Template for Curriculum Unit
Understanding by Design

Stage 1 – Desired Results

Established Goals (based on CCCS if applicable):

Kindergarten- Weather and Animal Behavior (Defined STEM)

Next Generation Science Standards - Comprehensive -- Science
Grade K

- PHYSICAL SCIENCE
  - Energy - Students who demonstrate understanding can:
    - (K-PS3-1.) Make observations to determine the effect of sunlight on Earth's surface.
    - (K-PS3-2.) Use tools and materials to design and build a structure that will reduce the warming effect of sunlight on an area.
- LIFE SCIENCE
  - From Molecules to Organisms: Structures and Processes - Students who demonstrate understanding can:
    - (K-LS1-1.) Use observations to describe patterns of what plants and animals (including humans) need to survive.
    - Disciplinary Core Ideas
      - Organization for Matter and Energy Flow in Organisms
        - (LS1.C:1.) All animals need food in order to live and grow. They obtain their food from plants or from other animals. Plants need water and light to live and grow. (K-LS1-1)
- EARTH AND SPACE SCIENCE
  - Earth's Systems - Students who demonstrate understanding can:
    - (K-ESS2-1.) Use and share observations of local weather conditions to describe patterns over time.
  - Earth and Human Activity - Students who demonstrate understanding can:

(K-ESS3-1.) Use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live.

Common Core State Standards -- Language Arts
Grade K

- **Reading Standards for Informational Text**
  - Key Ideas and Details

(CCSS.ELA-Literacy.RI.K.2) With prompting and support, identify the main topic and retell key details of a text.

Language Standards

- Conventions of Standard English
  - Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.

- (CCSS.ELA-Literacy.L.K.1a) Print many upper- and lowercase letters.
  - Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
- (CCSS.ELA-Literacy.L.K.2a) Capitalize the first word in a sentence and the pronoun I.
- (CCSS.ELA-Literacy.L.K.2b) Recognize and name end punctuation. Retell key details of a text.
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- **Writing Standards**
  - Text Types and Purposes

(CCSS.ELA-Literacy.W.K.1) Use a combination of drawing, dictating, and writing to compose opinion pieces in which they tell a reader the topic or the name of the book they are writing about and state an opinion or preference about the topic or book (e.g., My favorite book is . . .).

Mathematical Practices

(MP.4.) Model with mathematics.

Understandings: *Students will understand that…..*	**Essential Questions:**
• There are essentially three types of ecosystems. Aquatic ecosystems exist in or on the water, terrestrial ecosystems exist on the land and human-made ecosystems are created by humans. Aquatic, terrestrial and human-made ecosystems consist of different living and non-living things that change over time and differ among geographic regions of the earth. Different characteristics of plants and animals help some populations survive and reproduce in greater numbers.	• What are the living and non-living parts of ecosystems that exist within our community (or our school), and what can cause them to change over time? • How do the differences among individuals affect their survival?

Students will know….

- What a region is
- Describe the region they live in
- Weather of a region can affect the animals that live in that region
- What a biologist is
- What are ecosystems
- Characteristics of plants and animals can help them survive
- What is the difference between living and nonliving
- Living and nonliving parts of ecosystems can cause change over time
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Vocabulary…

- Migrate
- Weather
- Region
- Season
- Ecosystems
- Biologist

Students will be able to….

- Conduct observations
- Participate in class discussions
- Make a diagram with labels
- Document observations in a science journal
- Make drawings of animals and weather patters

Stage 2 – Assessment Evidence

Performance Task(s):

A region is an area on the earth that has a certain type of land and climate. The weather of a region can affect the animals that live in that region. The region that you live in has many people visit the area. You will be working with a team of biologists. As a biologist, you will study how living things grow. You and your team of biologists have been asked to create an informational book that will be used to teach these visitors about the weather and animal behavior in that region. It will be placed at the visitor centers throughout the region.

