William Paterson University
College of Education

July 23 and 24, 2019

Program

Day 1: Tuesday, July 23rd	
9:00 am – 9:15 am	Arrival; Sign in
9:15 am – 9:20 am	Introductory remarks by Dr. Amy Ginsberg, Dean, College of Education, William Paterson University
9:20 am – 9:45 am	Presentation: Introduction and research findings, by Dr. Heejung An, Dodge Grant Program Director
9:45 am – 11:40 am	**Work Session I:** Arts Integration Lessons/Activities (Please choose centers)
11:40 am – 12:20 pm	Lunch
12:20 pm – 1:50 pm	**Work Session II:** Arts Integration Lessons/Activities (Please choose centers)
1:50 pm- 2:00 pm	Cleaning up

Day 2: Wednesday, July 24th	
9:00 am – 9:15 am	Arrival; Sign in
9:15 am – 9:40 am	Presentation: Exemplary Arts Integration Lessons, by Triada Samaras, Dodge Art Integration Professor-in-Residence (PIR)
9:40 am – 11:30 am	**Work Session III:** Arts Integration Lessons/Activities (Please choose centers)
11:30 am – 12:10 pm	Lunch
12:10 pm – 1:40 pm	**Work Session IV:** Arts Integration Lessons/Activities (Please choose centers)
1:40 pm- 2:00 pm	Group Discussion; Evaluation

Lesson Plans

Table of Contents

10. Janette Selino **(In Valley #1004: Computer lab)**	25. Greeting Cards for Diversity and Holidays/ Reality Based Project	K - 8
	26. Using Postermywall.com to Create Hispanic Month Diversity Posters/ Reality Based Arts Integration Project	K - 8
	27. Introduction to Code.Org for All Classroom Teachers	K - 8

Please note the following:

- Participants may choose to expand the lesson to other content areas and/or grades.

- The activities / procedures are as complete as is feasible. It is suggested that participants take their own notes to supplement what has been provided.

Arts Integration Lesson #1

Presenter:
- Name: Michelle Albritton
- Affiliation: Paterson School #12

Title: Organism Creation (Genotype/ Phenotype) Organism Genetics

Grade Level(s): 6-10

Goals/Objectives:

Students will be able to:
- Compare probabilities in individual offspring and across populations using Punnett Squares.
- Build models to further the understanding of inheritance.
- Examine the traits of a population of offspring

Materials:

Clay, paper, wire, beads, pipe cleaners, scissors, coins

Vocabulary:

Genes, genotype, phenotype, punnett square, DNA, chromosomes, alleles, ratio

Activities/Procedures:

Part 1: Parental Genotypes

Use a coin to determine the genotype of each feature for each parent. Flip the coin twice for each parent's genotype and complete the chart.

Heads- Dominant Gene
Tails Recessive Gene

Legs- Long (aa)- Recessive
Short (AA or Aa)- Dominant

Eyes- Red (EE or Ee)- Dominant
Black (ee)- Recessive

Fur Pattern- Solid (Ff)- Incomplete dominant
Striped (FF)- Dominant
Spotted (ff)- Recessive

Tail- Bare (tt)- recessive
Bushy (TT or Tt) Dominant

Part 2: Offspring Genotype and Phenotype

Use the parents' genotype and phenotype to determine the offspring genotype and phenotype. Create a Punnett square for each organism feature to determine the trait. The phenotype trait will be determined by the Punnett square percentage. The majority percentage is the phenotype for the organism. If there is 50%, then flip a coin to decide which trait will be the phenotype. Write the ratio

Probability
Long Legs_____%
Short Legs _____%
Ratio _____: _____

Probability
Red Eyes _____%
Black Eyes _____%
Ratio _____: _____

Probability
Solid Fur Pattern _____%
Striped Fur Pattern_____%
Spotted Fur Pattern_____%
Ratio _____: _____:_____

Probability
Bare Tail _____%
Bushy Tail _____%
Ratio _____: _____

Part 3: Illustrate each member of the family

Create the mother, father and offspring using the template attached. You must include the traits from the genotype charts and Punnett Squares. You can include other details to each organism family member**.**

Standards:

- *Mathematics Standards:*
  6.RP.A.1 Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities
  7.RP.A.2 Recognize and represent proportional relationships between quantities
- *ELA Standards*:
  WHST.6-8.9 Draw evidence from informational texts to support analysis, reflection, and research.
- Science Standards:
  MS-LS3-1 Demonstrate and use a model to describe why structural changes to genes (mutations) located on chromosomes may affect proteins and may result in harmful, beneficial or neutral effects to the structure and function of the organism.
  MS-LS3-2 Develop and use a model to describe why asexual reproduction results in offspring with identical genetic information and sexual reproduction results in offspring with genetic variation.
  MS-LS4-2 Apply scientific ideas to construct an explanation for the anatomical similarities and differences among modern organisms and between modern and fossil organisms to infer evolutionary relationships.
  MS-LS4-4 Construct an explanation based on evidence that describes how genetic variations of traits in a population increase some individual's probability of surviving and reproducing in a specific environment.
- *Visual and Performing Arts Standards:*
  Standard 1.1 The Creative Process: All students will demonstrate an understanding of the elements and principles that govern the creation of works of art in dance, music, theatre, and visual art.
- *Career Readiness Practices:*
  CRP1. Act as a responsible and contributing citizen and employee
  CRP4. Communicate clearly and effectively and with reason.
  CRP6. Demonstrate creativity and innovation.
  CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.

References:

- Heredity and adaptations. (N.D.) *Full option science system.* Retrieved from https://www.fossweb.com/delegate/ssi-wdf-ucm-webContent?dDocName=G4314397

Arts Integration Lesson #2

Presenter:
- Name: Michelle Albritton
- Affiliation: Paterson School #12

Title: Frog Adaptation and Potential/ Kinetic Energy

Grade Level (s): 3-8

Goals/Objectives:

Students will be able to:
- Create origami frogs with various leg lengths or widths to determine whether those variations will affect how far the frog will jump.

Materials:

Paper, scissors, markers, rulers or meter sticks

Vocabulary:

Adaptation, natural selection, mutation

Activities/Procedures:

- Follow directions to create the origami frog.
- Measure the length or width of the legs
- Once created press on backside of frog to make it jump.
- Measure the distance the frog jumps.
- Write down data
- Test two more times.
- Create another frog changing the length of size of the legs.
- Measure the length or width of the legs
- Test the new frog.
- Write down new data
- Create a graph to compare data

Standards:

- *Mathematics Standards:*
  6.SP.B.5: Model with mathematics
  7.RP.A.2: Recognize and represent proportional relationships between quantities.
- *ELA Standards:*

RST.6-8.7: Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (i.e: flowchart, diagram, model, graph or table)
RST.6-8.9: Compare and contrast the information gained from experiments, simulations, video or multimedia sources with that gained from reading a text on the same topic.
WHST.6-8.2: Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization and analysis of relevant content.

- *Science Standards:*
  MS-LS3-1: Develop and use a model to describe why structural changes to genes (mutations located on chromosomes may affect proteins and may result in harmful, beneficial or neutral effects to the structure and function of the organism.
  MS-LS4-4: Construct an explanation based on evidence that describes how genetic variation of traits in a population increase some individual's probability of surviving and reproducing in a specific environment.
  MS-LS-4-6: Use mathematical representation to support explanation of how natural selection may lead to increases and decreases of specific traits in populations over time.
- *Visual and Performing Arts Standards:*
  1.3.5.D.1: The elements of art and principles of design can be applied in an infinite number of ways to express personal responses to creative problems.
  1.8.3.D.4: Universal themes exist in art across historical eras and cultures. Art may embrace multiple solutions to a problem.
- *Technology Standards:*
  8.1.8.E.1: Effectively use a variety of search tools and filters in professional public databases to find information to solve a real-world problem.
- *Career Readiness Practices:*
  CRP4: Communicate clearly and effectively with reason.
  CRP5: Consider the environmental, social and economic impacts of decisions.
  CRP6: Demonstrate creativity and innovation

Arts Integration Lesson #3

Presenter:
- Name: Monica Aramayo
- Affiliation: New Roberto Clemente, Paterson Public Schools

Title: Stop animation using iPods

Grade Level (s): 6-8

Goals/Objectives:

- Students will be able to create a stop motion video by taking at least 100 pictures that show small incremental movements.

