

## ARTS IMPACT PROJECT BASED LEARNING UNIT PLAN

### Dance and STEM Infused PBL Unit

#### *Be Informed, Be Prepared*

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Grade Level: Fourth – Fifth Grade

#### Project Idea:

Research natural disasters of the Pacific Northwest (earthquakes, landslides, volcanoes, wild fires, floods, avalanches, tsunamis). Create a dance to show the cause and effect of a natural disaster. Develop a plan to prepare for and/or protect from a natural disaster. The plan could include: Compare and Contrast (prepared, not prepared), Dos and Don'ts, or request for more shelters, etc. Choose the way to present the plan (e.g. play, dance, video, pamphlet, poster, brochure). Present the plan to a selected audience (e.g. City Council, educating other students by performing/presenting at own school or other schools).

#### Driving Question:

How can we protect ourselves and our local environment from the impacts of natural disaster?

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

Students research natural disasters in the Pacific Northwest. They create a dance that shows the cause and effect of a natural disaster. They develop a plan for protection and safety in the event of a natural disaster. They present the plan as a play, dance, video, pamphlet, poster, or brochure to a selected audience.

### Learning Targets and Assessment Criteria

**Target:** Defines natural disasters.

**Criteria:** Demonstrates the properties of a catastrophic event (earthquakes, landslides, volcanos, wild fires, floods, avalanches and/or tsunamis).

**Target:** Demonstrates the impact of a natural disaster on humans and/or the environment.

**Criteria:** Choreographs, dances, and narrates a cause and effect dance in a small group. Uses whole body including facial expression to interpret and communicate human response to a natural disaster.

**Target:** Creates and communicates plans for protection and safety measures in a natural disaster.

**Criteria:** Produces a disaster plan product (e.g. play, dance, video, pamphlet, poster, brochure) and presents it to an appropriate audience.

#### Vocabulary

Arts:  
Energy  
Levels  
Self and General Space  
Shape

Arts Infused:  
Cause  
Effect  
Sequence

*continued*

#### Materials

##### Resources (Websites, experts, texts)

Books: *I Survived* book series by Lauren Tarshis  
Websites: FEMA

Local experts: e.g. seismologist, state trooper, park ranger, fire fighter, EMT, Red Cross, FEMA, survivors of natural disasters, World Vision, news reporters, school safety committee

Fieldtrips: Pacific Science Center, Mt. St. Helens, Mt. Rainier, natural disaster sites, Cascade Mountain Range

##### Museum Artworks or Performance

Meany Center for the Performing Arts  
Pacific Northwest Ballet

*continued*

<p><b>STEM:</b>  Avalanche  Earthquake  Flood  Landslide  Natural Disaster  Tsunami  Volcano  Wild Fire</p> <p><b>Social Emotional Learning:</b>  Safety  Protect</p> <p><b>21<sup>st</sup> Century Skills:</b>  Critical Thinking  Communication  Collaboration</p>	<p><b>Materials</b>  Audio/video of news broadcast from Mt. St. Helen’s eruption  Search on YouTube: KGW Mount St. Helen’s eruption – 5/18/1980  Other videos and narrative accounts of Pacific Northwest natural disasters  Whiteboard or chart paper and markers  Drum  Graphic organizers showing causes, environmental impact, human impact  Graphic organizers (e.g. T-chart) showing cause/effect  Materials needed for final project (varies based on project(s) selected)  Self-reflection worksheets  Class assessment worksheet</p>
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<p><b>STEM:</b>  Avalanche  Earthquake  Flood  Landslide  Natural Disaster  Tsunami  Volcano  Wild Fire</p> <p><b>Social Emotional Learning:</b>  Safety  Protect</p> <p><b>21<sup>st</sup> Century Skills:</b>  Critical Thinking  Communication  Collaboration</p>	<p><b>Materials</b>  Audio/video of news broadcast from Mt. St. Helen’s eruption  Search on YouTube: KGW Mount St. Helen’s eruption – 5/18/1980  Other videos and narrative accounts of Pacific Northwest natural disasters  Whiteboard or chart paper and markers  Drum  Graphic organizers showing causes, environmental impact, human impact  Graphic organizers (e.g. T-chart) showing cause/effect  Materials needed for final project (varies based on project(s) selected)  Self-reflection worksheets  Class assessment worksheet</p>
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**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 2: Organize and develop artistic ideas and work.  
Performance Standard (DA:Cr2.1.4): a. Manipulate or modify choreographic devices to expand movement possibilities and create a variety of movement patterns and structures. Discuss movement choices. b. Develop a dance study that expresses and communicates a main idea. Discuss the reasons and effectiveness of the movement choices.  
Anchor Standard 6: Convey meaning through the presentation of artistic work.  
Performance Standard (DA:Pr6.1.4): a. Consider how to establish a formal performance space from an informal setting (for example, gymnasium or grassy area). b. Identify, explore, and experiment with a variety of production elements to heighten the artistic intent and audience experience.  
Anchor Standard 10: Synthesize and relate knowledge and personal experiences to make art.  
Performance Standard (DA:Cn10.1.4): a. Relate the main idea or content in a dance to other experiences. Explain how the main idea of a dance is similar to or different from one’s own experiences, relationships, ideas or perspectives. b. Develop and research a question relating to a topic of study in school using multiple sources of references. Select key aspects about the topic and choreograph movements that communicate the information. Discuss what was learned from creating the dance and describe how the topic might be communicated using another form of expression.

