

Lakeville ~ Session 1(UE/MS/HS)

Teacher Guide – Silent Invaders of Florida’s Freshwater Ecosystems



INTRODUCTION: **Session 1** sets the stage for the entire Lakeville Unit or can be used as a valuable stand-alone introduction to Florida’s unique freshwater ecosystems. Students learn basic classification concepts related to Florida plant life (aquatic versus terrestrial; emersed, submersed, floating and floating-leaved) as well as the difference between native, non-native and invasive plant species. Along the way, they are introduced to real-life impacts that some invasive species are having on our environment and economy. It is important that students understand the difference between non-native and invasive. “Non-native” should never be presented as bad. There are many **beneficial non-native** plants in Florida: out of the ~1300 non-native plant species found here, only ~10% are **invasive**. The lesson ends with positive actions we can take to become responsible environmental stewards and help prevent the spread of invasive plant species.

KEY QUESTIONS:

1. What are the criteria used to determine if a plant is native, non-native or invasive?
2. What are the ecological and economic impacts of invasive plants?
3. What can we do to minimize those impacts?

SUBJECTS: Science, Language Arts, Social Studies and Math (See suggested state standards at the end of this document.)

GRADE LEVEL: UE, MS, HS

CONCEPTS: Natural resource management, invasive species, biodiversity, plants, animal and human impacts, physical structure of plants (stem support), physical traits and adaptations that allow species to survive in new environments, population distributions, competitions, difference between opinion and observation, empirical observations, classification, energy transfer in food web, waste management, reproduction essential for survival of species.

OVERALL TIME ESTIMATES: 45 minute session

LEARNING STYLES: Visual and auditory

VOCABULARY: [Also see keywords chart and definitions] alert, aquatic plants, ballast water, compost, country, continent, dispose, economic harm, emersed plants, environmental harm, floating-leaved plants, household garbage, hydrilla, inspect, invasive plants, native plants, natural areas, non-invasive plants, non-native plants, plant species, region, submersed plants, terrestrial plants, volunteer, water hyacinth

LESSON SUMMARY: **Students watch a 25-minute** presentation, *Silent Invaders*, which provides an introduction to Florida freshwater habitats and ecosystem management issues related to invasive species. Class discussion is facilitated by guiding questions, keyword vocabulary and reading/writing activities.

STUDENT LEARNING OBJECTIVES: Students will be able to...

1. Define the difference between **native**, **non-native**, and **invasive** plants.
2. Identify the impacts of invasive species.
3. Identify positive actions that can be taken in a community to minimize the impacts of invasive species.



Florida Invasive Plant Education Initiative • <http://plants.ifas.ufl.edu/education>

A Collaboration of the UF/IFAS Center for Aquatic and Invasive Plants

and the Florida Fish and Wildlife Conservation Commission / Invasive Plant Management Section

University of Florida © 2012

Lakeville ~ Session 1(UE/MS/HS)
Teacher Guide – Silent Invaders of Florida’s Freshwater Ecosystems



MATERIALS:

The following items can be found on our website: <http://plants.ifas.ufl.edu/education>

1. **Silent Invaders** Module Presentation (request DVD and available on-line).
 - Guiding Questions
 - Keyword Chart
 - Keyword Definitions
 - *Silent Invaders* Talking Points
 - Teaching Points about native, non-native and invasive plants
2. **Reading Activities** (and Answer Keys)
 - Native Plants
 - Non-Native Plants
 - Invasive Plants
 - Emerged Plants
 - Submersed Plants
 - Free-Floating Plants
 - Floating-Leaved Plants
3. **Optional** (both available on the *Resource* section of our website)
 - **Understanding Invasive Aquatic Plants (Florida Edition) — Activity Book** (PDF)
Recommended for homework or as a reading exercise in Language Arts Class,
 - **Aquatic Plants: The Underwater Forests of Lakes and Rivers**
A stand-alone activity book

ADVANCE PREPARATION:

1. Preview *Silent Invaders* Presentation, Guiding Questions and Talking Points.
2. Preview *Teaching Points about non-native invasive plants and native plants, especially in Florida.*

PROCEDURE AND DISCUSSION:

1. Before Presentation (10 minutes)
 - Conduct open class discussion about plants and their role in Florida freshwater ecosystems.
 - Distribute *Silent Invaders* **Guiding Questions** and review with students.
 - Distribute **Keyword Chart** and review vocabulary; define words if needed (see Keyword Chart definitions).
2. During *Silent Invaders* Presentation (25 minutes)
 - Encourage students to take notes on **Keyword Chart** and answer **Guiding Questions**.
3. After *Silent Invaders* Presentation (10 minutes)
 - Discuss film while reviewing answers to **Guiding Questions**
 - Review **Keyword Chart** definitions.
4. Distribute **Reading Activities** and/or **Understanding Invasive Aquatic Plants** (Activity Book).



Lakeville ~ Session 1(UE/MS/HS)
Teacher Guide – Silent Invaders of Florida’s Freshwater Ecosystems



BACKGROUND INFORMATION:

- Highly recommended: Review *Silent Invaders* Module Guide, available here: <http://plants.ifas.ufl.edu/education/module-1-silent-invaders>
- **Teaching Points** about native, non-native and invasive plants are available on line <http://plants.ifas.ufl.edu/education/resource>
- The National Invasive Species Council published an official “White Paper” with clear and concise definitions of the terms “non-native” and “invasive” species, along with many examples of the damage being done by invasive species. See “ISAC Definitions White Paper” at <http://www.invasivespecies.gov/>

ASSESSMENT SUGGESTION:

1. Responses to **Guiding Questions** can be used (Objective #1,#2 and #3).
2. Reading activities may also be used:
 - Native-Plants (Objective #1 and #2)
 - Non-Native Plants (Objective #1, #2, and #3)
 - Invasive Plants (Objective #2 and #3)
 - Emerged Plants (Objective #2 and #3)
 - Submersed Plants (Objective #2 and #3)
 - Free Floating Plants (Objective #2 and #3)
 - Floating Leaved Plants (Objective #2 and #3)

EXTENSION ACTIVITIES:

1. Students choose a specific native, non-native or invasive plant species (found in Florida) and create their own PowerPoint presentation to present to the class.
2. Create a “License Plate” promoting native plants or discouraging invasive plants (Objective #1, and #3).



Lakeville ~ Session 1(UE/MS/HS)
Teacher Guide – Silent Invaders of Florida’s Freshwater Ecosystems



Next Generation Sunshine State Standards

4th Grade

- SC.4.E.6.6: Identify resources available in Florida (water, phosphate, oil, limestone, silicon, wind, and solar energy).
- SC.4.L.17.4: Recognize ways plants and animals, including humans, can impact the environment.
- SC.4.N.1.4: Recognize ways plants and animals, including humans, can impact the environment.
- SS.4.C.2.1: Discuss public issues in Florida that impact the daily lives of its citizens.
- SS.4.G.1.1: Identify physical features of Florida.

5th Grade

- SC.5.L.15.1: Describe how, when the environment changes, differences between individuals allow some plants and animals to survive and reproduce while others die or move to new locations.
- SC.5.L.17.1: Compare and contrast adaptations displayed by animals and plants that enable them to survive in different environments such as life cycles variations, animal behaviors and physical characteristics.

7th Grade

- SC.7.L.15.2: Explore the scientific theory of evolution by recognizing and explaining ways in which genetic variation and environmental factors contribute to evolution by natural selection and diversity of organisms.
- SC.7.L.15.3: Explore the scientific theory of evolution by relating how the inability of a species to adapt within a changing environment may contribute to the extinction of that species.
- SC.7.L.17.3: Describe and investigate various limiting factors in the local ecosystem and their impact on native populations, including food, shelter, water, space, disease, parasitism, predation, and nesting sites.
- SS.7.C.2.13: Examine multiple perspectives on public and current issues.

8th Grade

- SC.8.N.4.1: Explain that science is one of the processes that can be used to inform decision making at the community, state, national and international levels.
- SC.8.N.4.2: Explain how political, social and economic concerns can affect science and vice versa.
- SS.8.G.5.1: Describe human dependence on the physical environment and natural resources to satisfy basic needs in local environments in the United States.
- SS.8.G.5.2: Describe the impact of human modifications on the physical environment and ecosystems of the United States throughout history.