Materials:

iPods with remote control
Tripods
Paper
Clay
Miscellaneous objects (buttons, popsicle sticks, marbles)
Scissors
Markers
Erasable markers

Vocabulary:

- Frames per second (fps)
- Onion skin
- Cutout stop motion
- Clay stop motion
- Object stop motion
- Pixilation
- zoom
- foreshortening
- cel
- cut
- angle
- green screen
- frame
- script
- storyboard
- zoetrope
- flipbook

Activities/Procedures:

- To get started, I will show learners a small collection of flipbooks so that they can have a tangible experience, in which they will see the movements at their own pace, and fast forward or go back to see how the illusion happens.
- Then, I will introduce them to the Zoetrope so that they can motion in a different way.
- I will then present a PowerPoint containing snippets of animation to get learners

more familiar with the strategies for creating the illusion of giving life to inanimate objects.

- Learners will create a “stage” which could be made with paper, could be the background in any room, or they can use a “green screen”(green paper will do) so that they can choose any background from any picture online.
- The learners then set up the iPod on the tripod and place the item(s) to be animated on the stage. And get started by taking the first photo. Then, they move something on one of the objects on the stage, take the next photo, and keep repeating this process until the story/video/demonstration is complete (One rule of thumb is for learners to take 10 different images for each second of video they want to create).

Standards:

- *Mathematics Standards:*
  - Visually exemplify how math can be used to solve real-world problems
  - Visually exemplify mathematic principles such as the isosceles triangle, pi, or Pythagorean theorem
  - Demonstrate the transformation of objects
  - Illustrate a math strategy
- *ELA Standards:*
  - Interpret a scene or passage from a movie, novel, poem or play
  - Recount a story that seeks to preserve cultures and traditions
  - Re-enact a short fable, legend or myth
- *Science Standards:*
  - Visualize a part of the human anatomy and how it works
  - Visualize a molecular structure or growth of plants or animals
  - Visualize how levers, pistons or pulleys work
  - Simulate chemical reactions
  - Help them visualize molecular concepts, electrons, protons or micro- scopic work
- *Visual and Performing Arts Standards:*
  - Provide a representation of an artwork from a particular era or place
  - Provide examples of different art forms
  - Portray an interpretation of a dance or art technique
  - Tell a theatrical story
  - Reproduce and reinterpret original animated artistic works
- *Social Studies Standards:*
  - Tell a story about lives, events, places, environments or eras
  - Visually depict world discoveries or significant historical events
  - Represent a certain time period in relation to a famous historical figure

- Depict controversial topics such as world disasters or wars
- Depict geographical concepts

- *Technology Standards:*
  - 8.2.5.c.4 Collaborate and brainstorm with peers to solve a problem evaluating all solutions to provide the best results with supporting sketches or models.
- *World Languages:*
  - 7.1.NH.A.3 Recognize some common gestures and cultural practices associated with target culture(s).
- *Career Readiness Practices*:
  - CRP2: Apply appropriate and technical skills. Career-ready individuals readily access and use the knowledge and skills acquired through experience and education to more productive. They make connections between abstract concepts with real-world applications and they make correct insights about when it is appropriate to apply the use of an academic skill in a workplace situation.

References:

- Kathy's Katch May 2016: Stop motion animation in the classroom https://blog.discoveryeducation.com/blog/2016/05/01/animation/

- NFB ONF (National Film Board of Canada) https://www.nfb.ca/playlists/stopmostudio/playback/#4

Arts Integration Lesson #4

Presenter:
- Name: Monica Aramayo
- Affiliation: New Roberto Clemente, Paterson Public Schools

Title: Musical Mandala

Grade Level (s): 6 - 8

Goals/Objectives:

Students will be able to:
- Create a mandala inspired by music.
- Make a mandala on tracing paper colored with at least 2 markers to create balance and harmony in its composition.

Materials:

- Tracing paper
- Pencils/erasers
- Markers
- Block print ink
- brayers
- Heavy weight paper
- Printing paper
- scissors
- Styrofoam
- sponge
- glue

Vocabulary:

- Symmetry
- Reflection
- Line
- Unity
- Pattern
- Mandala
- Radial
- Balance
- Perpendicular
- Diameter
- Radius

Activities/Procedures:

- To begin I will show learners a PowerPoint presentation including the many radial designs that humankind has done across time and cultures.
- For the first activity learners are to fill out a sheet asking them to interpret feelings by drawing lines. Then, we will go over lines and shapes (geometric and organic)
- Next learners will listen to the provided music and communicate their interpretation of it with lines. Following I will model how to connect their lines to turn them into interesting shapes. I will give students a rough draft worksheet for them to fill in lines inside triangles that will serve them to create the first template and allow them to try different designs and choose the one that they liked the most.
- Then I will show them how to fold a square piece of paper into 8 triangles with creases intersecting on the center of the paper.
- Finally, learners have to trace their design onto the tracing paper and copy the mirror image throughout composition 8 times.

If time permits I would like to teach learners how to make a monoprint using part of the process learned but changing it a bit.
The difference is that once traced on 2/8 of the tracing paper then we can transfer to a Styrofoam sheet by tracing the lines with a pencil to engrave the surface to serve us as a stamp.

Standards:

- *Mathematics Standards:*
  - CCSS.MATH.CONTENT.6.RP.A.1
    Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.
  - CCSS.MATH.CONTENT.7.RP.A.2.B
    Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.
  - CCSS.MATH.CONTENT.8.G.A.4
    Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.

- *Visual and Performing Arts Standards:*
  - 1.3.8.D.2 Apply various art media, art mediums, technologies, and processes in the creation of allegorical, theme-based, two- and three-dimensional works of art, using tools and technologies that are appropriate to the theme and goals.
  - 1.3.8. D.3 Universal themes exist in art across historical eras and cultures. Art may embrace multiple solutions to a problem.
  - 1.4.8.A.1 Generate observational and emotional responses to diverse culturally and historically specific works of art.
  - 1.4.8. B.2 Visual fluency is the ability to differentiate formal and informal structures and objectively apply observable criteria to the assessment of artworks, without consideration of the artist.
  - 1.3.8.D.1 The creation of art is driven by the principles of balance, harmony, unity, emphasis, proportion, and rhythm/movement.
  - 1.2.8.A.3 Analyze the social, historical, and political impact of artists on culture and the impact of culture on the arts.

References:

- The science of symmetry-Colm Kelleher: https://youtu.be/3drtbPZF9yc
- Tart Lessons for the Middle School a DBAE curriculum by Nancy Walkup Reynolds

Arts Integration Lesson #5

Presenters:

- Name: Triada Samaras and Monica Aramayo
- Affiliation: William Paterson University/New Roberto Clemente Middle School, Paterson Public Schools

Title: Circuits in Art

Grade Level (s): 6-8

Goals/Objectives:

- Learn about surreal art.
- Learn how to make a surreal art work.
- Create a simple electrical circuit.
- Combine an electrical circuit to an art piece.

Students will be able to:

- Create a surrealist artwork using mixed media.(painting, collage, drawing) (The final product should be irrational, bizarre, contradictory, complex, puzzling, shocking, surprising, unexpected, attention grabber)
- Make a simple electrical circuit.
- Perform how to attach paper circuits to this artwork to create lighted up areas for added emphasis.

Materials:

- Paper
- Water colors
- Glue
- Magazines
- Scissors
- Buckets
- Brushes
- Pencils
- Markers
- Copper foil
- Led stickers
- Binder clip
- 3v coin cell battery

Vocabulary:

- Simple circuit
- Electrons
- Current
- Dislocation
- Juxtaposition
- Levitation
- Transparency
- Scale
- Symbolism

Activities/Procedures:

- To get started I will show learners a PowerPoint of surrealist masters and explain the methods to teach students how to create surreal art.
- I will then model the process that we will use to get our imagination flowing.
- Initially, we are going to paint the whole background with liquid watercolors which will unleash the automatism process.
- Following, learners can take verb words from a jar. This word will serve as an inspiration. Next students are to collect images from a magazine and juxtapose an unexpected way on their paper, once satisfied they can glue it and add any drawing that will add onto the complex bizarre piece (By allowing students to have freedom in making something unrealistic their imagination gets more involved).
- Next, students will learn how to make a simple circuit. Learners will then build their template circuit based on a provided example. The leaners will adapt the length of the circuit to reach the desired area of the artwork.