**Science, Technology, Engineering**

**Next Generation Science Standards**

<http://www.nextgenscience.org/search-standards>

4-ESS3-2: Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans. [Clarification Statement: Examples of solutions could include designing an earthquake resistant building and improving monitoring of volcanic activity.] [Assessment Boundary: Assessment is limited to earthquakes, floods, tsunamis, and volcanic eruptions.]

**Scientific and Engineering Practices**

Analyzing and Interpreting Data  
Constructing Explanations and Designing Solutions

**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*
- Communication: *Actively listens; expresses ideas – visually/physically/verbally; responds to others*
- Collaboration: *Communicates ideas to others; makes compromises; incorporates input/feedback*

## Teacher Project Planning

(Questions for teachers.)

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

The principal could make an announcement asking everyone to listen to the radio. Play an audio broadcast from news report of Mt. St. Helens Eruption. Play the video broadcast. Share that this was 1982. All use movement to explore: 1) how they felt when they thought the disaster was really happening now 2) how they would protect themselves in the disaster. Describe how the dance looked and felt. What was the difference between 1) disaster and 2) protect? Introduce driving question. Discuss.

### 2. *What resources might we need?*

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

Books: *I Survived* book series by Lauren Tarshis

Websites: FEMA, Red Cross, Seattle.gov Emergency Management

Local experts: e.g. seismologist, state trooper, park ranger, fire fighter, EMT, Red Cross, FEMA, survivors of natural disasters, World Vision, news reporters, school safety committee

Fieldtrips: Pacific Science Center, Mt. St. Helens, Mt. Rainier, natural disaster sites, Cascade Mountain Range

Audio/video of news broadcast from Mt. St. Helen's eruption

Search on YouTube: KGW Mount St. Helen's eruption – 5/18/1980

Other videos and narrative accounts of Pacific Northwest natural disasters

Graphic organizers showing causes, environmental impact, human impact

Graphic organizers (e.g. T-chart) showing cause/effect

Materials needed for final project (varies based on project(s) selected)

Self-reflection worksheets

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

Two to five weeks.

### 4. *What will be group work?*

Research, cause/effect dance, final product

*What will each individual student do?*

Research, worksheets, self-evaluation

### 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)*

Graphic organizers for research and cause/effect, vocabulary lists, verbal and body brainstorms, small group cause/effect dances, performer and audience response, disaster plan, reflections

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

*(Performance, exhibition, publication, public presentation, website, installation)*

Presentation of the disaster prepare and/or protect plan to an audience to be selected by the students. The plan could be presented as a play, dance, video, pamphlet, poster, brochure ...

## 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. What are the types of natural disasters in our region?**

- The students view videos and read excerpts of accounts of natural disasters.
- The students brainstorm a list of natural disasters.
- The students each choose their top three natural disasters and the teacher creates groups based on their response.
- In small groups, students choose and research a natural disaster.
- A student expert from each group shares research with another group (jigsaw).
- Each student completes a graphic organizer listing three things they learned from each group. (Parameters for the graphic organizer: causes, environmental impact, human impact.)

Student reflection and assessment: Researches natural disasters and completes graphic organizer.

## **2. How can we use our bodies and movement to represent natural disasters?**

- The students brainstorm causes and effects of natural disasters. They generate a vocabulary list.
- The students define the classroom norms for physical and emotional safe and creative dancing.
- The students develop creative movements based on the words on the vocabulary list.
- The students describe shapes and movements and why they effectively show the meaning of the meaning of words on the vocabulary list.

