

# MOSAIC PIXELATED CREATURES

**GRADE:** 5<sup>th</sup>

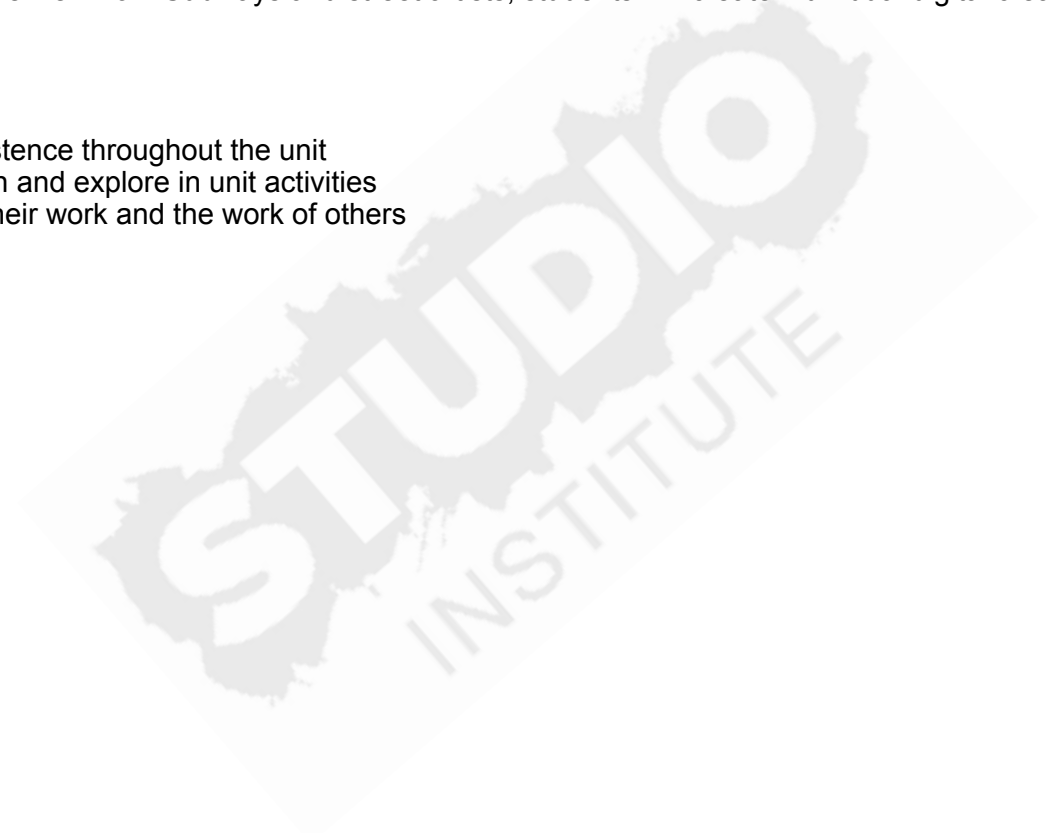
**OVERVIEW DESCRIPTION OF UNIT:**

Through developing skills in simple cut paper mosaics followed by exploring mosaics in a digital format, students will work with mathematical and geometrical concepts such as grids, decimals, place values, percentages and more. Inspired by mosaic art found in public places such as the New York Subways and street artists, students will create individual digital creatures on iPads using the *Pixable* application.

**HABITS OF MIND:**

Students will:

- learn and practice persistence throughout the unit
- engage, envision, stretch and explore in unit activities
- observe and reflect on their work and the work of others



# ART LEARNING

## **ART STRANDS:** (Embedded throughout unit)

- 1-Art-making
- 2-Developing Art Literacy: Looking/Discussing; Arts Vocabulary; Interpreting/ Analyzing (Reading & Writing)
- 3-Connections: Other Disciplines; Observing/Interpreting the World
- 4-Community & Cultural Resources: Public Art; Online Resources/Libraries; Community-based Organizations; Artists' Studios
- 5-Careers & Life-long Learning

## **ART GOALS:**

Students will:

- use tools and materials to design and organize shapes and colors
- employ pattern in their designs
- create original creatures in a digital format

## **BIG IDEAS/ENDURING UNDERSTANDINGS IN ART:**

- artists use math to determine the area of a mosaic and to calculate the number of tiles needed for a project
- a mosaic is comprised of many individual pieces and the planning and placement of each piece affects the whole work
- a design can visually represent an idea or location
- contrasting colors lead to clearer and more striking images

## **ESSENTIAL QUESTIONS-ART:**

What is a mosaic? What are some ways I can use color to make a pattern or design in a grid format?