Standards:

- *Science Standards:*
    - MS-PS1-3:Engineering advances have led to important discoveries in virtually every field of science, and scientific discoveries have led to the development of entire industries and engineered systems.
    - MS-PS1-6 The transfer of energy can be tracked as energy flows through a designed or natural system.

- *Visual Arts Standards:*
    - 1.3.8.D.6 The visual possibilities and inherent qualities of traditional and contemporary art materials (including digital media) may inform choices about visual communication and art making techniques.
    - 1.3.8.D.3 The classification of art into various art genres depends on the formal aspects of visual statements (e.g., physical properties, theoretical components, cultural context). Many genres of art are associated with discipline-specific arts
    - 1.1.8.D.1 Art is a universal language. Visual communication through art crosses cultural and language barriers throughout time.

- *Career Readiness Practices:*
    - CRP2: Apply appropriate and technical skills. Career-ready individuals readily access and use the knowledge and skills acquired through experience and education to more productive. They make connections between abstract

	concepts with real-world applications and they make correct insights about when it is appropriate to apply the use of an academic skill in a workplace situation.
References: • LEDs, Switches & Sensors by Jie Qi: https://chibitronics.com/	

Arts Integration Lesson #6

Presenter:
- Name: Elisa Felice
- Affiliation: Haledon Public School

Title: Pumpkin Globes

Grade Level (s): 3

Goals/Objectives:

Students will be able to:
- Identify and draw the seven continents and oceans of the world while using their artistic abilities.

Materials:

1 pumpkin per student. Various colors of paint. Bowls for the paint. 1 Paintbrush for each bowl of paint. 1 smock per student. 1 set of 7 Continent Stencils for each student. 1 marker for each student. Newspaper for covering the tables. 1 scissor for each student and a pencil for each student

Vocabulary:

Globe, continent, ocean, boarder, world

Activities/Procedures:

Before you begin this lesson, make sure the students are wearing smocks and the tables are covered in newspaper. This lesson is usually done at the beginning of October in time for Halloween. Students should be placed in small groups. Each student will be given a blue Styrofoam pumpkin and a set of continent stencils. Each group will receive 7 different colors of paint already poured into separate bowls. There should also be 7 paintbrushes and a marker for each student available. You can choose to have the stencils cut out already for the students to use or you can have each student cut out there own 7 continent stencils. Students should begin by viewing an example of a finished Pumpkin Globe. After the stencils are cut out, instruct students to trace their stencils on the pumpkin. Keep in mind the stencils need to be placed in the appropriate location on the pumpkin globe. I would model the placement of each stencil in front of the class and monitor the students while they are doing this. Africa is a great continent to start with, as the rest of the continents sort of flow into place after. The students should trace each continent with a pencil first, in case of mistakes. Once the teacher checks the entire globe for mistakes the students can then trace over the continents with a marker. They should then choose one color of paint for each continent and paint the entire continent that color. Once the paint

has dried, possibly even the next day, the students should write the names of each continent on the appropriate place.

Standards:

- *Social Studies Standards:*
  6.7 All students will acquire geographical understanding by studying the world in spatial terms.

References:

- This lesson was done in the classroom of Miss Wach at James Fallon Elementary School in Wayne, NJ.

Arts Integration Lesson #7

Presenter:
- Name: Elisa Felice
- Affiliation: Haledon Public School

Title: Scientific Method / Engineer Design Process / Any Science Topic Comic Strip

Grade Level (s): 3-5

Goals/Objectives:

Students will be able to:
- Identify the different steps of the Scientific Method and/or Engineer Design Process and understand what is involved in each step.
- Organize ideas on how to combine pictures, captions, and dialogue to tell about a specific event or express a message.
- Develop comic strips to depict story-related or self-created events, convey a message, or express interesting information

Materials:

Worksheet on Engineer Design Process and/or Scientific Method for each student. Scrap paper for each student. Pencil for each student. Internet access. Small 8x10 Canvas for each student. Paintbrushes. Paint. Rulers. Colored pencils, crayons or markers. Components of a comic strip worksheet. Variety of multi-framed comic strips to hand out or project from the comics section of a local newspaper or a website such as PEANUTS or GoComics. Six Frame comic strip page.

Vocabulary:

If using scientific method: hypothesis, analyze, conclusion, conduct, research
If using Engineer Design Process: research, prototype, evaluate, redesign, identify

Activities/Procedures:

This lesson should be done after the Scientific Method and / or Design Process has been taught.

- Hand out the worksheet that explains the different steps in the Scientific Method and / or Engineer Design Process (attachment 1). Review the steps to clarify any misunderstandings.

- Distribute the sample comic strips to small groups or project them for the whole class to see. Working with one comic strip at a time, analyze with students how the comic-strip creator combined text, quotes, and images to tell a story or event or convey a message.
- Have students identify the characters, setting, and plot in each one. Point out any captions that appear and explain that these are often used to provide a brief narration or give additional information. Have students identify speech and thought bubbles in the examples and explain how these devices are used: a speech bubble contains the character's spoken words while a thought bubble expresses the character's unspoken thoughts. Sum up this step by telling students that, due to limited space, comic strips focus on the main idea and the most important elements of the topic, event, or message to be communicated.
- Explain to the students that they are going to be creating comic strips that explain the Scientific method and/ or Design process. Students are to create a story with all of the elements in a comic strip (hand out components of a comic strip: attachment 2) that explains the Scientific Method and / or Engineer Design Process. (I have also done this lesson with the water cycle. This lesson can really work well for many of the topics in Science.). I would display I six frame empty comic strip (attachment 3) on the board and model what the students will need to do. After the expectations have been clearly stated. The students should begin brainstorming their ideas on a scrap paper. After they have a concrete idea of where their story is going they can draw a rough draft on a six-frame comic strip. Once that is colored and approved by the teacher, they can then transfer this idea onto an actual canvas, with paint! In my school we had an artist come in and combine all of the children's ideas into one comic strip and paint it on the walls of our hallways!

Standards:

- *Language Arts Standards:*
    - Uses prewriting strategies to plan written work (e.g., uses graphic organizers; brainstorms ideas; organizes information according to type and purpose of writing)
    - Uses strategies to draft and revise written work (e.g., elaborates on a central idea; writes with attention to audience, word choice, sentence variation)
    - Uses strategies to edit and publish written work (e.g., edits for grammar, punctuation, capitalization, and spelling at a developmentally appropriate level; selects presentation format according to purpose; incorporates photos and illustrations; uses technology to compose and publish work)
    - Evaluates own and others' writing (e.g., determines the best features of a piece of writing, determines how own writing achieves its purposes, asks for feedback, responds to classmates' writing)

Also. this lesson will have standards attached to it for the science topic that you choose to use for this comic strip. For example water cycle standards, rock formation standards, or engineering standards
References: Parts of this lesson were taking from scholastic.com

Arts Integration Lesson #8

Presenter:
- Name: Elisa Felice
- Affiliation: Haledon Public School

Title: How is water important to the environment and society (Water Cycle Unit)

Grade Level (s): 5

Goals/Objectives:

Students will be able to:
- Research and gather statistics about a U.S. state experiencing drought by using the United States Drought Monitor website: http://droughtmonitor.unl.edu
- Design a conservation or engineering solution by either:
  a. Designing and building a device or
  b. Creating a technical drawing.
- Present team drought solution device or technical drawing to the class audience.

