Unit 2 /Week 2

Title: Mongoose on the Loose

Suggested Time: 3 days (45 minutes per day)

Common Core ELA Standards: RI.7.1, RI.7.2, RI.7.3; W.7.2, W.7.4, W.7.7, W.7.8, W.7.9; SL.7.1, SL.7.3, SL.7.4, SL.7.5; L.7.1. L.7.2, L.7.4

Teacher Instructions

**Preparing for Teaching**

1. Read the Big Ideas and Key Understandings and the Synopsis. Please do **not** read this to the students. This is a description for teachers about the big ideas and key understanding that students should take away **after** completing this task.

Big Ideas and Key Understandings

When foreign animals are introduced into a new environment, unintended detrimental consequences can result for other animal species, the environment, and humans. These consequences include overpopulation, elimination of other species that, and the spread of disease.

Synopsis

This article examines what happens when a sugar planter tries to save his sugar crops by importing a few mongooses to eat the rats. Initially, his solution worked so well that he bred the animals and sold them to other farmers. However, since mongooses had no natural predators in these new environments, they preyed on small animals that ranged from pigs to kittens. They also preyed on endangered species and spread minor rabies epidemics. This article also cites the research of scientists that are trying to help federal health officials to solve this problem.

1. Read the entire selection, keeping in mind the Big Ideas and Key Understandings.
2. Re-read the text while noting the stopping points for the Text Dependent Questions and teaching Tier II/academic vocabulary.

**During Teaching**

1. Students read the entire selection independently.
2. Teacher reads the text aloud while students follow along or students take turns reading aloud to each other. Depending on the text length and student need, the teacher may choose to read the full text or a passage aloud. For a particularly complex text, the teacher may choose to reverse the order of steps 1 and 2.
3. Students and teacher re-read the text while stopping to respond to and discuss the questions, continually returning to the text. A variety of methods can be used to structure the reading and discussion (i.e., whole class discussion, think-pair-share, independent written response, group work, etc.)

Text Dependent Questions

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| **Text-dependent Questions** | **Evidence-based Answers** |
| In the first paragraph on page 283, a sugar planter is faced with a problem and tries to solve it. Describe the problem and the solution. Did his solution prove to be successful? How do we know? | Rats are eating up the planter’s sugar crops. He imports mongooses to eat the rats. The solution was so successful that he bred mongooses and sold them to other farmers that were eager to buy them. |
| On page 283, Luxner reports that without natural predators, the mongoose population exploded. Based on the information provided in this paragraph, how would the presence of natural predators prevent this mongoose population explosion? | Wolves, coyotes, or poisonous snakes would have killed enough mongooses to keep them from reproducing at such a rapid rate. |
| In the third paragraph on page 283, what information is provided that really shows the magnitude of the problem with the overpopulation of mongooses? | In Puerto Rico, there is about one mongoose for every four humans. (800,000-1,000,000) In St. Croix, 100,000 mongooses which is twice the amount of the human population. |
| What can you infer from this section that supports Horst’s conclusion that there is the potential for a real problem on these islands? | You can’t poison the mongooses because cats, dogs, and chickens would get poisoned too. People’s pets could get poisoned. Also, people eat chicken which means that humans could get poisoned too. This means that the problem of the mongoose population could only get worse. |
| On page 284, Horst mentions unintended consequences when they tried to rid the islands of mongooses. What are some of the examples cited in the article? | When trying to kill off the mongooses, other species were killed including the Amevia lizard on St. Croix, presumed extinct for decades. The population of the Hawaiian goose has been reduced to a very low number. |
| What new technology does Horst use to study the life cycle and reproductive habits of the Caribbean mongoose? How does this new technology help his research? | He uses microchips to track the mongooses’ habits. Ear tags would not be able to provide data to track mongoose behaviors. The microchips helped the scientists to discover that mongooses have a life expectancy of six to ten years which is much longer than they thought. |
| Horst suggests that federal health officials may decide to launch a campaign against rabies in Puerto Rico or the U.S. Virgin Islands. Why would studying mongooses help with this campaign? | Mongooses have spread minor rabies epidemics. (283) |
| According to the information in this article, would you say that Horst is committed to solving the mongoose problem? Why or why not? | He is committed to solving the problem. His five-year study is being sponsored by Earthwatch and has funded at least 1300 research projects in 87 countries. Volunteers pay to help set traps that require them to walk at least 10 miles a day. |

