

Lesson Plan from The Mather Arts and Learning Collaborative:
Body Tracing with Visual Art and Math Concepts

Collaborating Partners:

**Mather Elementary School, Boston Public Schools
Cambridge School of Weston
National Arts & Learning Collaborative**

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Lesson Title: Body Tracing with Visual Art and Math concepts

Length of Assignment: 3 classes of prep, 3 classes interaction with students

Materials: Handmade graph paper (3 inch grid), acrylic paint, brushes, pencils, permanent markers, glitter, magazine cut outs, calculator

Prerequisite Knowledge: N/A

Goals and Objectives: For students to...

- get to know one another
- have successful experiences beyond what they would normally be able to do in a public school
- work on life size scale
- integrate critical math skills with art making skills

- learn basic painting techniques – how to use paint and brushes (consistency, creating smooth edges, mess management)

Relevant Vocabulary/Concepts: Ratio, percentage, area, estimating

Teacher/Mentor Preparation: Hand draw life size graph paper. Mentors considered how to enable elementary students to have successful experiences. Encouragement played a large role in this.

Class activity and assignment:

With their mentors' help, elementary students' bodies were traced on grided paper. Students counted and estimated how many squares of area their body took up. They were asked to write down five things that they like and one thing that you like that's a secret. Each like was assigned a rating of (1-10/highest). Students calculated what percentage of total body squares each like should be represented by. For example, if there are 60 squares of total body and each thing that you like is at a 10, then each like is represented by 10 squares. Students then discussed a location on their bodies where each like should be represented. Then students decided how to symbolize their likes and decided what kind of images would represent them.

Bodies were traced in pencil, then marker. Then paint was added.

Alignment with District Arts Standards and Other Curriculum Frameworks:

Visual Art Frameworks

1. Content Standard: Elements of Visual Arts

recognize value, texture, and pattern and be able to use those in visual products. (a)
use color mixing. use elements of art to communicate ideas. (b)
recognize principles of design: balance, placement, composition, proportion, and overlapping. (c)

2. Content Standard: Understanding and applying media, techniques, and processes

recognize the differences between materials, techniques, and processes. (a)
describe how different materials, techniques, and processes cause different effects. (b)
use art materials and tools in a safe and responsible manner. (c)

3. Content Standard: Choosing and evaluating a range of subject matter, symbols, and ideas.

select and use subject matter, symbols, and ideas to communicate intended meaning.
(a)

5. Content Standards: Reflecting upon and assessing the characteristics and merits of students' own work and the work of others.

describe how people's experiences are shown in specific art work. (a)
explain various purposes for creating works of visual art. (b)

6. Content Standards: Making connections between visual arts and other disciplines

use skills of speaking and writing in presenting (critical analysis of) their art work. (a)
use observation, discovery, and critical thinking skills. (b)

Math Frameworks (4th grade)

Data Analysis, Statistics, and Probability

- Formulate questions, collect and organize data using observations, measurements, surveys, or experiments, and identify appropriate ways to display the data.
- Invent representations of data.

Geometry

- Describe geometric figures such as rectangles and squares in several ways.
- Compare area of shape.

Measurement

- Demonstrate an understanding of such attributes as length, area, weight, and volume, and select the appropriate type of unit for measuring each attribute.
- Begin to relate cube configurations and the spatial relationships in 3-D objects to volume.
- Carry our simple unit conversions within a system of measurement.

- Understand measurements are approximations; investigate how differences in units affect precision. Consider the degree of accuracy needed for different situations.
- Determine when precise measurement is required and when estimates are good enough.
- Identify and use appropriate metric and English units and tools to estimate, measure, and solve problems involving length, area.
- Choose and accurately use appropriate tools for measuring: weight, volume, capacity and time.

Number Sense and Operations

- Exhibit an understanding of the base ten number system.
- Add and subtract multiples of 10.
- Demonstrate an understanding of fractions as parts of wholes and locations on a number line.
- Combine different fractions to make a whole.
- Recognize parts to make equivalent wholes.
- Add, subtract, multiply, and divide accurately and efficiently.
- Select and use a variety of strategies to estimate quantities, measures, and the results of whole number computations, and to judge the reasonableness of the answer.

Evaluation/Assessment of Student Learning: After each session, mentors would review the class and discuss what worked, what didn't, and how to keep elementary students focused.

Reflections on the Lesson: This lesson has been done for two years and works well.