## **BENCHMARK SKILLS IN ART:**

Create a design and/or collage that demonstrates:

- attention to the composition of the entire surface
- emphasis and balance through the use of color, line and shape
- balance between negative and positive space
- thoughtful use of personal perspective
- controlled use of scissors to cut...shapes
- ability to neatly and evenly apply glue

## **VOCABULARY-ART:**

composition, color, contrast, mosaic, tessera, collage, symbol/ symbolism, identity, positive space, negative space, background, foreground, installation, commission, fine art, street art, placement, patterns, geometric, model, product, multi-step

## **UNIT ART MATERIALS:**

- graph paper (1/4"-1" or so)
- colored (copyable) index paper, printed and cut into long 1" strips to make cutting easier
- background construction paper
- pencils (#2, B or 3B)
- erasers
- white glue , (not school glue), small containers, glue brushes

# MATH LEARNING

## **MATH PRACTICES AND SKILLS:**

Students will be able to:

CCSS.MATH.CONTENT.5.NBT.A.1 - Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and  $1/10$  of what it represents in the place to its left.

CCSS.MATH.CONTENT.5.NBT.A.2 - Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10.

Use whole-number exponents to denote powers of 10.

CCSS.MATH.CONTENT.5.NBT.A.3 - Read, write, and compare decimals to thousandths.

CCSS.MATH.CONTENT.5.NBT.A.3.A - Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g.,  $347.392 = 3 \times 100 + 4 \times 10 + 7 \times 1 + 3 \times (1/10) + 9 \times (1/100) + 2 \times (1/1000)$ .

CCSS.MATH.CONTENT.5.NBT.A.3.B - Compare two decimals to thousandths based on meanings of the digits in each

place, using  $>$ ,  $=$ , and  $<$  symbols to record the results of comparisons.

CCSS.MATH.CONTENT.5.NBT.A.4 - Use place value understanding to round decimals to any place.

CCSS.MATH.CONTENT.5.NBT.B.7 - Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.

## **MATH GOALS:**

Students will:

- understand place value, multi-digit whole number and decimal fraction operations
- understand the relationship between fraction, decimals and percents
- apply their knowledge to real world math problems using fraction, decimals and percents

## **ESSENTIAL QUESTIONS-MATH:**

How can I use my knowledge of geometry and to understand how many individual squares I might need of each color? How can I compute percentages of the various parts of my mosaics? How do percentages relate to

decimals? What is place value?

## **MATH STANDARDS/COMMON CORE:**

- MP1 Make sense of problems and persevere in solving them
- MP2 Reason abstractly and quantitatively
- MP4 Model with mathematics
- MP6 Attend to precision
- MP7 Look for and make use of structure

## **VOCABULARY-MATH:**

decimal, multiplication, place value, ones, tenths, hundredths, thousandths, quotient, estimate, divisor, dividend, remainder, equivalent, placement, patterns, geometric, model, product, multi-step

## **UNIT MATH MATERIALS:**

- rulers
- pencils
- graph paper (100-grid paper printed large and several small sheets per student)
- math notebooks
- worksheets

## **UNIT TECHNOLOGY:**

- smart board
- iPads with *Explain Everything* and *Pixable* loaded
- access to printer

# TECHNOLOGY LEARNING

## **ESSENTIAL QUESTIONS-TECHNOLOGY:**

How can we use iPads in our art making? What is a portfolio and how can students document their process and final products? How can we use *Explain Everything* to reflect on our work and the work of others?