9th-12th Grade

- SC.912.L.17.2: Explain the general distribution of life in aquatic systems as a function of chemistry, geography, light, depth, salinity, and temperature.
- SC.912.L.17.5: Analyze how population size is determined by births, deaths, immigration, emigration, and limiting factors (biotic and abiotic) that determine carrying capacity.
- SC.912.L.17.6: Compare and contrast the relationships among organisms, including predation, parasitism, competition, commensalism, and mutualism.
- SC.912.L.17.8: Recognize the consequences of the losses of biodiversity due to catastrophic events, climate changes, human activity, and the introduction of invasive, non-native species.
- SC.912.L.17.20: Predict impact of individuals on environmental systems; examine how human lifestyles affect sustainability.

Common Core State Standards

4th Grade

Common Core Code	FL Common Core Code	Common Core Standard
RI.4.1	LAFS.4.RI.1.1	Refer to details and examples in a text when explaining what text says explicitly and when drawing inferences from text.
RI.4.2	LAFS.4.RI.1.2	Determine main idea of a text and explain how it is supported by key details; summarize the text.
RI.4.3	LAFS.4.RI.1.3	Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text.
RI.4.4	LAFS.4.RI.2.4	Determine meaning of general academic and domain-specific words or phrases in a text relevant to a grade 4 topics or subject area.
RI.4.5	LAFS.4.RI.2.5	Describe the overall structure(e.g., chronology, comparison, cause/effect, problem/solution) of events, ideas, concepts, or information in a text or part of a text.



Florida Invasive Plant Education Initiative • <http://plants.ifas.ufl.edu/education>
 A Collaboration of the UF/IFAS Center for Aquatic and Invasive Plants
 and the Florida Fish and Wildlife Conservation Commission / Invasive Plant Management Section

University of Florida © 2012

Lakeville ~ Session 1(UE/MS/HS)
Teacher Guide – Silent Invaders of Florida’s Freshwater Ecosystems



RI.4.7	LAFS.4.RI.3.7	Interpret information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, time lines, animations, or interactive elements on Web pages) and explain how the information contributes to an understanding of the text in which it appears.
RF.4.3	LAFS.4.RF.3.3	Know and apply grade-level phonics and word analysis skills in decoding words.
RF.4.3a	LAFS.4.RF.3.3a	Use combined knowledge of all letter-sound correspondences, syllabication patterns, and morphology (e.g., roots and affixes) to read accurately unfamiliar multisyllabic words in context and out of context.
RF.4.4	LAFS.4.RF.4.4	Read with sufficient accuracy and fluency to support comprehension.
RF.4.4a	LAFS.4.RF.4.4a	Read grade-level text with purpose and understanding.
RF.4.4c	LAFS.4.RF.4.4c	Use context to confirm or self-correct word recognition and understanding, rereading as necessary.
W.4.1b	LAFS.4.W.1.1b	Provide reasons that are supported by facts and details.
W.4.2d	LAFS.4.W.1.2d	Use precise language and domain-specific vocabulary to inform about or explain the topic.
W.4.9	LAFS.4.W.3.9	Draw evidence from literary or informational texts to support analysis, reflection, and research.
W.4.9b	LAFS.4.W.3.9b	Apply grade 4 Reading standards to informational texts (e.g., “Explain how an author uses reasons and evidence to support particular points in a text”).
W.4.10	LAFS.4.W.4.10	Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.
SL.4.1	LAFS.4.SL.1.1	Engage effectively in a range of collaborative discussions (one-on-one, in groups, teacher-led) with diverse partners on grade 4 topics/texts, building on others’ ideas and expressing their own clearly.
SL.4.1c	LAFS.4.SL.1.1c	Pose and respond to specific questions to clarify or follow up on information, and make comments that contribute to the discussion and link to the remarks of others.
SL.4.2	LAFS.4.SL.1.2	Paraphrase portions of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.
L.4.3	LAFS.4.L.2.3	Use knowledge of language and its conventions when writing, speaking, reading, or listening.
L.4.3a	LAFS.4.L.2.3a	Choose words and phrases to convey ideas precisely.
L.4.4	LAFS.4.L.3.4	Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 4 reading and content, choosing flexibly from a range of strategies.
L.4.4a	LAFS.4.L.3.4a	Use context (e.g., definitions, examples, or restatements in text) as clue to meaning of word or phrase.
L.4.4b	LAFS.4.L.3.4b	Use common, grade-appropriate Greek and Latin affixes and roots as clues to meaning of a word (e.g., telegraph, photograph, autograph).
L.4.6	LAFS.4.L.3.6	Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal precise actions, emotions, or states of being (e.g., quizzed, whined, stammered) and that are basic to a particular topic (e.g., wildlife, conservation, and endangered when discussing animal preservation).