Tier II/Academic Vocabulary

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|  | **These words require less time to learn**  (They are concrete or describe an object/event/  process/characteristic that is familiar to students) | **These words require more time to learn**  (They are abstract, have multiple meanings, are a part  of a word family, or are likely to appear again in future texts) |
| **Meaning can be learned from context** | Page 283 - imported  Page 283 - predators  Page 283 - rabies  Page 284 - decades  Page 284 - implanted  Page 284 - dramatically  Page 284 - launch  Page 284 - non-profit  Page 284 - expectancy | Page 283 - exotic  Page 283 - endangered (species)  Page 283 – epidemics  Page 283 – potential  Page 284 - presumed  Page 284 - extinct  Page 284 - devoured |
| **Meaning needs to be provided** | Page 284 - microchips  Page 284 - transponders | Page 283 - prophet  Page 284 - campaign |

Culminating Writing Task

* Prompt

*At the beginning of Larry Luxner’s article, “Mongoose on the Loose,” he tells us about the Jamaican sugar planter that imported mongooses to kill the rats that devoured his crops. This decision solved his problem, but also resulted in an unintended consequence that scientists are still trying to solve today. The scientists are looking for ways to solve this problem without causing any additional unintended consequences.*

*Think about what happened after the sugar planter sold more mongooses to other farmers. What were the unintended consequences that impacted wild life and the environment? What unintended consequences are the scientists trying avoid in their efforts to solve the mongoose problem? Is there any indication that this problem will be solved in the future? Compose an explanation is one page in length. Support your claims with valid reasoning and relevant and sufficient evidence from the text, including direct quotes and page numbers.*

* Teacher Instructions

1. Students identify their writing task from the prompt provided.
2. Students complete an evidence chart as a pre-writing activity. Teachers should remind students to use any relevant notes they compiled while reading and answering the text-dependent questions.

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| ***Evidence***  ***Quote or paraphrase*** | ***Page number*** | ***Elaboration / explanation of how this evidence supports ideas or argument*** |
| “With no natural predators—like wolves, coyotes, or poisonous snakes—the mongoose population exploded, and within a few years, they were killing not just rats but pigs, lambs, chickens, puppies, and kittens.” | 283 | At the beginning of the article, Luxner is direct and explicit regarding unintended negative consequences of importing the mongooses. |
| The mongooses also “threatened endangered species and spread minor rabies epidemics.” | 283 | This was definitely an unintended consequence. |
| Because they had no natural predators, the mongooses reproduced rapidly which resulted in their overpopulation. | 283 | This threatened pets as well as small wild animals, including endangered species. |
| In Puerto Rico, there are from 800,000 to one million mongooses which is about one mongoose for every four humans. “In St. Croix, there are 100,000 mongooses about twice as many as the human population.” | 283 | This illustrates the seriousness of this problem. |
| Initial efforts to kill off the mongooses resulted in the unintended consequences of killing off or reducing numbers of a number of other species.  (Amevia lizard, Hawaiian goose) | 284 | Poison didn’t work either because they could not ensure that only the mongooses would have access to it. |
| In an effort to solve this problem, Horst is using microchips to study the life cycle and reproductive habits of the Caribbean mongoose. | 284 | By gathering as much data as possible, Horst hopes to help provide federal health officials with the information needed to find a solution that will not endanger other species, humans, or the environment. |

1. Once students have completed the evidence chart, they should look back at the writing prompt in order to remind themselves what kind of response they are writing (i.e. expository, analytical, argumentative) and think about the evidence they found. (Depending on the grade level, teachers may want to review students’ evidence charts in some way to ensure accuracy.) From here, students should develop a specific thesis statement. This could be done independently, with a partner, small group, or the entire class. Consider directing students to the following sites to learn more about thesis statements: http://owl.english.purdue.edu/owl/resource/545/01/ OR http://www.indiana.edu/~wts/pamphlets/ thesis\_statement.shtml.
2. Students compose a rough draft. With regard to grade level and student ability, teachers should decide how much scaffolding they will provide during this process (i.e. modeling, showing example pieces, sharing work as students go).
3. Students complete final draft.

* Sample Answer

In his article essay, “Mongoose on the Loose, Larry Luxner chronicles what happened when mongooses were imported to a foreign land with no natural predators. The fact that mongooses had no natural predators resulted in the unintended consequence of overpopulation that led to the “killing of not only rats but pigs, lambs, chickens, puppies, and kittens” (283). The animals that were under attack included not only food sources for humans, but pets as well. The mongooses also “threatened endangered species and spread minor rabies epidemics” (283).

