

Oil Spill Investigation

Benchmark III

Science

Student Task Information

Name _____

Course _____

If you put your name on pages submitted with this cover page, your name should be on blank backs of pages ONLY.

2013 Assessment

The Task

Oil Spill Investigation

Fossil fuels are the most common form of energy used by humans. Fossil fuels are efficient sources of energy. But they also contain dangerous chemicals. These chemicals can cause serious damage to the environment and are a danger to people.

Fossil fuels are also often difficult and dangerous to gather.

On April 20, 2010, there was an explosion on the Horizon Deep Water Mobile Offshore Drilling Unit. The explosion damaged the unit about a mile below the surface of the water. This led to the largest oil spill in U.S. history. Fifty-two miles off the coast of Louisiana, millions of gallons of oil were spilled.

As a result of the spill, public interest in the environmental impact of offshore drilling is high.

In this task, you will identify factors that affect the spread of oil in a body of water. You will design an experiment that will investigate those factors.

Final Product

Create a report describing the experiment you designed to investigate factors that affect the spread of oil in water.

Directions

This task involves completing a final product as outlined in The Task above. You will also create a **ThinkReady Portfolio**. This portfolio is a record of all your work for this project. You will demonstrate how well you solve problems, research information, and communicate your ideas.

Save all of your work as you complete the sections. Organize your ThinkReady Portfolio in the order presented in the directions below (by Key Cognitive Strategy). At the end of the entire task, you will submit all of your work attached to the cover page.



Problem Formulation

This Section Due: _____

Solving problems often involves considering more than one possible solution. First, you need to make sure you understand what the task is asking you to do. Then, take time to make a plan for your work.

Hypothesize

In this section, you will think about the task and choose a topic for your research.

- Label this section of your project *Hypothesize*.
- **Write a hypothesis that contains a cause-and-effect or thesis statement.** Explain your thinking at this point.
- **Be sure that your hypothesis or thesis is written so that it might be able to solve the problem in the task.**
- **Be sure that your hypothesis or thesis makes sense and is complete.**

Strategize

In this section, you will explain your plan to gather information and your steps to complete the project.

- Label this section of your project *Strategize*.
- List the steps you will take to successfully complete this project. **Be sure that these strategies work with the science subject area.**
- **Be sure that your strategy or strategies will work to solve the task.**

Tip: Remember that hypotheses are meant to be tested. Even if your first hypothesis turns out to be wrong, you should keep a record of it as proof of what didn't work.



Research

This Section Due: _____

When you begin a task, be sure to consider all your options for finding information.

Identify

In this section, you will plan the observations and/or experiments you will need to test your hypothesis or hypotheses.

- Label this section of your project *Identify*.
- **Decide on a method for searching for information that you think will work with the problem outlined in the task.** Record your plans for collecting data and information
- **Be sure that all the sources you might use are related to the problem.**
- **Be sure that you have chosen enough sources to address your hypothesis or thesis.**
- Attach any notes you took and the data you collected.

Collect

In this section, you will collect and record your information in an organized way. Make sure you record it in a way that will help you analyze it later.

- Label this section of your project *Collect*.
- **Collect your sources using a system or plan.** Take notes from your experiments and/or sources.
- **Be sure that you collect enough information to address your hypothesis or thesis.**
- Attach your data. Also attach the notes you took as you conducted your experiments.

Tip: Now that you have conducted research, think back to your initial prediction. Has your thinking changed? If so, record your new thinking and add your ideas to your *Hypothesize* section.



Interpretation

This Section Due: _____

Once you gather some information, you need to decide how reliable it is. Now is the time to start making some conclusions.

Analyze

In this section, you will analyze your evidence by organizing your observations and data strategically to recognize patterns and relationships.