Materials:

- Computers with internet access for research
- United States Drought Monitor website: http://droughtmonitor.unl.edu
- Student Guide Planning Organizer: Water Cycle Lesson 3: The Engineer
- "Technical Drawing" Template (in Student Guide)
- "Build a Prototype" Template (in Student Guide)
- Poster paper
- Metric rulers
- Colored pencils/markers
- Extension materials: various types of paper, tape, glue, or any other teacher-approved materials needed for designing and constructing a water conservation device. Potential student prototype materials may include: cardboard, plastic cups, aluminum foil, saran wrap, empty water bottles or 2-liter soda bottles, plastic tubing, cheesecloth, sand, gravel, coffee filters, cotton balls, pipe-cleaners, etc.

Vocabulary:

Condensation, precipitation, evaporation, sublimation, transpiration

Activities/Procedures:

Please note* This activity is to be done after the water cycle has been taught to the

children*

Engineer Activity (160 minutes)

As guided by the organizer, students will:

1. Research a state in our country experiencing drought by using the United States Drought Monitor website: http://droughtmonitor.unl.edu. Note: If your state is classified as a drought state, encourage students to focus on designing a drought solution for your state in order to make this Engineering task more authentic for student learning.

2. Design a solution that will either conserve water for your state or supply your state with more usable water from an environmental resource (ocean, atmosphere, etc.). For the final presentation, students will either: a. design and build a prototype of the device, or b. create a technical drawing. Tip: If students need suggestions or ideas on places to get started on their Engineering challenge, give them suggestions from Appendix A: "Suggestions to Spark Student Ideas."

Presentation and Assessment (25 minutes) Presentation/Assessment Students present their final design solutions as if they are presenting to an audience of their peers or community members at the completion of this Engineering design challenge.

Standards:

- *Science Standards:*
  - Science (NJSLS-S 2014) 5-ESS2-1 Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact. [Clarification Statement: Examples could include the influence of the ocean on ecosystems, landform shape, and climate; the influence of the atmosphere on landforms and ecosystems through weather and climate; and the influence of mountain ranges on winds and clouds in the atmosphere. The geosphere, hydrosphere, atmosphere, and biosphere are each a system.] [Assessment Boundary: Assessment is limited to the inter actions of two systems at a time.]
  - Science (NJSLS-S 2014) 5-ESS2-2 Describe and graph the amounts and percentages of water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth. [Assessment Boundary: Assessment is limited to oceans, lakes, rivers, glaciers, ground water, and polar ice caps, and does not include the atmosphere.]

References:

- http://www.mosamack.com

Arts Integration Lesson #9

Presenter:
- Name: Patricia Kaminski
- Affiliation: Don Bosco Technology Academy, Paterson Public Schools

Title: Mehndi Hand Painting from Bangladesh

Grade Level (s): 6-8

Goals/Objectives:

Students will be able to:
- Identify the traditional art style of Mehndi Henna, including specific designs/symbols used.
- Research symbols and understand their significance to culture of Bangladesh and how symbols, lines and patterns are used to create henna art.
- Create a unique Mehndi design on skin and 2 dimensionally by creating a painting.

Materials:

Henna, paper, pencils, sharpies, watercolor paints, reference images with henna patterns

Vocabulary:

- For Art Component: Mehndi Henna, pattern, symbol, radial design, elements of art, watercolor wash
- For Science Component: Oxidation, Lawsonia inermis (Hina, Henna tree), molecule, UV light

Background Information:

How Mendhi/Henna paste is usually applied: To the skin using a plastic cone, a paintbrush or a stick. After about 15–20 minutes, the mud will dry and begin to crack, and during this time, a mixture of lemon juice and white sugar can be applied over the henna design to remoisten the henna mud so that the henna will stain darker. The painted area is then wrapped with tissue, plastic, or medical tape to lock in body heat, creating a more intense color on the skin. The wrap (not a traditional method), is worn for two to six hours, or sometimes overnight, and then removed. When first removed, the henna design is pale to dark orange in color and gradually darkens through oxidation, over the course of 24 to 72 hours. The final color is reddish brown and can last anywhere from one to three weeks depending on the quality and type of henna paste applied, as well as where it was applied on the body (thicker skin stains darker and longer than thin skin). Moisturizing with natural

oils, such as olive, sesame seed, or coconut, will also help extend the lifetime of the stain. Skin exfoliation causes the henna tattoo to fade.

Henna also known as Mehndi in Hindi- is a dye prepared from the plant *Lawsonia inermis*, also known as hina, the henna tree, the mignonette tree, are the sole species of the genus *Lawsonia*.

Summary on the leaf of the henna plant: It contains a finite amount of the Lawsone molecule. As a result, once the powder has been mixed into a paste, this leaching of the dye molecule into the mixture will only occur for an average of two to six days. After the initial seven-day release of lawsone dye, the henna leaf is spent, therefore any dye created by these commercial cones on the skin after this time period is actually the result of other compounds in the product.

Lawsone (2-hydroxy-1,4-naphthoquinone), also known as hennotannic acid, is a red-orange dye present in the leaves of the henna plant (*Lawsonia inermis*) as well as in the flower of water hyacinth (*Eichhornia crassipes*). Humans have used henna extracts containing lawsone as hair and skin dyes for more than 5,000 years. Lawsone reacts chemically with the protein keratin in skin and hair, in a process known as Michael addition, resulting in a strong permanent stain that lasts until the skin or hair is shed. The darker colored ink is due to more lawsone-keratin interactions occurring, which evidently break down as the concentration of lawsone decreases and the tattoo fades. Lawsone strongly absorbs UV light.

Activities/Procedures:

Art related activities:

- Opening discussion on Mehndi Henna and significance of this art form to the culture of Bangladesh. Students will look at many different images of henna patterns. Students will trace 2 hands/arms onto white paper thinking about composition. Students will draw Mehndi patterns, lines and symbols inside hand/arm. Next each line will be outlined with sharpie. Review process of watercolor wash. Students will choose 2-3 colors and paint a blended watercolor wash on top and around the henna hands filling up the entire space. Finished work will be displayed in school art gallery.

- Students can also create Mehndi henna paintings on their classmate's hands. Students will begin by practicing traditional symbols with pencil. Then they will practice using the henna on paper. Once students feel comfortable they will create henna designs on themselves or classmates. They will let the henna dry for approx. 1 hour, then peel top layer of henna.

Science related activities:

- This pertains to the Chemical Interactions unit and shows how plants can make something that is used in their society. This can be done to show how Henna is

derived from plants and interacts with the UV light and reacts chemically with the protein keratin in the skin and hair.

Standards:

- Visual and Performing Arts Standards: 1.1.8.D.1, 1.2.8.A.2, 1.3.8.D.1
- Social Studies Standards: 6.2.8
- Science Standards: Gather and make sense of information to describe that synthetic materials come from natural resources and impact society (MS-PS1-3)

References:

- https://www.newworldencyclopedia.org/entry/Mehndi
- https://www.youtube.com/watch?v=L1vKD5DCVPQ
- https://www.youtube.com/watch?v=cmi4ldtyCBE
- https://en.wikipedia.org/wiki/Lawsone

Arts Integration Lesson #10

Presenter:
- Name: Patricia Kaminski
- Affiliation: Don Bosco Technology Academy, Paterson Public Schools

Title: Folk Art from Bangladesh

Grade Level (s): 6-8

Goals/Objectives:

Students will be able to:
- Recognize folk art work from Bangladesh.
- Create a unique folk-art painting using traditional patterns and symbols native to Bengali artwork.
- Draw by using lines and colors.
- Compose and incorporate iconic symbols and pictures.

Materials:

Pencils, paper, sharpies, colored pencils, watercolor paint, images of Bengali folk art

Vocabulary:

Folk Art, Pattachtria, elements of art, pattern, repetition

Activities/Procedures:

Opening discussion Folk art from Bengali. Students will look at many images to understand common themes and patterns used. Students will pre-plan concept and begin to draw. Traditional folk art lines and patterns will be used and drawing will fill the entire page. All lines will be outlined with sharpie. Students will choose materials to create colorful composition- colored pencils, watercolor paints or markers will be used to color. Attention to detail and color will be used. Final projects will be hung for display in school art gallery.

