



Project: Scale and Image Reproduction **Age Groups:** Middle through High School

Goal: To provide students with the opportunity to explore mathematical issues of scale. To emphasize the differences between experiencing digital images of objects and objects at their real size. To explore issues of abstract composition.

Timing: 2-3 Studio Sessions

General Outline

Students receive a piece of a larger abstract painting at 1/10 scale and a piece of board that corresponds to their piece at full scale. After gridding both pieces into four sections with a pencil, they reproduce, as closely as possible, the image they have been given. Once complete, several teaching opportunities occur:

1. Students are asked to assemble the image the way they “think” it should go. This provides the opportunity for cooperative learning and opens dialogue about why aesthetic decisions are being made.
2. Students are shown an example of the “real” painting and then reorganize (if necessary) the painting they have created. This provides an opportunity for them to compare their aesthetic decisions with those of the artist.
3. Students are shown the image on the **Art in the Abstract** website and can compare it to the full sized version they have just completed.. The advantages of experiencing any object (particularly art) in real space vs digital space should stand out in stark relief. (Size, texture, color, environment, etc.)

This project can be done with middle school to high-school students. With middle-school students, markers or crayons on art paper are suggested. With high-school students, the teacher might try acrylic paint on corrugated cardboard or canvas board cut to size.

Materials

- 1 color copy (ungridded) of Judith Geichman’s **Angel Dance** (1987)
- 1 piece of cardboard or foamcore on which to mount the ungridded copy.
- 2 color copies of Judith Geichman’s **Angel Dance** with grid marked
- 1 sheet of “shirt-weight” cardboard large enough to mount one of the two gridded copies
- Access to an internet connected computer or computer lab

For middle school children:

- orange, red, and black markers or a variety of orange-colored, black, and white crayons
- 32 pieces of 18” X 24” paper, or white card stock, or paper and mounting board cut 18 ¾” tall by 10 ” wide

For high school students:

- acrylic paints - yellows, reds, whites, black, paint brushes
- 32 pieces of corrugated cardboard or canvas board cut into pieces 18 ¾” tall by 10 ” wide

Alternative Paper Solution

If using 18 X 24” paper is a problem, try using ledger-sized (11 X 17”). Cut the ledger-sized pieces to 16 3/8 x 9 5/8.” The resulting image, when assembled, will be roughly 9/10 the size of the original painting.

Preparation

1. Print out one ungridded color copy of Judith Geichman’s painting **Angel Dance**. Mount it to the cardboard or foamcore and set aside out of students’ sight.
2. Print out two color copies of the painting which is marked with the green grid.
3. On the **back** of one of the gridded copies, mark each square area with the corresponding letter/number combination (ie: A1, B1, etc.) and the student’s last name to whom it will be given.
4. Mount the other gridded copy to some shirt-weight cardboard. Copy the names of the students to the back of the mounted copy. **Do not write the corresponding grid code on this.** Using an X-acto blade, cut on the green lines.

Procedure: 1st Session

1. Explain that even abstract artists must activate their entire composition and leave no dead space. Tell your students they will be working on a project to enlarge an abstract image. Distribute the small pieces of the mounted copy and the larger, blank pieces of board to your students. Tell them the small piece is 1/10 the size of the large piece.
2. Ask them to use a pencil or pen to grid both pieces equally into four sections. This will make it easier for them to transfer the image.
3. They are to look carefully at their small piece. There is a limited palette but even in the “simple” areas there is plenty to see. Some considerations might be paint thickness, scraping, layering. They should try to match the color as closely as possible.
4. By the end of Day One, they should have a good start on creating their large image.