5th Grade

RI.5.1	LAFS.5.RI.1.1	Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.
RI.5.2	LAFS.5.RI.1.2	Determine two or more main ideas of a text and explain how they are supported by key details; summarize the text.
RI.5.3	LAFS.5.RI.1.3	Explain the relationships or interactions between two or more individuals, events, ideas, or concepts in a historical, scientific, or technical text based on specific information in the text.
RI.5.4	LAFS.5.RI.2.4	Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a grade 5 topic or subject area.
RF.5.3	LAFS.5.RF.3.3	Know and apply grade-level phonics and word analysis skills in decoding words.
RF.5.3a	LAFS.5.RF.3.3a	Use combined knowledge of all letter-sound correspondences, syllabication patterns, and morphology (e.g., roots and affixes) to read accurately unfamiliar multisyllabic words in context and out of context.
RF.5.4	LAFS.5.RF.4.4	Read with sufficient accuracy and fluency to support comprehension.
RF.5.4a	LAFS.5.RF.4.4a	Read grade-level text with purpose and understanding.
RF.5.4c	LAFS.5.RF.4.4c	Use context to confirm or self-correct word recognition and understanding, rereading as necessary.
W.5.2d	LAFS.5.W.1.2d	Use precise language and domain-specific vocabulary to inform about or explain the topic.
W.5.9	LAFS.5.W.3.9	Draw evidence from literary or informational texts to support analysis, reflection, and research.



Florida Invasive Plant Education Initiative • <http://plants.ifas.ufl.edu/education>

A Collaboration of the UF/IFAS Center for Aquatic and Invasive Plants
 and the Florida Fish and Wildlife Conservation Commission / Invasive Plant Management Section

University of Florida © 2012

Lakeville ~ Session 1(UE/MS/HS)
Teacher Guide – Silent Invaders of Florida’s Freshwater Ecosystems



W.5.9b	LAFS.5.W.3.9b	Apply grade 5 Reading standards to informational texts (e.g., “Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence support which point[s]”).
SL.5.1	LAFS.5.SL.1.1	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 5 topics and texts, building on others’ ideas and expressing their own clearly.
SL.5.2	LAFS.5.SL.1.2	Summarize written a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.
L.5.3	LAFS.5.L.2.3	Use knowledge of language and its conventions when writing, speaking, reading, or listening.
L.5.4	LAFS.5.L.3.4	Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 5 reading and content, choosing flexibly from a range of strategies.
L.5.4a	LAFS.5.L.3.4a	Use context (e.g., cause/effect relationships and comparisons in text) as a clue to the meaning of a word or phrase.
L.5.4b	LAFS.5.L.3.4b	Use common, grade-appropriate Greek and Latin affixes and roots as clues to the meaning of a word (e.g., photograph, photosynthesis).
L.5.6	LAFS.5.L.3.6	Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal contrast, addition, and other logical relationships (e.g., however, although, nevertheless, similarly, moreover, in addition).