Standards:

- Visual and Performing Arts Standards:1.1.8.D.1, 1.2.8.A.2, 1.3.8.D.1
- Social Studies Standards: 6.2.8

References:

- https://www.youtube.com/watch?v=fbkL6tww1Bg

Arts Integration Lesson #11

Presenter:
- Name: Patricia Kaminski (with Jennifer Post)
- Affiliation: Don Bosco Technology Academy, Paterson Public Schools

Title: Animal/Plant Cell Clay Sculpture

Grade Level (s): 6-8

Goals/Objectives:

Students will be able to:
- Identify major cell organelle for plants and animals.
- Create a clay sculpture model to represent each cell type.

Materials:

Pencils, paper, clay, water, clay tools, sponges, paint, brushes

Vocabulary:

Animal Cell, Plant Cell, organelle, mitochondria, vacuole, cytoplasm, chloroplast, clay, score, slip

Activities/Procedures:

Opening review discussion on plant and animal cell. Students will refer to prior knowledge learned in science class about plant and animal cells. Students will refer to animal /plant cell worksheet to understand how to create the sculpture. Teacher demo on how to start to create a sculpture by kneading the clay, scoring and slipping to attach pieces and basic foundation clay techniques. Students will begin to build cell sculpture. Students will make an animal and plant cell clay sculpture. Once dry students will be able to use their creativity to paint sculpture. Students will pay attention to color theory knowledge and painting skills.

Standards:

- Visual and Performing Arts Standards: 1.1.8.D.1, 1.2.8.A.2, 1.3.8.D.1

References:

- https://www.youtube.com/watch?v=fbkL6tww1Bg

Arts Integration Lesson #12

Presenter:
- Name: Hector Morales

Title: Exploring Latin American Culture Through Percussion

Grade Level (s): 4-12

Goals/Objectives:

Participants will learn about Latin American culture while exploring a variety of styles of African derived percussion from different countries of the Americas. While learning to play styles like the Son from Cuba, Bomba from Puerto Rico, Lando from Peru and the Samba from Brazil participants will understand the connection with the history and development of African derived percussion in the US and will also draw connections to cultural aspects associated with these countries and Latin American culture at large. Some of these aspects will include languages (songs in Spanish and Portuguese), cultural diversity (native and migrating groups), geographical characteristics and national celebrations/holidays (specially those associated with music).

Materials:

Bucket drums, drumsticks, cowbells/Ago-go bells/coffee Cans, Maracas/Shakers, guiros/scrappers, congas, bongos, cajones (box drums), pandeiro/tambourines, maps.

Vocabulary:

Percussion, Call and Response, Unison, Polyrhythm, Improvisation, Habanera, Cinquillo, Clave, Tresillo, Trans-Atlantic Slave Trade, Carnival, Found Objects, Comparsa, Viceroyalty, Mulatto (a), Inquisition.

Activities/Procedures:

- Participants will learn to play a style of Cuban music called *son*, which is the predecessor of *salsa*. While learning about the typical instruments used in this style, participants discuss the interaction between the three predominant cultures in Latin America: European, African and Native American. Participants will also understand how immigration from the Caribbean to NY resulted in the creation of the most popular style of Latin music called *salsa*.
- Participants learn to play a style of music from Peru called *festejo*. While learning about this style of music participants reflect on the many socio economical and political restrictions African slaves had to overcome in order to preserve their culture, and music in particular. As part of this reflection participants will learn about, see

and play different African derived percussion instruments created out of everyday objects. Participants will also learn about the most significant religious and secular celebrations in which African rooted music was performed, including of course the Carnival.

- Participants learn and listen to different styles of music/songs played in Latin America to celebrate the Carnival and also learn to play the *samba*, which is the most famous style of Brazilian music performed in this celebration. While learning to play this style of music participants draw parallels on how military band percussion instruments like snare drums and bass drums were played with an African based rhythmic approach. This analysis will help understand the syncretism between European and African musical traditions in the Americas.

Standards:

- ELA Standards: RL.6.5.
- Visual and Performing Arts Standards: 1.1.8.B.1, 1.1.8.B.2
- Social Studies Standards: 6.1.P.D.4, 6.1.4.A.14, 6.1.4.B.2, 6.1.4.B.10, 6.1.4.D.14, 6.1.4.D.15, 6.1.4.D.20, 6.1.8.D.1.b, 6.1.12.C.1.b, 6.2.12.D.1.e, 6.2.12.B.2.a
- Technology Standards: 8.2.8.B.5
- World Languages: English, Spanish and Portuguese.
- Career Readiness Practices: 9.2.8.B.4, 9.2.12.C.5

References:

- The Essence of Afro-Cuban Percussion and Drum set by Ed Uribe
- Congo Square: African Roots in New Orleans by Freddi Williams Evans
- World Music Drumming: A Cross Cultural Curriculum by Will Schmid
- De Cajon: Caitro Soto by Bernardo Roca Rey Miro Quesada

Arts Integration Lesson #13

Presenter:
- Name: Hector Morales

Title: Exploring African-American History Through Percussion

Grade Level (s): 4-12

Goals/Objectives:

Students will be able to: Play/Experience different styles of African-American music using a variety of percussion instruments made out of found objects. Participants will understand the historical context in which these styles were developed and the central role percussion instruments played in preserving and developing new forms of African based culture/music in the United States. Some of the styles/historical periods will include Hambone/Slavery, Second Line/Post Emancipation Proclamation, Jazz/Harlem Renaissance-Jazz Age and Hip-Hop/Post Civil Rights Movement-Contemporary.

Materials:

Bucket Drums, Drumsticks, Bells/Coffee Cans, Tambourines/Shakers, Wash Boards/Scrappers, Software Programs (GarageBand-Drummy).

Vocabulary:

Percussion, Call and Response, Unison, Polyrhythm, Improvisation, Habanera, Cinquillo, Clave, Tresillo, Trans-Atlantic Slave Trade, Congo Square, Louisiana Purchase, Emancipation Proclamation, Harlem Renaissance, Civil Rights Movement.

Activities/Procedures:

- Participants will use buckets and drumsticks to play three of the most common rhythmic cells present in African derived music in the US and the rest of the Americas: Habanera, Tresillo and Clave. In order to understand how these rhythmic structures were able to survive and thrive in the US participants learn about a historical place in New Orleans called Congo Square.

- Participants understand how historical events such as the Emancipation Proclamation allowed for new styles of African-American music like the Blues to flourish. In order to understand one of the musical elements that make this style unique and the great influence it had in later styles of African-American music like Jazz, R&B and Soul, participants get familiar with the Blues Scale. Participants experience another element typical of African derived music called improvisation.

- Finally, using bucket drums and a software program called Drummy participants get to create rhythmic sequences in the style of music called Hip-Hop and become acquainted with other musical elements typical of African-American music like backbeat, syncopation and call and response. We will learn about the historical aspects in which this contemporary style of music develop and draw connections with previous styles and historical eras.

Standards:

- Visual and Performing Arts Standards: 1.1.8.B.1, 1.1.8.B.2
- Social Studies Standards: 6.1.4.D.3, 6.1.4.A.9, 6.1.4.D.3, 6.1.4.D.9, 6.1.4.D.14, 6.1.4.D.15, 6.1.8.D.1.b, 6.1.8.D.2.a, 6.1.8.B.4.a, 6.1.12.D.3.e, 6.1.12.D.8.b
- Technology Standards: 8.1.5.A.1, 8.2.8.B.5
- Career Readiness Practices: 9.2.8.B.4

References:

- Congo Square: African Roots in New Orleans by Freddi Williams Evans
- Narrative of The Life of Frederick Douglas by Frederick Douglas
- The First Book Of Jazz by Langston Hughes
- 44th Anniversary of The Birth of Hip-Hop https://www.google.com/doodles/44th-anniversary-of-the-birth-of-hip-hop

Arts Integration Lesson #14

Presenter:
- Name: Jennifer Post
- Affiliation: Don Bosco Technology Academy, Paterson Public Schools

Title: Designing My Element

Grade Level (s): 6-8

Goals/Objectives:

Students will be able to:
- Identify the elements on the Periodic Table and also design a tile for that element with items that describe/identify/define their element.
- Organize ideas on how to combine pictures, captions, and dialogue to tell about their specific element.
- Develop a Periodic Table of Elements created by the students using their individual element tiles

Materials:

Periodic Table and list of elements. Scrap paper for each student. Pencil for each student. Internet access. Small 8x10 Canvas/foam board/poster board for each student. Paintbrushes. Paint. Rulers. Colored pencils, crayons or markers, glitter or texture materials. Magazines/newspapers/printer paper.