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Project: Scaling an Image; 2nd Session

Procedure: 2nd Session

1. Continue to paint the large image.
2. Once everyone is satisfied, ask them to assemble the painting in a way that makes visual sense to them. As they place the pieces next to one another, encourage conversation about their decisions by observing their process and making positive comment where appropriate. *“That line looks great there . . .”* or *“You are being sensitive the color choices here. . .”* etc. The point here is **NOT** whether they can puzzle out the correct arrangement, but their **process** of deciding how they think the composition might have been arranged.
3. When they have finished their version, make positive comment on the decisions they have made to create the composition. If you have access to a digital camera, take a picture of the entire composition. Ask if they are interested in seeing how the artist composed the same lines. Resist the temptation to say, *“Now, do you want to see how it really looks?”* rather, say, *“This is the the way artist chose to arrange it.”* Arrange the painting according to your grid code with the names on the back.
4. If they have been careful in their transfer and you have arranged it correctly, several images should be apparent in the painting: stairs or an escalator in the lower center, an entrance to a tunnel in the upper left center, and a sandbox shovel in the upper right side.
5. If you have a display area large enough, assemble both the large painting and small, original pieces for other classes to view with a brief explanation of the problem.
6. Take the class to a computer lab and go to the Art in the Abstract website. Find the example of Judith Geichman’s painting and have them read the text. Talk about differences between seeing art on line and experiencing it “in the flesh.”



Illinois State Board of Education Goals and Standards

Students completing this project will address elements of the following I.S.B.E. Goals and Standards for the **FINE ARTS**:

MIDDLE SCHOOL

26.A.3e *Visual Arts: Describe how the choices of tools/technologies and processes are used to create specific effects in the arts. As students analyze the section provided in order to reproduce it, they will note different materials and techniques used by the artist to create a variety of effects.*

EARLY HIGH SCHOOL

26.A.4e *Visual Arts: Analyze and evaluate how tools/technologies and processes combine to convey meaning. By analyzing how tools and materials were used for the original work of art students will recognize innovative strategies used to convey meaning by the artist. By using technology (ie: internet image reproduction) and comparing both scale and content of their creation to the enlarged version, students will evaluate the affect that shifting size can have on the meaning of an artwork.*

26.B.3d *Visual Arts: Demonstrate knowledge and skills to create 2- and 3-dimensional works and time arts (e.g., film, animation, video) that are realistic, abstract, functional and decorative. Through careful analysis and cooperative re-creation of the image provided, students will demonstrate and develop skills necessary to create 2-dimensional works that are abstract.*

26.B.4d *Visual Arts: Demonstrate knowledge and skills that communicate clear and focused ideas based on planning, research and problem solving. Through cooperative planning, research, and problem solving students will demonstrate knowledge and skills that communicate clear and focused ideas as they complete the enlarged version.*

Mathematics

In addition to the **Fine Arts** Goals and Standards listed above, students completing this project will address issues listed in the ISBE Goals and Standards for **Mathematics** below.

STATE GOAL 7: Estimate, make, and use measurements of objects, quantities, and relationships and determine acceptable levels of accuracy.

MIDDLE/JUNIOR HIGH SCHOOL

7.A.3b *Apply the concepts and attributes of length, capacity, weight/mass, perimeter, area, volume, time, temperature and angle measures in practical situations.*

