Inquiry Project Design Plan

Teacher/Designer Names: Theresa Smith	
Name of Project: Hurricanes	**Grade Level: 9**
Est Launch Date: Sept 15, 2023	**Est Duration (in weeks): 3**
Disciplines Involved: Earth Science, Computers, Social Studies	
Problem Statement: Severe weather can cause injury, damage and even loss of human life. Our actions negatively affect our surroundings without us realizing it immediately.	

STAGE 1: DESIRED RESULTS

Big Idea: Stabilty and Change

Enduring Understandings:

- Changing the landscape affects our daily lives
- Storm intensity/frequency has been changing
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Essential Question(s):
(MEANT TO BE SHARED WITH STUDENTS)

- How have hurricane occurances changed over the past 10years?
- How do meteorolgists track and catagorize hurricanes?
- How do our daily patterns affect the chance of flooding from severe storms?
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Established Goals (Standards, Performance Indicators, Learning Goals):
*choose relevant standards to unit/project plan timing and learning goals; do not need to use all disciplines below.
** unpack into SWK and SWBAT under identified standards as this will lead to aligned assessment design

Science Standards:
HS-ESS2-4., Use a model to describe how variations in the flow of energy into and out of Earth's systems result in changes in climate
HS-ESS3-4., Evaluate or refine a technological solution that reduces impacts of human activities on natural systems

Social Studies Standards:
Identify, analyze, and evaluate the relationship between the environment and human activities, how the physical environment is modified by human activities, and how human activities are also influenced by Earth's physical features and processes.

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Mathematics Standards:

ELA Standards:

Technology Standards:

- **NYS Computer Science and Digital Fluency:** 9-12.DL.2 Communicate and work collaboratively with others using digital tools to support individual learning and contribute to the learning of others.

- **ISTE:**

Social Justice Standards:

Other (Art, SEL, etc):

Links to Standards/Reference Frameworks:
NGSS, **NGSS by DCI** **Nat'l C3 SS Framework**, **NYS K-8 SS Standards**, **Common Core**, **ISTE**, **Learning for Justice Social Justice Standards**, **CASEL SEL Framework**, **NYS CS and Digital Fluency**

Students will know (SWK):	**Students will be able to do (SWBAT):**
• **How energy flows into and out of systems** • **How the climate has changed** • **Technology can help reduce the impact of humans on nature** • **There is a relationship between human activities and nature** • **How to use digital tools** • **Human's past actions affected our current siutation**	• **Use/create a model** • **Locate appropriate data** • **Use technology to gather data** • **Identify and state the relationship between human activities and their affects on nature** • **Describe how our past actions of construction have affected our current situation of increased flooding**

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STAGE 2: EVIDENCE & ASSESSMENTS:

Performance Task Narrative:

Goal: The goal of this performance task is for students to understand and identify how meteorogists track and catagorize hurricanes and how these extreme storms affect various communities.

Role: Researchers, meteorologists, engineers , homeowners

Audience: Fellow citizens/homeowners (classmates, teachers, parents), News 12 meterologist, city engineer

Situation: Hurricanes have been occuring for hundreds of years. Over the years, these storms have been getting more intense and hurricane season has been starting earlier. As a result, construction of levees/barriers has increased, and building codes have changed.

Product(s): Students will work in teams of 3-4 and create a website/presentation that describes how a devestating hurricane affected an area and what changes developed due to that storm, including the prespective of homeowner, meterologist, engineer.

Standards (criteria for success):

- Research a major hurricane that occured in the past 10 years
- Identify the damage from each storm, including path of the hurricane, classification of the storm and the monetary damage (if known)
- Describe the development of the area at the time the storm hit; include pictures from past and present, if available
- Describe the relationship between the amount of development and the damage from the storm

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Other Evidence/Assessments:

Check-ins for understanding and progress
Rubrics
Formative assessments

STAGE 3: THE LEARNING PLAN:

Learning Activities

(potential layout below. Can be daily, divided by periods, or even using the Engineering Design Process to divide into stages such as Ask, Imagine, Plan, Create, Improve)

Week 1

Learning Goals: formation of hurricanes; path of hurricanes

Learning Events:
Access NOAA webite to gather data about hurricanes
Choose which hurricane to research

Formative Assessments:
Complete charts
Comprehension questions
map

Notes/Resources:

Hand out hurricane project packets
Share links to NOAA website

Week 2

Learning Goals:
Ananlyze air pressure vs hurricane strength
Plot path of hurricane and assess

Learning Events:

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Discuss current hurricane in news (if any)
Discuss similarities and differences between hurricanes
Review graphing rules/skills

Formative Assessments:
Write Now
Exit Tickets
Comprehension questions
Graphs (air pressure vs strength, air pressure vs speed)

Notes/Resources:

Map of Atlantic
NOAA website
Colored pencils

Week 3

Learning Goals:

Students create CANVA of their chosen hurricane

Learning Events:

Website created

Formative Assessments:
Rubric for website

Notes/Resources:

Week 4

Learning Goals:

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Learning Events:

Formative Assessments: