Empowering Zanzibar to Defeat Malaria

In this lesson, students will analyze an informational text describing how one woman, Habiba, earned the title as "Zanzibar's Malaria Hunter." Habiba is one of many surveillance officers working to track, test, treat and educate the public to prevent the spread of malaria. Surveillance officers like Habiba, are helping the PMI (US President's Malaria Initiative) and the Zanzibar Malaria Elimination Program quickly respond to cases of malaria, report the data and eradicate the disease from the archipelago. "The prevalence of malaria in Zanzibar has been reduced from 25 percent in 2005 to less than 1 percent today."

The lesson plan includes a note-taking guide, text-dependent questions, a writing prompt/scoring rubric, and answer keys.

General Information

Subject(s): Science, English Language Arts
Grade Level(s): 9, 10
Intended Audience: Educators

Instructional Time: 2 Hour(s)

Resource supports reading in content area: Yes

Keywords: malaria, mosquito, parasite, Africa, disease, disease transmission, Zanzibar, USAID, text complexity, informational text

Instructional Component Type(s): Lesson Plan, Worksheet, Problem-Solving Task, Assessment

Suggested Technology: Computer for Presenter, Internet Connection, LCD Projector, Overhead Projector

Resource Collection: STEM Reading Resources

Attachment

Article_Zanzibar_Malaria_Hunter.pdf
Final_Recommendation_Placement_Zanzibar_Malaria_Hunter.pdf
Qualitative_Rubric_Zanzibar_Malaria_Hunter.pdf
Text_Dependent_Questions_Zanzibar_Malaria_Hunter.docx
Text_Dependent_Questions_Zanzibar_Malaria_Hunter_SAMPLE_ANSWER_KEY.docx
Anticipation_Guide_Zanzibar_Malaria_Hunter.docx
Anticipation_Guide_Zanzibar_Malaria_Hunter_ANSWER_KEY.docx
Compare_Contrast_Zanzibar_Malaria_Hunter.docx
Compare_Contrast_Zanzibar_Malaria_Hunter_ANSWER_KEY.docx
Problem_Solution_Chart_Zanzibar_Malaria_Hunter.docx
Problem_Solution_Chart_Zanzibar_Malaria_Hunter_ANSWER_KEY.docx
Writing_Rubric_Zanzibar_Malaria_Hunter.docx

Lesson Content

Lesson Plan Template: General Lesson Plan

Learning Objectives: What should students know and be able to do as a result of this lesson?

- Outline the strategies used for addressing a societal problem, in this case the spread of malaria.
Identify the impact a surveillance officer has on malaria-infected families in Zanzibar.

Identify the ways in which the Zanzibar villagers are encouraged to change their lifestyles to stop the spread of malaria.

Cite relevant and specific text evidence to support analysis of the text.

Use various vocabulary strategies to define academic and domain-specific words in the text.

Examine the text to determine the author's purpose.

Construct a written explanatory response that clearly establishes the main point(s), contains relevant textual evidence to support the main point, utilizes transitions to maintain flow, effectively uses domain-specific vocabulary, and provides an appropriate conclusion.

Prior Knowledge: What prior knowledge should students have for this lesson?

In regards to science:

- General familiarity with scientific terms such as parasite, malaria, medication, disease, infected, mosquito nets, medical diagnostic equipment, and insecticide-treated.
- Students should understand how standing water contributes to higher mosquito populations. This blog post by the Centers for Disease Control and Prevention not only teaches about standing water, but basic information about other diseases transmitted by mosquitoes.
- It would be beneficial for high school students to read background information regarding malaria transmission and prepare for discussion with the teacher. There may be some unanswered questions from students such as, “What type of infectious agent causes malaria?”, “Is malaria transmitted from human to human or only through mosquitoes?”, and “How exactly do mosquitoes transfer the disease to humans?”. Information can be found at this link about malaria and mosquitoes as well as this link listing frequently asked questions about malaria.
- If it would be beneficial for students to know that only female mosquitoes bite and that only one species of mosquito, genus Anopheles, transmits malaria to humans. The mosquito becomes infected with the parasite that causes malaria by biting a human with malaria. The mosquito then transfers that parasite to other humans. More information related to this can be found at this link from the CDC.
- A brief understanding of mosquito nets and how they work would be helpful. Mosquito nets can be made from a variety of materials and the holes in the netting must be large enough for humans to breathe easily yet small enough to stop mosquitoes from getting through the net. According to this article, a mesh size of 1.2mm stops mosquitoes.
- Students may benefit from understanding conservative Muslim culture. One of the points the author makes is that Muslim women are rarely seen in public without their husbands; however, the woman in this article is encouraged by her husband to work independently outside the home.

In regards to literacy skills:

- Students should have prior experience utilizing various vocabulary strategies to determine the meaning of unknown words in a text. For this lesson, prior experience in using context clues to determine the meaning of words in a text would be beneficial. In addition, students should have some dictionary skills that will enable them to look up words with multiple meanings and determine the most appropriate meaning based on how a word is used in a text.
- Students should have an awareness that authors can organize or structure a text in many different ways. In “Zanzibar's Malaria Hunter,” some of the text structures include cause/effect, problem/solution, and sequence.
- Students should be aware of text features that can help them locate and learn information when reading a text. The text features in the “Malaria Hunter” article include: title, subtitle, photograph, caption, and video (accessed when clicking on the link to the original article at the end of the article attachment).
- Students should be able to respond to a writing prompt in a clear, organized manner that includes use of an introduction to establish the main point(s), a body paragraph(s) that support the main point(s) and includes relevant and specific textual evidence, and a conclusion that supports the main point(s).
- Students should have some awareness that use of transition words or phrases can help a piece of writing flow smoothly from one point or idea to the next. Often students will remember to use transitions at the start of the body paragraphs or conclusion paragraph, but will forget to use them in the midst of paragraphs, so teachers may wish to emphasize this usage. This site has a list of transitions that teachers might provide for support.

Guiding Questions: What are the guiding questions for this lesson?

Main investigation questions:

1. Why was there a need for a malaria surveillance officer in Shakani village and what services does one provide?

   The people of the village were contracting malaria and it was spreading to neighbors and family members because they did not have the tools or the knowledge to prevent the spread of this disease. The surveillance officer provides the malaria patients and their families with testing to determine if they are infected, medicines if they are infected, bednets (mosquito nets that are treated with insecticide) that will prevent mosquitoes from entering their sleep area and biting them while they are sleeping, and knowledge about how to treat and avoid spreading of the disease including keeping their environments free of standing water.

2. Describe what happens to the recorded results of Habiba’s visits and how it creates an alternative and more efficient strategy for tracking malaria.

   The results of Habiba’s visits are sent to a database (the cloud) to be combined with other malaria-related data. This allows experts to see where malaria is the most prevalent so that they can predict where the malaria is spreading and locations of highest incidence. This helps authorities determine where there is the greatest need for medicine and mosquito nets. In addition, the efforts of the surveillance officers can be tracked to see how effective they are in elimination or reduction of the disease by area.

3. How does the way malaria is transmitted contribute to the severity of the problem?

   Normally, mosquitoes will carry the parasite causing malaria and then infect other humans because these parasites can mix with the saliva of the mosquito while it is biting. However, these parasites can also be transferred from human-to-human through blood transfusions, organ transplants, or shared needles and syringes that are contaminated with infected blood. Malaria can also be transferred from a mother to baby before or during delivery. Due to the fact that malaria can be transmitted in multiple ways (as well as easily transmitted by mosquitoes), the ability to solve the problem quickly is impeded.

Teaching Phase: How will the teacher present the concept or skill to students?

1. Begin the lesson by passing out the Malaria Hunter Anticipation Guide. (Note: students will only complete the first column of this document at this time and return to the guide later in the lesson after reading the article.)

