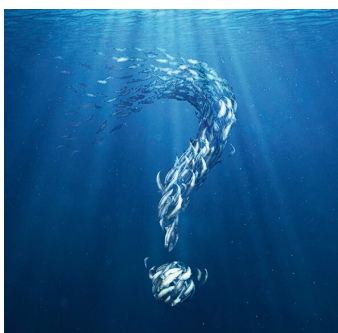




Island STYLE



Development of a Driving Question



SUBJECT:

Interdisciplinary

GRADE LEVEL:

6th

TIMEFRAME:

2 x 45 minutes

MATERIALS:

- Sticky notes
- Note cards
- Bulletin board
- Voting stickers / boxes
- Writing utensils



ACTIVITY SUMMARY:

In this lesson, we will help lead the students from their individual wonderings to develop a Driving Question for their continued explorations.

LEARNING OBJECTIVES:

- Students will practice the art of questioning from personal interest
- Students will learn how to focus their questions and condense them into one main “driving” question
- Students will learn how to investigate their driving question to gain depth of understanding

“How does the Gulf of Mexico, the Galveston Bay, and Galveston Island add value to the quality of life for people?”



ALIGNMENT:

TEKS

MATH

- 6.1 (B) – Use a problem solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution and evaluating the problem solving process and the reasonableness of the solution.

SOCIAL STUDIES

- 6.19 (B) analyze information by sequencing, categorizing, identifying cause-and-effect relationships, comparing, contrasting, finding the main idea, summarizing, making generalizations and predictions, and drawing inferences and conclusions;
- 6.19 (C) organize and interpret information from outlines, reports, databases, and visuals, including graphs, charts, timelines, and maps; and
- 6.19 (D) identify different points of view about an issue or current topic.
- 6.21 (B) incorporate main and supporting ideas in verbal and written communication based on research;
- 6.21 (C) express ideas orally based on research and experiences;
- 6.22 Social studies skills. The student uses problem-solving and decision-making skills, working independently and with others. The student is expected to use problem-solving and decision-making processes to identify a problem, gather information, list and consider options, consider advantages and disadvantages, choose and implement a solution, and evaluate the effectiveness of the solution.

SCIENCE

- 6.1 (A) ask questions and define problems based on observations or information from text, phenomena, models, or investigations;
- 6.1 (B) use scientific practices to plan and conduct descriptive, comparative, and experimental investigations and use engineering practices to design solutions to problems;
- 6.1 (C) use appropriate safety equipment and practices during laboratory, classroom, and field investigations as outlined in Texas Education Agency-approved safety standards;
- 6.2 (A) identify advantages and limitations of models such as their size, scale, properties, and materials;
- 6.2 (B) analyze data by identifying any significant descriptive statistical features, patterns, sources of error, or limitations;
- 6.2 (D) evaluate experimental and engineering designs.

READING

- 6.10 (D) – synthesize and make logical connections between ideas within a text and across two or three texts representing similar or different genres.

WRITING

- 6.14 (A) – plan a first draft by selecting a genre appropriate for conveying the intended meaning to an audience, determining appropriate topics through a range of strategies, and developing a thesis or controlling idea.
- 6.14 (E) – revise a final draft in response to feedback from peers and teacher and publish written work for appropriate audiences.

VOCABULARY:

- **Project-Based Learning (PBL)** - The process of learning through the design, development, and completion of projects.
- **Driving Question** - A problem to be solved; A question that is open-ended, provocative, discipline-centered, challenging, and consistent with curricular standards and frameworks. Provides students with freedom to explore their ideas, invites collaboration, and it provides a “North Star” to guide students work, and it inspires students to take action. These questions invite students to explore a wide variety of solutions while placing parameters on the content or product.

BACKGROUND INFORMATION:

DEVELOPING A DRIVING QUESTION

Is your question...

Related to the Real World: Good questions live in the real world, not just in the classroom. For inspiration, look at the questions that captivate journalists, historians, scientists, architects, photographers, engineers, artists, doctors, technologists and others.

Open Ended: Good questions don't have one right answer. Open-ended questions may challenge students to make an argument, defend a position, or weigh the pros and cons of potential solutions.

Actionable: Good questions set the stage for action. They challenge students to ask, "What can we do about this issue?"

Relevant: Good questions matter to youth. They connect to their lives, their families and their communities.

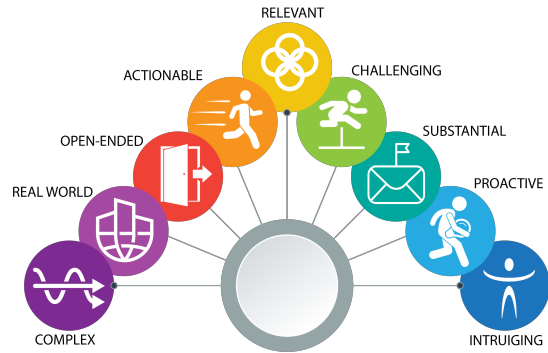
Challenging: Good questions encourage higher-order thinking skills such as making connections and inferences, evaluating, applying existing information to solve new problems, and much more.