## **TECHNOLOGY GOALS:**

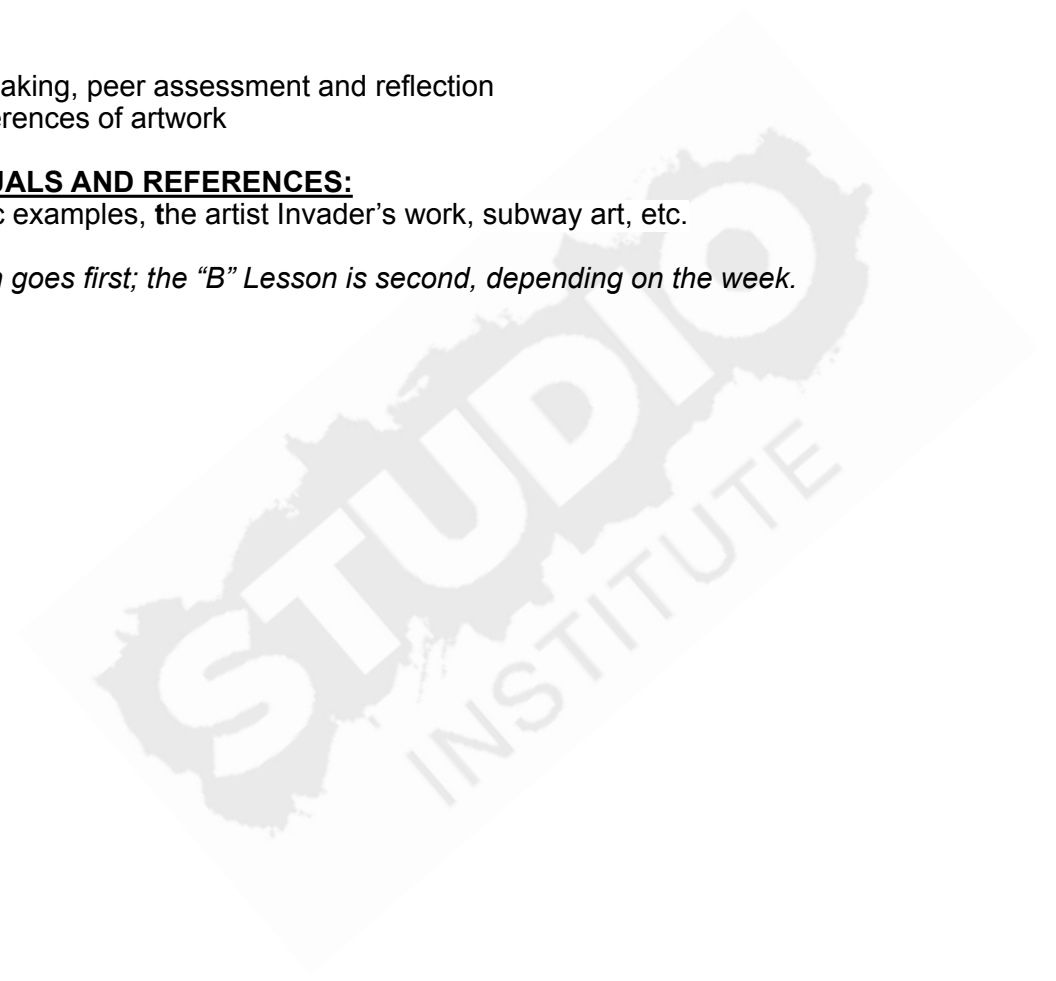
Students will:

- use an iPad in their art making, peer assessment and reflection
- observe smart board references of artwork

## **UNIT MOTIVATION, VISUALS AND REFERENCES:**

Greek and Roman mosaic examples, the artist Invader's work, subway art, etc.

*Also note: The "A" Lesson goes first; the "B" Lesson is second, depending on the week.*



# ART-MAKING LESSON #1A

## *Graphing a Pattern; Collaging a Mosaic*

### **Art Essential Questions:**

How can one tell if something is a pattern? How do artists use patterns and colors to create works of art? Which came first: the pattern or the design?

### **Goals:**

- Students will look closely at patterns in example artworks, then create their own
- Students will use color, line and/or shape to create a design

### **Engagement:**

Artist/teacher will share reference art of patterns found in Greek and Roman mosaics and discuss how the individual tesserae (tiles) form designs and patterns. Students will see how contrasting colors can make a design pop out.

Using graph paper and colored pencils (maybe only two or three colors), students will create designs based on forming patterns. If it seems helpful, students may want to work out their ideas quickly on graph paper using a regular pencil first, before doing a colored version.

Demonstrate how to create even and smooth coloring by tilting the pencil and not “scratching” the paper. *Optional variation:* Model for students how to draw halves or quarters with their squares or draw them diagonally into triangles for more complicated patterns

### **Differentiation:**

For learning and/or physically-disabled Students: pair students with an aide, if possible. For advanced students, encourage them to make a second design with the understanding that it be completely different from the first.

### **Reflection:**

Artist/Teacher will share a few examples of the finished designs, if time.

