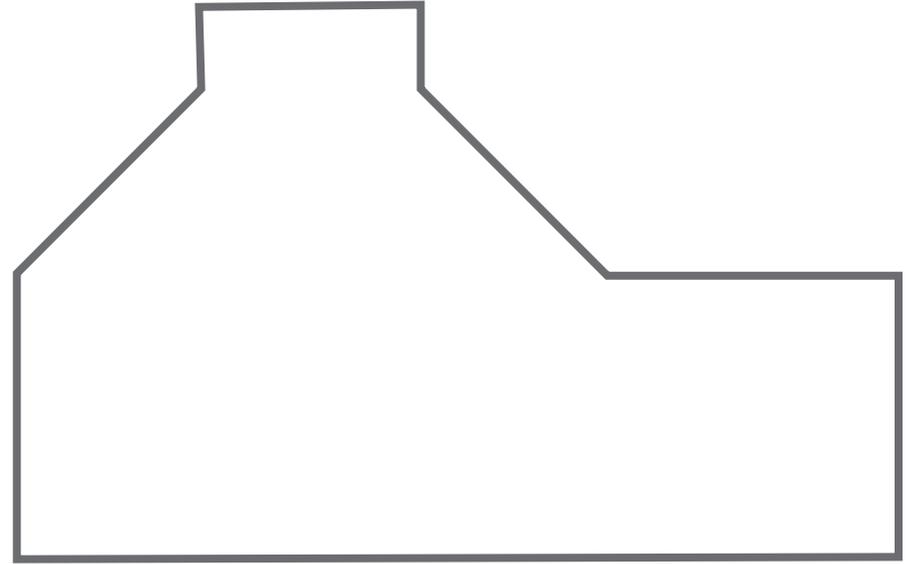
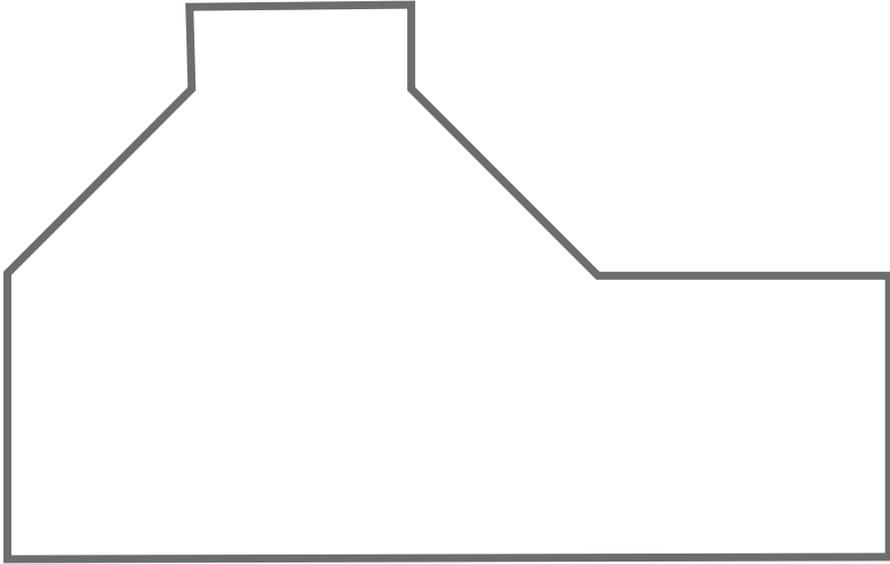
7.1a Humans depend on their natural and constructed environments.

7.1b Over time humans have changed their environment by cultivating crops and raising animals, creating shelter, using energy, manufacturing goods, developing means of transportation, changing populations, and carrying out other activities.

7.1c Humans, as individuals or communities, change environments in ways that can be either helpful or harmful for themselves and other organisms.

***SupraEnvironmental***

You will be surprised by what you find when you come for your Katonah Museum of Art visit.  
Use the outline of the KMA below to create a nametag to wear on your visit. Please make sure your name is clearly written.



