

INQUIRY PROCESS: NATURAL DISASTERS

Class: Science & Geography
Topic: Natural Disasters

Grade: 5 (cycle 3)
Time Frame: One Term

Purpose: The following thematic project could be implemented to help students develop their information literacy skills. These lessons should be used in conjunction with the IS-21 software and the additional classroom activity plans for each step (see the *Inquiry Process Lesson Plans* in the [teacher resource page](#)). This thematic project will indicate when it would be useful to follow the activities outlined in those lessons. This set of lessons is intended to spark interest in natural disasters, present the project, and support students in the IS-21 steps in relation to their topic.

Note: These lessons were created with the Guided Mode of the IS-21 tool in mind.

Lesson: Setting Up an Inquiry Need

Stage of Inquiry Process: IS-21's START, DEFINE & BRAINSTORM step.

Purpose of lesson: To introduce the natural disasters project to the students and set up groups. It will also introduce them to the IS-21 software.

Start this lesson with the proposed hook activity, outlined below. Then refer to the activities outlined in the *Inquiry Process Lesson Plans* in the teacher resource page, however you can use the worksheets associated with this thematic project.

Materials

- Reference books on blizzards, earthquakes, hurricanes, and tornados.
- Computers and Internet access.
- Worksheets of the assignment entitled *Task Description* (see the teacher resource page).

NATURAL DISASTER STATIONS

Prior to this activity, you will have to gather a variety of resources about different natural disasters. If you have a computer in your classroom, have some online encyclopedias already projected on the screen.

- 1) *Set up* 4 stations in your classroom.
Each natural disaster should have its own designated station. Group all resources about that natural disaster at that station.
- 2) *Pass out* the 'Task Description' worksheet.
This document is on the teacher resource page.

- 3) *Introduce* the upcoming project.
Explain that before students can select a natural disaster that interests them, they will have to learn about all four of the natural disasters.
- 4) *Direct* students to visit each station.
Give students enough time to visit each station in the classroom. Have students express what they find interesting about the natural disasters.

ASSIGNING THE TASK

- 1) *Refer* to the activity 'Assign the Task' in the START lesson plan.
It can be found in the *Inquiry Process Lesson Plans*, which are on the teacher resource page.
- 2) *Pass out* the 'Phase One' worksheet.
This document is on the teacher resource page.

Lesson: Defining an Inquiry Need

Stage of Inquiry Process: IS-21's DEFINE and BRAINSTORM steps.

Purpose of lesson: This lesson is intended to help students formulate an appropriate research topic (i.e. a Big Question) and researchable questions (i.e. Little Questions) that will guide their inquiry. They will learn about the 'arm' analogy to help explain the differences between Big and Little Questions. They will then formulate these questions for their task. Depending on the time you devote to each activity, this lesson may span more than one class.

Start this lesson by following the activities described in the DEFINE & BRAINSTORM lesson plan. It is part of the *Inquiry Process Lesson Plans* found on the teacher resource page. When you get to the 'Hot Potato Questions' activity, use the modified version as described below.

Materials

- Sheets of paper with role or categories written at the top (see the *Hot Potato Questions* activity).
- Computers and Internet access (for IS-21).

NATURAL DISASTER HOT POTATO QUESTIONS

Have the class divided into groups of 3-4 members. They do not have to be with their partners for the project. Give each group a paper with a particular subject on it that relates to the inquiry project. There are 8 sheets; one sheet for each disaster and role:

- Blizzard
- Earthquake
- Hurricane
- Tornado
- Anchorperson
- Eyewitness
- Field worker
- Meteorologist



Once the students are in their groups and they have one sheet, you will give the signal and they will have a short time to think of 1-2 questions that relates to their subject. Tell them not to overthink the questions as this is just a brainstorming activity. When the time is up, have each group pass the paper to the next group and collect a new sheet from another group. Give the signal again. They will read what has been written and then have a short time to think of another 1-2 questions on the subject. Continue rotating the sheets until each group has had a chance to write questions for each subject. You can then either post the brainstorming questions somewhere in the classroom, or compile them into a document that you can share.