### **Materials/Tools/Technology:**

- pencils, regular and colored (colored should be close to colors of index paper you are planning to use in lesson 2)
- graph paper with 1/4” squares
- iPads with *Explain Everything* loaded for documentation

### **Motivation/Visuals/References:**

Reference images of mosaics from Greece and Rome

### **Vocabulary:**

mosaic, tessera (plural: tesserae), tiles, design, pattern, repetition, symmetry

### **Habits of Mind:**

Engaging and Persisting,  
Stretching and Exploring,  
Observing, Reflecting, Envisioning

### **Student Checklist:**

- \_\_\_ I designed and made a pattern on my grid.
- \_\_\_ I used my colored pencils smoothly and evenly, with control.

# MATH LESSON #1B

## *Place Value, Decimal Values and Predictions*

### **Essential Questions:**

How can one describe the relationship between two decimal place-value positions? How does a decimal value look visually?

### **Learning Goals:**

- Students will be able to model, read, and write decimals to thousandths

### **Inquiry Question:**

How can one represent or show the value of a decimal on this grid? How can one write the decimal for one square?

### **Possible Math Component:**

Students will conduct an investigation to determine how to model tenths, hundredths and thousandths on a 10 x 10 grid. (3.1)

On graph paper, lead students to shade in a visual representation of 0.1, 0.01 and 0.001. Fill out a place value chart, writing these numbers in decimal and fraction forms.

### **Differentiation:**

Learning or physically-disabled students may need to work with an aide. For advanced students, add an extra follow-up lesson, if possible.

### **Materials/Tools/Technology:**

- large print out of a 100-grid on 8.5 x 11" paper
- pencils and colored pencils
- rulers

### **Motivation/Visuals/References:**

- images of Greek and Roman mosaics that relate to the students' 100-grid paper

### **Vocabulary:**

graph, graph paper, grid, repetition, value, decimal, place value

### **Habits of Mind:**

Engaging and Persisting,  
Stretching and Exploring,  
Observing, Envisioning

## MATH LESSON #2A

### *Using Our Patterned Mosaics to Compute Tenths, Hundredths and Thousandths*

#### **Essential Questions:**

How can you read and write decimals? How would you say numbers that are different than “one-tenth, one hundredth or thousandth?”

#### **Learning Goals:**

- Students will be able to model, read and write decimals to thousandths.

#### **Inquiry Questions:**

How could you write a number to show how many tiles are a certain color? How can you calculate the entire amount of the colored pieces you need for your mosaic? What about half and quarter pieces?

#### **Possible Math Component:**

Students will continue to gain mastery of reading and writing decimals to the thousandths. Students will count up the number of squares in each color and as a class or in groups, shade in the number on a separate hundreds grid in groups of ten. Start with a student’s two-color graphed pattern from the previous art lesson. For example, if there are 26 green tiles, they would shade in two tens columns and six individual squares. They would then be asked how to say that number as a fraction and then as a decimal. This should be done over and over again until they get a good grasp of how to write and say decimals. Focus on decimal place value while writing and reading the numbers. Check for understanding as to which numbers are smaller or larger as you find numbers the are tenths or thousandths.

#### **Differentiation:**

Learning disabled and/or physically disabled students may need extra assistance. Advanced students may be challenged to work on an extra worksheet or create a word problem based on the math concepts taught above.

#### **Materials/Tools/Technology:**

- graph paper
- pencils
- iPads with *Explain Everything* loaded for documentation

#### **Motivations/Visuals/References:**

- graphed patterns work from last lesson/and or reference images

#### **Vocabulary:**

grid, fraction, decimal, place value, percentage

#### **Habits of Mind:**

Engaging and Persisting,  
Stretching and Exploring,  
Observing, Reflecting, Envisioning

# ART-MAKING LESSON #2B

## *Collaging a Paper Mosaic*

### **Art Essential Questions:**

How can an artist use a grid to make an image or design? What is a mosaic? How does an artist cut and glue paper down to make a collage?

### **Goals:**

- Students will explore using paper pieces on a grid to make a mosaic
- Students will demonstrate artistic behavior by practicing their cutting and gluing skills

### **Engagement:**

Artist/teacher should begin lesson with a review of grids, patterns and a discussion of what a mosaic is. A demonstration of how to cut the long strips into 1-inch squares should be given. Emphasize straight, clean cutting, so the edges line up with the grids. Students will choose colors that will be appropriate for recreating their design in paper mosaics.

Artist/teacher should demonstrate using glue and glue brushes, gluing around edges, with shape upside down on scrap paper. (Old phone book or recycle sheets work well for this...) Students will refer to their drawings and work from those, recreating their designs with cut paper. *Optional variation:* Show students how to cut halves or quarters with their squares or cut them diagonally into triangles for more complicated patterns.

