1. What is our purpose?

1a) To inquire into the following:

- **transdisciplinary theme :** How the World Works

An inquiry into the natural world and its laws; the interaction between the natural world (physical and biological) and human societies; how humans use their understanding of scientific principles; the impact of scientific and technological advances on society and on the environment.

central idea

People have sought to understand the physical and biological aspects of the world in order to manage resources and support sustainability.

Class/grade: 5th grade — Age group: 10-11

School: Willard Elementary — School code: 7202

Title: Physical and Biological Science

Teacher(s): Salgado, Rosales, Mayer

Date: 11/10/17 – 12/18/17

Proposed duration: number of hours 100 over number of weeks: 6

1b) Summative assessment task(s):

What are the possible ways of assessing students' understanding of the central idea? What evidence, including student-initiated actions, will we look for?

Students will demonstrate an understanding of the central idea by creating habitats, food webs presentations of their choice. Teacher will assess students' ability to use scientific terminology, see the interconnectedness between living things and their impacts in their ecosystems.
Throughout the completion of the unit, we expect students to be more:

- concerned about the world and its systems.
- aware of the effects of removal or introduction of a species into an ecosystem.
- knowledgeable on the components of a food chain and food web.

What are the possible ways of assessing students' understanding of the central idea?
What evidence, including student-initiated actions, will we look for?
Through the completion of this unit students may choose to:

- Create infomercials, documentaries, movies, or forecast related to issues concerning the land changes and its effects on living things.
- Conserve natural resources
- Create visual representations of Earth's systems, food webs and food chains.
- Write persuasive letters dealing with issues of pollution due to chemical changes and industrial practices
- Present what they've learned throughout the unit to their peers.

Explain what they learned about the lines of inquiry to a different grade level

2. What do we want to learn?

What are the key concepts (form, function, causation, change, connection, perspective, responsibility, reflection) to be emphasized within this inquiry?

Key concepts: Change, connection, causation,
Related concepts: Systems, cycles, sustainability

What lines of inquiry will define the scope of the inquiry into the central idea?

- Habitats, biomes, and ecosystems
- Interrelationships between living things and their environments
- Earth's systems- biosphere, hydrosphere, geosphere, atmosphere

What teacher questions/provocations will drive these inquiries?

1. What is the difference between a food chain and a food web?
2. How are the Earth Systems connected?
3. What happens if an animal or plant is introduced to an ecosystem?
4. What happens when an animal becomes extinct?
5. What systems exist in the physical and biological world and how do they work?
6. What are chemical and physical changes and how do they impact the world?.
7. What is our responsibility towards the Earth and its environment?
8. What is the impact of humans in ecosystems?

Provocations:
Show cane toad video found in Stemscopes.

Show youtube on how wolves changed Yellowstone
https://www.youtube.com/watch?v=ysa5OBhXz-Q

Planning the inquiry

3. How might we know what we have learned?

This column should be used in conjunction with "How best might we learn?"
What are the possible ways of assessing students' prior knowledge and skills? What evidence will we look for?

Use four corners activity to assess what students know regarding ecosystems and habitats

What are the possible ways of assessing student learning in the context of the lines of inquiry? What evidence will we look for?

Through student inquiries, science experiments, research journals, we will assess students ability to:

- describe the difference between Earth's systems
- Explain how ecosystems are affected by human actions
- Name and describe the characteristics of the different biomes
- Identify and compare physical traits of animals and plants in the different ecosystems
- Student generated Kahoot quizzes
- Explain the difference between a food chain and a food web.
- Explain the role of producers and consumers in food chains and webs.

4. How best might we learn?

What are the learning experiences suggested by the teacher and/or students to encourage the students to engage with the inquiries and address the driving questions?

1. Teacher/students will research and discuss the effects of invasive species on an ecosystem
2. Students/teacher will investigate the differences in habitats and biomes and relationships between plants and animals..
3. Students will work in a cooperative group to write songs/poem/skit about any of the Earth's systems.
4. Students will discuss how natural resources are important in order to survive on Earth and will investigate how man's impact on the land interrupts habitats.

What opportunities will occur for transdisciplinary skills development and for the development of the attributes of the learner profile?

Research Skills: Formulating questions, collecting, recording, organizing, and presenting data as students: research different weather conditions and their causes and effects on land formations, chemical and physical changes, and different cycles.
Self-management: time management and organization as students research and work on their habitats, posters, and presentations.
Communication Skills: listening, speaking, reading, writing, and presenting as students present their findings on different research topics related to Earth's systems, biomes, ecosystems, habitats, invasive species.

Learner Profile: Caring, Inquirers, Knowledgeable
Attitudes: creativity, and enthusiasm
Students will demonstrate these Attitudes and Learner Profile as they learn about weather, chemical and physical changes, cycles, or landforms.

5. What resources need to be gathered?

What people, places, audio-visual materials, related literature, music, art, computer software, etc, will be available?

Science Books, articles, magazines library books, internet: Brain pop, NEO K-12, SEED kits, movies, DVD's HB Science textbook, technology, Newsela

How will the classroom environment, local environment, and/or the community be used to facilitate the inquiry?

Technology lab/ chromebooks for research, Astrocamp,
The classroom will be set-up in a way conducive to cooperative exploration and experimentation.
Students will be given the opportunity to work independently and in collaborative groups.