

Grade: 4

Title: Land Change

Monique Cabral

Student Learning Objective(s):

Students will make maps to see the land change in Louisiana

Students will observe maps showing change

LA GLE's

Grade: 4 # 4: Predict and anticipate possible outcomes (SI-E-A2)

Grade: 4 # 12: Use a variety of appropriate formats to describe procedures and to express ideas about demonstrations or experiments (e.g., drawings, journals, reports, presentations, exhibitions, portfolios) (SI-E-A6)

Grade: 4 #63. Demonstrate and explain how Earth's surface is changed as a result of slow and rapid processes (e.g., sand dunes, canyons, volcanoes, earthquakes) (ESS-E-A5) (ESS-E-A1)

Materials needed: Construction paper (blue, green, red), scissors, glue, map showing land change in the lower Barataria- Terrebonne Estuarine Basins from 1932- 2000, journals, bulletin board paper (or sturdy paper), ruler.

Detailed Procedure. Describe what the students will do in each stage. Include guiding questions you might ask to help students.

1. Engage:

The students will observe a map showing changes in the lower Barataria- Terrebonne Estuarine Basins, which will be placed on the board for all students to see. The students will talk about the observations they have made on the map. "I see more green in the map of 1932 than in the map of 2000." "I see more blue in the 2000 map than the top map." The teacher will facilitate a discussion about what the students think is happening from one year to another. The teacher will introduce that the entire area is about 9760 square miles. Students will be asked to write in their journals their estimate on how much land is being lost per year in terms of square miles. Questions should be asked to ensure that students are familiar with the term estimate and if they know how big a mile actually is. After students write their estimates in their journal the teacher will write on the board the actual average which is 34 square miles per year of land changed and replaced by water.

Science Process Skills Indicate which science process skills students will develop in this part of the lesson.

- | | | | | | | |
|--|--|---|--------------------------------------|---|---|------------------------------------|
| <input type="checkbox"/> Observation | <input type="checkbox"/> Classification | <input type="checkbox"/> Communication | <input type="checkbox"/> Measurement | <input type="checkbox"/> Estimation | <input type="checkbox"/> Prediction | <input type="checkbox"/> Inference |
| <input type="checkbox"/> Identifying Variables | <input type="checkbox"/> Controlling Variables | <input type="checkbox"/> Graphing | <input type="checkbox"/> Modeling | <input type="checkbox"/> Defining Operationally | <input type="checkbox"/> Forming Hypotheses | |
| <input type="checkbox"/> Experimenting | | | | | | |

2. Explore:

Students will get into groups. Each group will be given a piece of bulletin board paper, 3 pieces of green construction paper and 2 pieces of blue construction paper. Students will have to cut green squares that will represent a certain area of land. Because the area is 9760 square meters students should have their squares represent 100 square miles. They will then have to round their land to the nearest hundred, which would be 9700 square miles. This would mean students would have to cut 97 squares. Students will have to calculate how many squares they have to cut in their journals. They will have to then stick their green squares with glue onto the bulletin board paper. This will represent the land in 1932. Students will then have to cut blue squares that are the same size as their blue squares. Because the blue squares represent land that is now water students have to estimate how much land has been lost from 1932-2000. The actual amount is averaged to be 1900 square miles. Once again students have to figure out how many squares they

have to cut. They would have to cut 19 squares because each square like the blue represents 100 square miles. They will then have to stick the blue squares on the green squares. This should give them a better idea of how much land has actually been changed. Their map should have a key and title and have all the group member names on it as well.

Science Process Skills *Indicate which science process skills students will develop in this part of the lesson.*

- | | | | | | | |
|--|--|--|--------------------------------------|---|---|------------------------------------|
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| <input type="checkbox"/> Identifying Variables | <input type="checkbox"/> Controlling Variables | <input type="checkbox"/> Graphing | <input type="checkbox"/> Modeling | <input type="checkbox"/> Defining Operationally | <input type="checkbox"/> Forming Hypotheses | |

3. Explain:

- What do you think will happen if we do nothing about the land loss?
- Do you think this is affecting us now or do you think this will only affect us in the future, or do you think this will not have any affect on us ever?
- As we lose more land every year do you think it is going to be harder to fix the problem the longer we do nothing?
- Looking at our map what towns do you think will no longer exist in 50 years?
- Looking at the maps you made, do you think that land is lost in a perfect square?
- What do you think may be causing this land change?

Outline the line of questioning you will use to assist students in understanding the concept. List at least 5 good questions and identify the question category (Gallagher & Aschner) in which your question falls (see text, Figure 7.6).

4. Expand:

Students who have now made a map showing land change from 1932-2000 will talk about trying to make their map more recent. The teacher will now talk about the year of 2004-2005. She will ask students to think of anything that happened in this year that might make land change greater. "What happened in 2005 that brought lots of water to Louisiana?" "I know hurricanes Katrina and Rita!" The students once again have to estimate how much land change they think happened in that year taking into consideration the average land loss per year that should still be written on the board. After talking about their estimates students will learn that the actual amount changed in that one-year is when rounded down to the nearest 100, 200 square miles. Students will cut red squares to represent the land loss in that year. Students will now add to their map by sticking the two red squares on top of two green squares. Students will then have to add all the years they are missing information on. That should 2001, 2002, 2003, 2004, 2006, 2007, 2008 and 2009. That is a total of eight years. They then have to work out how many square miles on average would be lost in eight years. Students have to multiply 8 by 34 (the yearly average lost). This should be 272; students will round up and will have to cut out 3 more blue squares. This will represent land changed since 2000 excluding the year of Katrina and Rita.