### **Differentiation:**

For learning and/or physically-disabled students: pair with an aide, if possible. Advanced students might have time to make a second, small grid collage.

### **Reflection:**

Artist/teacher directs students to talk about the experience of making a mosaic from a previous drawing. How are the two different? Similar? What did they like doing most? Why?

### **Materials/Tools/Technology:**

- drawings from last class
- graph paper with 1" squares (free download to copy)
- 1" strips of colored index paper printed with 1" lines for easy cutting
- scissors
- white glue (not school glue), small containers and glue brushes
- iPads with *Explain Everything* loaded for documentation

### **Motivation/Visuals/References:**

- mosaic images from last lesson

### **Vocabulary:**

mosaic, tessera (plural: tesserae), tiles, design, pattern, repetition, symmetry

### **Habits of Mind:**

Engaging and Persisting,  
Stretching and Exploring,  
Observing, Reflecting, Envisioning

### **Student Checklist:**

- I cut my mosaics cleanly.
- I used glue carefully and sparingly.
- I created a pattern using mosaic squares on a grid.



# ART-MAKING LESSON #3A

## *Finishing Our Mosaics and Sketching Pixelated Creatures*

### **Art Essential Questions:**

How does an artist make an image on a grid like a mosaic? What is a mosaic? How does an artist plan their image, pattern and colors?

### **Goals:**

- Students will complete paper mosaics with precision and detail
- Students will be able to explore and discover how to create an image of a creature on a grid
- Students will plan a design that uses contrasting colors to depict their creature

### **Engagement:**

Students will be given part of the class to complete their paper mosaic designs if needed. After paper mosaics are completed they will begin sketching creatures on the graph paper.

Students will be shown how to draw and color in graphed squares to form images. This lesson is an exploratory one, in which they can try out their ideas and choose the one they want to work on “for real.” Their favorite one might be saved in their portfolio as a starting point for next week.

### **Differentiation:**

For learning and/or physically-disabled students: pair students with an aide and make any accommodations necessary. Advanced students might make one of each: monster, germ and insect. Or they could make a hybrid of all three.

### **Reflection:**

Artist/teacher asks one or two students to share their work.

### **Materials/Tools/Technology:**

- 1/4” graph paper
- soft colored pencils
- smart board for reference images
- iPads with *Explain Everything* loaded for documentation

### **Motivation/Visuals/References:**

- Images on the interactive white board of Invader’s street art mosaics, images of monsters, germs, fleas, etc.

### **Vocabulary:**

mosaic, tiles, design, pattern, repetition, symmetry, contrast, background

### **Habits of Mind:**

Engaging and Persisting, Stretching and Exploring, Observing, Reflecting, Envisioning

### **Student Checklist:**

- \_\_\_ I finished my mosaic pattern.
- \_\_\_ I began to draw images of creatures, monsters, germs, etc. on gridded paper.

# MATH LESSON #3B

## *Finding Percentages and Decimal Values*

### **Math Essential Question:**

How can we find the percentage and decimal value for the number of tiles filled on a 100-grid?

### **Learning Goals:**

- Students will be able to model, read and write numbers and represent the number of tiles on a 100-grid as a decimal
- Students will be able to order numbers with decimals from least to greatest

### **Inquiry Question:**

What are some quick ways to count the number of squares on a 100-grid or in an artwork? (There can be multiple solutions and ideas.)

### **Possible Math Component:**

Students will be challenged to use paper and pencils to draw patterns on a 100-grid and work with precision. They will discover quick ways to count and calculate the percentage of tiles that are colored. They will also write that percentage as a decimal and a fraction. Students will then compare the fractions and order them from the least to the greatest.

### **Differentiation:**

Students with learning or physical disabilities may need extra assistance from an aide or specialist. Advanced students may be asked to create a smaller, second work if time.

### **Materials, Tools/Technology:**

- small 100-grids printed six to a page
- pencils
- math notebooks, if used and/or scrap paper

### **Motivation/Visuals/References:**

- *Optional:* images of simple grid mosaics

### **Vocabulary:**

- grid, precision

### **Habits of Mind:**

Engaging and Persisting,  
Stretching and Exploring,  
Observing, Reflecting, Envisioning

# ART-MAKING LESSON #4A

## *Creating Our Digital Mosaic Creatures*

### **Art Essential Questions:**

How can I use an iPad to design a mosaic? How do artists make decisions about which sketches to use in a project? How do artists use their imaginations to get ideas and create original images?

