Ocean Robots & Data: What? How? Why? - Worksheet
TEACHER ANSWER KEY

Name: _____ Date: _____

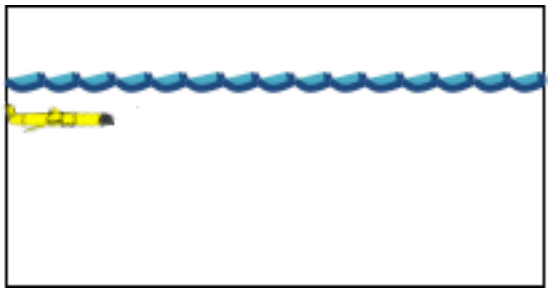
Why Gliders?

Make a list of possible pros and cons for studying ocean water from a glider.

PROS	CONS
- *Cheaper and safer then sending people out on boats*	- *Cannot move against tides or strong currents*
- *Gives data from water column, not just surface*	- *Expensive to build*

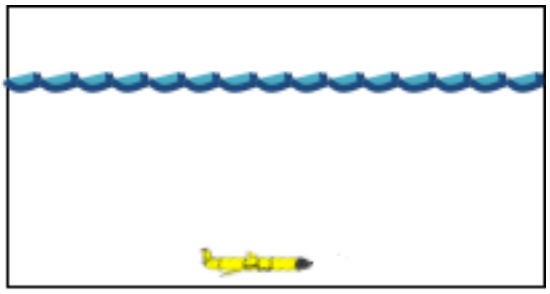
*** These are examples of possible answers, but all answers are acceptable. ***

Glider Model Demonstration



Describe what happened to the glider, how, and what might have caused the change.

The glider model should move downward in an arc towards the bottom of the tank. The answers to what might have caused this will vary.



Describe what happened to the glider, how, and what might have caused the change.

The glider model should move upward in an arc towards the surface of the water. The answers to what might have caused this will vary.

Scientific Explanation: What does your data from the glider tell you about how the ocean water may vary with depth and/or across space?

Evidence: Provide scientific data from the RU01 Glider Data Profiles (Temperature, Salinity, and/or Chlorophyll) that shows how the ocean water may vary with depth and/or across space. Use appropriate and sufficient data.

Salinity - The salinity varies from 33 to 34.5 g/kg from the surface to 100m deep. The lowest salinity is at the surface inshore (at the start of the transect). The highest salinity is between 90-100m throughout most of the transect.

Chlorophyll - The amount of chlorophyll in the water varies from 0-45 μ g/L. All of the chlorophyll is from 0-40m deep, with the majority (< 20 μ g/L) shallower than 25m. The highest concentration of chlorophyll is in the top 15m of the water column at the end of the transect, offshore.

Temperature - The water temperature varies from -1.25-2.25ºC. The coolest temperatures (-1.25-0.25ºC) are between 20-90m deep. The warmest temperatures (0.75-2.25ºC) are between 0-20m deep. There is a warmer area (0.25-0.5ºC) from 90-100m deep, below the coolest temperature water.

Reasoning: Use your evidence to show how your data result in your claim. Also, tell why your data count as evidence to support your claim by using scientific principles. Remember, reasoning is the process where you apply your science knowledge to answer the question.

The ocean water is not uniform from the surface to 100m deep or from inshore to offshore. Instead it varies. The salinity, chlorophyll, and temperature data all vary with depth and across space.

Claim: Write a statement that responds to the above driving question.

The ocean water (based upon salinity, chlorophyll, and temperature) varies with depth (0-100m) and across space (inshore to offshore).

What new questions do you have?