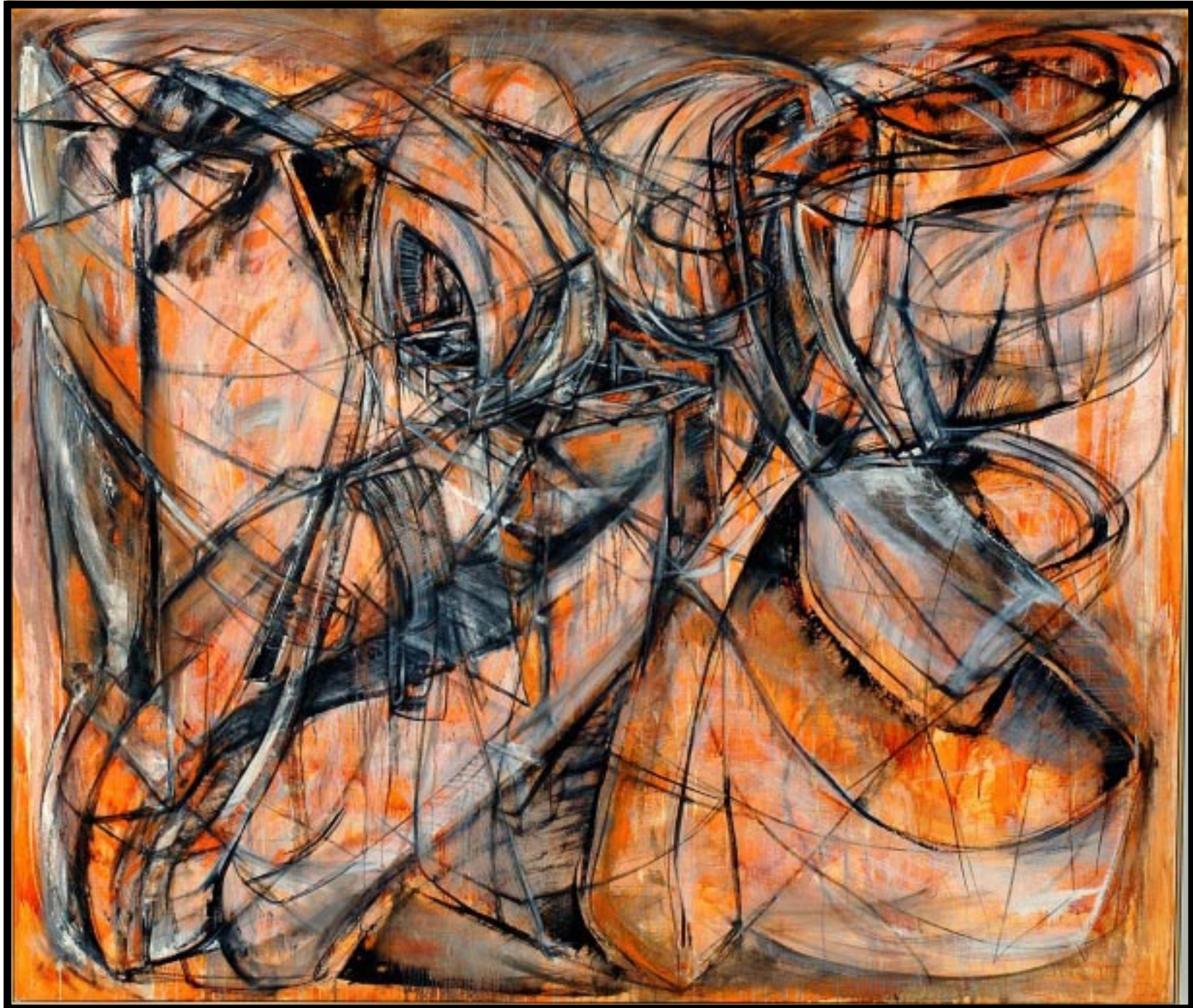
7.B.3 *Select and apply instruments including rulers and protractors and units of measure to the degree of accuracy required.*