### **Goals:**

- Students will use the iPad to draw and create an image that fills the grid creating positive and negative space
- Students will develop and improve their digital drawing skills
- Students will choose appropriate colors they think will work with their designs

### **Engagement:**

The artist/teacher should discuss with students what kinds of creatures they might want to create. They should demonstrate ways of making a creature on the iPad, perhaps for the whole class to see at once on a smart board. Go over the tools in the *Pixable* app. Students are charged with making their creatures, filling in the shapes first and background last. Emphasis as to the effective use of positive and negative shapes should be given. Students will be able to add details next lesson. Students should take a photograph of the progress of their work in *Explain Everything*.

### **Differentiation:**

For learning and/or physically-disabled students: pair students with an aide and make any accommodations necessary. Advanced students should make a second creature, if time.

### **Reflection:**

Artist/teacher might ask a student or two what they found hard or what surprised them.

### **Materials/Tools/Technology:**

- iPads loaded with *Pixable* and *Explain Everything*
- sketches saved from last art session in portfolio or printed out

### **Motivation/Visuals/References:**

- *Optional:* review images from last art lesson (Invader, street art, etc.)

### **Vocabulary:**

100-grid, 1000-grid, contrast, design, pattern, background, positive space, negative space

### **Habits of Mind:**

Engaging and Persisting, Stretching and Exploring, Observing, Reflecting, Envisioning

### **Student Checklist:**

- I used *Pixable* to create a creature.
- I thought about contrasting colors for the background.
- I used positive and negative shapes thoughtfully.
- I photographed my work and uploaded it to my iPad.

# MATH LESSON #4B

## *Continuing to Work with Decimals*

### **Math Essential Question:**

How are decimals used in the real world in everyday situations?

### **Learning Goals:**

- Students will be able to write numbers as a fraction, decimal and percent
- Students will be able to add, multiply and divide to find out how many packs of tile are needed for a theoretical project and how much the total cost will be for the supply order

### **Inquiry Questions:**

What information will you need to solve a real-world problem? How can we use a table to organize the information in a word problem?

### **Possible Math Component:**

Students will solve word problems using decimals. Students will need to calculate the amount of tiles needed for mosaic design inspired by the artist Invader. The students will record the number of tiles needed as a fraction, decimal and percent. Then they will look at a price list from two tile companies to calculate which company has the best prices.

### **Differentiation:**

For learning disabled or students, an aide or specialist may be of help. Or they may be paired with a partner to work together. Advanced students could do extra problems.

### **Reflection:**

Have a few students share their mathematical thinking and reasoning for their answers. Other students can agree, disagree and question the answers.

### **Materials/Tools/Technology:**

- iPads and/or smart board with *Pixable* app; images below
- stylus

### **Motivation/Visuals/References:**

Invader street art images loaded on iPads and/or smart board

### **Habits of Mind:**

Engaging and Persisting,  
Stretching and Exploring,  
Observing, Reflecting, Envisioning

# ART-MAKING LESSON #5A

## *Refining Our Digital Creatures and Adding Details*

### **Art Essential Questions:**

How does an artist make decisions? Do all artistic decisions have to be final? How does an artist add details to make their work more interesting? What are some traits I can add to make my creature more fabulous?

### **Goals:**

- Students will rework and refine their creatures and add interesting details

### **Engagement:**

Artist/teacher should show students various images that will inspire their adding details to make their work more fabulous. Using skinny lines and tools should be reviewed for adding the details. Teacher should remind students to make sure they have contrast between their figures and their background before adding the details.

### **Differentiation:**

For learning and/or physically-disabled students: pair students with an aide and make any accommodations necessary. Advanced students might be able to work on their second creature, if there is time.

### **Technology Application:**

Students can continue to add documentation and commentary on their iPads each session, if time permits.

### **Reflection:**

The artist/teacher might ask students to share something new they noticed/learned that day.

### **Materials/Tools/Technology:**

- interactive white board with images loaded (below)
- iPads with apps and work from last session

### **Motivation, Visuals/References:**

images of octopi, bugs, germs, bacteria, horned animals, etc.

### **Vocabulary:**

details, texture, traits, tentacles, spikes, antennae, fins, wings, whiskers, claws, incisors, scales, horns, antlers

### **Habits of Mind:**

Engaging and Persisting,  
Stretching and Exploring,  
Observing, Reflecting, Envisioning

### **Student Checklist:**

- I added details to my creature.
- I used contrasting colors to great effect.

