

ARTS IMPACT PROJECT BASED LEARNING UNIT PLAN

Theater and STEM Infused PBL Unit

Equality, Sharing, and Fairness

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Grade Level: Kindergarten – First Grade

Project Idea:

Students explore the concepts of sharing and fairness through theater and math. After performing equations with numbers and symbols as characters, the project would move into the social concept of sharing, and ask the questions, "What is equity/what is fairness?" Through developing puppet shows that display scenes of sharing at work, the students will communicate their understanding with their peers, the other students at the school.

Driving Question:

How can we be fair and share?

Unit Summary (Completed at end of project. Use for sharing out public product.)

First, the students work on developing and deepening their mathematical understanding of the functions of symbols in equations (+, -, =). Next, they further their mathematical understanding by performing equations, with the numbers and symbols as characters. They explore equity and fairness and how to share. Finally they present their thinking by creating and performing a puppet show.

Learning Targets and Assessment Criteria

Target: Understands the function of the equal sign in math.

Criteria: Performs an equation and places the equal sign in the appropriate location.

Target: Understands the function of the plus sign and minus sign in math.

Criteria: Applies the attributes of the individual symbol (+, -) to its corresponding character in the performance of an equation.

Target: Understands the concept of equity/fairness.

Criteria: Solves the problem of unfairness by making sure that everyone can see an object clearly.

Target: Understands the concept of sharing.

Criteria: Performs effective ways to share using puppets.

Target: Collaborates with others.

Criteria: Communicates ideas to others; makes compromises; incorporates input/feedback.

Vocabulary	Materials
<u>Arts:</u> Action Character Physical Choice Vocal Choice <u>Arts Infused:</u> Attributes <i>continued</i>	Resources (Websites, experts, texts) Math curriculum Museum Artworks or Performance Seattle, WA Book-It Theater Living Voices Seattle Children's Theatre Tacoma, WA Broadway Center for the Performing Arts Materials Bubbles, puppets/stuffed animals, sheets/butcher paper, number cards, math symbol cards, Class assessment worksheet

STEM:

Equation

Function

Symbols (+, -, =)

Social Emotional Learning:

Empathy

Equity

Fairness

Sharing

21st Century Skills:

Collaboration

Standards to Drive the Inquiry**Arts****WA Arts Learning Standards**

For the full description of each anchor standard and the grade level performance standards, see:

<http://www.k12.wa.us/Arts/Standards>

Anchor Standard 1: Generate and conceptualize artistic ideas and work.

Performance Standard (TH:Cr1.1.K): a. With prompting and support, invent and inhabit an imaginary elsewhere in dramatic play or a guided drama experience (e.g., process drama, story drama, creative drama). b. With prompting and support, use non-representational materials to create props, puppets, and costume pieces for dramatic play or a guided drama experience (e.g., process drama, story drama, creative drama).

Performance Standard (TH:Cr1.1.1): a. Propose potential choices characters could make in a guided drama experience (e.g., process drama, story drama, creative drama). c. Identify ways in which gestures & movement may be used to create or retell a story in guided drama experiences (e.g., process drama, story drama, creative drama).

Anchor Standard 2: Organize and develop artistic work.

Performance Standard (TH:Cr2.1.K): a. With prompting and support, interact with peers and contribute to dramatic play or a guided drama experience (e.g., process drama, story drama, creative drama). b. With prompting and support, express original ideas in dramatic play or a guided drama experience (e.g., creative drama, process drama, story drama).

Performance Standard (TH:Cr2.1.1): a. Contribute to the development of a sequential plot in a guided drama experience (e.g., process drama, story drama, creative drama). b. With prompting and support, participate in group decision making in a guided drama experience (e.g., process drama, story drama, creative drama).

Anchor Standard 3: Refine and complete artistic work.

Performance Standard (TH:Cr3.1.K): a. With prompting and support, ask and answer questions in dramatic play or a guided drama experience (e.g., process drama, story drama, creative drama).

Performance Standard (TH:Cr3.1.1): a. Contribute to the adaptation of the plot in a guided drama experience (e.g., process drama, story drama, creative drama).

Anchor Standard 4: Select, analyze, and interpret artistic work for presentation.

Performance Standard (TH:Pr4.1.K): a. With prompting and support, identify characters and setting in dramatic play or a guided drama experience (e.g., process drama, story drama, creative drama).

Performance Standard (TH:Pr4.1.1): b. Use body, face, gestures, and voice to communicate character traits and emotions in a guided drama experience (e.g., process drama, story drama, creative drama).

Anchor Standard 6: Convey meaning through the presentation of artistic work:

Performance Standard (TH:Pr6.1.K): a. With prompting and support, use voice and sound in dramatic play or a guided drama experience (e.g., process drama, story drama, creative drama).

Performance Standard (TH:Pr6.1.1): a. With prompting and support, use movement and gestures to communicate emotions in a guided drama experience (e.g., process drama, story drama, creative drama).

Anchor Standard 9: Apply criteria to evaluate artistic work.