6th Grade

RI.6.1	LAFS.6.RI.1.1	Cite textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.
RI.6.4	LAFS.6.RI.2.4	Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings.
RI.6.7	LAFS.6.RI.3.7	Integrate information presented in different media or formats (e.g., visually, quantitatively) as well as in words to develop a coherent understanding of a topic or issue.
W.6.2d	LAFS.6.W.1.2d	Use precise language and domain-specific vocabulary to inform about or explain the topic.
W.6.9	LAFS.6.W.3.9	Draw evidence from literary or informational texts to support analysis, reflection, and research.
W.6.9b	LAFS.6.W.3.9b	Apply grade 6 Reading standards to literary nonfiction (e.g., “Trace and evaluate the argument and specific claims in a text, distinguishing claims that are supported by reasons and evidence from claims that are not”).
SL.6.1	LAFS.6.SL.1.1	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 6 topics, texts, and issues, building on others’ ideas and expressing their own clearly.
L.6.3	LAFS.6.L.2.3	Use knowledge of language and its conventions when writing, speaking, reading, or listening.
L.6.4	LAFS.6.L.3.4	Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 6 reading and content, choosing flexibly from a range of strategies.
L.6.4a	LAFS.6.L.3.4a	Use context (e.g., the overall meaning of a sentence or paragraph; a word’s position or function in a sentence) as a clue to the meaning of a word or phrase.
L.6.4b	LAFS.6.L.3.4b	Use common, grade-appropriate Greek or Latin affixes and roots as clues to the meaning of a word (e.g., audience, auditory, audible).
L.6.6	LAFS.6.L.3.6	Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases; gather vocabulary knowledge when considering a word or phrase important to comprehension or expression.
RST.6-8.1	LAFS.68.RST.1.1	Cite specific textual evidence to support analysis of science and technical texts.
RST.6-8.4	LAFS.68.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 6–8 texts and topics.
RST.6-8.10	LAFS.68.RST.4.10	By the end of grade 8, read and comprehend science/technical texts in the grades 6–8 text complexity band independently and proficiently.
WHST.6-8.2d	LAFS.68.WHST.1.2d	Use precise language and domain-specific vocabulary to inform about or explain the topic.
WHST.6-8.9	LAFS.68.WHST.3.9	Draw evidence from informational texts to support analysis reflection, and research.

7th Grade

RI.7.1	LAFS.7.RI.1.1	Cite several pieces of textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.
RI.7.2	LAFS.7.RI.1.2	Determine two or more central ideas in a text and analyze their development over the course of the text; provide an objective summary of the text.
RI.7.4	LAFS.7.RI.2.4	Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the impact of a specific word choice on meaning and tone.



Florida Invasive Plant Education Initiative • <http://plants.ifas.ufl.edu/education>

A Collaboration of the UF/IFAS Center for Aquatic and Invasive Plants

and the Florida Fish and Wildlife Conservation Commission / Invasive Plant Management Section

University of Florida © 2012

Lakeville ~ Session 1(UE/MS/HS)
Teacher Guide – Silent Invaders of Florida’s Freshwater Ecosystems



RI.7.7	LAFS.7.RI.3.7	Compare and contrast a text to an audio, video, or multimedia version of the text, analyzing each medium’s portrayal of the subject (e.g., how the delivery of a speech affects the impact of the words).
W.7.2d	LAFS.7.W.1.2d	Use precise language and domain-specific vocabulary to inform about or explain the topic.
W.7.8	LAFS.7.W.3.8	Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.
W.7.9	LAFS.7.W.3.9	Draw evidence from literary or informational texts to support analysis, reflection, and research.
W.7.9b	LAFS.7.W.3.9b	Apply grade 7 Reading standards to literary nonfiction (e.g. “Trace and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient to support the claims”).
SL.7.1	LAFS.7.SL.1.1	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 7 topics, texts, and issues, building on others’ ideas and expressing their own clearly.
SL.7.2	LAFS.7.SL.1.2	Analyze the main ideas and supporting details presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how the ideas clarify a topic, text, or issue under study.
L.7.3	LAFS.7.L.2.3	Use knowledge of language and its conventions when writing, speaking, reading, or listening.
L.7.3a	LAFS.7.L.2.3a	Choose language that expresses ideas precisely and concisely, recognizing and eliminating wordiness and redundancy.
L.7.4	LAFS.7.L.3.4	Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 7 reading and content, choosing flexibly from a range of strategies.
L.7.4a	LAFS.7.L.3.4a	Use context (e.g., the overall meaning of a sentence or paragraph; a word’s position or function in a sentence) as a clue to the meaning of a word or phrase.
L.7.4b	LAFS.7.L.3.4b	Use common, grade-appropriate Greek or Latin affixes and roots as clues to the meaning of a word (e.g., belligerent, bellicose, rebel).
RST.6-8.1	LAFS.68.RST.1.1	Cite specific textual evidence to support analysis of science and technical texts.
RST.6-8.4	LAFS.68.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 6–8 texts and topics.
RST.6-8.10	LAFS.68.RST.4.10	By the end of grade 8, read and comprehend science/technical texts in the grades 6–8 text complexity band independently and proficiently.
WHST.6-8.2d	LAFS.68.WHST.1.2d	Use precise language and domain-specific vocabulary to inform about or explain the topic.
WHST.6-8.9	LAFS.68.WHST.3.9	Draw evidence from informational texts to support analysis reflection, and research.