   - The teacher will model the process of responding to the statements and marking the columns as true or false (or agree/disagree).
   - The teacher or student will read each of the statements and then ask students if they agree or disagree with each statement. Teachers can use this as a time for
discussion, as well as a time to identify some possible misconceptions.
- Try to make students feel comfortable sharing by stating that “right answers” don’t matter at this point, though this process allows for sharing knowledge and making predictions which will be important throughout this lesson.

2. Next show this short video which is basically a visual representation of the article. Allowing students to have a visual in their head before reading the article will allow them to increase their comprehension.
- Ask the class: “Why does Habiba say that malaria is chronic due to the movement of people?”
Students may respond by stating that when people that are infected with malaria move to other places, they spread the disease to other areas that may not have high incidences of malaria.

The teacher can help the class by explaining why people move/migrate and that migration is more frequent among the poor, according to this article from the CDC. People move for reasons such as conflict, natural disasters, lack of food, lack of jobs, poor living conditions, etc.
- Ask the class: “What strategies does Habiba use to try to eliminate malaria in her village?”

Habiba is interested in staying informed herself to help protect her family but she is also interested in helping others protect their families. She believes science is the answer and has an environmental science degree. Habiba is a surveillance officer and uses a motorbike to visit malaria patients. She is notified on her mobile phone and on her tablet by the clinic in her area via SMS every time a villager visits the clinic with malaria symptoms. She then travels to the patient to educate the families about standing water, which causes mosquitoes to multiply faster and making sure their mosquito nets do not have any holes.

*Habiba then travels to her patient and patient's family. Then she would test the patient and family's blood by sticking their finger and putting the blood on a tester (test card or pad). The video did not show Habiba treating the patients, but it can be assumed from the subtitle that she administers medicine and shows the family how to continue administering the medicine.*

Habiba believes that educating and empowering people is the answer to eliminating malaria and other diseases. She wants to become a leader in educating people about disease. Note: The Wikipedia definition of Short Message Service (SMS): a text messaging service component of phone, Web, or mobile communication systems. It uses standardized communications protocols to allow fixed line or mobile phone devices to exchange short text messages.

Alternatively

1. Begin the lesson with a game of Pictionary.
- Prepare a list of concepts, ideas or objects that relate to the lesson you are about to teach.
  - mosquito, saliva, parasite, finger prick or finger prick test, malaria or disease, Muslim country, infection or infected, mosquito net, insecticides, standing water, medicine
- Divide the class into four teams.
- Each team has a designated 'artist' who has up to one minute to draw the object/concept while his/her teammates guess what the object is.
- The team who guesses correctly first wins a point.
- The first team to three points wins.
- Variation: You can have one student draw on the whiteboard while the whole class guesses.

2. Ask the class: “Do you think mosquitoes can transfer disease to humans?” The class may say that they have heard that mosquitoes can transmit the West Nile Virus to humans.
3. Ask the class: “How do you think mosquitoes can transfer disease to humans?” Since students have seen the above list of words, they may say that the disease may be carried through mosquito saliva or maybe in parasites. Parasites may cause the virus.
4. Ask the class: “Why do you think one of the terms is standing water?” Students may say that when they have water that is sitting in their back yard, it seems to attract a lot of mosquitoes. After being given background information, they would know that water and warm conditions are ideal for breeding mosquitoes.
5. Ask the class: “How would a mosquito net help and when would you use a mosquito net?” Mosquito nets are made so that you can sleep peacefully while breathing easily and not worry about mosquitoes coming in. The netting would be made so that the holes are so tiny that mosquitoes cannot enter.
6. Ask the class: “What is a finger prick test?” Someone sticks a sharp object into your finger to obtain blood and then they test the blood for various things such as diabetes, cholesterol, etc. In this case, they may be testing for a disease like malaria or the West Nile Virus.