# MATH LESSON #5B

## Computing Another Real-World Problem

### **Math Essential Question:**

How do we combine decimals and fractions to solve real-world problems?

### **Learning Goals:**

Students will be able to move from fractions to decimals and compute supplies for a mosaic floor.

### **Possible Math Component:**

Three artists are going to donate their designs for a new entrance mosaic floor in your school. If they send in their supply lists in different forms, can you as the contractor decide what you need to order?

*Invader:* My floor section will have 200 tiles. 20% will be yellow; 10% will be red; I'll need 40% blue and the rest will be purple.

*Chris:* I will need 600 tiles.  $\frac{1}{3}$  of my tiles will be orange.  $\frac{1}{10}$  will be red. The rest will be green.

*Doris:* I will need 420 tiles. Half of them need to be yellow. 120 of them need to be white. The rest will be black.

How many tiles of each color will we need to purchase?

Compute the price:

red, purple and green tiles are 1.35 each

white and black tiles are 1.25 each

yellow, orange and blue tiles are 1.40 each

### **Inquiry Question:**

How do I add up decimals and fractions?

### **Differentiation:**

For learning disabled students, an aide or specialist may be of help. For physically challenged learners, appropriate adaptations may be made. Advanced students may make up more difficult problems of their own.

### **Materials, Tools/Technology:**

- interactive white board
- pencils, math notebook and or paper
- worksheet

### **Habits of Mind:**

Engaging and Persisting,  
Stretching and Exploring,  
Observing, Reflecting, Envisioning

# ART MAKING LESSON #6A

## Finishing Work/Planning a Group Project

### **Art Essential Questions:**

How do I decide if my work is done? How can I print out a digital file on paper or a sticker?  
What is a group project? What is a mural? What is an interactive display?

### **Goals:**

- Students will finish their creatures and print them out or prepare them for teacher printing on paper

### **Optional Possibilities:**

- Students will plan to “take over” school building with display of *Creatures Invasion*.
- Students will develop a Interactive Exhibition in the form of a *Creature Scavenger Hunt*  
OR
- Students will make a painted background for their *Mural of Creatures*

### **Engagement:**

Students will be tasked with making sure their creatures are finished. When done, there is a button that will save the grid for printing.

### **For Invasion Display:**

If students are going to make an *Invasion Mission* in the school, they should try to generate as many copies of their creature as possible. If done, they might want to think of special places in the school they would like to mount their creatures.

### **For Group Mural Display:**

The next step might be to make a group mural. Students who are done can be given the job of painting a background. It is best to make the background loose. Covering the floor with a drop cloth or newspaper before putting the mural paper down is a good idea. Artist/teacher should choose a few colors and show students how to squeeze bits of paint and spread them around in a textured and brushy way. This is a very fast technique and it looks great when collages are put on it. Another variation might be to have students make individual collages, by cutting out their prints and gluing them on painted or drawn background papers.

### **Differentiation:**

For learning and/or physically-disabled students: pair students with an aide and make any accommodations necessary. Advanced students might generate more prints.

### **Materials/ToolsTechnology:**

- iPads loaded with apps (above)
- colored printer and printer paper

### **For Invasion Display:**

- tape or plasti-tak gum that is safe for school walls for removal
- scissors

### **For mural:**

- heavy-duty length of paper (brown kraft paper works well) from a roll —as long as you need to fit all the creatures on it
- tempera or acrylic paint
  - large painters’ brushes
  - water cans
  - scissors

### **If background is finished and dry:**

- white glue (not School Glue), glue brushes, small cups for glue

### **Motivation/Visuals/References:**

Share the invader website with the students. Discuss how he has created an imaginative interactive game with points in order to find his artwork.

### **Vocabulary:**

print, copy, collage, mural, background

**Technology Application:**

Students can continue to add to their iPad portfolio, if time.

**Reflection:**

Artist/teacher might ask one or two students to share something new they notice/learned.

**Habits of Mind:**

Engaging and Persisting,  
Stretching and Exploring,  
Observing, Envisioning

**Student Checklist:**

I finished my creature by adding final details.

I saved my creature on my iPad.





# MATH LESSON #6B

## *Creating and Solving Our Own Word Problems*

### **Essential Question:**

How can I make up a math word problem, based on my digital mosaic?

### **Learning Goals:**

- Students will make their own original word problems, based on some aspect of their mosaics.
- Students might then try solve the word problem of their partner.

### **Inquiry Question:**

How might I create an original math word problem based on my mosaic?