8th Grade

RI.8.1	LAFS.8.RI.1.1	Cite the textual evidence that most strongly supports an analysis of what the text says explicitly as well as inferences drawn from the text.
RI.8.4	LAFS.8.RI.2.4	Determine meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the impact of specific word choices on meaning and tone, including analogies or allusions to other texts.
W.8.8	LAFS.8.W.3.8	Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.
W.8.9	LAFS.8.W.3.9	Draw evidence from literary or informational texts to support analysis, reflection, and research.
W.8.9b	LAFS.8.W.3.9b	Apply grade 8 Reading standards to literary nonfiction (e.g., “Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient; recognize when irrelevant evidence is introduced”).
SL.8.1	LAFS.8.SL.1.1	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 8 topics, texts, and issues, building on others’ ideas and expressing their own clearly.
SL.8.1c	LAFS.8.SL.1.1c	Pose questions that connect the ideas of several speakers and respond to others’ questions and comments with relevant evidence, observations, and ideas.
SL.8.4	LAFS.8.SL.2.4	Present claims and findings, emphasizing salient points in a focused, coherent manner with relevant evidence, sound valid reasoning, and well-chosen details; use appropriate eye contact, adequate volume, and clear pronunciation.
L.8.3	LAFS.8.L.2.3	Use knowledge of language and its conventions when writing, speaking, reading, or listening.
L.8.4	LAFS.8.L.3.4	Determine or clarify the meaning of unknown and multiple-meaning words or phrases based on grade 8 reading and content, choosing flexibly from a range of strategies.
L.8.4b	LAFS.8.L.3.4b	Use common, grade-appropriate Greek or Latin affixes and roots as clues to the meaning of a word (e.g., precede, recede, secede).



Florida Invasive Plant Education Initiative • <http://plants.ifas.ufl.edu/education>

A Collaboration of the UF/IFAS Center for Aquatic and Invasive Plants

and the Florida Fish and Wildlife Conservation Commission / Invasive Plant Management Section

University of Florida © 2012

Lakeville ~ Session 1(UE/MS/HS)
Teacher Guide – Silent Invaders of Florida’s Freshwater Ecosystems



L.8.6	LAFS.8.L.3.6	Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases; gather vocabulary knowledge when considering a word or phrase important to comprehension or expression.
RST.6-8.1	LAFS.68.RST.1.1	Cite specific textual evidence to support analysis of science and technical texts.
RST.6-8.4	LAFS.68.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 6–8 texts and topics.
RST.6-8.10	LAFS.68.RST.4.10	By the end of grade 8, read and comprehend science/technical texts in the grades 6–8 text complexity band independently and proficiently.
WHST.6-8.2d	LAFS.68.WHST.1.2d	Use precise language and domain-specific vocabulary to inform about or explain the topic.
WHST.6-8.9	LAFS.68.WHST.3.9	Draw evidence from informational texts to support analysis reflection, and research.
WHST.6-8.9	LAFS.68.WHST.3.9	Draw evidence from informational texts to support analysis reflection, and research.