Substantial: Good questions get at core content. They are thought-provoking, and inspire students to reflect on important ideas and information.

Provocative: Good questions get under your skin and provoke you to investigate, discover, figure out a response or learn more about a topic.

Intriguing: Good questions often involve an element of mystery. Intriguing questions cause students to wonder, to have a compelling "need to know."

QUALITIES OF A QUALITY DRIVING QUESTION:



PREPARATION:

Creating the "I Wonder" Board

Throughout the year the students will be exposed to different aspects of the Galveston Bay and the Gulf of Mexico. They will have questions not covered in that particular lesson or extensions from what you covered that day or even questions about what you did cover in that lesson. We want to teach students that it is great to have questions and that their questions matter enough to be followed up on.

As you teach lessons linked to our Galveston Bay watershed and the Gulf of Mexico you can use your I Wonder board as a closure assignment. It could be a bulletin board that students could pin their questions to, or a parking lot that kids could write questions on or attach sticky notes to. This area will be getting questions all semester so your chosen method needs to be permanent enough and large enough that no question is lost.

Closure of Each Lesson

As you teach lessons linked to our Galveston Bay watershed and the Gulf of Mexico you can use the "I Wonder" board as a closure assignment.

For example, in science after teaching about shallow water corals, you might ask what else the students want to learn about corals. Students may ask about photosynthesis, or depth of water or who eats them or how boats anchor in areas with coral. All of their questions (even the ones asked multiple times) would go to the I Wonder board. If a question was answered in the lesson, it still goes on the board.

Students may even have questions days later that could be added. The goal is to have a place for all questions about Galveston Bay and Gulf of Mexico to be housed.



INTRODUCTION:

How to choose your class's Driving Question for second semester

Now that you have taught all the content for the program, it is time for the class to choose a "Driving Question" that they would like to build upon about this semester.

The Sorting

- You have a semester's worth of questions on the "I Wonder" board. Take this down and type up all the questions they have asked. We want every student to feel like their question was important and readable for all the other students. If a question is asked more than once, type it up more than once.
- Cut up the questions and offer them to the students to group. Perhaps there are several questions about sharks, those would all go together. Perhaps there are questions about shrimp nets, shrimp fishing and shrimp processing, those could all go together. It is important that the class has the opportunity to create the groupings.
- If you work with small groups and part of the questions first, then put two groups together to combine their piles and keep combining until you have a class consensus on the groupings.

The Cull

- Sometimes questions make it on the list that really aren't about the topic. "Are there whales in space?"
- Empower your student groups to pull those questions out and ask the class as a whole if they should be removed from the groupings.
- Sometimes you will have a question that needs clarification to be included. "Can eat coral?" Who are they asking about? What do they really want to know?
- Sometimes the question is so complex that it needs to be broken down into parts. "If corals grow in shallow water and in deep water, can they both photosynthesize and eat the same things and reproduce the same way and do the same things eat them?" Maybe this all fits in one category and maybe it needs to be split into several categories.
- Once again, empower your students to make the decisions about including, editing or removing those questions.

GUIDED PRACTICE:

The Rewrite

- Now that you have some groupings of questions, could the grouping be rewritten as one more complex question? Assign a group of questions to each student group to read through. Have them write a new more expansive question including all the parts of the old questions.
- Assist your groups to include who they are, what they want to study, and for what purpose.



INDEPENDENT / GROUP PRACTICE:

Voting with Stickers

- Now, you have five to ten questions that were created by your students which you obviously don't have the time to research all of. But who should choose? The kids of course. This is their curiosity, their wonders.
- Hang the questions around the room and give each student a chance to go read each question and ask any questions they may have about.
- Give each student two stickers to vote for their top two choices. Knowing your students and any issues you may have with following the leader or voting their own minds, have the students vote by placing their two stickers on the question of their choice.
- I might use a "one, two, three, run!" method or a "cake walk" method where you bring your arm up to every question but only place your sticker on the question of your choice. This can be cover for voting. You may even create a voting booth and have them submit their number choices into a box for complete anonymity.

ASSESSMENT OF LEARNING:

Walk around and listen to the conversations that the students are having as they work to rewrite their questions.

CLOSING:

Collect the votes, tally them, and announce the winning question to the class.

NOTES:

<https://www.noaa.gov/sites/default/files/2022-09/MWEE-Guide.pdf> a pdf guide to the MWEE model

[You for Youth - PBL Questions](#)