## seeing believing



David Graham, Dallas, TX, 1997, chromogenic photograph.
artmobile is a non-collecting traveling museum dedicated to providing the school children and adults of Bucks County access to fine, original works of art and innovative art education programs through its visits to schools and public sites. Artmobile is a vital component of Bucks County Community College which provides significant cultural outreach programs in accordance with its mission. Now celebrating its 32 nd year, Artmobile is committed to fostering an understanding of art, art making, and the value of art in our lives and communities by exhibiting and interpreting works of art.

This manual was developed to help teachers incorporate the Artmobile experience into their curricula by providing background information and classroom activities related to the exhibition. It is intended to serve as a resource both in conjunction with and apart from the exhibition. A full color version of this manual with interactive links, is available at www.bucks.edu/artmobile/seeingisbelieving_manual.pdf.

## Seeing is Believing is supported in part by a grant from the Pennsylvania

 Council on the Arts, a state agency funded by the Commonwealth ofPennsylvania and the National Endowment for the Arts, a federal agency.
For more information on Artmobile and its programs, please call
215-504-8531 or visit www.bucks.edu/artmobile.

## seeing believing

## contents

## Acknowledgements


Creating Depth on a Two-Dimensional Surface

- Overlapping or Layering ..... 4
- Size or Scale ..... 4
- Modeling ..... 5
- Vertical Placement ..... 5
- Linear Perspective ..... 6
- Atmospheric Perspective ..... 7
- Foreshortening ..... 7
Classroom Activities ..... 8
- Pre-Visit Activities ..... 8
- Post-Visit Activities ..... 11
Glossary ..... 16
Appendix A:Optical Illusions18


Appendix B:
Reproduction of David Grabam's photograph Dallas, TX, 199719
Appendix C:Student Handout for Drawing One-Point Perspective20

## acknowledgements

I AM MOST GRATEFUL to Barbara Swanda for curating Seeing is Believing for Artmobile. Not only did she do a fabulous job selecting the artists and artworks for this exhibition, she handled it all with her trademark skill and professionalism.

My deepest thanks to all of the artists who so generously loaned their work to Artmobile:

| Daniel Anthonisen | Elizabeth W. Fram | Margaret C. Mattheson |
| :--- | :--- | :--- |
| Gail Bracegirdle | John L. Goodyear | Steve Messenger |
| Myles Cavanaugh | David Graham | Susan Roseman |
| Thomas B. Chesar | Catherine Jansen | Stacie Speer Scott |
| Eric N. Fausnacht | Gwendolyn Kerber | Rena Thompson |
| James Feehan | Richard Lennox | Charles Wells |
| Alan Fetterman | Jan Lipes | Rebecca Whittemore |

It is only through their understanding of the importance of the arts and arts education in our children's lives and their willingness to loan their work for a full year that Artmobile is able to achieve its mission.

Thanks to Adrienne Minassian, for her hard work on this manual, and to Justin Junkins and Jim Shriver for the construction of the hands-on displays and their work on the installation of the exhibition.

Finally, I owe an enormous debt of gratitude to my extraordinary educators-Ron Benek, Carole Cunliffe and Lisa Kidos-whose knowledge and enthusiasm will bring Seeing is Believing to life for more than 20,000 visitors at 35 schools and 6 public sites over the course of its nine-month tour of Bucks County.

Fran Orlando<br>Director of Exhibitions and Artmobile<br>Bucks County Community College<br>Newtown, PA

## creating depth on a two-dimensional surface

WHEN AN ARTIST PRODUCES art on a two-dimensional surface (with only height and width) the viewer can be fooled into thinking it has the third dimension of depth. The methods that artists use to give the illusion of space and depth on a flat two-dimensional surface are the focus of Seeing is Believing, this year's Artmobile exhibition.