The article begins with a sugar farmer who decides to import mongooses to kill the rats that were devouring his sugar crops. This solution worked so well that other farmers wanted to buy mongooses to protect their crops as well. However, they did not know that this solution would cause even greater problems in the very near future. Because they had no natural predators, the mongooses reproduced rapidly which resulted in their overpopulation. There were so many of them that they threatened the population of small animals and endangered species.

As time progressed, mongooses continued to reproduce to the point where they were catching up with the human population. In Puerto Rico, there are from 800,000 to one million mongooses which is about one mongoose for every four humans. “In St. Croix, there are 100,000 mongooses, about twice as many as the human population” (283). These numbers clearly indicate a real problem. Dr. Horst, a biology professor, said that this situation had “the potential for real trouble” (283).

Due to the magnitude of the mongoose issue, there were attempts to kill them off. However, these initial efforts resulted in the unintended consequences of killing off a number of species, including the Amevia lizard on St. Croix, that were originally believed to be extinct. The population of the Hawaiian goose has also been seriously reduced. They also thought about poison, but cats, dogs and chickens could get poisoned as well.

In an effort to solve this problem, Horst is using microchips to study the life cycle and reproductive habits of the Caribbean mongoose (284). He has already learned that mongooses have a life expectancy of six to ten years, as opposed to three to five years as they previously thought. Horst is committed to gathering as much data as possible to help provide federal health officials with the information needed to find a solution that will not endanger other species, humans, or the environment. With the support of Earthwatch Incorporated and volunteers, Horst’s study will hopefully produce good results and the Caribbean Islands will be mongoose free!

Additional Tasks

* Conduct a short research project on other types of invasive species and their unintended consequences. Choose at least two animals and draw evidence from three sources (digital or print). Take notes on your findings in the form of quotes and paraphrases. After you have gathered your findings, create a 4-minute presentation for your classmates. Include at least one visual display in your presentation in order to enhance and clarify information. After your presentation, submit your research notes, along with a bibliography to your teacher.

Answer: Answers will vary. Some species that students might research include: purple loosestrife, zebra mussels, Asian long-horned beetle, or cane toads.

* Should there be laws regarding invasive species? Divide the class into two groups and have a debate on this question. Provide students time to prepare their arguments with their teams. When debating, students should pay particular attention to the other team’s arguments in an effort to analyze and evaluate their claims and reasoning. This task could lead to a broader discussion of government regulation.

Answer: Answers will vary. Teachers should keep in mind that the Standards require arguments to be based on logical reasoning and relevant evidence, not just opinions. This task would be a good one to illustrate what that means.

Supports for English Language Learners (ELLs) to use with Anthology Alignment Lessons

When teaching any lesson, it is important to make sure you are including supports to help all students. We have prepared some examples of different types of supports that you can use in conjunction with our Anthology Alignment Lessons to ensure ELLs can engage fully with the lesson. While these supports reflect research in how to support ELLs, these activities can help ALL students engage more deeply with these lessons. Note that some strategies should be used at multiple points within a lesson; we’ll point these out. It is also important to understand that these scaffolds represent options for teachers to select based on students’ needs; it is not the intention that teachers should do *all* of these things at every lesson.

**Before reading:**

* Read passages, watch videos, view photographs, discuss topics (e.g., using the [four corners strategy](http://www.theteachertoolkit.com/index.php/tool/four-corners)), or research topics that help provide context for what your students will be reading. This is especially true if the setting (e.g., 18th Century England) or topic (e.g., boats) is one that is unfamiliar to the students.
* Provide explicit instruction, using multiple modalities, on selected vocabulary words that are *central to understanding the text*. When looking at the lesson plan, you should note the Tier 2 words, particularly those words with high conceptual complexity (i.e., they are difficult to visualize, learn from context clues, and are abstract), and consider introducing them ahead of reading. For more information on selecting such words, go [here](https://achievethecore.org/page/3167/selecting-and-using-academic-vocabulary-in-instruction). **You should plan to continue to reinforce these words, and additional vocabulary, in the context of reading and working with the text. (See additional activities in the During Reading and After Reading sections.)**

**Examples of Activities:**

* Provide students with the definition of the words and then have students work together to create [Frayer models](http://www.theteachertoolkit.com/index.php/tool/frayer-model) or other kinds of word maps for the words.
* When a word contains a prefix or suffix that has been introduced before, highlight how the word part can be used to help determine word meaning.
* Keep a word wall or word bank where these new words can be added and that students can access later.
* Have students create visual glossaries for whenever they encounter new words. Then have your students add these words to their visual glossaries.
* Create pictures using the word. These can even be added to your word wall!
* Create lists of synonyms and antonyms for the word.
* Have students practice using the words in conversation. For newcomers, consider providing them with [sentence frames](https://achievethecore.org/page/3159/ell-supports-for-writing-and-discussion) to ensure they can participate in the conversation.
* Use graphic organizers to help introduce content.

