### Investigating Seafloor Sediments – Student Packet

#### Questions to Explore
If you dive down below the surface of the ocean into the deep dark waters below you eventually hit the ocean floor. Curious minds want to know: What makes up the seafloor? How could you investigate this question?

#### Generating Ideas (Hypotheses)
Before investigating, it’s important to have an idea of what you think you might find. Write down several ideas (hypotheses) of what you think the seafloor is made of. For each of your ideas, describe what you would expect to see in a sample if that idea/hypothesis was supported.

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<th>Idea/Hypothesis</th>
<th>Expected Observation</th>
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How could you test your ideas (hypotheses)?
Testing Your Ideas (Hypotheses) – Part I

A. You will be given a sample(s) obtained from the Integrated Ocean Drilling Program and the JOIDES Resolution (www.joidesresolution.org) research vessel along with a box of equipment you can use to investigate your sample(s).

B. How will you use the provided equipment to test your ideas? Work with your group to come up with a procedure for analyzing your sample(s). Be sure to go over the safety rules below before you begin using any of the equipment.

Safety Precautions:
   a. Hotplate – Gets very hot! Don’t get body parts near it.
   b. UV light – Can blind! Don’t look into it or hold it up at others.
   c. Glass slides – Can cut! It’s glass so be gentle.
   d. Glue – Can stick! Clean up quickly and keep the cap closed.

Procedure Idea Generation
Testing Your Ideas (hypotheses) – Part II

A. Make observations of your sample using the microscope. Draw and label what you see on the highest magnification that works. Use the resources provided to identify the contents of your sample.

Magnification:

Identification:

Magnification:

Identification:
B. Review each of your ideas (hypotheses) and explain how your actual observations impacted each one – did it support, oppose, cause you to generate new ideas, cause you to revise ideas?

1.

2.

3.

What does your analysis tell you about the ocean floor in the particular region where the sample was taken?
Reflecting On The Investigation

1. Take a look at the *Science Flow Chart* provided by your teacher. Using a colored pen or pencil, draw arrows to show the pathway you took during your investigation.

2. What does the pathway you drew tell you about the science process you were involved in?

3. How does your pathway differ from other students?

4. Look again at the different parts of the scientific process depicted on the Science Flow Chart. Using different colors, show at least three possible next steps that you could take if you were to continue the investigation. Either on your Flow Chart or on a separate paper, explain each of your choices by sharing details such as questions, methods, people, equipment, resources, etc..

5. Do you think there is a pre-determined set of steps that all scientists follow? Use your experience to explain.