**Guided Practice: What activities or exercises will the students complete with teacher guidance?**

1. Provide each student with a copy of the article “Zanzibar's Malaria Hunter.” For class discussions that will follow, it might be helpful to have students number each paragraph in the article.
2. Before students begin reading, direct them to pay attention to the text features of the article to help them learn and locate information:
   - Title: Zanzibar's Malaria Hunter
   - Subtitle: Armed with two wheels, a tablet and lots of data, one woman takes on a deadly disease.
   - Video: Summary of article
   - Headings:
     - For millions of Tanzanians, a potentially deadly disease is just one bug bite away
     - Habiba Suleiman Sefu is fighting that danger, one case at a time
     - Habiba is independent—and busy
     - About this story
   - Captions:
     - Few women in Zanzibar ride motorcycles. Habiba does.
3. Revisit the Anticipation Guide
Read the article aloud or have students read individually or in partners. It might be helpful to have students number each paragraph within each section.

- Revisit each statement on the anticipation guide and have students fill in the "After You Read" section of the Anticipation Guide (True/False or Agree/Disagree).
- Encourage students to underline or highlight the article where the text defends or contradicts their initial reaction to statements.
- Encourage students to underline or highlight the article where the text defends or contradicts their initial reaction to statements.

- Encourage discussion of the article's content and students' changes in understanding from initial predictions. A sample answer key has been provided with this lesson to facilitate review/discussion.

4. Next, provide each student with a copy of the Problem-Solution Chart.

- Have students fill out the problem-solution chart after they read the text. Students may have to re-read some sections of the text, and should be encouraged to do so. The teacher should monitor students as they work and provide support and guidance as needed (a sample answer key has been included to assist with this).

- Based on the needs and skills of the students, teachers may need a smaller list of domain-specific and academic vocabulary. For academic vocabulary, students will most likely be able to use a variety of vocabulary strategies to define the meaning of the words. For domain-specific (in other words, subject-specific) vocabulary, students will typically need to draw on prior knowledge and use a dictionary to define the words.

5. If students struggle with determining the meaning of the selected academic vocabulary, teachers might use the following tips to help them:

Anopheles mosquito (paragraph 3): a genus of mosquitoes that includes all mosquitoes which transmit malaria to man. Encourage students to use context clues. In this case, the author states that the bite of this mosquito is a real and present danger. Not all mosquito bites are dangerous but the Anopheles mosquito can be. Pictures and information from the Internet can also be helpful to students in understanding this.

Parasite (paragraph 13): An organism that obtains nourishment and shelter on another organism. An organism that lives and feeds on or in an organism of a different species and causes harm to its host. The parasite referred to in this article (Plasmodium falciparum) causes the disease malaria in humans. The parasite infects humans with malaria in this article. This parasite does not seem to harm the mosquito host.

Malaria parasites are micro-organisms that belong to the genus Plasmodium.

Malaria (paragraph 2): an intermittent and remittent fever caused by a protozoan parasite that invades the red blood cells. The parasite is transmitted by mosquitoes in many tropical and subtropical regions.

Disease (paragraph 2): a disorder of structure or function in a human, animal, or plant, especially one that produces specific signs or symptoms or that affects a specific location and is not simply a direct result of physical injury. In paragraph 30, the article states that malaria has caused children to miss school because of illness, adults to miss work and become unable to support their families.

Infected (paragraph 6): The invasion and multiplication of microorganisms such as bacteria, viruses, and parasites that are not normally present within the body. Once the mosquito that is infected with the malaria parasite bites a human, that human becomes infected with the malaria-causing parasite as well (paragraph 13).

Diagnostic (paragraph 20): Serving to identify a particular disease; characteristic.

Diagnostic equipment (paragraph 20): A device or substance used for the analysis or detection of diseases or other medical conditions. Habiba uses a finger-prick test to test the blood of patients for malaria. Habiba can then treat patients with medicine.

