

# Module 1 ~ Silent Invaders (MS/HS)

## Answer Key – Free-floating & Floating-leaved Plants



Name: \_\_\_\_\_ Class Period: \_\_\_\_\_ Date: \_\_\_\_\_

**Directions:** Read the passage and use the information you've learned to answer the questions below in **complete sentences**.

**Free-floating and floating-leaved plants** are two types of plants that have leaves which float on the water's surface. **Floating-leaved** plants have roots planted in the sediment of the lake, pond, river, or other water body in which they grow. **Free-floating plants** do not have roots anchored in sediment - their roots obtain the nutrients they need to grow directly from the water.

Both free-floating and floating-leaved plants provide food and **habitat** (places to live, hide, and eat) for wildlife and fish. Fish and small aquatic insects feed on plant stems and leaves. Both types of floating plants can help reduce **shoreline erosion**. Floating-leaved plants hold the bottom sediment with their roots. Free-floating plants help disperse the energy in the motion of water to reduce the loss of shoreline and lake bottom sediments.

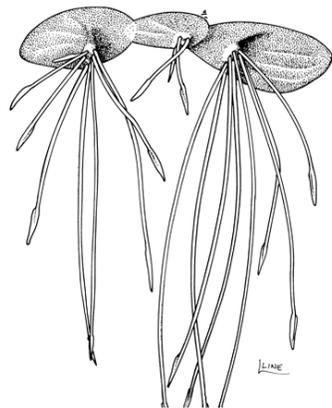


*A floating-leaved plant. Notice the roots are attached to the bottom sediments.*

**Floating-leaved plants** grow in shallow or shoreline waters. Florida has many **native** floating-leaved plants. The fragrant waterlily, spatterdock, and the American lotus are examples of native floating-leaved plants. As you can see in the illustration (above), the waterlily has roots attached to the bottom with its leaves (lily pads) floating on the surface.

Florida has fewer types of **free-floating plants**. Duckweeds are one commonly found type of free-floating plant. They grow in huge numbers in slow-moving or still waters such as swamps, sloughs, lakes, and ponds. From a distance, a water body covered in duckweed may look a bit like one choked with **algae** blooms (masses of microscopic plants growing together). However, when you look closer you can see the tiny individual plants floating close together on top of the water, forming a large floating mat. Duckweed is the common name for

several species of plants such as *Lemna valdiviana* (small duckweed), *Spirodela polyrhiza* (giant duckweed), and *Wolffia columbiana* (water meal). Water meal is less than 1/16 of an inch (or 1.5mm) and is the world's smallest flowering plant.



*Giant Duckweed, a free-floating plant. It has no roots attached to the bottom. Individual leaves are only 3-4mm wide, (or about 1/4 inch).*

Other free-floating plants include the native bladderwort, frog-bit, and the non-native water hyacinth. Bladderworts are **carnivorous** plants. Tiny bladders attached to the leaves trap and digest very tiny animals. Bladderwort is the common name used to refer to about 200 different species that range in size from a few inches to several feet long.

Free-floating plants such as the **invasive** water hyacinth and water lettuce can choke slow-moving or still waters by growing into large floating mats. Thick, heavy mats are formed by these fast-growing invasive species. Water hyacinth also has the ability to reproduce itself by making "daughter" plants that grow from its **rhizomes**, or roots. Mats and tussocks formed from free-floating plants can disrupt the flow of water between different parts of a wetland. They can get in the way of activities such as boating and fishing and can block flood control structures.



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### Free-Floating Plants and Floating-Leaved Plants Reading Activity (MS/HS) – answer in complete sentences.

1. How do free-floating plants and floating-leaved plants differ in regards to the way they receive their nutrients?

**Free-floating plants absorb nutrients from the water whereas floating-leaved plants get their nutrients from the sediment.**

2. The State of Florida has more of which type of plant – free-floating or floating-leaved plant?

**The State of Florida has more floating-leaved plants than free-floating plants.**

3. Cite two examples of native floating-leaved plants.  
Two examples of floating-leaved plants are:

**(Any two of the following plants are acceptable answers.)**

- **Fragrant waterlily**
- **Spadderdock**
- **American lotus**

4. How do both free-floating and floating-leaved plants function in an aquatic environment?

**Free-floating and floating-leaved plants function in an aquatic environment by providing food and habitat for wildlife, fish and small aquatic insects. Fish and small aquatic insects feed on the algae that are attached to the stems and leaves and can help reduce shoreline erosion.**

5. What results when decaying material produced by both free-floating and floating-leaved plants accumulates?

**When too much decaying material accumulates it can make a water body shallower and contributes to the formation of peat deposits.**

The following is a list of suggested standards that pertain to this activity. This list is provided as a reference to incorporate and expand upon as needed.

## Next Generation Sunshine State Standards

### 6<sup>th</sup> Grade

SC.6.L.15.1: Analyze and describe how and why organisms are classified according to shared characteristics with emphasis on the Linnaean system combined with the concept of Domains.

### 9<sup>th</sup> - 12<sup>th</sup> Grades

SC.912.L.14.53: Discuss basic classification and characteristics of plants. Identify bryophytes, pteridophytes, gymnosperms, and angiosperms.

## Common Core State Standards

### 6<sup>th</sup> Grade

Common Core Code	FL Common Core Code	Common Core Standard
RI.6.1	LAFS.6.RI.1.1	Cite textual evidence to support analysis of what text says explicitly as well as inferences drawn from text.



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

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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.
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.
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.

### 7<sup>th</sup> 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.7.4	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.
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.
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.

### 8<sup>th</sup> 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 the 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.
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.
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.

### 9<sup>th</sup> – 10<sup>th</sup> Grade

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).
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.
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.

### 11<sup>th</sup> – 12<sup>th</sup> 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 (e.g., how Madison defines faction in Federalist No. 10).
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.
RST.11-12.4	LAFS.1112.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 11–12 texts and topics.