### **Possible Math Component:**

Have students make up a word problem around their mosaic. Example: "My mosaic got damaged in a storm and needs repair. It lost 10% of all its red tiles. How many tiles did it lose and do I need to buy to fix it?" Students could be paired up and given iPads to use a calculators to help them solve each other's word problems.

### **Differentiation:**

For learning and/or physically-disabled Students: pair students with an aide and make any accommodations necessary. For advanced students, have them solve several problems.

### **Materials/Tools/Technology:**

- iPads with student work on them

### **Vocabulary:**

- word problem

### **Habits of Mind:**

Engaging and Persisting,  
Stretching and Exploring,  
Observing, Envisioning

# ART-MAKING LESSON #7A

## *Finishing, Displaying and a Possible Spin-Off*

### **Art Essential Questions:**

How do artists sometimes combine their work to make a group project? What does cutting out my creature and placing on a painted background or in a hallway do visually?

### **Goals:**

- Students will be able to display their work or collage it into an individual background or a group mural
- Students will understand that display and reflection are parts of the process of making art
- Students might have the option of printing out individual stickers of their creatures to wear and/or trade

### **Engagement:**

If students have all finished their individual creatures, they may cut and then glue them onto the dry background mural or individual background. Artist/teacher should demonstrate cutting and gluing once more. Time should be set aside for sharing work in depth. What does putting cut out images on a background do? What details do you notice on some of the creatures?

### **Differentiation:**

For learning and/or physically-disabled Students: pair students with an aide and make any accommodations necessary. Advanced students might be challenged to write descriptors about the project for display.

### **Technology Application:**

Students should add the final slides on their iPads and share their process with one another.

### **Reflection:**

Artist/teacher takes time to reflect in depth with students about their finished works.

### **Student Checklist:**

*For invasion display:*

\_\_\_ I printed out my work and put it somewhere in the school.

*For mural:*

\_\_\_ I glued my printed creature onto the mural background.

*For individual mounting:*

\_\_\_ I mounted my work on a background.

### **Materials/Tools/Technology:**

- iPads loaded with apps (above)
- colored printer options: paper or special sticker paper (this may have to be done at a commercial place)

*For Invasion Display:*

- scissors
- tape or plasti-tak that is safe for walls

*For mural:*

- heavy-duty length of paper (brown kraft paper works well) from a roll—as long as you need to fit all the creatures on it
- tempera or acrylic paint
- large painters' brushes
- water cans
- scissors
- white glue (not School Glue), glue brushes, small cups for glue if not using sticker paper

### **Vocabulary:**

print, copy, collage, mural, background, display, invasion, reflection

### **Habits of Mind:**

Engaging and Persisting, Stretching and Exploring, Observing, Reflecting, Envisioning

# MATH LESSON #7B

## Math Scavenger Hunt/Reflection

### **Math Essential Questions:**

How can we use our art to make a math game? How can we interact with and document artwork that has been installed in public spaces?

### **Learning Goals:**

- Students will interact with the installed art work by documenting tile usage
- Students will reflect on their work and the work of others

### **Inquiry Questions:**

- What is a display/exhibit? How can we devise a game based on our art?

### **Possible Math Component:**

When the work is all finished, a game might be devised, similar to the one the artist Invader has instituted in which his mosaics around the world are given points. Invader has given his mosaic installation points based on their size and location; each city has accumulated points for the number of invaders and their point value. Allow students to discover the installations of their classmates and document their math findings.

### ***Optional Activity:***

Create some math activities after the installation scavenger hunt is complete. Students might create a system whereby creatures that have a majority of one color might get a certain amount of points or one that doesn't have that color is awarded special points. The location of the installed invader might give additional points. Students could then use their iPads to photograph creatures and try to accumulate the largest number of points with the fewest number of examples. The variations are numerous.

As a end to the unit, students should reflect of their experiences and celebrate their work and the work of the class by sharing and reflecting.

### **Differentiation:**

Learning disabled and physically-disabled students may need an aide or other support to participate fully in the activity.

### **Reflection:**

Students should spend some time observing and then sharing their thoughts. What did they like the best? What did they learn? How did they use math in art?

### **Materials/Tools/Technology Needed:**

- interactive white board or chart paper and marker to create game as a class
- OR
- worksheet prepared ahead with game rules on it for Scavenger Hunt
- iPads loaded with *Explain Everything*
- paper and pencils for counting points

### **Motivation/Visuals/References:**

- Student work on display

### **Habits of Mind:**

Stretching and Exploring, Observing, Reflecting