Student reflection and assessment: Demonstrates the properties of a catastrophic event (earthquakes, landslides, volcanos, wild fires, floods, avalanches and/or tsunamis). Participates with confidence and creates movements that communicate vocabulary words.

## **3. How do I communicate the cause and effects of natural disasters in movement and narration?**

- The students complete T-chart or graphic organizer stating cause and effect of a natural disaster.
- The students create a dance rubric/checklist (including dance concepts such as low, medium, and high levels; self and general space; sequence) to ensure the dance communicates clearly and is interesting for their audience.
- In small groups, students choreograph and rehearse a dance showing the cause and effect of a natural disaster (beginning shape, 1 cause, 1 environmental impact, 1 human impact, ending shape). Students narrate.
- The students perform the dances for their peers in the classroom.
- The student performers describe their natural disaster and the sequence of the dance.
- The student audience members describe what they saw and how the shapes and movements communicated the disaster, cause, and impacts.

Student reflection and assessment: Choreographs, dances, and narrates a cause and effect dance in a small group. Uses whole body including facial expression to interpret and communicate human response to a natural disaster.

#### **4. Using what we learned about natural disasters, how can we prepare and/or protect ourselves and our environment?**

- The teacher (with student input) invites a community expert to visit the classroom (firefighter, EMT, police officer, etc.) to talk about how to prepare for a disaster.
- In small groups, students brainstorm ways to prepare and/or protect from a natural disaster (an individual/home list and/or community list).
- The students research more ways to prepare and or/protect from a natural disaster.
- The students select how they'd like to present their information. The content: Compare and Contrast (prepared, not prepared), Dos and Don'ts, What do we need in our community? ... The audience: City Council, the school community, other schools ... Their creation: play, dance, video, pamphlet, poster, brochure ...
- Students create a rubric to demonstrate understanding of their product.

Student reflection and assessment: Plan a disaster plan product (e.g. play, dance, video, pamphlet, poster, brochure).

#### **5. How can we help others prepare for and/or protect from a natural disaster?**

- The students define their audience.
- The students create and refine their project.
- The students consider how they use critical thinking, collaboration, and communication in creating, refining, and presenting their project.
- The students share their project with their audience and in school.
- The students reflect on the experience in small groups, as a whole class, and in writing. They analyze how they used Critical Thinking, Communication, and Collaboration in the unit.

Student reflection and assessment: Produces a disaster plan product and presents it to an appropriate audience. Completes a self-reflection worksheet.

## Public Product/Sharing

Who is our audience?

It could be the City Council, their school community, other schools.

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

*How can we help others prepare for and/or protect from a natural disaster?*

The culminating event: Presentation of the disaster preparedness or disaster readiness kit and/or protect plan to an audience to be selected by the students. The plan could be presented as a play, dance, video, pamphlet, poster, brochure...

**ARTS IMPACT LESSON PLAN Dance and STEM Infused PBL Unit**

Fourth – Fifth Grade: *Be Informed, Be Prepared*

**CLASS ASSESSMENT WORKSHEET**

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

Disciplines	DANCE/SCIENCE	DANCE/SCIENCE	SCIENCE/DANCE AND MORE	Total 3
Concept	Natural Disasters	Choreography	Communication	
Criteria	Demonstrates the properties of a catastrophic event (earthquakes, landslides, volcanos, wild fires, floods, avalanches and/or tsunamis).	Choreographs, dances, and narrates a cause and effect dance in a small group. Uses whole body including facial expression to interpret and communicate human response to a natural disaster.	Produces a disaster plan product (e.g. play, dance, video, pamphlet, poster, brochure) and presents it to an appropriate audience.	
Student Name				
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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: \_\_\_\_\_



Dear Family:

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

**Driving Question:**

How can we protect ourselves and our local environment from the impacts of natural disaster?

- We researched the properties of Pacific Northwest natural disasters: earthquakes, landslides, volcanoes, wild fires, floods, avalanches, tsunamis.
- We discovered the causes and human and environmental effects of natural disasters and presented our findings as a dance, nonverbally through movement and verbally through narration.
- We created a plan for what we could do to prepare for or protect from a natural disaster.
- We chose our audience (e.g. City Council, our school, other schools).
- We presented our plan to our selected audience through the form of a play, dance, video, pamphlet, poster, or a brochure.

At home, you could extend the learning by interviewing a friend or family member who has personal experience with a natural disaster. With your child, you could put together a disaster preparedness kit for your family.