Name of Project: Mudslide in Yonkers

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Special Thanks to: Ms. Danielle Yanik in helping us to develop the our social studies theme on *mercantilism* and Mr. Kustrim Gojani in developing or math theme on *slopes*

Grade: *7*

Time Frame: 1 Marking Period

Launch Date: Marking Period 4

Big Idea: Stability and Change

Essential Question: How do the decisions humans make have long term environmental impact on future generations?

Enduring Understanding#1: Social, economic, and environmental decisions of past affect shape the present. **Enduring Understanding#2:** Appreciate that environmental issues may be controversial, and may provoke a variety of response.

Science Standards: MS-LS2-5: Evaluate competing design solutions for maintaining biodiversity and ecosystem services. Clarification Statement: Examples Of ecosystem services could include … prevention of soil erosion. Examples of design solution constraints could include scientific, economic, and social considerations.]

LS2.C: Ecosystem Dynamics, Functioning, and Resilience

Biodiversity describes the variety of species found in Earth's terrestrial and oceanic ecosystems. The completeness or integrity of an ecosystem's biodiversity is often used as a measure of its health.

LS4.D: Biodiversity and Humans

Changes in biodiversity can influence humans' resources, such as food, energy, and medicines, as well as ecosystem services that humans rely on—for example, water purification and recycling

Social Studies Standards (Grade 7): *Chronological Reasoning:* Identify how events are related chronologically to one another in time and explain the ways in which earlier ideas and events may influence subsequent ideas and events.

1. Recognize an argument and identify supporting evidence related to a specific social studies topic. Examine arguments related to a specific social studies topic from multiple perspectives; recognize that the perspective of the argument's author shapes the selection of evidence used to support.
2. Identify how events are related chronologically to one another in time and explain the ways in which earlier ideas and events may influence subsequent ideas and events

Mathematics Standards 7.G.A.1: Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale

Technology Standards: Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others.

Social Justice Standards: Students will recognize that power and privilege influence relationships on interpersonal, intergroup and institutional levels and consider how they have been affected by those dynamics

SWABT:

1. Create models of area from the mudslide
2. Research biodiversity of terrestrial systems in Yonkers and international communities
3. Design solutions to prevent further soil erosion

Lesson No	Subject	Description of Activity	SEP	CCC	Instructional Strategy	Technology/Engineering Materials	Formative Assessment(s)
1	Science	**Anchoring Phenomenon:** Ida Aftermath: Flooding Leads To Mudslides In Yonkers **3-2-1:** After watching the kick off video, students complete a 3-2-1 activity 3 ways that water changes land 2 ways gravity changes land 1 way that those changes could be prevented or minimized	Developing and Using Models; Obtaining, Evaluating and Communicating Information	Stability and Change	Teachers can have students work as individual, small group, and whole class. Progressing from individual to small group then whole class instruction ensures that struggling learners have many opportunities to gather knowledge and participate in the culminating discussion.	**Video Link:** https://newyork.cbslocal.com/2021/09/03/mudslide-near-train-tracks-in-yonkers/?amp **Other Resources:** digital projector rojector, computer, and speaker	Students create a static drawing (i.e., initial scientific model) of how gravity and water changes the land

2	Math + Science	Students are given a design engineering challenge to determine how the slope of land affect the housing infrastures during a mud slide. Students calculate and interpret relationship between slope and speed	Computational Thinking; Engaging in Argument from Evidnece; Developing and Using Models	Cause and Effect	*Constraints:* Must include multiple slopes. *Calculations:* Speed. *Graph*: Angle vs. Speed **Instructional Recommendations:** *#1:* Students will need to conduct research on soil erosion to collect gain a scientific perspective of soil erosion. Additional research can come from class texts and Internet research. *#2*: Teachers are *encouraged* complete this activity in advance to know where students will struggle to offer instructional scaffold in the form of small group instruction.	**Engineering Materials:** Foil tray, paper houses, sand, water, protractor, construction paper/card for ramp, timer, ruler	Students write scientific argument supported by claim, evidence, and reason on how to *prevent soil erosion.*
3	ELA	Students complete research on urban/environmental planning	Asking Questions; Obtaining, Evaluating and Communicating Information	Cause and Effect; Stability and Change; Pattern; Scale, Proportion and Quantity	*Constraint:* Students use informational text, Urban Planning for Dummies. **Instructional Recommendations:** *#1:* Teacher can generate *anticipatory and note-taking graphic organizers* as a scaffold for students with IEP or struggling learners.		Students generate 10 questions that they would like to ask urban planner from Yonkers regarding the preventing future mudd slides in Yonkers.
4	ELA	Students interview land management professional via Zoom	Asking Questions; Obtaining, Evaluating and Communicating Information	Cause and Effect; Stability and Change; Pattern, Scale, Proportion and Quantity		Zoom for Interview	
5	Social Studies + Science	Students select 1 pair of colonized country and colonizer and research supports the claim of the writing prompt.	Constructing Explanations	Cause and Effect; Stability and Change; Pattern; Scale, Proportion and Quantity	**Constraints:** Time-bound between specific periods; specific natural resources (*biodiversity*) that were exploited by colonizers **Instruction Recommendations:** *#1:* Students gather data in 50 year increments #2: Teacher can generate a *note-taking graphic organizer* as a scaffold for students with IEP or struggling learners. **Theme:** Decisions of colonizers **Conlonized/Colonizing Pairs:** Haiti/France; Mexico/Spain; Puerto Rico/Spain; Dominican Republic/Spain; US/Britain; South African and Britain	**Theme:** Mercantilsim **Video:** American Before Columbus Documentary **Writing Prompt**: "It is characteristic of capitalism that the development of some countries takes place at the cost of suffering and disaster for the peoples of other countries. For the soaring development of the economy and culture of the so-called "civilized world," a handful of capitalist powers of Europe and North America, the majority of the world's population, the peoples of [the Caribbean] Asia, Africa, Latin America, and Australia paid a terrible price." Healey, Patsy. Political Economy, Diversity and Pragmatism: 2 (Critical Essays in Planning Theory) (p. 40). Taylor and Francis. Kindle Edition.	Students create a timeline (using padlet) of the events of the past shape subsequent events of the present in both countries. Timelines should include descriptions and pictures. *Optional:* Student can find topography maps from the timeline and print a 3-D model to use as additional evidence.

7	Interdisciplinary	**Role:** Documentarian **Audience:** Policy Makers **Format:** Video **Topic:** Illustrate how past decisions have long term environmental impact and offer recommendations to policy makers	Asking Questions; Obtaining, Evaluating and Communicating Information; Engaging in Argument from Evidence	Cause and Effect; Stability and Change; Pattern; Scale, Proportion and Quantity	*Constraint:* Students must integrate qualitative and quantitative evidence collected from *each lesson that address soil erosion*	**Technology:** FlipGrid	*Scenario:* As documentarians, students construct a 5-10mins video to show how past decisions have long term environmental impact and offer recommendations for policy makers