Transmission (paragraph 22): Transfer, as of an infection from one patient to another. A condition in which the organism that transmits the causative agent of a disease plays an essential role in the life history of a parasite or germ. Many people in the village did not realize they were transmitting malaria to their family, friends and neighbors. One of Habiba's tasks is to educate families to stop transmission and spread of the disease.

Surveillance (paragraph 4): continuous observation of a place, person, group, or ongoing activity in order to gather information. Surveillance officers like Habiba will continually observe the villagers, treat the sick, provide mosquito nets and educate families to ensure malaria does not continue to spread. Treating malaria early will prevent deaths and cure people.

Outbreaks (paragraph 15): the sudden or violent start of something unwelcome, such as war, disease, etc. Habiba's tablet and mobile phone help her communicate the authorities so that they can identify outbreaks. The authorities are interested in stopping malaria and the spread of malaria so they must know where the outbreaks occur.

Data cloud (paragraph 28, 36): a service model in which data is maintained, managed and backed up remotely and made available to users over a network (typically the Internet). Habiba will type all of her results and send them to the cloud so that multiple authorities and agencies can review the data and come up with solutions to the malaria problem. The information is used to map malaria's path and help people eliminate it.

Mortality (paragraph 35): The number of deaths that occur in a particular time or place. In paragraph 35, the article states that child mortality has dropped by 28 percent due to the efforts of USAID and other agencies including surveillance officers like Habiba. People would definitely be interested in knowing that fewer children are dying from malaria because of treatment by medicine and protection from mosquito bites by insecticide-treated mosquito nets.

Symptoms (paragraph 24): Any subjective evidence of disease or of a patient's condition, (i.e. such evidence as perceived by the patient, a change in a patient's condition indicative of some bodily or mental state). The teacher could ask students if they ever had any symptoms. Students may say that they have had the cold or the flu. Symptoms from the flu may include aching muscles, chills, fever, and tiredness. Malaria symptoms are similar to flu-like symptoms.

Eradicate (paragraph 36): Elimination of a disease by termination of all transmission of infection by extermination of the infectious agent through surveillance and containment. The article talks about many programs that are helping to eliminate malaria from areas where malaria is prevalent.

Formative Assessment (How will the teachers check for student understanding?):

1. Teachers can check students' understanding by collecting assignments, checking their work, providing written feedback, or grading the assignment. Or, teachers can have students share out their responses and the teacher can provide verbal corrective feedback, allowing students to make corrections to their work during the discussion.

2. Teachers may use the sample answer keys to help them assess the students' answers.

3. For discussion on students' answers to the defined vocabulary words, teachers are encouraged to not only ask students to explain the meaning they determined for
a word, but the strategy they used to arrive at that meaning. This will allow the teacher to provide alternative suggestions as to how the student could have arrived at the correct meaning of the word.

Common errors/misconceptions to anticipate and how to respond:

The anticipation guide by design addresses many common errors and misconceptions.

Disease transmission in mosquitoes can be very confusing to students. This was addressed in prior knowledge. Students often believe that if one disease can be transmitted by a mosquito, then all diseases, including HIV can be transmitted the same way. This is not the case.

There are many different types of malaria, some are much more deadly than others. The key is education. Students who have never travelled outside the country may not realize how remote some villages are, nor may they realize the level of education they receive. Students must be aware that just finding food and water is a priority and that they should not judge because they are exposed to more.

I Independent Practice: What activities or exercises will students complete to reinforce the concepts and skills developed in the lesson?

Provide each student with a copy of the text-dependent questions to complete. Students should be reminded to continually refer back to the text and to use relevant and specific evidence from the text to support their answers.

Formative Assessment (How will teachers check for understanding?):

1. Teachers can check students' understanding by collecting students' answers to the text-dependent questions, checking their work, providing feedback, and maybe grading the assignment. Or, teachers can have students share out their responses and the teacher can provide verbal corrective feedback, allowing students to make corrections to their work during the discussion.

