NJSLA Research Simulation Task
Grade 5 Writing

Lesson 7: Practice Completing the Prose Constructed Response

Rationale

- To prepare students for the prose constructed response on the NJSLA Research Simulation Task, they should practice authentic writing experiences modeled on the NJSLA format.

Goal

- To complete a practice session for the RST prose constructed response

Task Foci

- **CCSS W.5.2**: Write informative/explanatory texts to examine a topic and convey ideas and information clearly.
- **CCSS W.5.4**: Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience.
- **CCSS W.5.5**: With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach. (Editing for conventions should demonstrate command of Language standards 1-3 up to and including grade 5 here.)
- **CCSS W.5.7**: Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic.
- **CCSS W.5.8**: Recall relevant information from experiences or gather relevant information from print and digital sources; summarize or paraphrase information in notes and finished work, and provide a list of sources.
- **CCSS W.5.9**: Draw evidence from literary or informational texts to support analysis, reflection, and research.
- **CCSS W.5.10**: Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

Objectives

- Students will complete a practice RST prose constructed response

Materials

- Computer with Microsoft Word (per student)

    - Note: Since NJSLA is a computer-based test, it would be best if students can practice typing their essays rather than writing them by hand.
- Text Set handout
- Prompt handout

Procedures

- Tell your students that today they will complete a practice prose constructed response for the Research Simulation Task.
- Make sure every student has opened a new Word file and is ready to write. NOTE: If students are handwriting their essays, have them skip lines because they will revise their essays in Lesson 8.
- Pass out the sample texts and prompt handouts.
- **"You have X minutes to complete this essay. Ready? Begin."**
- Remind class when five minutes remain.
- When time ends, have students **save** there essays as "Last Name_First Initial_Draft 1." Print their essays and collect. They will need them for Lesson 8.
- In closing, ask students for feedback on their test-taking experience.

Assessment

- Students' essays should demonstrate their knowledge and application of the following elements of composition:
    - A clear opening topic statement that makes an arguable claim in response to the prompt.
    - Use of evidence that demonstrates the student understood the readings.
    - Use of evidence that clearly supports the student's opening topic.
    - A clear introduction that addresses the prompt and includes the opening topic statement.
    - Organized body paragraphs with clear reasons, supporting details, and a connection to the opening topic.
    - A clear conclusion that briefly restates the reasons and opening topic statement.

The Science of Earthquakes

From http://earthquake.usgs.gov/learn/kids/eqscience.php
Originally written by Lisa Wald for "The Green Frog News"
Credit: U.S. Geological Survey
Department of the Interior/USGS

What is an earthquake?

An *earthquake* is what happens when two blocks of the earth suddenly slip past one another. The surface where they slip is called the *fault* or *fault plane*. The location below the earth's surface where the earthquake starts is called the *hypocenter*. The location directly above it on the surface of the earth is called the *epicenter*.

Sometimes an earthquake has *foreshocks*. These are smaller earthquakes that happen in the same place as the larger earthquake that follows. Scientists can't tell that an earthquake is a foreshock until the larger earthquake happens. The largest, main earthquake is called the *mainshock*. Mainshocks always have *aftershocks* that follow. These are smaller earthquakes that occur afterwards in the same place as the mainshock. Depending on the size of the mainshock, aftershocks can continue for weeks, months, and even years after the mainshock.

What causes earthquakes and where do they happen?

The earth has four major layers: the *inner core*, *outer core*, *mantle* and *crust.* The crust and the top of the mantle make up a thin skin on the surface of our planet. But this skin is not all in one piece. It is made up of many pieces like a puzzle covering the surface of the earth. Not only that, but these puzzle pieces keep slowly moving around, sliding past one another and bumping into each other. We call these puzzle pieces *tectonic plates.* The edges of the plates are called the *plate boundaries.* The plate boundaries are made up of many faults. Most of the earthquakes around the world occur on these faults. Since the edges of the plates are rough, they get stuck while the rest of the plate keeps moving. Finally, when the plate has moved far enough, the edges unstick on one of the faults and there is an earthquake.