**Examples of Activities:**

* Complete a [Know, Want to Learn, Learned (KWL) graphic organizer](http://www.nea.org/tools/k-w-l-know-want-to-know-learned.html) about the text.
* Have students research the setting or topic and fill in a chart about it. You could even have students work in groups where each group is assigned part of the topic.
* Fill in a bubble map where they write down anything that they find interesting about the topic while watching a video or reading a passage about the topic. Then students can discuss why they picked the information.

**During reading:**

* Allow ELLs to collaborate in their home languages to process content before participating in whole class discussions in English. Consider giving them the discussion questions to look over in advance (perhaps during the first read) and having them work with a partner to prepare.
* Allow ELLs to use English language that is still under development. Students should not be scored lower because of incorrect spelling or grammar (unless the goal of the assignment is to assess spelling or grammar skills specifically). When grading, be sure to focus on scoring your students only for that objective.
* Scaffold questions for discussions so that questioning sequences include a mix of factual and inferential questions and a mix of shorter and more extended responses. Questions should build on each other and toward inferential and higher order thinking questions. There are not many factual questions already listed in the lesson instructions, so you will need to build some in as you see fit. More information on this strategy can be found [here](https://achievethecore.org/aligned/creating-sequencing-text-dependent-questions-support-english-language-learners/).
* Provide explicit instruction, using multiple modalities, on selected vocabulary words (e.g., 5–8 for a given text) that are central to understanding the text. During reading, you should continue to draw attention to and discuss the words that you taught before the reading.

**Examples of Activities:**

* Have students include the example from the text in a student-created glossary.
* Create pictures that represent how the word was used in the passage.
* Create sentences using the word in the way it was used in the passage.
* Have students discuss the author’s word choice.
* Examine important sentences in the text that contribute to the overall meaning of the text.
* Examine sentence structure of a particular sentence. Break down the sentence to determine its meaning. Then determine how this sentence contributes to the overall meaning of the passage. Determine if there is any figurative language in the sentence and have students use context clues to determine the meaning of the figurative language.
* Use graphic organizers to help organize content and thinking.

**Examples of Activities:**

* While reading the text, have students fill in a story map to help summarize what has happened.
* Have students fill in an evidence chart while they read to use with the culminating writing activity. Make sure to model with the students how to fill in the evidence chart by filling in the first couple of rows together as a class. Go over the prompt that the evidence should support, making sure to break down what the prompt means before having the students get to work. If some of your students frequently struggle to understand directions, have the students explain the directions back to you.
* Provide somewhere for students to store new words that they encounter. Students could use a chart to keep track of these new words and their meanings as they read.
* If you had students start a KWL before reading, have them fill in the “L” section as they read the passage.

**After reading:**

* Reinforce new vocabulary using multiple modalities.

**Examples of activities:**

* Using the words that you had students work with before the reading, require students to include the words in the culminating writing task.
* Create Frayer models with the words. Then cut up the Frayer models and have the students put the Frayer models back together by matching the pieces for each word.
* After reading the passage, continue to examine important sentences (1–2) in the text that contribute to the overall meaning of the text. Guide students to break apart these sentences, analyze different elements, and determine meaning. More information on how to do this, including models of sentence deconstruction, can be found [here](https://achievethecore.org/page/3160/juicy-sentence-protocol).
* When completing the writing assignments after reading, consider using these scaffolds to support students depending on their English proficiency.

**Examples of Activities:**

* For all students, go over the prompt in detail making sure to break down what the prompt means before having the students get to work. Then have the students explain the directions back to you.
* Have students create an evidence tracking chart during reading, then direct them to look back over their evidence chart and work with a group to see if their evidence matches what the rest of the class wrote down. If some of the chart does not match, students should have a discussion about why.
* For students who need more support, model the proper writing format for your students and provide them with a properly formatted example for reference.
* For newcomers, you may consider creating sentence or paragraph frames to help them to write out their ideas.