9 – 10th Grade

RI.9-10.1	LAFS.910.RI.1.1	Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.
RI.9-10.4	LAFS.910.RI.2.4	Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the cumulative impact of specific word choices on meaning and tone (e.g., how the language of a court opinion differs from that of a newspaper).
W.9-10.8	LAFS.910.W.3.8	Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.
W.9-10.9	LAFS.910.W.3.9	Draw evidence from literary or informational texts to support analysis, reflection, and research.
W.9-10.9b	LAFS.910.W.3.9b	Apply grades 9–10 Reading standards to literary nonfiction (e.g., “Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is valid and the evidence is relevant and sufficient; identify false statements and fallacious reasoning”).
SL.9-10.1	LAFS.910.SL.1.1	Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 9–10 topics, texts, and issues, building on others’ ideas and expressing their own clearly and persuasively.
SL.9-10.1c	LAFS.910.SL.1.1c	Propel conversations by posing and responding to questions that relate the current discussion to broader themes or larger ideas; actively incorporate others into the discussion; and clarify, verify, or challenge ideas and conclusions.
SL.9-10.4	LAFS.910.SL.2.4	Present information, findings, and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning and the organization, development, substance, and style are appropriate to purpose, audience, and task.
L.9-10.3	LAFS.910.SL.1.3	Evaluate a speaker’s point of view, reasoning, and use of evidence and rhetoric, identifying any fallacious reasoning or exaggerated or distorted evidence.
L.9-10.4	LAFS.910.L.3.4	Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grades 9–10 reading and content, choosing flexibly from a range of strategies.
L.9-10.4a	LAFS.910.L.3.4a	Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word’s position or function in a sentence) as a clue to the meaning of a word or phrase.
L.9-10.6	LAFS.910.L.3.6	Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression
RST.9-10.4	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.
WHST.9-10.9	LAFS.910.WHST.3.9	Draw evidence from informational texts to support analysis, reflection, and research.



Florida Invasive Plant Education Initiative • <http://plants.ifas.ufl.edu/education>

A Collaboration of the UF/IFAS Center for Aquatic and Invasive Plants

and the Florida Fish and Wildlife Conservation Commission / Invasive Plant Management Section

University of Florida © 2012

Lakeville ~ Session 1(UE/MS/HS)
Teacher Guide – Silent Invaders of Florida’s Freshwater Ecosystems



11 – 12th Grade

RI.11-12.4	LAFS.1112.RI.2.4	Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze how an author uses and refines the meaning of a key term or terms over the course of a text.
SL.11-12.1	LAFS.1112.SL.1.1	Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 11–12 topics, texts, and issues, building on others’ ideas and expressing their own clearly and persuasively.
SL.11-12.1c	LAFS.1112.SL.1.1c	Propel conversations by posing and responding to questions that probe reasoning and evidence; ensure a hearing for a full range of positions on a topic or issue; clarify, verify, or challenge ideas and conclusions; and promote divergent and creative perspectives.
SL.11-12.4	LAFS.1112.SL.2.4	Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative or opposing perspectives are addressed, and the organization, development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks.
W.11-12.8	LAFS.1112.W.3.8	Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
W.11-12.9	LAFS.1112.W.3.9	Draw evidence from literary or informational texts to support analysis, reflection, and research.
W.11-12.9b	LAFS.1112.W.3.9b	Apply grades 11–12 Reading standards to literary nonfiction (e.g., “Delineate and evaluate the reasoning in seminal U.S. texts, including the application of constitutional principles and use of legal reasoning [e.g., in U.S. Supreme Court Case majority opinions and dissents] and the premises, purposes, and arguments in works of public advocacy (e.g., The Federalist, presidential addresses)”).
L.11-12.3	LAFS.1112.L.2.3	Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening.
L.11-12.4	LAFS.1112.L.3.4	Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grades 11–12 reading and content, choosing flexibly from a range of strategies.
L.11-12.4a	LAFS.1112.L.3.4a	Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word’s position or function in a sentence) as a clue to the meaning of a word or phrase.
L.11-12.6	LAFS.1112.L.3.6	Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.



Florida Invasive Plant Education Initiative • <http://plants.ifas.ufl.edu/education>

A Collaboration of the UF/IFAS Center for Aquatic and Invasive Plants

and the Florida Fish and Wildlife Conservation Commission / Invasive Plant Management Section

University of Florida © 2012