Vocabulary:

Periodic table, elements, atomic mass, atom, nucleus, proton, neutron, electron, atomic number

Activities/Procedures:

This lesson should be done after the introduction of the periodic table and to give the students a sense of ownership over their learning of the elements.

- Hand out the worksheet that explains the layout of the periodic table and the main elements that are on the table.
- Show the students examples of the tables from pervious classes for the whole class to see. Students will then be assigned an element that they will have to design a tile for. The students are encouraged to research their element and include those facts on the back of the tile. On the tile they are to recreate the letters and numbers that associate with their element. They will also be encouraged to research and either draw/print/paint/cut out pictures that represent their element.

- Explain to the students that they will be creating their tiles to be displayed in a large periodic table in the hallway. They will be responsible for presenting their element and all facts for it in their classroom.

Standards:

- *Mathematics Standards:*
  MS-PS1-1, MS-PS1-3. Develop models to describe the atomic composition of simple molecules and extended structures. Students will compare the properties and categories of various elements

References:

- Parts of this lesson were taking from teacherspayteachers.com

Arts Integration Lesson #15

Presenter:
- Name: Jennifer Post
- Affiliation: Don Bosco Technology Academy, Paterson Public Schools

Title: Cells with Clay

Grade Level (s): 6-8

Goals/Objectives:

Students will be able to:
- Identify the parts of both animal and plant cells (Bacterium Cells can also be used for this lesson as well as other cells).
- Organize ideas on how to combine pictures, captions, and dialogue to tell about their specific cell.
- Develop a cell out of clay with all of the cell parts labeled.

Materials:

Periodic Table and list of elements. Scrap paper for each student. Pencil for each student. Internet access. Clay in different colors. Colored pencils, crayons or markers, glitter or texture materials.

Vocabulary:

Membrane, Nucleus, cytoplasm, lysosomes, mitochondria, organelle, cell wall, ribosome, golgi apparatus, vacuole

Activities/Procedures:

This lesson should be done after the introduction of the cells and the vocabulary and examples of the cells.

- Hand out the worksheet that explains the layout of the cells and their different parts, including vocabulary definitions.
- The students will choose the type of cell that they will be designing and start to draw out their design. The objective is to draw the cell and the colors first and then place the clay over the different parts to create a 3 dimensional figure of the cell. The students are encouraged to use texture and to research texture to create their cells. Each part is to be labeled and defined for their cell.
- Explain to the students that they will be creating their cells to be on display in and out of the classroom. Each student will be responsible for presenting their cell and explaining their different parts.

Standards:

- *Mathematics Standards:*
  MS-LS1-1, MS-LS1-2. Develop and use a model to describe the function of a cell as a whole and ways parts of cells contribute to the function.

Arts Integration Lesson #16- #19

Presenter:
- Name: Helene Prevosti
- Affiliation: Paterson School #12

Title: Proportions in Mathematics, Golden Ratio, Fibonacci Sequence, and Patterns

Grade Level (s): 6-8

Goals/Objectives:

Students will be able to:
- Find mathematical patterns, sequences, and proportions in the scientific world we live in.

Materials:

Worksheets (handouts)
- The Divine Proportion Activity
- Fibonacci Sequence Activity
- Pascal's Triangle Activity

Graph paper
Colored pencils
Calculators if needed
Compasses if needed

Vocabulary:

Proportion, ratio, unit rate, sequence, pattern, function, spiral, recursive, exponential, domain, integers

Historic people: Blaise Pascal, Leonardo Pisano Bigollo (Fibonacci), Leonardo DaVinci

Activities/Procedures:

1. The Divine Proportion Worksheet
2. Hands on Fibonacci sequence
3. Hands on Pascal's Triangle

- Activities' underlying questions: How were mathematical proportions and patterns discovered in the natural world around us? Are there mathematical connections in these scientific patterns? How have these natural proportions affected architecture, history, and the arts?

Standards:

- *Mathematical Practice Standards:*
  MP.1 Make sense of problems and persevere in solving them. MP.2 Reason abstractly and quantitatively. MP.3 Construct viable arguments and critique the reasoning of others. MP.4 Model with mathematics. MP.5 Use appropriate tools strategically. MP.6 Attend to precision. MP.7 Look for and make use of structure. MP.8 Look for and express regularity in repeated reasoning.
- *Mathematics Content and Practice Standards:*
  Algebra 1:
  (F.IF.A.3.) Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers. For example, the Fibonacci sequence is defined recursively by f(0) = f(1) = 1, f(n+1) = f(n) + f(n-1) for n ≥ 1.
- *Middle Grades:*
  (7.RP.A.2a) Determine if a proportional relationship exists between two quantities e.g. by testing for equivalent ratios in a table or graph on the coordinate plane and observing whether the graph is a straight line through the origin.
  (7.RP.A.2b) Identify the constant of proportionality (unit rate) from tables, graphs, equations, diagrams, and verbal descriptions. (7.RP.A.2b)
- Integrated Standards:
  - Science Standards: (HS-ETS1-3) (Environmental Sciences) Analyze qualitative and quantitative information to identify relationships.
  - Visual and Performing Arts Standards: (1.3.8.D.1) Create two- and three-dimensional works of art using the basic elements of color, line, shape, form, texture, and space, as well as a variety of art mediums and application methods.
  - Social Studies Standards: (6.2.8.B.3 and 6.2.8.D.3f) Students will draw geometric shapes while discovering the history of geometry (that pertains to the activity)
  - Technology Standards: (NT.K-12.1) (8.1) Basic Operations and Concepts: Students will be proficient in the use of technology
  - Career Readiness Practices: (CRP2.) Apply appropriate academic and technical skills. Career-ready individuals readily access and use the knowledge and skills acquired through experience and education to be more productive. They make connections between abstract concepts with real-world applications, and they make correct insights about when it is appropriate to apply the use of an academic skill in a workplace situation.

References:

- https://www.state.nj.us/education/cccs/frameworks/math/a1.pdf
- https://www.state.nj.us/education/aps/cccs/career/CareerReadyPractices.pdf
- http://www.maths.surrey.ac.uk/hosted-sites/R.Knott/Fibonacci/fibnat.html
- https://www.state.nj.us/education/cccs/2014/arts/13.pdf
- https://www.goldennumber.net/pascals-triangle/

Arts Integration Lesson #20

Presenter:
- Name Triada Samaras
- Affiliations: William Paterson University

Title: Pendulums and Fibonacci

Grade Level (s): 6-12

Goals/Objectives:

Students will be able to:
- Identify the physics of a pendulum.
- Discover the forces of emotion and gravity using a swinging a paint brush instead of a pendulum.
- Identify the pendulum designs are the are related to mathematics, in particular the Fibonacci sequence.

Materials:

Paint, large roll of paper, string, plastic bottle, foam cups, tempera paint, paper towel, drop cloth, 2 chairs, broom or dowel

Vocabulary:

Pendulum, pendulum painting, forces, gravity, motion, Fibonacci sequence, spiral

Activities/Procedures:

- Students will create a swinging pendulum with paint.
- Students will create artistic designs with the swinging pendulum based on speed (velocity), angle, and other discovered factors.
- Students will observe the patterns of the swinging pendulum designs.
- Students will connect these designs to mathematics, specifically the Fibonnaci sequence which underlies the design of many types of spirals and other forms in nature.

Standards:

- *Science Standards:*
  MS-PS1-3:Engineering advances have led to important discoveries in virtually

every field of science, and scientific discoveries have led to the development of entire industries and engineered systems.

