Lesson Title: Hurricanes and Tornadoes

Content Area and Grade Level: 4th Grade Science

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Brief Description of the Lesson/Unit:

The students will be creating and presenting a model of a hurricane and/or tornado to better understand the concept of how each one forms.

South Dakota Content Standards:

- Standard numbers and exact wording
  4.E.1.2 Students are able to describe how weather conditions and phenomena occur and can be predicted.

- Unpacked standards (in student-friendly wording)
  Students will be able identify the positive and negative effects of tornadoes and hurricanes, and the impact each one has on the environment and people. Students will research how scientists predict these storms and the damage these storms can cause. Students will also share, in a presentation format, characteristics about each storm, facts, as well as the proper action to take to assure safety.
Stage 1: Identify Desired Results

1. **What enduring understandings are desired?**
   
The students will learn that a model of something is different from the real thing, but can be used to learn important information about the real thing.

2. **What essential questions will guide this unit and focus both the teaching and the learning?**
   
   - How a hurricane begins and ends?
   - How a tornado begins and ends?

3. **What key knowledge and skills will students acquire as a result of this unit?**
   
   Students will learn how data is collected and interpreted in order to explain an event or concept.

4. **What prior learning, interests, misconceptions, and conceptual difficulties might be brought to this unit by the students?**
   
The students will bring their prior knowledge of hurricanes and tornadoes from what he/she has gathered from their literacy circles.

   - Below Level: Severe Storms by Colin Kong
   - On Level: Hurricanes and Tornadoes by Mariella C. Dinsel
   - Above Level: Hurricanes by Peggy Bresnick Kendler
Stage 2: Determine Acceptable Evidence

What evidence will show that students understand?

1. Pre-Assessment (pre-tests, concept maps, KWL, surveys, etc.):
   Concept Web

2. Performance Tasks:
   The students will be assigned a hurricane or a tornado. They will work individually to research and create a poster/presentation of their severe storm. The student will be given a rubric that will explain teacher expectations as well as students' roles and responsibilities.

3. Summative Assessment (Quizzes, Tests, Prompts, Projects, etc.):
   The student will create a working model of a hurricane/tornado and deliver it to the class in a presentation format.

4. Formative Assessment (Dialogues, Observations, Work Samples, etc.):
   The teacher will observe students during work time. The students will be required to turn in daily journal entries of what he/she worked on as well as what information he/she collected. The teacher will hold daily team meetings to give feedback to students as well as area's where improvements/progress need to be made.

   Briefly explain HOW you will use formative assessment and feedback to redirect and focus your instruction for improving student achievement. Provide at least one example.

   By holding daily team meetings, and collecting journal entries. (Lots of Communication between teacher and student!!)

5. Student Self-Assessment:
   Students will complete a self assessment card concluding each days activities.

6. Attach or include specific rubrics being used for this lesson/unit:
Hurricane/Tornado Science Experiment

Name_______________________   Date Turned In _________

40 points  Idea--Independently identified a question which was interesting to the student and which could be investigated. (What question are you trying to answer by doing this experiment?)
Poster—states the students question and answer, contains at least 6 facts, well organized, attractive, easy to read, neatly done
  Class demonstration—does a demonstration of his/her experiment in front of the class, is knowledgeable of the experiment, knows what he/she is doing, and is able to answer classmates’ questions about his/her experiment
  Work Ethic--Student stayed on task during in-class work time, needed no prompts to stay on task.

35 points  Idea--Identified, with adult help, a question which was interesting to the student and which could be investigated.
Poster—states the student’s question and answer, contains at least 4 facts, well organized, easy to read, neatly done
  Class demonstration—does a demonstration of his/her experiment in front of the class, has some knowledge of the experiment, knows what he/she is doing, and is able to answer a majority of the class’s questions
  Work Ethic--Student had to have at least 2 prompts to stay on task.

30 points  Idea--Identified, with adult help, a question which could be investigated.
Poster—states the student’s question, contains at least 3 facts, easy to read
  Class demonstration—does a demonstration of his/her experiment in front of the class, has a little knowledge of the experiment, and is able to answer a few of the class’s questions
  Work Ethic—Student had to have at least 3 prompts to stay on task

25 points  Idea--Identified a question that could not be tested/investigated or one that did not merit investigation
Poster—states the student’s question, contains only 1 fact
  Class Demonstration—does a demonstration in front of the class, has a very small amount knowledge of the experiment, and is able to answer at least one of the class’s questions
  Work Ethic—Student had to have at least 4 or more prompts to stay on task
I will not accept anything less than this!
To earn extra credit:
--5 points-if student hands in at least two days before the due date (can only earn if the student is completing the 40 point experiment)
--3 points-if student hands in at least one day before the due date
--2 points-includes another fact (may only do up to a maximum of 2 facts)
--2 points-adds creativity to the poster (pizzazz!)

Extra Credit ______

Student’s Grade ____________

Teacher Comments :
Stage 3: Learning Experiences and Instruction

What sequence of teaching and learning experiences will equip students to develop and demonstrate the desired understandings?

1. Major Learning Activities:
   Students will acquire the knowledge of the how and what of tornadoes and hurricanes by constructing a model of each, and researching information to facilitate a classroom presentation.

2. Materials, Supplies, & Resources (technology & print):
   Will vary for each student. (depending on which experiment he/she chooses to do.)
   --Internet
   --Encyclopedia’s
   --Literacy Circle books (listed above)
   --Science Textbooks
   --Posterboard
   --Art Materials (crayons, markers, etc.)

3. Classroom Management:
   The teacher will monitor the productivity of each student. Daily team meetings will also aid in keeping students on track and focused.

4. Support Services and Special Teacher Notes:
   Mrs. Pulse, special ed. teacher, Mrs. Holan, special education aid, and Mrs. Scott, title reading instructor, will all be available to provide support and assistance to those students with special needs. Also, a personal phone call will be made to each one of their parents explaining the process. This way the parents can also provide some support at home. I have also established some before and after school time to work with each student individually.
Stage 4: Differentiated Instruction Strategies

What specific differentiated instruction strategies will be used in the lesson/unit? Fill in each section that applies.

1. Differentiated Process:

   The student will be reading literacy circle book about his/her topic based on his/her reading ability. From here the student will be assigned a topic, and will be able to make a product that is best suited to his/her own individual needs/wants.

2. Differentiated Content:

   Students will be able to use the internet to research their information as well as concept webs to organize their own information. The leveled reading materials will provide as an excellent resource to students. The students will be able to read for information based on their personal reading levels. This will therefore provide better comprehension of the non-fiction information.

3. Differentiated Product:

   Each student's presentation will be formatted around their own personal strengths. The presentations will all be different, and uniquely fit the students needs/wants. The students will also be able to earn whatever grade he/she choose to do, as predetermined in the rubric. In closing, each student's personality will be able to shine through as he/she delivers his/her presentation/experiment to the class.