7.C.3a *Construct a simple scale drawing for a given situation.*

7.C.4b *Interpret scale drawings and models using maps and blueprints.*

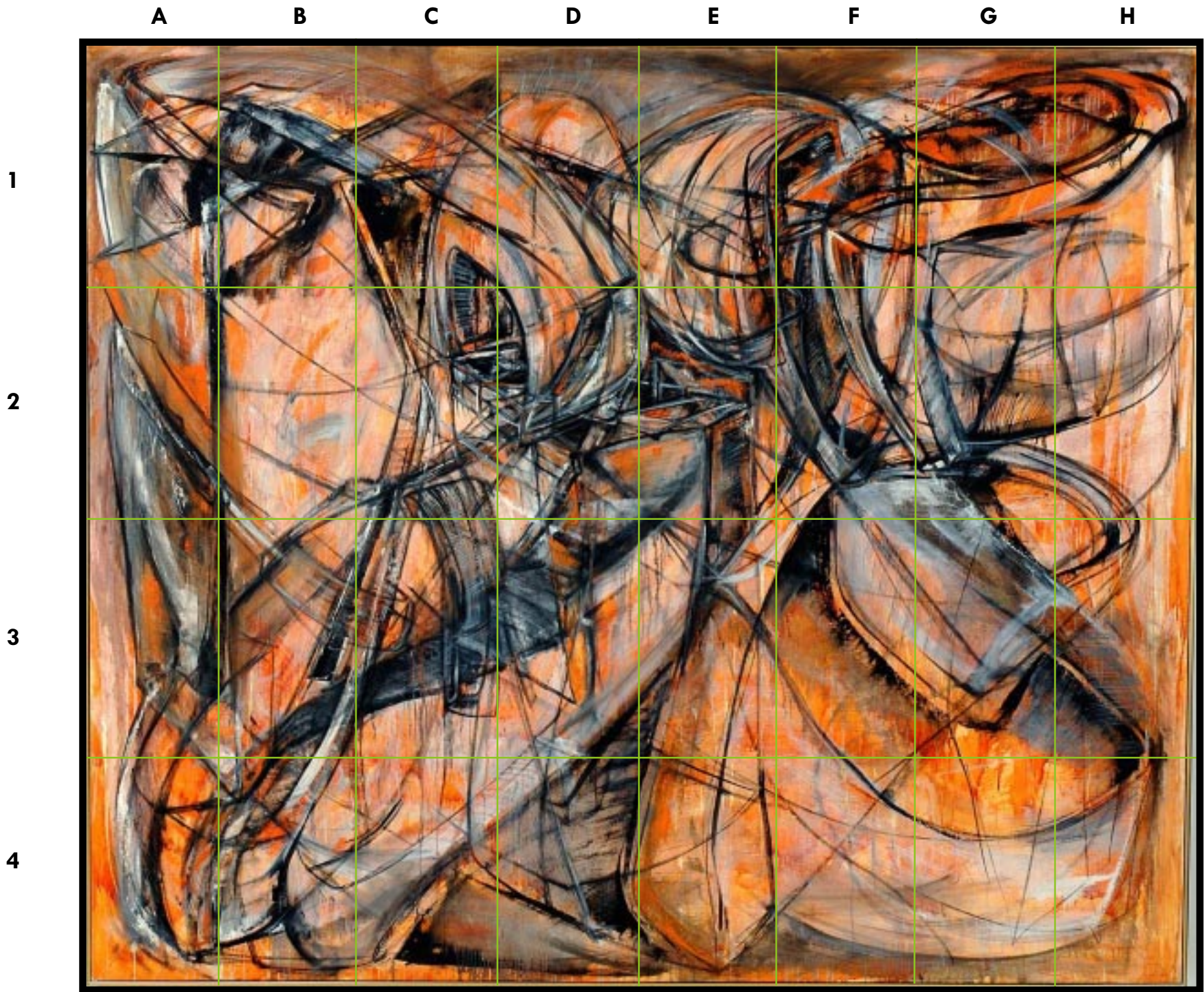
EARLY HIGH SCHOOL

7.A.4a *Apply units and scales to describe and compare numerical data and physical objects.*



Angel Dance 1987
Judith Geichman [birthdate unknown: Columbus, Ohio]
oil on canvas

Gift of Donald D. Niemann
Collection of the Illinois State Museum





Angel Dance 1987
Judith Geichman

Road to Nowhere 1975
John Himmelfarb

Lakeview 1978
William Conger

Art in the Abstract

Illinois State Museum Lockport Gallery
October 30, 2004 - March 4, 2005
Installation shot of main gallery