

3rd Grade

Unit 4: Earth & Space

Stormy Skies- Weather, Climate, & Water Cycle

Duration: 4-8 weeks

## Desired Results

### ESTABLISHED GOALS/ STANDARDS:

#### 3-ESS2-1

Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season. **[Clarification Statement: Examples of data could include average temperature, precipitation, and wind direction.]**  
**[Assessment Boundary: Assessment of graphical displays is limited to pictographs and bar graphs. Assessment does not include climate change.]**

#### 3-ESS2-2

Obtain and combine information to describe climates in different regions of the world.

#### 3-ESS3-1

Make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard.\* **[Clarification Statement: Examples of design solutions to weather-related hazards could include barriers to prevent flooding, wind resistant roofs, and lightning rods.]**

#### 3-ETS1-1

Define a simple design problem reflecting a need or a want that includes specified

### *Transfer*

#### *Meaning*

#### ENDURING UNDERSTANDINGS: Crosscutting Concepts

*Students will understand that...*

- *Students consider the cause and effect relationship between heated liquid water and the evaporation of gas water that forms into clouds.*
- *Students explore patterns of changing clouds as a way to predict weather.*
- *Students recognize climate across the world as an observable pattern.*
- *Students identify the cause and effect relationship between strong winds and the problems they cause.*

#### *Acquisition*

#### Disciplinary Core Ideas

*Students will know...*

- Clouds may look like white, fluffy, cotton, but they are actually made of water! When liquid water is heated it turns into gas water. This process is called evaporation. Some liquid water from Earth's surface (like oceans and lakes) is heated and turns into invisible water gas. It rises up into the atmosphere and becomes trapped! These trapped water droplets make clouds. DCIs: Foundational ESS2.D

Students will be skilled at...

- Students carry out an investigation by using a model to observe evaporation. They engage in argument from evidence using observations from their investigation to explain what clouds are.
- Students obtain and communicate information about different types of clouds by creating a Storm Spotter's Guide. They engage in argument from evidence by using this information to analyze multiple

criteria for success and constraints on materials, time, or cost.

**3-ETS1-2**

Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.

**3-ESS1-3**

Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

- There are many different types of clouds! Knowing what types of clouds bring stormy weather (and the wind's direction) can help you prepare for a rainstorm. Understanding this patterns help scientists, and you, predict what kind of weather might happen next! DCIs: ESS2.D
- Weather conditions that are predictable and occur over long periods of time are called climates. There are 5 climates--tropical, polar, temperate, mild, and desert. Each climate occurs in a specific part of the world, depending on how much sunlight and rain it gets throughout the year. DCIs: ESS2.D
- Strong winds can cause different types of natural hazards such as hurricanes, dust storms, and tornadoes. Strong winds can cause a lot of problems--they blow down all kinds of things! Engineers design solutions for the damage strong winds can cause. They identify problems and brainstorm a lot of different ideas until they find a solution. DCIs: ESS3.B, ETS1.A, ETS1.B, ETS1.C

scenarios and determine if a storm will occur and why.

- Students obtain and evaluate information about multiple location's weather. They communicate the information by color coding a map based on climate. Students analyze and interpret the data to determine climate patterns across the world.
- Students define problems that strong winds cause. They develop and use a model of a home in order to design a solution that keeps the roof attached to the home and stops the home from blowing away in the wind. They test and improve their prototype.

**Inquiry Questions:**

1. Where do clouds come from?
2. How can we predict when it's going to storm?
3. Why are some places always hot?
4. How can you keep a house from blowing away in a windstorm?

*Acquisition*

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| <b>Evidence</b>                                       |                             |  |
| <b>Evaluation Criteria</b>                            | <b>Assessment Evidence</b>  |  |
|   | <b>PERFORMANCE TASK(S):</b> |  |
|   | <b>OTHER EVIDENCE:</b>      |  |
|   | <b>Unit assessment</b>      |  |
| <b>Learning Plan</b>                                  |                             |  |
| <i>Summary of Key Learning Events and Instruction</i> |                             |  |