An artist can make your brain believe something that may or may not be true. How does he/she do it? Some ways are very obvious, others not so. When students visit the Artmobile, trained educators will acquaint the students with the various ways one can create the illusion of space, geared to the appropriate grade level. The original works of art on display will enable students to see firsthand how creatively artists approach their subjects and how they achieve the illusion of space. Hands-on activities in the exhibit will reinforce the concepts presented and enhance students' experience.

In Artmobile, students will explore the main methods of depicting the illusion of space: overlapping or layering of forms, scale, linear perspective-including both one-point and two-point perspective, vertical placement, atmospheric perspective, foreshortening, modeling and the use of color. These techniques are not mutually exclusive, in fact artists frequently use multiple methods. Of course, artists sometimes choose to "break" these rules for creative purposes as well.

- Overlapping or Layering • Size or Scale • Modeling
- Vertical Placement • Linear Perspective
- Atmospheric Perspective - Foreshortening

The aim
of art
is to
represent not the
outward
appearance of things, but their inward significance.


## overlapping or layering

An object looks closer to us when it overlaps and partially hides another object. This is the most obvious method of showing depth on a two-dimensional surface.

In Artmobile, students will see several works of art where they can identify this approach.


Gail Bracegirdle, Burning Desire, watercolor on paper.


## size or scale

Our eyes see objects that are farther away as being smaller than those which are close to us. Since our brain knows the relative size of objects, we can be tricked into perceiving distance as objects diminish in size in a picture. Sometimes an artist uses scale to emphasize an object so that it is more important in the picture.


Daniel Anthonisen, Heading Home (final painting), oil on linen.

## modeling

Light and dark areas help give the illusion of depth, distance and volume. Light areas appear to advance or come toward the viewer, while dark areas recede or appear to fall back.

http://www.williamsclass.com/ElectiveClassArt/ArtElementNotes.htm

## vertical placement

When an artist places his/her object higher in the picture, that object appears to us as being further back in the distance. The artist uses subjects in the foreground, middle ground and background on the 2 -dimensional surface to create the illusion of space. The foreground, lowest on the surface, is closest to us. The background is higher on the surface and our brain believes it is seeing something further away.


Alan Fetterman, The Snowman, oil on linen.


James Feehan, Tribute, oil and wax.

## linear perspective

This method of showing distance is used for parallel lines in the artwork. It is typically used for subjects such as roads and buildings. All elements perpendicular to the viewer seem to converge at a point on the horizon called the vanishing point. There may be one vanishing point or several.

Technique of creating the illusion of depth on a flat surface. The lines of buildings and other objects converge to a vanishing point on a horizon line (viewer's eye level).


Farewell Mills Gatsch Architects, LLC, Two Asbury Road, Asbury Park, NJ, circa 1995, architectural rendering.


Thomas B. Chesar, Lemonade Break, acrylic.

## atmospheric perspective and the use of color

The atmosphere between the viewer and a distant object causes it to be perceived blurrier. Details and textures diminish as the distance increases. Borders are less distinct. This phenomenon is known as atmospheric or aerial perspective.

Furthermore, "as the distance between an object and a viewer increases, the contrast between the object and its background decreases... The colors of the object become less saturated and shift towards the background color, which is usually blue, but under some conditions may be some other color (for example, at sunrise or sunset distant colors may shift towards red)."
http://en.wikipedia.org/wiki/Aerial_perspective


## foreshortening

This term refers to the optical illusion where an object appears shorter than it actually is because it is angled right toward the viewer. The part of the object closest to the viewer appears much larger than the section that appears to go back in space.

In Artmobile, students will be able to see themselves "foreshortened" in convex mirrors.

http://www.mediabell.biz/contactus.php

## Every

 child isan artist.
The problem
is how to remain
an artist
once we
grow up.
—PABLO PICASSO


## classroom activities

WE LIVE IN A THREE-DIMENSIONAL WORLD but we see twodimensional forms all the time, not only on paintings or posters, but on computers, on the movie screen, on photographs, on cereal boxes, on illustrations in a book. Our brains, using our everyday experience, translate these 2-D forms and images for us so that we can understand what we are seeing. The mind simplifies and organizes the information.