Science Process Skills *Indicate which science process skills students will develop in this part of the lesson.*

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| <input type="checkbox"/> Identifying Variables | <input type="checkbox"/> Controlling Variables | <input type="checkbox"/> Graphing | <input type="checkbox"/> Modeling | <input type="checkbox"/> Defining Operationally | <input type="checkbox"/> Forming Hypotheses | |

5. Evaluate:

Engage- during the engage sections the teacher is listening to students to see what they notice about the map. If they observed the differences in color. Students' journals will also be collected at the end to see what kind of estimates they made in their journals. The teacher will also be able to tell what students were thinking when discussing the averages.

Explore- During the explore the teacher should be walking around to ensure students have made the right estimations so they can cut out the right number of squares for each estimation. Their calculations in their journals will also be collected and the ability to cut the squares and estimate a good size to represent the 100 square miles.

Expand- Students will once again be tested on estimations skills. The completed maps will also be looked at to see how students completed their version.

What exactly will you do, or what evidence/data will you collect, to ascertain whether the students can achieve the objectives you listed at the top of this lesson?

Brain Compatible Learning Strategies Used in This Lesson:

- | | | | | |
|--|---|--|--|---|
| <input type="checkbox"/> Brainstorming/Discussion | <input type="checkbox"/> Drawing and Artwork | <input type="checkbox"/> Field Trips | <input type="checkbox"/> Games | <input type="checkbox"/> Graphic Organizers |
| <input type="checkbox"/> Humor | <input type="checkbox"/> Manipulatives, Experiments, Labs, Models | <input type="checkbox"/> Metaphors, Analogies, and Similes | | |
| <input type="checkbox"/> Mnemonic Devices | <input type="checkbox"/> Movement | <input type="checkbox"/> Music, Rhythm, Rhyme, and Rap | <input type="checkbox"/> Project/Problem-Based Instruction | |
| <input type="checkbox"/> Reciprocal Teaching, Cooperative Learning | <input type="checkbox"/> Role Plays, Drama, Pantomimes | <input type="checkbox"/> Storytelling | | |
| <input type="checkbox"/> Technology (student use) | <input type="checkbox"/> Visualization/Guided Imagery | <input type="checkbox"/> Visuals | <input type="checkbox"/> Writing/Journals | |

Lesson Source: educators.btnep.org

Land Change
 100 sq miles of land
 100 sq miles of water
 100 sq miles lost from hurricanes

Todd A
 Mitchell
 Chipe J.
 Madson
 Blake G.

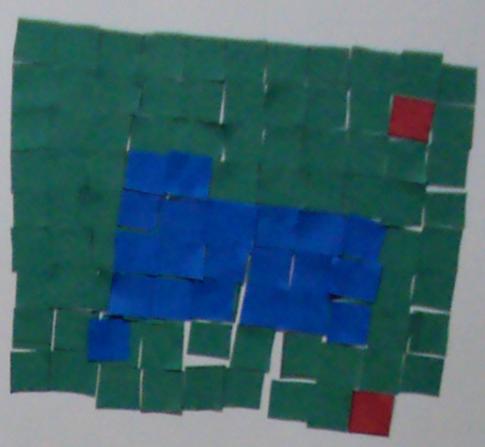


1932-2009

Louisiana Land Change

Map Showing Land change

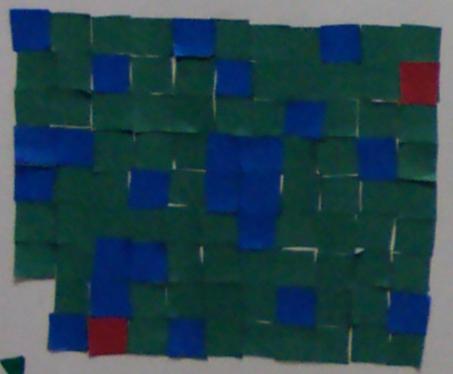
1932-2009



100 sq miles of land lost to hurricanes
 100 sq miles of land
 100 sq miles of water

Brett
 Dylan
 Heather
 Kaitlyn
 Lyla

LAND CHANGE IN LOUISIANA



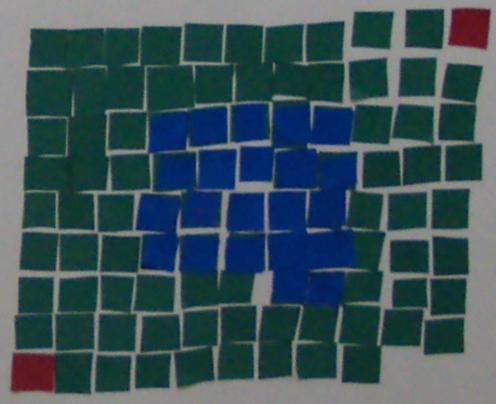
1932 to 2009

KEY!

1 = 100 sq miles lost from hurricanes
 1 = 100 sq miles of water
 1 = 100 sq mile of land

Map BY:
 Jessica Borel
 Anna Barnes
 Taylor Purcell
 Alyssa Habig

Land change 1932-2009



100 sq miles lost from hurricanes
 100 sq miles of land
 100 sq miles of water

Capitana Loman
 Amanda Loman
 Angie Spurgeon
 Anna Borch
 David Borch

The Land Changes

1932-2009



Adams
 Chelthe
 Daniels
 Anderson

LAND Change Decade

1932-2009



KEY
 100 of

MADSON
 Anderson