2. Teachers can use the sample answer key to help them assess students' answers.

Common errors/misconceptions to anticipate and how to respond: Please refer to text-dependent questions sample answer key.

Closure: How will the teacher assist students in organizing the knowledge gained in the lesson?

As a final element to this assignment, the teacher may hold a discussion about what they have learned by having certain students share their writing with the class.

Students can comment on/discuss each written response.

The teacher could show some samples of student responses to showcase areas where the goals were met.

The teacher may identify key pieces that show the strength of the writing or evidence of effective writing.

Have a final discussion with students about their thoughts on the article and some areas where they still may have questions.

Summative Assessment

Students will individually respond to the writing prompt. They should be directed to respond with a multi-paragraph response, with a clear introduction, body section, and conclusion. They should refer back to the text as they construct their response.

Provide students with a copy of the rubric and go over the rubric with them so they will know how their written response will be assessed.

Go over the writing prompt with students and make sure students understand what the prompt is asking them to address. Encourage students to underline key parts of the prompt as the teacher goes over it so they will remember to answer all the required parts.

Prompt: Analyze the effectiveness of the PMI (U.S. President's Malaria Initiative) launched by USAID and the CDC as well as the Malaria Elimination Program. Use evidence from the text to identify all of the efforts put in place to reduce the prevalence of malaria. The article states that "it is estimated that every minute, a child dies from malaria." What other actions can be put into place to solve this problem?

Teachers should use the provided rubric to assess students' written responses.

After students' written responses have been reviewed and returned with feedback, teachers might wish to use the provided sample response with the class. The teacher can review the following: Have students examine how the topic is introduced in the opening sentences of the introductory paragraph. Go over how this writer opened his or her piece of writing. Brainstorm with students other ways the writer could have opened the piece.

Help students identify the use of some textual specifics in the body paragraphs that point out all of the efforts put into place by Habiba, USAID, the PMI, and the Malaria Elimination Program. Point out how direct quotations by Habiba are used to support the points the author is making.

Ask students why the author uses two headings describing Habiba's independence (explain that this is likely to stress that Habiba's independence is rare among Muslim women).

Show students how the author wraps up the main points the last section entitled "About the Story".

Formative Assessment

Specific suggestions for conducting the Formative Assessment can be found in the Guided Practice and Independent Practice phases of the lessons.

Feedback to Students

Specific suggestions for providing Feedback to Students can be found in the Guided Practice and Independent Practice phases of the lesson where it says, "How will you check for student understanding?".
Accommodations & Recommendations

**Accommodations:**
For readers struggling with the anticipation guide and problem-solution chart:

1. Teachers may want to fill in some answers on the anticipation guide, leaving students to fill in a few of the blank boxes in between the provided answers.
2. Teachers might want to fill in some answers on the problem-solution chart, leaving students to fill in a few of the blank boxes in between the provided answers.

For readers struggling with the text:

3. It might benefit students to chunk the text. Have students independently read each paragraph, then have several strong readers read the paragraphs aloud.
   - Then, have students highlight the selected vocabulary for each paragraph in the article. Work with students to model ways to define a few of the academic vocabulary words to get them started. The teacher can think aloud as he or she decides which vocabulary strategy or strategies to use to define a word, and think aloud while deciding which meaning from a dictionary entry multiple meanings would be the best fit for how the word is used in the context of the article.
   - Then, have students complete the anticipation guide for paragraph 1 of the article. When students are ready, have them share out their answers and provide corrective verbal feedback as needed, allowing students to make corrections to their work. Then repeat this process for the other paragraphs of the text if needed.
   - Or, at least have students complete the anticipation guide for the next paragraph and receive feedback on their work before they move on. For struggling writers: it might help to provide them with an outline to help them structure their response. The outline might include places for them to record:
     - Introduction paragraph
     - Ideas on how to introduce the topic
     - A few specifics from the text they might want to use to support or explain the topic
     - A place to write down their main point(s)
   - Body paragraphs
     - Topic sentences (the first sentence of each body paragraph that will reveal the point of the paragraph and will connect to the paper's overall main point)
     - Specific evidence from the text for support in each body paragraph
     - Ideas for transition words
     - Ideas for use of selected vocabulary
   - Conclusion
     - Ideas on how to wrap up the piece and connect back to the main point(s)