Some possible questions for the roles that they might have written:

Anchorperson

- What is the definition of a natural disaster?
- What is the definition of an (earthquake, blizzard, tornado or hurricane)?
- Blizzard: what is the difference between a snowstorm and a blizzard?
- What cities/countries are at risk of experiencing an (earthquake, blizzard, tornado or hurricane)?

Eyewitness

- What relief efforts are needed to help those who have been affected by an (earthquake, blizzard, tornado or hurricane)? or
What relief/rescue efforts are needed to help the victims of an (earthquake, blizzard, tornado or hurricane)?
- What are some responses from international organizations when an (earthquake, blizzard, tornado or hurricane) occurs?

Field worker

- Why do (earthquakes, blizzards, tornados or hurricanes) occur? or
What is the cause of an (earthquake, blizzard, tornado or hurricane)?
- What kind of damage can occur from an (earthquake, blizzard, tornado or hurricane)? or
What is the impact/consequence of an (earthquake, blizzard, tornado or hurricane)?

Meteorologist

- What are the weather conditions that occur before and after an (earthquake, blizzard, tornado or hurricane)? or
What are the weather conditions that would serve as a warning of an (earthquake, blizzard, tornado or hurricane)?
- Is it possible to predict/forecast a (earthquake, blizzard, tornado or hurricane)?

Lesson: Identifying Keywords

Stage of Inquiry Process: IS-21's KEYWORDS step.



Purpose of lesson: This lesson allows students to pull out the key concepts that form the basis of their inquiry. Thinking of synonyms for the keywords they highlight will aid them in considering alternative ways that the information is stored and classified. This will help them prepare for the search phase as well as develop their own understanding of how to specify their needs.

Follow the activities outlined in the KEYWORDS lesson plan. It is part of the *Inquiry Process Lesson Plans* found on the teacher resource page.

Lesson: Creating Search Strings

Stage of Inquiry Process: IS-21's SEARCH STRINGS step.

Purpose of lesson: This lesson is designed to teach students how to use the Boolean operators "AND" and "OR" in online searching to either narrow or expand their results. These Boolean operators establish a relationship between the keywords/concepts in a search, and thus have a significant impact on the relevancy of their search results.

Follow the activities outlined in the SEARCH STRINGS lesson plan. It is part of the *Inquiry Process Lesson Plans* found on the teacher resource page.

Lesson: Determining Best Resources

Stage of Inquiry Process: IS-21's RESOURCES step.

Purpose of lesson: The purpose of this lesson is to have students consider the variety of resources available to them to answer each of their Little Questions and to learn that different kinds of information may be found in different sources, which are subsequently found in different locations.

Start the lesson with the activity 'Gaging Student Knowledge of Appropriate Resources', described below. Then follow the RESOURCES lesson plan. It is part of the *Inquiry Process Lesson Plans* found on the teacher resource page. For the first activity in the general lesson plan, titled 'Range of Resources', instead of providing a Little Question for each half of the class, group students based on which natural disaster they selected and have them select a Little Question as a group.

If you want to invite an expert to speak to your classroom, now would be a good time to plan for it.

GAGING STUDENT KNOWLEDGE OF APPROPRIATE RESOURCES

Tell students that you would like to take a poll. If they agree with the following statements, they should raise their hand. If they disagree then they should not raise their hands. If they are not sure then they should raise one finger. Give the following statements and count how many students agree, disagree or are unsure.

- If I have a question, the Internet is always the **best** place to look.



- If I am looking for background information on a topic, I should start by looking in an encyclopedia.
- I need to think about the information that I find on the Internet by checking the sources of the information.
- I can use organizations in my community as resources for a project.
- I can name 3 different search engines.
- Sometimes newspaper articles only tell one side of a story.

At the end of the **EXPLORE** lesson, go over these statements to see if the students have changed their responses. If there is still some confusion, stop and address these issues.

Lesson: Exploring Resources

Stage of Inquiry Process: IS-21's EXPLORE step.

Purpose of lesson: Once students have decided which appropriate resource(s) they need, they will begin to explore the retrieval tools that are available for each resource. This particular lesson will focus on helping students explore the types of search tools available for searching websites (i.e.: search engines and directories), and evaluating the search results retrieved in such tools.