While the edges of faults are stuck together, and the rest of the block is moving, the energy that would normally cause the blocks to slide past one another is being stored up. When the force of the moving blocks finally overcomes the *friction* of the jagged edges of the fault and it unsticks, all that stored up energy is released. The energy radiates outward from the fault in all directions in the form of *seismic waves* like ripples on a pond. The seismic waves shake the earth as they move through it, and when the waves reach the earth's surface, they shake the ground and anything on it, like our houses and us!

Measuring Earthquakes

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How are earthquakes recorded?

Earthquakes are recorded by instruments called *seismographs.* The recording they make is called a *seismogram*. The seismograph has a base that sets firmly in the ground, and a heavy weight that hangs free. When an earthquake causes the ground to shake, the base of the seismograph shakes too, but the hanging weight does not. Instead the spring or string that it is hanging from absorbs all the movement. The difference in position between the shaking part of the seismograph and the motionless part is what is recorded.

How do scientists measure the size of earthquakes?

The size of an earthquake depends on the size of the fault and the amount of slip on the fault. That's not something scientists can simply measure with a measuring tape since faults are many kilometers deep beneath the earth's surface. So how do they measure an earthquake? They use the *seismogram* recordings made on the *seismographs* at the surface of the earth to determine how large the earthquake was. A short wiggly line that doesn't wiggle very much means a small earthquake. A long wiggly line that wiggles a lot means a large earthquake. The length of the wiggle depends on the size of the fault. The size of the wiggle depends on the amount of slip.

The size of the earthquake is called its *magnitude.* There is one magnitude for each earthquake. Scientists also talk about the *intensity* of shaking from an earthquake. This varies depending on where you are during the earthquake.

Locating and Predicting Earthquakes

From http://earthquake.usgs.gov/learn/kids/eqscience.php
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Seismograms come in handy for locating earthquakes. Being able to see the *P wave* and the *S wave* is important. P & S waves each shake the ground in different ways as they travel through it. P waves are also faster than S waves, and this fact is what allows us to tell where an earthquake was. To understand how this works, let's compare P and S waves to lightning and thunder. Light travels faster than sound, so during a thunderstorm you will first see the lightning. Then you will hear the thunder. If you are close to the lightning, the thunder will boom right after the lightning. But, if you are far away from the lightning, you can count several seconds before you hear the thunder. The farther you are from the storm, the longer it will take between the lightning and the thunder.

P waves are like the lightning. S waves are like the thunder. The P waves travel faster and shake the ground where you are first. Then the S waves follow and shake the ground also. If you are close to the earthquake, the P and S wave will come one right after the other. If you are far away, there will be more time between the two. By looking at the amount of time between the P and S wave on a seismogram recorded on a seismograph, scientists can tell how far away the earthquake was from that location. However, they can't tell in what direction from the seismograph the earthquake was. They can only tell how far away it was. If they draw a circle on a map around the station where the *radius* of the circle is the determined distance to the earthquake, they know the earthquake lies somewhere on the circle. But where?

Scientists then use a method called *triangulation* to determine exactly where the earthquake was. It is called triangulation because a triangle has three sides. It takes three seismographs to locate an earthquake. If you draw a circle on a map around three different seismographs where the *radius* of each is the distance from that station to the earthquake, the intersection, or meeting place, of those three circles is the *epicenter*.

Can scientists predict earthquakes?

No, and it is unlikely they will ever be able to predict them. Scientists have tried many different ways of predicting earthquakes. None have been successful. On any particular fault, scientists know there will be another earthquake sometime in the future. However, they have no way of telling when it will happen.

Is there such a thing as earthquake weather? Can some animals or people tell when an earthquake is about to hit?

These are two questions that do not yet have definite answers. If weather does affect earthquake occurrence, or if some animals or people can tell when an earthquake is coming, we do not yet understand how it works.

Research Simulation Task
Prose Constructed Response

All three of the articles you've read give information about earthquakes. Write an essay explaining what causes earthquakes and how scientists measure them. Use details from the texts to complete your essay.