Performance Standard (TH:Re9.1.K): a. With prompting and support, actively engage with others in dramatic play or a guided drama experience (e.g., process drama, story drama, creative drama).

Performance Standard (TH:Re9.1.1): a. Build on others' ideas in a guided drama experience (e.g., process drama, story drama, creative drama).

Anchor Standard 10: Synthesize/relate knowledge and personal experience to make art:

Performance Standard (TH:Cn10.1.K): a. With prompting and support, identify similarities between characters and oneself in dramatic play or a guided drama experience (e.g., process drama, story drama, creative drama).

Performance Standard (TH:Cn10.1.1): a. Identify character emotions in a guided drama experience (e.g., process drama, story drama, creative drama) and relate it to personal experience.

Math**Common Core State Standards (CCSS) in Math**

<http://www.k12.wa.us/Mathematics/Standards.aspx>

[K.OA.A.2](#): Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.

[K.OA.A.3](#): Decompose numbers less than or equal to 10 into pairs in more than one way, e.g., by using objects or drawings, and record each decomposition by a drawing or equation (e.g., $5 = 2 + 3$ and $5 = 4 + 1$).

[1.OA.D.7](#): Understand the meaning of the equal sign, & determine if equations involving addition & subtraction are true or false. For example, which of the following equations are true and which are false? $6 = 6$, $7 = 8 - 1$, $5 + 2 = 2 + 5$, $4 + 1 = 5 + 2$.

[1.OA.C.6](#): Add and subtract within 20, demonstrating fluency for addition and subtraction within 10.

CCSS Mathematical Practices

MP.2. Reason abstractly and quantitatively.

MP.3. Construct viable arguments and critique the reasoning of others.

MP.4. Model with mathematics.

Social and Emotional Learning

2. Self-Management – Individual develops and demonstrates the ability to regulate emotions, thoughts, and behaviors in contexts with people different than oneself.

4. Social Awareness – Individual has the ability to take the perspective of and empathize with others from diverse backgrounds and cultures.

5. Social Management – Individual has the ability to make safe and constructive choices about personal behavior and social interactions.

21st Century Skills

<http://www.p21.org/our-work/resources/for-educators>

- Critical Thinking: *Asks clarifying questions; uses evidence to question or explain creative choices; constructs meaning*
- Collaboration: *Communicates ideas to others; makes compromises; and incorporates input/feedback*

Teacher Project Planning

(Questions for teachers.)

1. *What will the entry event be to launch this unit?*

The "Bubble Event". Students will enter the room that is set up with a scenario that will require them to share and take turns (examples: a limited number of jars of bubbles, sharing the vacuum cleaner, sharing toys, etc). Teacher guides students as they figure out an equal way to share before starting.

2. *What resources might we need?*

(Experts, fieldtrips, texts, websites, data, equipment, materials)

Bubbles, puppets/stuffed animals, sheets/butcher paper, number cards, math symbol cards.

3. *What is the duration of this unit?*

January – February

4. *What will be group work?*

In groups of 3-4, students will act out equations and create puppet shows.

What will each individual student do?

Play a role in group performances; work on individual math problems/worksheets; create a character for their puppet.

5. *What will the formative assessments/moments for reflection be?*

(Journal entries, plans, outlines, rough drafts, sketches, turn and talk, physical brainstorm, idea mapping, diagramming)

Individual assessments acting out equations, characters, numbers, participation in group discussions, exit ticket.

6. *What will the summative assessment/ public product be?*

(Performance, exhibition, publication, public presentation, website, instillation)

Performing of fairness scenes for pre-K and other classes.

Facilitating Student Understanding of the Problem

(Questions to guide student inquiry.)

1. *What do we know about this problem before we begin?*
2. *What do we need to learn in order to solve it?*
3. *Where will we look for resources?*
4. *Who is our audience? Who will be helped by our solution?*
5. *How will we share our solution?*
6. *How will we assess our own learning?*

PBL Unit Outline of Inquiry

(Begin each step with a question. Follow that with a brief description of what students do to address the question.)

1. How can we understand the relationship of the symbols (+, -, =) in an equation?

- The students will explore the mathematical properties of addition and subtraction. Students will also increase knowledge/understanding of how an equation functions in relation to the equals sign through practice and skills building. Curricular methods/forms of inquiry may include:

What is equal?

Greater than, less than

10 Fame

Visual

Cutting shapes

Graphing

Sorting

Strips of paper

Measuring

Saying "equal" vs "the same as" for concepts of equal sign

Student reflection and assessment: Explores addition, subtraction, and equality and their respective symbols. Communicates ideas to others; makes compromises; incorporates input/feedback.

2. How can we perform an equation?

- The students will use theater to dramatize an equation, using the characters within an equation, such as $2+3=5$. Working in groups, the students will use the attributes of the individual characters to show an equation. Example of attributes:
 - Addition is the “bringer on” to the party, it brings more friends.
 - Subtraction is the sneaky thief, who “removes/steals” from the party.
 - Equal sign is the “balancer, always looking to keep things the same on both sides (left and right).