Start by following the activities outlined in the EXPLORE lesson plan. It is part of the *Inquiry Process Lesson Plans* found on the teacher resource page. When students are ready for the 'Exploring Resources for their Task' activity, pass out the 'Phase Two' worksheet. It provides a review of their task and lists what they can expect during the second phase.

At the end of this lesson, pose the questions listed in this document under the RESOURCES' activity 'Gaging Student Knowledge of Appropriate Resources'. This will help determine if there is some lingering confusion in students' understanding of selecting appropriate resources.

Note: If you plan to bring your class to the school library then it would be a good idea to do a preliminary search in the OPAC to ensure that the school library has sufficient texts to offer on advertising.

Lesson: Selecting Sources

Stage of Inquiry Process: IS-21's SELECT step.

Purpose of lesson: Students will learn how to identify the best hits/results from an Internet search by reading the title, description, and web address on a Results page. The criteria they should focus on at this point in the process are the source's *relevancy* to their Little Question and a quick judgment about the source's *quality*. These sources will be evaluated for additional criteria in the next lesson.



Follow the activities outlined in the SELECT lesson plan. It is part of the *Inquiry Process Lesson Plans* found on the teacher resource page.

Lesson: Reviewing Sources

Stage of Inquiry Process: IS-21's REVIEW step.

Purpose of lesson: Students will determine if the sources they selected previously are credible, reliable, accurate, current, and relevant. Based on this evaluation, they will then determine if they would like to use the source.

Follow the activities outlined in the REVIEW lesson plan. It is part of the *Inquiry Process Lesson Plans* found on the teacher resource page.

Lesson 9: Note Taking

Stage of Inquiry Process: IS-21's NOTE TAKING step.

Purpose of lesson: Students will take notes on the sources that they indicated they would use. This involves comprehending the main points in the source, highlighting relevant information to answer a Little Question, and determining if they will paraphrase or quote the content of each source.

Follow the activities outlined in the NOTE TAKING lesson plan. It is part of the *Inquiry Process Lesson Plans* found on the teacher resource page. When you reach the activity 'Highlighting and Note Taking' provide students with the 'Phase Three' worksheet. It reminds students of their task and provides an outline of what they will do in phase 3 of the inquiry process.

Lesson: Synthesize

Stage of Inquiry Process: IS-21's SYNTHESIZE step.

Purpose of lesson: Students will reorganize and distill the information they found to make sense of it all. They will also determine if they have found enough information to answer their Big Question.

Follow the activities outlined in the SYNTHESIZE lesson plan. It is part of the *Inquiry Process Lesson Plans* found on the teacher resource page. When you reach the activity 'Reorganizing Information' provide students with the 'Considerations' worksheet. It reminds them of their task and provides details of what they are expected to do for their end product.

There is also a suggested rubric specific to the Natural Disaster. Combine this rubric with the inquiry process rubric found on the teacher resources page.



Lesson: Citing Sources

Stage of Inquiry Process: IS-21's ACKNOWLEDGE step.

Purpose of lesson: This lesson is designed to teach students that they must cite the sources that will be used to answer their Big Question. Students will recognize their moral and ethical responsibility to properly acknowledge where they found their information and ideas and learn the value of placing complete citations in an alphabetical list. They will learn a specific citation style (MLA).

Follow the activities outlined in the ACKNOWLEDGE lesson plan. It is part of the *Inquiry Process Lesson Plans* found on the teacher resource page.

Lesson: Creating Something New

Stage of Inquiry Process: IS-21's PRODUCE step.

Purpose of lesson: Students will learn how to communicate what they have learned in an effective format with a specific audience in mind. They will use different media and develop their presentation skills.

Follow the activities outlined in the PRODUCE lesson plan. It is part of the *Inquiry Process Lesson Plans* found on the teacher resource page. When you get to the 'Producing Something New' activity, provide students with the 'Final Preparations' worksheet.

Before students present their final products, it would be a good idea to again provide students with the 'Considerations' worksheet and Rubric handout.

Be sure to have students refer to the checklist in the tool. There is a section dedicated for oral presentations. Each group should review the checklist before they give their final presentation.

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