- *Visual Arts Standards:*
  1.3.8.D.6 The visual possibilities and inherent qualities of traditional and contemporary art materials (including digital media) may inform choices about visual communication and art making techniques.
  1.3.8.D.3 The classification of art into various art genres depends on the formal aspects of visual statements (e.g., physical properties, theoretical components, cultural context). Many genres of art are associated with discipline-specific arts
  1.1.8.D.1 Art is a universal language. Visual communication through art crosses cultural and language barriers throughout time.
- *Mathematics Practices:*
  1. Make sense of problems and persevere in solving them.
  2. Reason abstractly and quantitatively.
  3. Construct viable arguments and critique the reasoning of others.
  4. Model with mathematics.
  5. Use appropriate tools strategically.
  6. Attend to precision.
  7. Look for and make use of structure.
  8. Look for and express regularity in repeated reasoning

References:

- YouTube video of a swinging pendulum create a magnificent spiral: https://www.youtube.com/watch?v=v4gzuwaTHd0
- Fibonnaci and the pendulum: https://www.pinterest.com/pin/312648399107210703/?lp=true
- Fibonacci sequence and the golden section: https://www.homeschoolmath.net/teaching/fibonacci_golden_section.php

Arts Integration Lesson #21

Presenter:
- Name: Triada Samaras
- Affiliation: William Paterson University

Title: Poetry and Art

Grade Level (s): K-12

Goals/Objectives:

Students will be able to:
- Recognize that poetry and artmaking are related.
- Discover that one art form can vastly affect another one.
- Experiment with ordinary newspaper texts that can be an inspiration for successful poetry and artwork.
- Create using the elements of art and principles of design in the visual arts and apply these to poetry with some minor adaptations.

Materials:

Newspaper text, glue sticks, paper, markers, pencils, scissors.

Vocabulary:

Listen intentionally, musicality, rhythm, composition, color, movement, emotions, speed, intensity

Activities/Procedures:

- Students will listen to several works by world-renown poets:
  - William Carlos Williams *4rth of July*
  - Maya Angelou *Caged Bird*
  - Alfonsina Storni *Lighthouse in the Night.*
- Students will draw as poems are read to them.
- Students will learn about the art of the Zentangle.
- Students will learn how to use newspaper text in their artworks.

References:

- The Natural Relationship Between Art and Poetry
https://www.zippi.co.uk/thestudio/the-natural-relationship-between-art-poetry/

Arts Integration Lesson #22

Presenter:
- Name: Triada Samaras (with Monica Aramayo)
- Affiliations: William Paterson University and New Roberto Clemente School

Title: Circuits in Art (Science)

Grade Level (s): 6-12

Goals/Objectives:

Students will be able to:
- Complete a circuit using hands-on materials.
- Identity different circuits (e.g., simple circuit, parallel circuit and the DIY Switch).
- Add a completed circuit to their Surrealist Art created with Monica Aramayo.

Materials:

Simple circuit materials: Conductive copper tape, 3V coin cell battery, binder clip or paper clip, paper, 3V coin cell battery, LED lights or LED light stickers

Vocabulary:

Circuit, simple circuit, parallel circuit, copper tape, switch, paper circuit, closed circuit

Activities/Procedures:

- Students will learn how to make a simple circuit using a template and materials provided:
  LED circuit stickers, 3V coin cell battery, binder clip, conductive foil tap
- Students will learn how to make a parallel circuit.
- Students will design circuits into their Surrealist artworks created with Monica Aramayo. They will decide where and how to place these circuits to give a “lit” effect to selected areas of their drawings. They will work in pairs and brainstorm together.
- Students will share their completed ‘Circuits in Art’ works with each other and discuss outcomes as well as plans to transfer this activity to the classroom

Standards:

- *Science Standards:*

- MS-PS1-3:Engineering advances have led to important discoveries in virtually every field of science, and scientific discoveries have led to the development of entire industries and engineered systems.
- MS-PS1-6 The transfer of energy can be tracked as energy flows through a designed or natural system.

- *Visual Arts Standards:*

  - 1.3.8.D.6 The visual possibilities and inherent qualities of traditional and contemporary art materials (including digital media) may inform choices about visual communication and art making techniques.
  - 1.3.8.D.3 The classification of art into various art genres depends on the formal aspects of visual statements (e.g., physical properties, theoretical components, cultural context). Many genres of art are associated with discipline-specific arts
  - 1.1.8.D.1 Art is a universal language. Visual communication through art crosses cultural and language barriers throughout time.

- *Career Readiness Practices:*

  - Practices:CRP2: Apply appropriate and technical skills. Career-ready individuals readily access and use the knowledge and skills acquired through experience and education to more productive. They make connections between abstract concepts with real-world applications and they make correct insights about when it is appropriate to apply the use of an academic skill in a workplace situation.

References:

- Grade 6 Unit 3 Foss Electromagnetic Forces used in the Paterson Public Schools District-wide Science Curriculum: http://www.paterson.k12.nj.us/11_curriculum/science/GRADE%206/Grade%206%20Unit%203.pdf

- Maker Space Paper Circuits: https://www.makerspaces.com/paper-circuits/

Arts Integration Lesson #23

Presenter:
- Name: Simone Sandler
- Affiliation: William Paterson University

Title: Mandalas/ Recycled CD's

Grade Level (s): 4-12

Goals/Objectives:

Students will be able to:
- Create a Mandala using a protractor and ruler.
- Compose a design that uses patterns and a variety of geometric shapes.
- Align the research on Mandalas to its place in history (Tandric Buddhism and Jainism).
- Incorporate symbolism and iconic pictures into the design elements.

Materials:

CD's , permanent colored markers, protractor, pencil, ruler

Vocabulary:

Mandalas, Tandric Buddhism, Tantric Hinduism, Jainism, Sanskrit, radial symmetry, radius, diameter, circumference, design principals, elements of art, spiritual, symbolic art, degrees

Activities/Procedures:

- Using a recycled CD, students draw a circle on a piece of paper that will fit under the CD
- Using a protractor, students find the center of the circle with a pencil and ruler.
- Students determine how many divisions will be placed in the design .
- Students will then have to determine the angle degrees for each section.
- Using black permanent markers, the lines of division are drawn.
- Next, students design the inside of the predetermined shapes using symbolism, patterns and geometric shapes. Special attention is needed to create the radial symmetry design. Students use colored permanent markers to complete the design. Finished work can be displayed as a group mural.

Standards:

- Mathematics Standards: MP 1
- ELA Standards:R4 W7
- Science Standards: HS-PS1
- Visual and Performing Arts Standards:1.1.2,1.3.2,1.4.2
- Social Studies Standards: 6.1,2,3 All Strands 6.2.D
- Technology Standards:8.1
- Career Readiness Practices: CRP 4,6

References:

- http://www.ancient.eu/mandala

Arts Integration Lesson #24

Presenter:
- Name: Simone Sandler
- Affiliation: William Paterson University

Title: Origami Cube

Grade Level (s): 4 - 12

Goals/Objectives:

Students will be able to:
- Transform six flat two dimensional square pieces of paper into a three-dimensional cube.
- Arrange finished cube into a sculpture .
- Use various folding techniques and math terminology.
- Weave the units into a regular hexahedron or cube. Students will align the math information while creating their cube.

Materials:

6x6 inch square of origami paper , white and variety of colors, scissors, rulers, masking tape.

Vocabulary:

Origami, Japanese Edo Period, formal balance, symmetrical balance, informal balance, radial symmetry, bilateral symmetry, fulcrum, space, pattern, plane, central axis, right angles, trapezoid, parellegram, two vs three dimensions, edge, face, vertex, hexahedron

Activities/Procedures:

- Using formal balance/symmetrical balance, informal balance and radial symmetry students design what kind of cube they will make. Students use their six origami sheets (ori meaning folding and kami meaning paper) to fold into squares. Students research the history of paper folding associated with the Japanese culture. Students create the six sheets of origami paper into identical folding techniques. Incorporating various math terms students identify the math words used in the paper folding project. Students fold into radial symmetry design using flat shapes that become three dimensional.

- Students will use the various math terms as they are working on the project.

Students should be able to illustrate examples of radial symmetry, formal balance and informal balance in their notebooks.