- Label this section of your project *Analyze*.
- Organize your information by grouping it in a way that helps you see patterns, such as a table or graph. **Be sure that your analysis method will work well with the problem outlined in the task.**
- **You may use an analysis method you remember using or one you develop to complete this section.**
- **Check that your analysis helps you support or challenge your hypothesis or thesis.**

Evaluate

In this section, you will use the information you organized during your analysis to identify trends, draw conclusions, and create arguments.

- Label this section of your project *Evaluate*.
- Identify trends, conclusions, and arguments from your analysis. These may be written in narrative, bullet, or other form.
- **Select findings that you think will help you complete the task.**
- **Put your findings together in a way that you think will address your hypothesis or thesis.**
- **Be sure that you have enough findings to support or challenge your hypothesis or thesis. Describe any changes in your thinking and your reasons for them.**
- Identify any limitations in your methods that might have affected your results.

Tip: Review your progress. How are you doing? Do you need to collect additional information?



Communication

This Section Due: _____

Your task is to explore conditions that might affect oil spills, and the rate that oil spreads under different situations. Begin to think about your report. How will you describe and justify your methods and conclusions? How will you explain your reasoning and conclusions so they are easy to follow?

To communicate your conclusions clearly, you will first need to create a rough draft so that you can get feedback from others.

Monitor

As you begin to work on your draft, look at the section called *Monitor* on the following page. There, you will find directions on how to check your work and how to make your final product the best it can be.

Organize

In this section, you will produce your first draft.

- Label this section of your project *Organize*.
- Produce a written draft that demonstrates a logical progression of ideas and supports your findings. Make sure an outside reader would be able to identify all the components of a draft: hypotheses, materials, procedures, data presentation and conclusions.
- **Use a logical organizational structure to create your final work product. Make sure your work product is organized the same way throughout the product.**
- **As you create your final work product, use formats and conventions that fit with science.**
- Follow your teacher's directions to participate in a teacher-, peer-, or self-review process. Attach all your drafts and the feedback you receive.

Construct

In this section, you will revise your draft for the intended audience and purpose.

- Label this section of your project *Construct*.
- Read the original task again to make sure you remember what you are supposed to produce.
- **Be sure that you use the results from Problem Formulation, Research, and Interpretation in your final product.**
- **Make sure that each of your drafts gets better with each version. Double-check that you have considered all the feedback you received.**
- Attach all drafts, clearly showing where you revised your work (based on teacher-, peer-, or self-review) between drafts.



Precision and Accuracy

Final Product(s) Due: _____

Part of making the best final product means taking the time to check your work. You should check your drafts at every step of the process, but now is your chance to really make your final work product the best it can be.

Monitor

In this section, you will make and carry out a plan for editing your work.

- Label this section of your project *Monitor*.
- **Be sure that your work is precise and follows the rules and conventions for science.**
Describe the methods (such as spell check, reading aloud, or asking a friend) you will use for checking your work as you write your drafts.
- **Properly record or document your references.**

Confirm

In this section, you will edit and confirm all elements of your work.

- **Check for technical and grammatical accuracy.** Be sure that you have used language, terms, and formats appropriate for science.
- **Double check that you have followed all the task directions.**
- Attach your final draft. Follow all given instructions for deadlines, length, and formatting.






Follow these steps to prepare your work for submission.

- Collect all of your work.
- Organize it in the order presented in the directions above (by Key Cognitive Strategy).
- Review all of the sections of your ThinkReady Portfolio to be sure they are complete, legible, and your best work.
- Check that your name appears on the cover page *ONLY*. Remove your name from other sheets.

Submit your work attached to the cover page.

Assessing Your Work***This Section Due:*** _____

Use the scoring guides to score your work and justify your score.

KCS	Component	Score	Reasons for Score
Problem Formulation 	Hypothesize		
	Strategize		
Research 	Identify		
	Collect		
Interpret 	Analyze		
	Evaluate		
Communicate 	Organize		
	Construct		
Precision/Accuracy 	Monitor		
	Confirm		