When students visit Artmobile, they will see artworks that are imaginative and unique. Seeing these works will require the students to process what they are seeing. The objective of the following activities is to foster artistic thinking and to prepare students for an inspiring experience.

## pre-visit activities

## focusing questions

Does art work have to be just like real life? Why or why not?
Can you think of ways that you could capture a dream on paper? How about a sound?

## activities

## 1. Scribble Design

On a piece of white paper, students will draw a scribble line all around the page without lifting their pencil. Then they should color in some of the spaces (using only three or four colors) created by their scribble. Display these designs and ask students what colors seem to come forward, which ones seem to recede.

## Materials:

White paper, pencil and crayons, colored pencils or watercolor markers.

## 2. Optical Illusions

Present the optical illusions in Appendix $A$ to the students and get their reactions. Discuss with students how their brains are possibly tricked.

## 3. Collage

Students will make a collage of an imaginary landscape, using cut out magazine pictures of houses, trees, flowers, etc. Encourage overlapping of these forms. Ask students how their placement of these objects makes the scene look like there is space in their design.


What do you see? You might see a face... or the word "liar"!

Materials: Paper, magazines, paste, scissors.

## 4. Sizing Things Up

Ask students to look at a tree close to them either while outside or from a window. They will probably need to lift their heads to see the top. Then have them look at one that is farther away and have them squint and measure the size of that tree with their thumb and forefinger. Talk about how far away things look smaller. Have them sketch a large tree and then the farther tree.

Materials: Paper and pencil.

## 5. Perspective Perception

Have students stand in a long hallway near their classroom. Ask if they can see how the part close to them is wide and the part in the distance is narrower. Have students try to draw what that hallway looks like on a piece of paper. Don't worry about whether they meet success in this task. Explain to them that at the show they will see how this is accomplished using perspective.

Materials: Paper and pencil.

## 6. Shades of the Sea

On dark blue or black construction paper, have students draw the outline of a sea creature with white chalk (fish, jelly fish, sea horses etc.) Encourage them to blend in some parts with their fingers.

Materials: Dark construction paper, white chalk.


Margaret C. Mattheson, Brainhead, giclee.

## 7. Watercolor Works

Students will wet their drawing paper and then paint colors across the page with a brush. They should be liberal with their paint. While wet and soupy, have students drop salt onto some areas of their paper. After drying, the salt is brushed off and what remains is a unique work with abstract images with shades that give the illusion of depth.

Materials: Drawing paper, watercolor paint, large brushes, salt


Charles Wells, Hart Crane, etching.

## 8. Lines and More Lines

Students should draw the outline of an animal with a pencil, pen or a marker. Then, using lots of lines, have them fill the drawing of the animal with either hair, scales, spots, ridges or patterns. These textures help give the animal dimension.

Materials: Paper, pen, pencil or marker.

## 9. Leaf Rubbings

Have students gather fresh leaves of different sizes and shapes. The student places a leaf on the table, covers it with a piece of white paper and does a rubbing, using the broad side of a crayon. The student should hold the paper with one hand and rub hard with the other until the image is clear. A stronger image is produced by rubbing with heavy strokes without moving the leaf or the paper. The student can move the leaf to another area and rub again or pick a different leaf and repeat the process, filling the whole paper. By rubbing with different colors of crayon and by overlapping the rubbings, the student will created artwork that has dimensions. Some of the leaves will appear in front or behind, depending on the color and the strength of the color.

Materials: White printing paper, crayons with papers removed, fresh leaves.

## 10. Shape Rubbings

The same procedure of rubbing as the description above except students can cut simple shapes out of oak tag and place them under their paper and then proceed with the rubbings. These shapes can be geometric or irregular. Again, students should strive to overlap their forms.

Materials: White printing paper, crayons, oak tag, scissors.

## post-visit activities

## focusing questions

Can an artist change rules to create something new and exciting?

How do some works of art trick your brain?


