# STEAM-infused PBL

## Teacher Organization Layout

<table>
<thead>
<tr>
<th><strong>Teacher:</strong></th>
<th>Theresa H. Corry, EdD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Grade Level:</strong></td>
<td>Second</td>
</tr>
<tr>
<td><strong>Entry Event:</strong></td>
<td>STEAM Inquiries with Natural Disasters</td>
</tr>
<tr>
<td><strong>Driving Question:</strong></td>
<td>What natural disasters occur here, and how can we be ready for them?</td>
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</tbody>
</table>

### Essential Question(s):
- What is a ____ (natural disaster)?
- Does it occur in our area?
- What does it do?

### Essential Question(s):
- How can we prepare for ____ (natural disaster)?
- What can we do before it happens?
- What can we do after it happens?

### Main Focus Next Gen Science Standard:

2-ESS1-1. Use information from several sources to provide evidence that Earth events can occur quickly or slowly.

### STEAM Standards:

**S**—ESS1.C: Some events happen very quickly.

**T**—Create an original work using a variety of digital tools as a means of personal or group expression. Work in classroom groups to create and publish digital products. Determine steps to answer a question using digital tools. Identify and organize keywords and use multiple sources to answer an essential question. Investigate an authentic problem using digital resources. Use technology in learning activities.

**E**—Make observations from several sources to construct an evidence-based account for natural phenomena; Stability and Change; Patterns.

**A**—Create short songs (one group); create a simple script; use voice and body to show different emotions while portraying a character in a dramatized idea; assemble and use simple props, costumes, masks or make-up for a dramatized idea (one group); use different media, techniques and processes to produce works of art; create artwork that demonstrates choice of subject matter and symbols to communicate meaning (three groups).

**M**—Estimate lengths using units of inches, feet, centimeters and meters. Tell time and write time from analog and digital clocks to the nearest five minutes using A.M. and P.M. Draw a picture graph and a bar graph to represent a data set with up to four categories.

### Additional Standards:

**Social Studies**—Conduct research by locating, gathering and organizing information. Present information orally or in writing. Use maps, graphs, charts or diagrams. Demonstrate positive social behaviors when using technology. Use technology resources for problem solving, communication and illustration of thoughts and ideas. Listen and participate as a member of a group in the classroom. Demonstrate respect for each other and people in the community. Listen to and discuss news events in the community. Define and provide examples of natural hazards. Participate in class decision making.

**Reading**—Ask and answer such questions as who, what, where, when, why and how to demonstrate understanding of key details in a text. Know and use various text features to locate key facts or information in a text efficiently. Compare and contrast the most important points presented by two texts on the same topic.

**Writing**—Participate in shared research and writing projects.
### Materials Needed:
- Computers, tablet devices, natural disaster books at varying levels, additional print materials about natural disasters
- Possible software/Internet-based programs—PowToons, Microsoft Excel/Word/Powerpoint, Prezi, Vimeo, ChartGo, Knowmia, Quizlet, Scratch, Voki

### Conversational Skills:
- Building upon
- Challenging
- Clarifying
- Defending/Supporting
- Elaborating
- Paraphrasing
- Synthesizing

### Critical-Thinking Skills:
- Analyzing
- Applying
- Attributing
- Identifying Cause and Effect
- Classifying
- Comparing/Contrasting
- Conceptualizing
- Decision Making
- Evaluating
- Inferring
- Interpreting
- Prioritizing
- Summarizing

### Creative-Thinking Skills:
- Brainstorming
- Generalizing
- Hypothesizing
- Inventing
- Making Analogies
- Paradox
- Personifying
- Predicting

### Whole-Class Instruction (mini lessons to take place at key times while working through the projects):
- How to listen and participate as a member of a group in the classroom, and validate and make meaning of ideas
- Steps to answering a question
- Identifying and organizing keywords to answer an essential question; how to research by locating, gathering and organizing information
- How to find the key information by asking and answering questions such as who, what, where, when, why and how
- The importance of using multiple, varied and valid sources
- Review of measurement principles and estimations for lengths using inches, feet, centimeters and meters; writing time as it relates to an event occurring quickly
- Review of how to create a bar graph by hand and using digital tools to represent a data set with up to four categories
- How to maintain academic conversations using specific skills (skills to be determined as PBL progresses)
- How to follow a student checklist guide and ensure high scores on a student rubric
- How to create a multiple choice or fill-in-the-blank test for disaster selected
**Group Projects** (as brainstormed and selected by the students):

<table>
<thead>
<tr>
<th>Project One:</th>
<th>Project Two:</th>
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<tbody>
<tr>
<td>Book by Sparkle Girls</td>
<td>Public Service Announcement by Stormers</td>
</tr>
<tr>
<td>Flooding in the Las Vegas area</td>
<td>Lightning storms in the Las Vegas area</td>
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<tr>
<th>Project Three:</th>
<th>Project Four:</th>
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<tbody>
<tr>
<td>Song on YouTube by Drama Team</td>
<td>Video by Blewers</td>
</tr>
<tr>
<td>Earthquakes in the Las Vegas area</td>
<td>Power outages in the Las Vegas area</td>
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<th>Project Five:</th>
<th>Project Six:</th>
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<tbody>
<tr>
<td>Slide Show by Pumas</td>
<td>Game by Bluebirds</td>
</tr>
<tr>
<td>Microburst storms in the Las Vegas area</td>
<td>Blizzards in the Las Vegas area</td>
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<tr>
<td>Coloring Book</td>
<td>Brochure</td>
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<tbody>
<tr>
<td>Facebook Page</td>
<td>Pinterest Page</td>
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**Individual Work** (items individuals will be responsible for completing in addition to the project):

Each student will complete one of the following content assessments:
- Concept cartoon about what to do either before, during or after the natural disaster
- Directed paraphrasing paragraph about disaster
- First word/last word acrostic of disaster
- Frayer model of disaster

Each student will complete one of the following thinking-skill assessments:
- Paragraph about the importance of using a thinking skill during a conversation
- Five frames to assist in using a thinking skill during a conversation
- Fishbowl reciprocal example using one of the thinking skills during a conversation

**Assessments:**
- Individual content assessment
- Individual thinking-skill assessment
- Group/individual process/student checklist
- Group/individual process/product rubric
- Traditional assessment about natural disasters selected (created by the students)