## ENCOUNTER YOUR ENVIRONMENT

As you walk around your classroom, school, and campus look carefully at your surroundings. What special things do you encounter in this environment? Think about all the different materials around you. Observe from many perspectives. Look up, look down, look closely, look far away, look under, and look around.

In the space below, document what you see with images or words. In your observation consider the categories of STONE, METAL, PLANT LIFE, and SYNTHETIC:

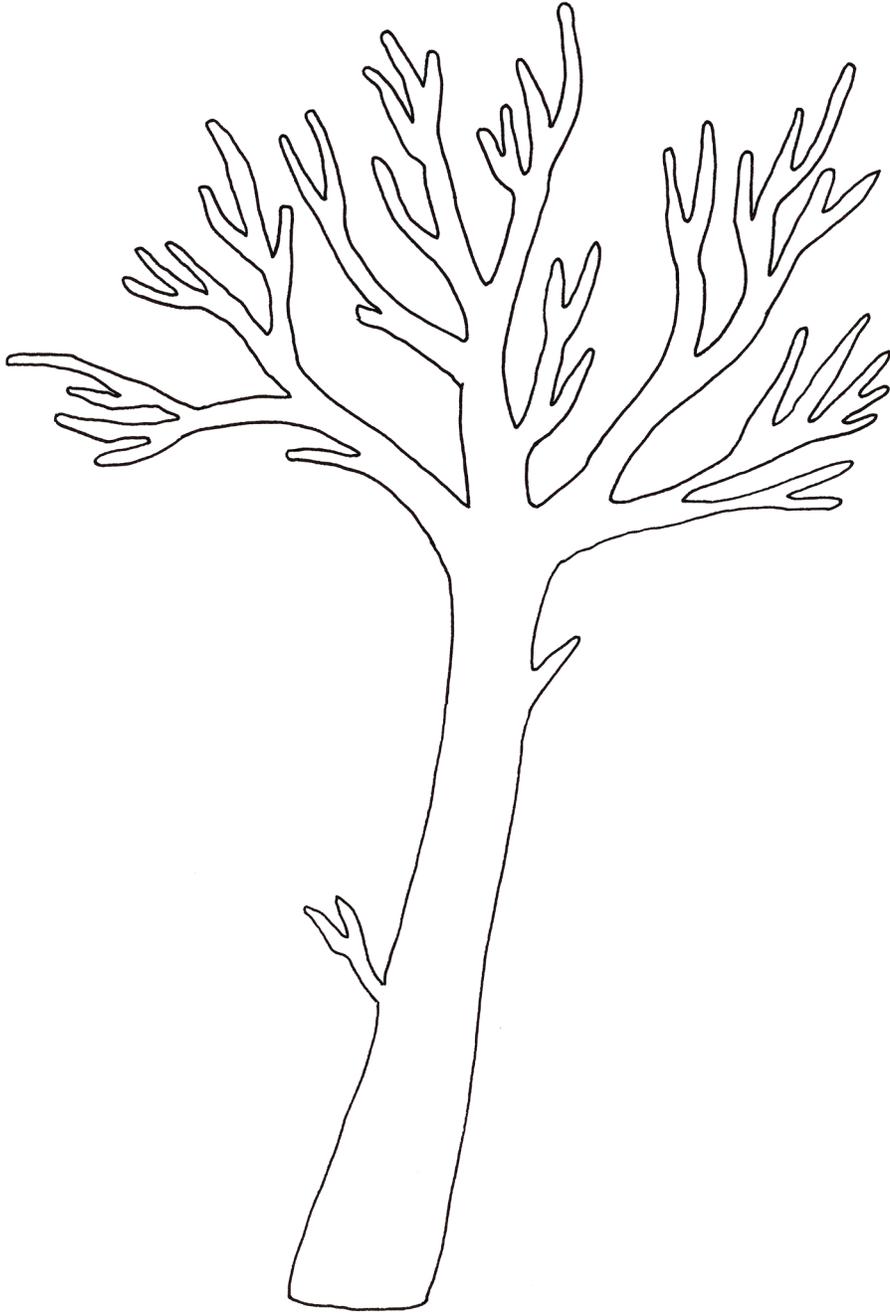
- draw a sketch
- write your thoughts with words or poetry
- use your phone/camera to take a photo and print it (if that is an available option)

Bring these images or words back to your classroom. Consider what kind of materials you observed during your exploration. Create an "Observe" wall with the four categories (STONE, METAL, PLANT LIFE, and SYNTHETIC ). Tape your documentation to the corresponding category on the "Observe" wall.

