

Water is Life

Science Grade-Level Expectations

The exercises in this instructional task address content related to the following science grade-level expectations:

- ESS-M-A11 Identify the components of the hydrosphere (GLE 34)
- ESS-M-C8 Communicate ways that information from space exploration and technological research have advanced understanding about Earth, the solar system, and the universe (GLE 48)
- ESS-M-C8 Identify practical applications of technological advances resulting from space exploration and scientific and technological research (GLE 49)

	Objectives
Task	<ul style="list-style-type: none"> - Apply content knowledge of the hydrosphere, water sheds, and human uses of water - Analyze current science research and its applications
<u>Actual Student Exemplar Response</u>	

Implementation Tips:

- This task is intended to be integrated into a larger unit that contains hands-on science opportunities, student-led investigations, non-fiction reading, and a variety of other classroom experiences.
- Teachers may choose to use or modify the task as part of an instructional lesson or as a formative or summative assessment.
- Strategic instructional decisions will need to be determined prior to implementation such as:
 - Should the provided text be read aloud to students or read independently by students?
 - Will students work collaboratively or individually to complete the task?
 - What content knowledge and skills will students need to have prior to attempting the task?
 - Does the task need to be modified based on the needs of the students at the time of implementation?

- Read [Weighing Earth's Water from Space](#).
- Read [Water is Life](#).

Task

How do increased understanding of the hydrosphere, watersheds, and human uses of water support the phrase, "water is life?"

Actual Student Exemplar Response

How do increased understanding of the hydrosphere, watersheds, and human uses of water support the phrase, “water is life?”

The phrase, “water is life,” can be supported by many advances, achievements, and discoveries in our race’s history. Specifically, however, it can be supported by scientists’ increased understanding of the hydrosphere, watersheds, and human uses of water.

In the human race’s increasing understanding of the hydrosphere, we have found that aquifers, or underground reservoirs, are the most abundant and available source of freshwater. Because of this, we go to extra measures to ensure that we are conserving them, thus the GRACE and AMSR-E projects. GRACE is an experiment that is “weighing Earth’s fresh water from space,” and AMSR-E is a computer that can “determine how much moisture is in surface soil,” according to “Weighing Earth’s Water from Space.” Because “water is,” in fact, “life,” scientists are making sure that the biggest container of freshwater is not running out of its supplies by measuring its changes over time.

In the human race’s increasing understanding of watersheds, we have found that these are worth conserving, too. In the article “Water is Life,” Barbara Kingsolver (the author of the article) discusses the decreasing supply of watershed suppliers; “On top of the Himalaya, glaciers whose meltwater sustains vast populations are dwindling.” We humans now understand that watersheds are where a good portion of our freshwater comes from. For example, there are areas in which there are not many aquifers, lakes, or rivers, but plenty of mountains. Those places depend on the snow and ice formed at high elevations due to the low temperatures. Why? Because “water is life.” It determines our survival.

In the human race’s increasing understanding of our uses of water, we have found that water is a very critical part of our lives. Obviously, a human use of water is to hydrate themselves. This, because the other option is dehydration and death, supports the phrase, “water is life.” The article “Water is Life” states, “We stake our civilizations on the coasts and mighty rivers. Our deepest dread is the threat of having too little moisture—or too much... Water is the visible face of climate and, therefore, climate change.” Water determines where we settle, not just because of our need for water, but because the amount of moisture in the air determines the climate of an area, too. This is significant because we, being humans, prefer to live in comfortable weather. Furthermore, water is what we need to keep our crops and animals healthy; the things that, ultimately, will be used as food.

Water determines our diets, the placement of our settlements, and our health. It is the fine line between life and death. So, yes, “water is,” indeed, “life.”