Rena Thompson, Whirling Dervish, photography.

## 2. Interesting Places

If you could jump into a piece of artwork seen at the exhibition, which one would you like to be in? Why? What would it feel like? (Language Arts)

## 3. Other Places

Do you think you could tell if an artwork was made in a foreign country? What clues might you find to give away where it was done? Did you see any pieces of artwork in Artmobile that might fit this idea? Explain. (Social Studies)

## 4. Imagination vs. Reality

Some of the artwork you saw go against the principles of depth perception. How does that affect your view of the work? Show students David Graham's photograph, Dallas TX, 1997 reproduced in Appendix B. In our real environment, objects look smaller when farther away, but this photograph confuses the brain. Does it make you think? What is he emphasizing and how? The artist is communicating space in an effective but very different way. How? (Language Arts)


## 5. Layers of Meaning

Just as the visual artist creates depth with overlapping and multiple images, a writer can create depth and a more interesting and varied work by using layers. The use of subplots, multiple characters and vivid description can create depth of understanding and meaning. Write a story about your favorite place using layers of text, enriched scenes and characters. (Language Arts, Social Studies).

## 6. Another Place

Draw a scene that may be seen in another country. Pick a famous site in another country such as the Pyramids, the Eiffel Tower or the Swiss Alps. See if you can draw the scene with deep depth by using the methods discussed in the exhibit. (Social Studies)

Materials: White drawing paper, colored pencils, markers or paint.

## 7. Tissue Time

Many of the art works show depth through layering and overlapping. Take two or three colors of tissue paper and tear them up. Using these shapes of torn tissue, glue them onto a piece of paper, overlapping the shapes but leaving some white spaces. How is this similar to the artwork you saw in the Artmobile?

Materials: Colored tissue paper, glue sticks, white drawing paper.


Susan Roseman, Jersey Girl, linocut and collage.

## 8. Simple City Scene

Pick a cool-colored piece of construction paper to use as a background. Then take strong warm colors and cut out buildings of various heights and widths. Glue these down on the background paper, overlapping and layering the buildings. With a pen, add details to the ones in the foreground.

Materials: Colored construction paper, scissors, rulers, glue sticks or white glue.

## 9. Shade It

Lines of various thicknesses can produce shading. The closer the lines are together, the darker the shading. The dog's heads (Susan Roseman's "Jersey Girl") and the man's head (Charles Well's "Hart Crane" in Artmobile) are examples of shading and the three-dimensional effect of shadow and light.

Draw an egg or a ball, using just an outline. Draw an identical one next to it. Shade this one on the curve so that it has a shadow on one side, and light on the other. See how the shaded shape looks 3-D even though it is on a 2-D surface?

Materials: White paper, pencil, pen, or charcoal stick

## 10. Diorama I

In Artmobile, the diorama "Bullring" by Myles Cavanaugh was a three-dimensional piece of artwork. Draw on a sheet of paper what you remember about that scene. Think about how to create the illusion of 3-D on your flat piece of paper. What was in the foreground? Middle ground? Background?


Myles Cavanaugh, Bullring, mixed media.

Materials: Drawing paper, pencil, colored pencils, markers or paint.

## 11. Diorama II

Take a shoe box and design an arena for baseball, football or a circus, or theater for a play. Make a background suggesting the people attending the event (hazy and with few details) and then add action figures in the foreground with some additional details.

Materials: Shoe box, colored construction paper, lightweight cardboard or oak tag, scissors, white glue.

## 12. Leaf Printing

Gather various shaped leaves from outside. Paint the leaf with acrylic paint, place it on a plain piece of paper, cover with another piece of paper and press down on the paper. Overlap the print of leaves, using many colors but allowing some background to show. Waiting until some of the paint dries will prevent the colors from getting too muddy.

Materials: Fresh leaves, acrylic or poster paint, drawing paper.

