Three Dimensional Learning Plan: **MS-ESS2-6**

Grade Level: **Middle School**

Title		Phenomenon/Problem	
Designed by		Course(s)	
Brief Learning Description			

Desired Results

Performance Expectation(s)

MS-ESS2-6: Atmospheric and Oceanic Circulation

Develop and use a model to describe how unequal heating and rotation of the earth cause patterns of atmospheric and oceanic circulation that determine regional climates. (Systems and System Models)

Summative Assessment

Same Latitude, Different Climates

What skills (practices) will students need to learn?	What thinking concepts will students need to learn?	What science concepts will students need to learn?	What relevant or local phenomenon can be used to teach these concepts?
Develop and use a model Read a graph Read a map Analyze and compare data Input/Output Graphic Organizer	Patterns Cause/Effect Systems System Models	Unequal heating Latitude Elevation Weather Climate Convection Ocean influences weather and climate Landforms Local and Regional Geography	Temperature in NYC compared to Orange County or upstate New York

Activity 1			
Phenomenon or Problem	What will they do? The three dimensions woven together into a single learning performance.	Why is this important? How does this activity help build understanding of the anchoring phenomenon.	How will they do it? Graphic organizers, protocols, scaffolds, labs, mini-lesson, student discourse, etc.
	Students are going to observe and interpret data patterns in different areas about weather and climate.		
Formative Assessment What information are you collecting to know that they met the target?	•		

Activity 2			
Phenomenon or Problem	What will they do? The three dimensions woven together into a single learning performance.	Why is this important? How does this activity help build understanding of the anchoring phenomenon.	How will they do it? Graphic organizers, protocols, scaffolds, labs, mini-lesson, student discourse, etc.
	Students will analyze data and identify patterns of weather and climate in different areas.		
Formative Assessment What information are you collecting to know that they met the target?	•		

Activity 3			
Phenomenon or Problem	What will they do? The three dimensions woven together into a single learning performance.	Why is this important? How does this activity help build understanding of the anchoring phenomenon.	How will they do it? Graphic organizers, protocols, scaffolds, labs, mini-lesson, student discourse, etc.
	Students will gather information to develop models for a unique location.		

Formative Assessment What information are you collecting to know that they met the target?	•

Activity 4			
Phenomenon or Problem	**What will they do?** The three dimensions woven together into a single learning performance.	**Why is this important?** How does this activity help build understanding of the anchoring phenomenon.	**How will they do it?** Graphic organizers, protocols, scaffolds, labs, mini-lesson, student discourse, etc.
Formative Assessment What information are you collecting to know that they met the target?	•		

Activity 5			
Phenomenon or Problem	**What will they do?** The three dimensions woven together into a single learning performance.	**Why is this important?** How does this activity help build understanding of the anchoring phenomenon.	**How will they do it?** Graphic organizers, protocols, scaffolds, labs, mini-lesson, student discourse, etc.
Formative Assessment What information are you collecting to know that they met the target?	•		
Summative Assessment What information are you collecting to know that they met the target?	•		

Materials / Resources

Vocabulary

Unequal heating (from the sun)
Earth's rotation
Circulation
- Atmospheric (latitudinal banding, the Coriolis effect, prevailing winds)

- Oceanic currents (global ocean convection cycle)
Oceans
Continents and landforms
Atmosphere
Systems

Mini Lessons
System Level 3 - Inputs, Processes and Outputs Mini-Lesson
System Level 3 Thinking Slides - Inputs, Processes and Outputs Thinking Slides

Graphic Organizers
Phenomena Observation Graphic Organizer
Questioning Graphic Organizer
Modeling Graphic Organizer
Planning an Investigation Organizer - Experimental
Planning an Investigation Organizer - Observational
Investigation Evidence Organizer
Engaging in Argumentation Organizer

Differentiation / Modifications