**Extensions:**
If time permits, provide each student with the Compare and Contrast Graphic Organizer. You will find a copy of this organizer and an answer key in the attachments. Also provide each student with a copy of the CDC information regarding the Zika virus or the NSF article. Have students compare and contrast malaria and the Zika virus. Have a quick discussion with your students to make them aware of mosquitoes carrying viruses and parasites. The teacher should direct student discussion and focus on the larger public health issue of disease spread by mosquitoes or other insects.

**Suggested Technology:** Computer for Presenter, Internet Connection, LCD Projector, Overhead Projector

**Further Recommendations:**
For teachers who would like more support in understanding and implementing Reading Standards for Literacy in Science and Technical Subjects into their science curriculum, please see the teacher tutorials featured in the section of this lesson's CPALMS resource page labeled "Attached Resources."

Additional Information/Instructions

**By Author/Submitter**
The text's grade band recommendation reflects the shifts inherent in the Florida Standards and is based on a text complexity analysis of a quantitative measure, qualitative rubric, and reader and task considerations.

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Source and Access Information

**Contributed by:** Kelly Hered
**Name of Author/Source:** Kelly Hered
**District/ Organization of Contributor(s):** Escambia
**Access Privileges:** Public
**License:** CPALMS License - no distribution - non commercial

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Aligned Standards

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<tr>
<th>Name</th>
<th>Description</th>
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<tbody>
<tr>
<td>LAFS.910.RST.1.1</td>
<td>Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions.</td>
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</table>
**LAFS.910.RST.2.4:**
Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 9–10 texts and topics.

**LAFS.910.RST.4.10:**
By the end of grade 10, read and comprehend science/technical texts in the grades 9–10 text complexity band independently and proficiently.

**LAFS.910.WHST.1.2:**
Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.

a. Introduce a topic and organize ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.

b. Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.

c. Use varied transitions and sentence structures to link the major sections of the text, create cohesion, and clarify the relationships among ideas and concepts.

d. Use precise language and domain-specific vocabulary to manage the complexity of the topic and convey a style appropriate to the discipline and context as well as to the expertise of likely readers.

e. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.

f. Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).

**LAFS.910.WHST.3.9:**
Draw evidence from informational texts to support analysis, reflection, and research.

**SC.912.N.4.2:**
Weigh the merits of alternative strategies for solving a specific societal problem by comparing a number of different costs and benefits, such as human, economic, and environmental.

### Aligned Access Points

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<thead>
<tr>
<th>Access Point Number</th>
<th>Access Point Title</th>
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<tr>
<td>SC.912.N.4.Pa.2:</td>
<td>Recognize a local problem that can be solved by science.</td>
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### Related Resources

**Tutorials**

**Name** | **Description**
---|---
Infectious Evidence: | **Click "View Site to open a full-screen version.** This tutorial is designed to help secondary science teachers learn how to integrate literacy skills within their science curriculum. This tutorial focuses on using specific textual evidence to support students' responses as they analyze science texts. The focus on literacy across content areas is designed to help students independently build knowledge in different disciplines through reading and writing.

Words in the Wild: Vocabulary Strategies: | **Click "View Site to open a full-screen version.** This tutorial is designed to help secondary science teachers learn how to integrate literacy skills into their science curriculum. This tutorial will demonstrate a number of strategies teachers can impart to students to help them use context clues to determine the meaning of unfamiliar words within science texts. It will also help them teach students how to select the appropriate definition from reference materials. The focus on literacy across content areas is intended to help foster students' reading, writing, and thinking skills in multiple disciplines.