## 13. Bleach Paintings (middle and bigh school students)

Have several pieces of dark-colored construction paper. Using Q-Tips dipped into a solution of bleach and water, draw lines and dots on the paper. After letting the paper dry, discuss whether the lines or the background color draws the most attention. Remember the x-rays in Stacey Spear Scott's "Birdology", "Snakeology" and Turtleology" as well as Margaret Mattheson's "Brainhead". This activity will produce images evoking those works.

Materials: Dark colored construction paper, Q-Tips, bleach and water.

## 14. Spray It (middle and high school students)

This activity should be held in a well-vented room or outside. Take fresh leaves or cut out simple shapes, lay them on a piece of colored construction paper and spray the group with paint. Carefully remove the leaves or shapes and then, place a few new leaves or shapes on top of the spray painted paper. Spray again with a different color spray paint. This can be done with a third color and the work produced will show overlapping shapes, imparting the feeling of dimension


Jan Lipes, Magnolia, Solebury, oil on board. to the artwork.

Materials: Fresh leaves, colored construction paper, several cans of spray paint of various colors.

## 15. Light and Shadows

Draw the outline of a butterfly, spider, flower or other simple but interesting shape on stiff white paper (oak tag, card stock or even a white paper plate). Cut out the shape (should be one piece). Cut small pieces of the stiff paper and glue it to the under side of the shape in several areas. Place the shape on a rectangular white piece of paper. Even though it is white on white, the shadow produces a dimension much as John L. Goodyear's "Crab Man" did in the exhibit.

Materials: Card stock or other stiff white paper such as white oak tag or paper plate, white glue, scissors.

## 16. One-Point Perspective

Draw the driveway to your home as if you are standing in the middle looking toward your house. Or, imagine standing at the beginning of the drive-in lane of your favorite ice cream place, looking toward the store. Place a point on your page where the parallel lines of the driveway could appear as meeting. From that point draw two straight lines toward the bottom of the page where you are standing. Fill in the rest of the scene (house or store or landscaping). For a detailed lesson plan, including background information achievement standards (grade 5-8) and bibliography, visit http://www.alifetimeofcolor.com/main.tafp $\mathrm{p}=1,29$. See Appendix $C$ for a Student Handout for Drawing One-Point Perspective.

The exhibit showed several examples of one-point perspective: James Feehan's "Tribute", Richard Lennox's "Street Scene" and Daniel Anthonisen's "Heading Home". Students should keep in mind that all vertical lines still stay vertical (fences, mailbox posts, telephone poles etc.)

Materials: Drawing paper, pencil, colored pencils, rulers.

## 17. Hazy and Gray in the Distance

When looking out into the distance, particles in the air make things far away look hazier, less distinct and grayer. In our real world, mountains present a good example of this phenomenon with the ones farthest away being grayer, lighter and mistier looking.

Paint several sheets of paper in the same color with different values. One sheet should be a rather deep color. The next a medium color and another a pale version of the others. After these dry, tear the strips irregularly, forming mountains. Arrange and glue strips onto a piece of paper with the lightest strip on top and then the others overlapping until the bottom has the deepest strips. Then draw a landscape scene on top with pen and ink.


Gwendolyn Kerber, The Shape of the Air, oil on linen.

Materials: Drawing paper, watercolor paint, pen and ink.

## 18. Right at You (middle and bigh school students)

Place your shoe, sneaker or sandal on the table in front of you, with the toe part toward you. If possible, place the item on a pile of books so that the shoe is higher than your paper. Sketch the shoe, keeping in mind that the front is appearing to your eye larger than the back even though you know that this not the case (foreshortening). Using a shading and cross hatching technique, make the shoe look three dimensional. Make the dark, close together lines in the background and the further apart lines in the foreground.

Materials: white paper and pencil.

## 19. Imagination and Abstract Thinking

What would sound look like? Paint the sound of a motorcycle, a roller coaster, running water, a church bell ringing, the sound of a cricket, or a firecracker.

Materials: White drawing paper, poster or acrylic paint, brushes.