Other Evidence:

- Research weather in their region or a migratory animal in their region
- Create a Photo story about an animal in their region or about weather patterns in their region
- Make a Chart showing the relationship between the seasons and the animals that migrate
- Write an Informational book using the photo stories
- Illustrations
- Journal writing
- Build a butterfly garden
- Build a bird feeder
- Cloud in a jar experiment

Stage 3 – Learning Plan

Suggested Learning Activities:

Videos:

Scotty STEM: Bobby the Biologist (Defined STEM)
<iframe src="http://www.definedstem.com/learn/embed.cfm?ag=9CA259B3-BA0F-4019-9034-87A237E29DD1&mg=2AB494D4-976E-4450-B27A-3D839BD878D0&ug=DE96848E-D219-4CF7-B1BC-7F82AC4C657B" width="560" height="365" frameborder="0" allowfullscreen></iframe>

Monarch Butterfly (Defined STEM)
<iframe src="http://www.definedstem.com/learn/embed.cfm?ag=A8D13BD0-E877-4EBB-A22F-0307EB751665&mg=2CE17DA9-BC4F-46AB-99A1-A7168637281l&ug=DE96848E-D219-4CF7-B1BC-7F82AC4C657B" width="560" height="365" frameborder="0" allowfullscreen></iframe>

Meteorologist (Defined STEM)
<iframe src="http://www.definedstem.com/learn/embed.cfm?ag=41B14DAA-0132-495F-9D48-9597D01C46B6&mg=CB8A8CD1-2C74-4FD0-954D-EABF3103E703&ug=DE96848E-D219-4CF7-B1BC-7F82AC4C657B" width="560" height="365" frameborder="0" allowfullscreen></iframe>

Weather and Climate
https://app.discoveryeducation.com/player/view/assetGuid/25b0b2a7-d01a-43d3-90bc-bc94fc1258f3

Animals All Around Us
https://app.discoveryeducation.com/player/view/assetGuid/aebd8bde-0696-4609-99ca-a0d085971e05

Magical Mother Nature: The Four Seasons
https://app.discoveryeducation.com/player/view/assetGuid/333bed24-c0cb-4cf5-bd56-32b183cb73ae

Reading:

Animals Animals: Science A to Z
Animals of the Air: Science A to Z
Animals in the Ground: Science A to Z
Animals o the Ice and Stone: Science A to Z
Animals of the River: Science A to Z
The Weather: Science A to Z
Lightning: Science A to Z
The Power of Wind: Science A to Z
The Hottest Place on Earth: Science A to Z
The Coldest place on Earth: Science A to Z
How Hailstones Grow: Science A to Z
Earth, Moon, Sun, Stars: Science A to Z
Seasons and Sunlight: Science A to Z
Forecasting the Weather: Science A to Z
Harmful Hurricanes: Science A to Z
What Animals Need- Mystery File: Science A to Z
Wind- Mystery File: Science A to Z

Listening and Speaking:

Animal Discussion Cards: Science A to Z
Animal Movement- Drama: Science A to Z

Debate: A Classroom Pet: Science A to Z
Weather Discussion Cards: Science A to Z
Debate: A Hot and Cold Problem: Science A to Z

Other Helpers:

Career Files: Veterinarian, Wildlife photographer, Zookeeper, TV Weather Forecaster, Jet Pilot, Meteorologist: Science A to Z
What Animals Need- Investigation Pack:: Science A to Z
Wind: Investigation Pack: Science A to Z

Websites:

Kids Do Ecology:
http://kids.nceas.ucsb.edu/index.html

Discovery Place Kids
http://huntersville.discoveryplacekids.org/blog/post/107/Hands-on-January-activities-explore-winter-weather-and-animal-behavior

Science Made Simple
http://www.sciencemadesimple.com/animals.html

Pebble Go
https://www.pebblego.com/login/

Climate and Weather
http://www.climateandweather.net/global-warming/climate-change-and-animals.html

Birds and Climate Change
http://climatekids.nasa.gov/extreme-weather-birds/

National Geographic Kids
http://kids.nationalgeographic.com

Discovery News
http://news.discovery.com/tags/animal-behavior.htm

NASA Climate Kids
http://climatekids.nasa.gov/butterfly-garden/

Mini Lessons:

Labeling pictures
Making a chart
How to use a computer to search for a website
CVC words
Writing
Cooperative groups

Stage 4- Knowledge Transfer

Students will see the connection between animal migration and weather patterns. They will conduct observations, collect evidence, do hands-on activities, and apply various leanings to develop a general awareness about why and how animals adapt to a particular region and how weather affects this. Transfer of knowledge occurs when core subjects are integrated to create an authentic learning experience.