

Katrina Project Part 1
Coach Mesler's ESS Class
2015-16

Name: _____

Date: _____

Period: _____

DUE DATE: _____

Part 1

Hurricanes are almost an expected part of the late summer to winter months in much of the southeastern United States. Scientists question if the apparently stronger recent hurricane seasons are associated with other climate phenomena, global climate change in particular. There are also possible connections between strong hurricane seasons and the El Nino/Southern Oscillation phenomenon.

- **Are apparently stronger hurricane seasons associated with global climate change?**
- **What does the scientific evidence say?**
- **What might that mean for the present and future hurricane risks in the Gulf Coast region?**

Use the [Hurricane Katrina Web Resources](#)¹ to investigate these questions in your classroom.

Activity

Students will use the jigsaw technique to explore the possible effects of global climate change on hurricane seasons. Students will be divided into four groups. Each group will take sixty minutes to explore assigned parts of the website. Members of each group will become "experts" on their assigned topics. Then, the groups will disperse and reassemble into new groups that will include one member from each of the former groups. In their new groups, each "expert" will provide a brief summary of the essential information on their topic.

This activity takes roughly twenty-five minutes. Each person should complete an activity worksheet (these will be handed in) with the key points about what is particularly interesting and/or important about these issues. The class period will end with a general discussion about the overall issue of global climate change and hurricane season strength and the future risks in the Gulf Coast region.

Group One – Explore the [climate](#)² of the region.

- What is the overall nature of the climate in the region?
- Is the climate of the region changing?
- Are there patterns in the climate behavior of the region that are associated with stronger hurricane seasons?
- Does global climate play a role too? Or just regional climate?

Group Two – Explore information about [hurricanes and hurricane history](#)³.

- What can be learned from the science of hurricanes?
- Does hurricane history in the region suggest a connection between global climate change and hurricane season strength?

Group Three – Explore the [physical geology and geography](#)⁴ of the region.

- How does the geology and geography of the region contribute to the present and future risks associated with potentially stronger hurricane seasons?

Group Four – Explore the [human activities and development](#)⁵. Address areas of concern:

- [Human health](#)⁶
- Zoning
- Vulnerability of critical services like water, sewage, power and communications.

Each one of these categories is a good place to start your investigation. However, this site contains a wealth of information to draw into your discussion. As an "expert" you may want to explore other topics on this site as well as other websites. Check out our [Climate Change Collection](#)⁷ and [Climate Change Data Sets](#)⁸.

Part 1 web addresses:

- 1- http://serc.carleton.edu/research_education/katrina/keytopics.html
- 2- http://serc.carleton.edu/research_education/katrina/climate.html
- 3- http://serc.carleton.edu/research_education/katrina/hurricanes.html
- 4- http://serc.carleton.edu/research_education/katrina/physio.html
- 5- http://serc.carleton.edu/research_education/katrina/human.html
- 6- http://serc.carleton.edu/research_education/katrina/health.html
- 7- http://serc.carleton.edu/climatechange/browse_local.html
- 8- http://serc.carleton.edu/usingdata/resources.html?q1=sercvocabs_8%3A3

Katrina Project Part 1 Worksheet
Coach Mesler's ESS Class
2015-16

Name: _____

Date: _____

Period: _____

DUE DATE: _____

Answer the following questions by using the knowledge that you gained during this project. After finishing this worksheet turn it into the box.

- **Describe the climate of the gulf coast region**

- **Is the climate in the region changing? (Explain using evidence)**

- **What patterns (if any) can be associated with the increase in the strength of hurricanes?**

- **What is happening globally (if anything) that is affecting hurricane strength?**
- **What does science tell us about hurricanes? (Be specific and relate your information to what we are discussing in class)**
- **Is there a connection between global climate change and hurricane strength? (How?)**
- **What geographic and/or geologic features increase/decrease New Orleans risk of major damage by hurricanes?**

- **What are some of the health concerns associated with hurricanes?**

- **What does zoning have to do with hurricanes?**

- **What aspects of city infrastructure (sewer, phone and power lines, mass transit, etc...) are the most vulnerable to damage caused by hurricanes? (What does damage to these things mean for the people living in the city?)**

Katrina Project **Part 2**
Coach Mesler's ESS Class
2015-16

Name: _____

Date: _____

Period: _____

DUE DATE: _____

Part 2

Introduction

Hurricane Katrina affected 80% of New Orleans causing nearly \$80 billion in damages. Much of the damage was caused by the [storm surge and levee breaks](#)¹ between New Orleans and Lake Pontchartrain. Following the destruction caused by Hurricane Katrina, politicians, scientists, the media and residents of New Orleans are talking about what's next for New Orleans.