## 20. Seeing is Believing to Extreme

Find Julian Beever, chalk artist, on your computer at home. Look to see how he achieves his amazing 3-D effects, using what you have learned from the Seeing is Believing exhibition. Choose one of his images to describe in terms of how he creates the illusion of depth. Include a reproduction of the chalk drawing. (Language Arts)

## glossary

Atmospheric Perspective. As objects recede in space the moisture and dust in the air make them appear lighter and bluer. An example would be as you out at the mountains in the distance, they appear lighter and bluer that objects that are close to you.

Background. Part of the picture plane that seems to be farthest from the viewer.

Foreground. Part of a picture which appears closest to the viewer and often is at the bottom of the picture. Middle ground and background are the parts of the picture that appear to be farther and farthest away.


Steve Messenger, Colletta, oil.

Foreshortening. A form of perspective where the nearest parts of an object or form are enlarged so that the rest of the form appears to go back in space.

Horizon Line. The line on the picture plane that indicates the vanishing points. The farthest point in which a distinct separation between the sky and ground is seen.

Hue. Another word for color (color has three properties: hue, value and intensity).

Intensity. Brightness or dullness of a color. Intensity can be reduced by adding the color's complement.

Linear Perspective. Technique of creating the illusion of depth on a flat surface. The lines of buildings and other objects converge to a vanishing point on a horizon line (viewer's eye level).

Middle Ground. Area in a picture between the foreground and the background.

One-point Perspective. The lines of buildings and other objects converge to a single vanishing point on a horizon line (viewer's eye level). See http://www.olejarz.com/arted/perspective/index.html for an interactive tutorial.

Overlapping. Shapes hide parts of another object because it is on top or in front of the other.

Perspective. Method used to create the illusion of space on a two-dimensional surface. Can be created by overlapping, placement, detail, color, converging lines and size variations.

Picture Plane. The two- dimensional surface of a drawing or painting.

Point of View. Angle from which the viewer sees the object.

Proportion. Principle of design concerned with the relationship of one object to another with respect to size, amount, number and degree.

Scale. The proportion between two sets of dimensions.

Size. As objects recede in space a visual phenomenon occurs, objects get smaller the farther away they are.

Space. Space can be the area around, within or between images or elements. Space can be created on a two-dimensional surface by using such techniques as overlapping, object size, placement, color intensity and value, detail and diagonal lines.

Three-dimensional. Having height, width, and depth. Also referred to as 3-D.

Trompe-l'oeil. Means "fool the eye". Style of painting where the artist creates the illusion of three-dimensional objects.

Two-dimensional. Having height and width but not depth. Also referred to as 2-D.


Margaret C. Mattheson, Brainhead, giclee.

Eric N. Fausnacht, White Winged Rooster, acrylic.
Two-point Perspective. A system to show three-
 dimensional objects on a two-dimensional surface. The illusion of space and volume utilizes two vanishing points on the horizon line.

Vanishing Point. In perspective drawing, a point or points on the horizon where receding parallel lines seem to meet.

Vertical Placement. A spatial device which suggests that nearer objects are lower in the picture plane and further objects are placed higher vertically within the composition. The higher an object is placed the farther back it is.

## appendix (a) optical illusions



Which of the MIDDLE circles looks bigger, the one on the left, or the one on the right?

Wait, look again! They are the same size!


Which is longer?
Actually, the vertical lines are both the same length.

## Tallest Soldier Illusion

Can you pick out the tallest soldier?


Did you find him? Hmm..


What do you see? You might see a face... or the word "liar"!


Perpetually ascending staircase...
How can the man go up all the time and come back to the same place over and over?

## appendix (b) photograph



David Graham, Dallas, TX, 1997

## appendix © student handout



For a detailed lesson plan, including background information achievement standards (grade 5-8) and bibliography, visit http://www.alifetimeofcolor.com/main.tafp $\mathrm{p}=1,29$


Bucks County Community College
275 Swamp Road I Newtown, PA 18940