Standards:

- Mathematics Standards:MP1,4,7
- ELA Standards:R1 R9
- Science Standards:K, 2ETS1,3-5ETS1,MS-ETS1
- Visual and Performing Arts Standards:1.1,1.2.D.1.3,1.4
- Social Studies Standards:6.1,2,3 All Strands6.2.D History, Culture,
- Technology Standards: 8.1
- Career Readiness Practices: CRP 4 , CRP 6 CRP 11

References:

- http://www.origami-instructions.com/history

Arts Integration Lesson #25

Presenter:
- Name: Janette Selino
- Affiliation: New Roberto Clemente, Paterson Public Schools

Title: Greeting Cards for Diversity and Holidays/ Reality Based Project

Grade Level (s): 6-8

Goals/Objectives:

Students will be able to:
- Use Microsoft Publisher to create meaningful, creative, personal, greeting cards.
- Engineer the Greeting Card Design Process and understand what is involved in each step.
- Organize ideas on how to combine pictures, captions, and dialogue to express a message.
- Develop a four-sided foldable greeting card to convey a message and insert a variety of personal graphics to coincide with their created dialogue.
- Get the opportunity to hand deliver or e-mail their artistically created greeting card to their respective recipient.

Materials:

Internet Access, Microsoft Publisher

Vocabulary:

Microsoft Publisher, graphics, insert, copy, paste, creative messages, Youtube.com for continuous learning about Publisher

Activities/Procedures:

- Show students a YouTube video or a Screencastify about Microsoft Publisher/ Creating Greeting Cards.
- Create a Teacher Made Rubric on expectations of final project. Present to students using the google classroom platform or teacher worksheet handout/ or using your white board.
- Direct students to go to Microsoft Publisher which can be found in Microsoft Office.
- Introduce students to the platform of Microsoft Publisher and the many creative options that are included in the Microsoft Publisher platform.
- Direct students to Greeting Cards.
- Decide what type of greeting card would be appropriate for your classroom.

- Show students how to navigate through the 4 parts of the greeting card; front, inside cover, inside, back.
- Students will follow your teacher made rubric to create their own personal greeting card to their respective recipient.
- Explain to students that they can select their own graphics using google image search or they can use the graphics on the Publisher platform.
- Show students how to insert their own personal text to customize their greeting cards with their own personal message.
- When students are satisfied with their greeting cards and followed all directions on their rubric, they will be directed to save and name their work. Lastly, students will print their cards or e-mail to their recipient.
- As the teacher, you will decide how the students will deliver their cards. You can also create a bulletin board and display all their custom-made greeting cards for all recipients to view

Standards:

- *Technology Standards:*
  - 8.1.8.A.1 Demonstrate knowledge of a real world using digital tools.
  - 8.1.8.A. 2 Create original works as a means of personal or group expression.
  - 8.1.8.B.1 Synthesize and publish information about a local or global issue or event
  - 8.2 Technology Education, Engineering, Design, and Computational Thinking - Programming: All students will develop an understanding of the nature and impact of technology, engineering, technological design, computational thinking and the designed world as they relate to the individual, global society, and the environment.
- *Career Readiness Practices:*
  - CRP6. Demonstrate creativity and innovation.

References:

- Paterson Public Schools Technology/Language Arts Curriculum

Arts Integration Lesson #26

Presenter:
- Name: Janette Selino
- Affiliation: New Roberto Clemente, Paterson Public Schools

Title: Using Postermywall.com to Create Hispanic Month Diversity Posters/ Reality Based Arts Integration Project

Grade Level (s): 4-8

Goals/Objectives:

Teacher/Students will be able to:

- Create a postermywall. Com account to use for all Diversity projects and any reality based posters that would be needed in any classroom. For example: Graduation Posters, School Activity Posters, Science Posters, Math Posters, Social Studies Posters, Welcome Back Posters, etc
- Use Postermywall.com to create Hispanic Heritage Month Diversity Posters.
- Engineer a creative, colorful, artistic poster while researching Hispanic Heritage facts to include on their posters.
- Organize ideas on how to combine pictures, captions
- Express a message about Hispanic Heritage Month and learn how to navigate around a new free web-based program for creating posters.

Materials:

Internet Access to a free web-based program called postermywall.com

Vocabulary:

Postermywall.com, graphics, insert, copy, paste, creative messages, templates, media ,text, layout , clipart, background (Youtube.com for continuous learning about postermywall.com).

Activities/Procedures:

- Show students a YouTube video or a Screencastify about the web-based program called postermywall.com.
- Create a free web-based account that will save posters for a lifetime on postermywall.com.
- Show teacher/student a custom-made academic rubric on expectations of final postermywall project. Present to teacher/students using the goggle classroom platform or teacher worksheet handout/ or using your white board.

- Explain all the components of the postermywall platform.
- Show teacher/students all the variations of templates that they will have access to
- Direct teacher/students to look for a Spanish Heritage template.
- For this lesson all participants will use the same template so that everyone can collaboratively can learn the functions of the postermywall.com platform
- Design a Spanish Heritage Poster with the participants in which they will be attending a Spanish Heritage Luncheon.
- Teach how to save, print, and e-mail the poster.
- Have all participants create their own poster on a subject of their choice.

Standards:

- *Technology Standards:*
  - 8.1.8.A.1 Demonstrate knowledge of a real world using digital tools.
  - 8.1.8.A. 2 Create original works as a means of personal or group expression.
  - 8.1.8.B.1 Synthesize and publish information about a local or global issue or event
  - 8.2 Technology Education, Engineering, Design, and Computational Thinking - Programming: All students will develop an understanding of the nature and impact of technology, engineering, technological design, computational thinking and the designed world as they relate to the individual, global society, and the environment.
- *Career Readiness Practices:*
  - CRP6. Demonstrate creativity and innovation.

References:

- Paterson Public Schools Technology/Language Arts Curriculum

Arts Integration Lesson #27

Presenter:
- Name: Janette Selino
- Affiliation: New Roberto Clemente, Paterson Public Schools

Title: Introduction to Code.Org for All Classroom Teachers

Grade Level (s): K-8

Goals/Objectives:

- Teachers/students will be introduced to the Code.Org platform.
- Teachers/students will learn how to introduce their students to Computer Science Skills.
- Teachers/students will view a Code.Org video about the very popular “Hour of Code”.
- Teachers /students will be able to complete at least 20 lines of Code in a Code.org activity.
- Teachers /students will be able to use the Code. Org platform in their classrooms.

Materials: Internet Access to Code.Org

Vocabulary: Coding, Computer Science, algorithms, blockly code, lines of code, Code.Org, Hour of Code.

Activities/Procedures:

- Show teachers/students a movie about the importance of Computer Science and Technology for 21st Century learning.
- Show teachers/students how sign on and use the Code.org platform and components within the platform to use in their respective classrooms.
- Explain and show how Code.Org was used for the PPS Curriculum for grades 6,7,and 8th grade in the 20018-2019 school year.
- Direct teachers/students to go to the Code.org platform and select an activity that everyone will do together by writing lines of code (For example, Minecraft is relatable to students).
- Direct teachers/students to complete the activity by using the correct (number of blocks) vs. the incorrect (number of blocks) way to complete the blockly code. Org activity.
- Give teachers/students time to tinker and discuss their code.org activity with others in the class. Always encourage collaboration and accountable talk with teachers/students when working in the Code.org platform.
- Tell teachers/students to challenge themselves to complete “An Hour of **Code”**

activity and print their certificate at the end of the activity.

Standards:

- *Technology Standards:*
  - 8.1.8.A.1 Demonstrate knowledge of a real world using digital tools.
  - 8.1.8.A. 2 Create original works as a means of personal or group expression.
  - 8.1.8.B.1 Synthesize and publish information about a local or global issue or event
  - 8.2 Technology Education, Engineering, Design, and Computational Thinking - Programming: All students will develop an understanding of the nature and impact of technology, engineering, technological design, computational thinking and the designed world as they relate to the individual, global society, and the environment.
- *Career Readiness Practices:*
  - CRP6. Demonstrate creativity and innovation.

References:

- Paterson Public Schools Technology Curriculum