Sample prompts: What would an addition sign walk like? What would the number 1 walk like? What would the number 2 walk like? What gesture could the equal sign use to show balance? What would your physical choices be to move like that character? What might you do with your voice to sound like that character?

- With the guidance of the teacher, students could develop and create simple props/costume pieces for the different characters in the equation.
Examples: Placards that show the symbols $+$, $-$, $=$
Hats, scarves, t-shirts that have individual characteristics
A set of scales for the equal sign character
Glasses, gloves, wigs, etc.
- A short video can be shot of each group performing their “equation party” that clearly displays the function of the symbols ($+$, $-$, $=$) in the equation.

Student reflection and assessment: Performs an equation and places the equal sign in the appropriate location. Applies the attributes of the individual symbol ($+$, $-$) to its corresponding character in the performance of an equation. Communicates ideas to others; makes compromises; incorporates input/feedback.

3. How can we create equity and fairness?

- The students participate in an equity/fairness exercise using two sheets. Two students hold one, while two more hold the other, creating two “walls”. A narrow corridor is created between the two sheets and a single file of students (at least 5) stand in a single file between the sheets. A small spot, symbol, or picture is placed on a wall that all the students are facing.
- The students must arrange their line so that all the individuals in the single file can see the item on the wall.
- The following image can be shared with the class to discuss the concept of equity and fairness:

http://interactioninstitute.org/wp-content/uploads/2016/01/IISC_EqualityEquity.png

Criteria-based teacher checklist: Solves the problem of unfairness by making sure that everyone can see an object clearly. Communicates ideas to others; makes compromises; incorporates input/feedback.

4. How can we show equity and fairness in a puppet show?

- The students work in groups (2-4 people) and use puppets or stuffed animals in dramatic play, exploring the theme of sharing and being fair. Some scenarios they can work out through play are:
 - Four puppets sharing two toys
 - Sharing playground equipment
 - Taking turns at the water fountain
 - Sharing food with someone who hasn't eaten
- The students (with teacher guidance) develop characters and dramatic scenes with the puppets, addressing fairness and equity to perform for others. Some examples of equity issues that may come up at school are:
 - Not having breakfast, sharing food when one puppet hasn't eaten (SEL), or needs more for some reason (i.e. baby needs more to grow, or one puppet hasn't had breakfast, or bear has been hibernating...)
 - Special needs, special privileges, schedules, accommodations; Compromise for special needs students (missing their turn b/c of therapy)
 - Lack of sleep, needs nap to function well
 - Playground equipment, not having enough
- The students rehearse and perform their scenes for their classmates.
- The students respond to the performances. *How did the group demonstrate sharing?*

Teacher note: The puppet shows could be videoed for both assessment and sharing out purposes.

Criteria-based teacher checklist: Performs effective ways to share using puppets. Communicates ideas to others; makes compromises; incorporates input/feedback.

Public Product/Sharing

Who is our audience?

The students and teachers in our school.

Begin with a question, followed by the description of the culminating event that shares the learning from the PBL unit.

How can we teach the skills of being fair and sharing to pre-school students and older?

The students will take the puppet shows that they have developed “on the road.” They will visit classrooms and present their scenes about being fair and sharing. Teachers will facilitate discussions on the topic of social equity and fairness after each scene (or at the end of the entire presentation).

ARTS IMPACT LESSON PLAN Theater and STEM Infused PBL Unit

Kindergarten – First Grade: *Equality, Sharing, and Fairness*

CLASS ASSESSMENT WORKSHEET

The following assessment checklist can be used along with other assessment tools developed by teachers and students.

Disciplines	MATH/THEATER	MATH/THEATER	SEL/THEATER	SEL/THEATER	21 st CENTURY SKILLS	Total
Concept	Equations	Equations	Equity	Sharing	Collaboration	5
Criteria Student Name	Performs an equation and places the equal sign in the appropriate location.	Applies the attributes of the individual symbol (+, -) to its corresponding character in the performance of an equation.	Solves the problem of unfairness by making sure that everyone can see an object clearly	Performs effective ways to share using puppets.	Communicates ideas to others; makes compromises; incorporates input/feedback.	
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30.						
Total						
Percentage						

What was effective in the unit? Why?

What do I want to consider for the next time I teach this unit?

What were the strongest connections between arts discipline and STEM?

Teacher: _____

Date: _____

ARTS AND STEM INFUSED PBL UNIT: *Equity, Sharing, and Fairness*

Dear Family:

We are engaged a theater-infused project based learning unit in which we are trying to solve this challenge:

Driving Question:

How can we be fair and share?

- We learned all about how equations work. We focused on the symbols in an equation (+, -, =) and what mathematical equality looks like.
- We dramatized an equation by using our bodies to become the characters of the numbers and symbols in an equation.
- We discovered what it means to fair by participating in an activity where we had to make sure everyone could see an object.
- We created puppet shows to communicate what sharing is.
- We performed our puppet shows for our peers and discussed what being fair and sharing is.

At home, you could extend the learning by discussing ideas around social justice and equity.