## A TREE STORY

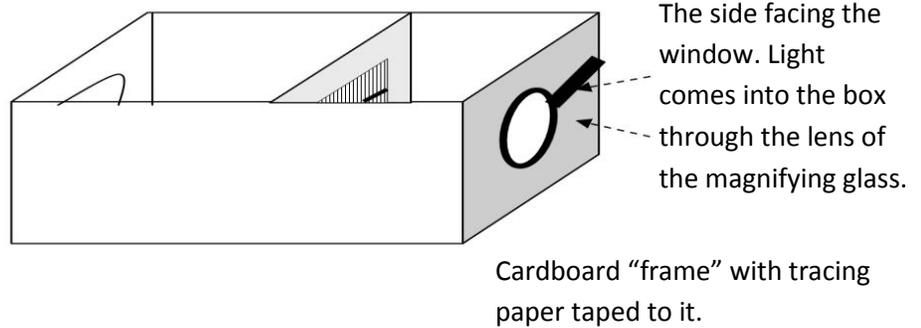
Imagine you are a picture book artist and asked to illustrate a book about a tree. This page is one of your illustrations. Who is in the story? What happens to the tree? Where is the story set? You can add words to the page.

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## Make a Camera Obscura in your classroom!

Written by Maria Edwards



### Necessary materials:

- Shoebox (approx. 7" wide, more than 7" long)
- Black duct tape
- Xacto knife or scissors
- A ruler and a pencil
- A magnifying glass (approximately 2 ½ inches in diameter)
- A sheet of tracing paper

### Process:

1. Remove the lid from the shoebox.
2. Cut a 1 ½ inch opening in one of the small (7 in) walls of the shoe box. Attach the magnifying glass in front of the opening, on the outside of the box.
3. Cut a larger opening on the opposite small wall of the box. This opening should be big enough for students to be able to look through.
4. Trace and cut out a rectangle the same size as the small wall of the shoebox from the box's lid (and make sure it fits inside the box, parallel to the small walls). Now, leaving a ½ border all around the edge of the rectangle, trace and cut out a smaller, in order to create a cardboard frame, the same size as the small shoebox wall.
5. Tape the sheet of tracing paper to the cardboard frame, and place it inside the box, parallel to the walls with the cut out openings.
6. Place the box in front of a bright window (the magnifying glass must be facing the window); An inverted image of the scene outside will be projected on the tracing paper. Move the cardboard frame with tracing paper closer or further away from the wall with the magnifying glass, until the image is focused. Then tape it into position.
7. Students can take turns looking through the hole at the projected image.

### Fun Facts:

- This is exactly how a real camera works!!! The only difference is that instead of tracing paper (or another surface on which the image can be projected), cameras use film, or other light-sensitive material on which the image can be exposed (and saved!).
- Once the light stops shining through the magnifying glass the image will disappear!
- In the past, artists have used camera obscura to make realistic paintings or drawings. They would set up a system of mirrors that would allow the image from the camera obscura to be projected directly onto their canvas. Then they would trace and color the image. The result would be a very realistic painting that looks as if it was photographed, rather than painted.
- Artists, such as Jan Vermeer, have been using camera obscura since the 17<sup>th</sup> c.; that is about 200 years before people realized that they can make the projected image permanent by projecting it on light-sensitive materials, and the real camera was invented!
- Since the invention of the camera in the 19<sup>th</sup> c., the technology of cameras has changed a lot. Today we use digital cameras. While they still use a system of lenses and light, they don't need film (or any other light-sensitive material) to create a picture.