How should New Orleans be rebuilt?

In this activity, you will use the [Hurricane Katrina Information Pages](#)² to explore this issue and address the question of rebuilding New Orleans. Make sure you [Understand Katrina](#)³ before you get started!

Activity

Students will be divided into 5 groups representing:

1. Army Corps of Engineers/city planners
2. Consulting geologists
3. Consulting climatologists
4. City officials and representatives.
5. Ninth Ward residents

Each group will take about forty minutes to find information on this website pertaining to their assigned roles. In the next ten minutes, each group will decide on the essential evidence that informs their point of view (at least five key points) making sure to address the above question. Next, each group will have five minutes to report their information to the class. Each person should complete the activity worksheet with the key points about what is particularly interesting and/or important about each topic covered (these can be handed in). The class can end with a general discussion about the overall issue of rebuilding New Orleans and the best way in which rebuilding should be done.

Group One - Army Corps of Engineers/City Planners:

Be sure to explore the [Mississippi River and Delta](#)⁴, the [physiography](#)⁵ and the [human impacts and development](#)⁶ as well as the [aftermath of Hurricane Katrina](#)⁷.

- Ask yourselves if it is possible to re-engineer the Mississippi to make New Orleans safer from flooding?
- What are the impacts of engineering a system to help rebuild New Orleans?
- What are the risks?
- What compromises would you make?

Group Two - Consulting Geologists:

Be sure to look into the [physiography](#)⁵, [Mississippi River and Delta](#)⁴, and [human impacts and development](#)⁶.

- What is the general geologic setting?
- How does the geologic setting impact human development?
- How do these factors inform you about the ways in which New Orleans should be rebuilt?

Group Three - Consulting Climatologists:

Be sure to look into the [Gulf Coast climate](#)⁸ and [hurricanes and hurricane history](#).

- How does understanding the climate affect decisions about rebuilding New Orleans?
- What considerations should you take into account about future hurricane risks to the rebuilt New Orleans?

Group Four - City Officials and Representatives:

All the topics will be helpful for your group. Be sure to look at the [aftermath of Hurricane Katrina](#)⁷, [human impacts and development](#)⁶, and consider some of the policy issues related to rebuilding.

- How can you apply scientific information to mindfully rebuilding New Orleans?
- What aspects of the city could be changed to help prevent this from happening again?
- What is the most pressing matter to you as a city official?
- What changes would you make if another hurricane was to strike New Orleans? (i.e. To the response/evacuation plan)
- What is all this going to cost? (Remember you, as a city official, have to come up with ways to help pay for all of this!)
- What compromises would you make?

Group Five - Ninth Ward Residents:

Again, all the topics will be helpful for your group. Look at the [aftermath of Hurricane Katrina](#)⁷ and [human impacts and development](#)⁶. Consider what a resident might bring to the argument.

- What issues do you have about what happened?
- What suggestions do you have to make things better?
- What do you want to come from all of this?
- What things do you want in place in order to protect you/your home/your city from something like this? (Even if it means bulldozing neighborhoods?)
- What compromises would you make in order to have more safety??

Part 2 Web Addresses:

- 1- http://serc.carleton.edu/research_education/katrina/understanding.html#surge
- 2- http://serc.carleton.edu/research_education/katrina/keytopics.html
- 3- http://serc.carleton.edu/research_education/katrina/understanding.html
- 4- http://serc.carleton.edu/research_education/katrina/mississippi.html
- 5- http://serc.carleton.edu/research_education/katrina/physio.html
- 6- http://serc.carleton.edu/research_education/katrina/human.html
- 7- http://serc.carleton.edu/research_education/katrina/aftermath.html
- 8- http://serc.carleton.edu/research_education/katrina/climate.html
- 9- http://serc.carleton.edu/research_education/katrina/hurricanes.html