



Module 1 ~ Silent Invaders (MS/HS)

Answer Key – Submersed Plants Reading Activity

Name: _____ Class Period: _____ Date: _____

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

Submersed plants are large plants (known to scientists as “**macrophytes**”) that grow primarily below the water's surface. Macrophytes are plants that can be seen with the naked eye (in contrast to microphytes, plants which cannot be seen with the naked eye).

Unlike emersed plants, **submersed** plants grow entirely underwater and cannot survive out of water. Some submersed species are **rooted in the soil**. Others are **free-floating** plants that float free in the water below the surface and move wherever wind and water currents take them. Some have branches and leaves that reach and spread across the water just below the surface, or flowers that float on the surface. Other submersed plants have flower stalks that stick out up to six inches above the surface of the water. Some species like **coontail** make small flowers that bloom underwater, while other species' flowers bloom at the surface of the water.

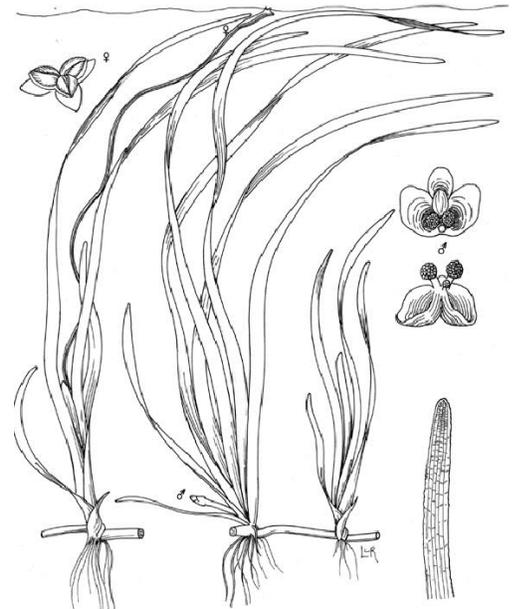
Eel grass and hydrilla are two other examples of submersed plants found in Florida. Eel grass is a native aquatic plant that grows up from roots in the muddy soil or sand at the bottoms of rivers, lakes, streams and springs. Eel grass provides excellent **habitat** (places to live) for a wide variety of aquatic animals such as fish, snails, and turtles – just to name a few. On the other hand, **hydrilla** (a fast-growing, **free-floating, invasive plant**) may seem like nice fish habitat when it first shows up in a lake or river. However it grows and reproduces very fast, so it doesn't take long for it to completely cover the surface of the water. When it does, it causes negative impacts like preventing other plants and organisms from getting the sunlight and/or other nutrients they need to survive. Our state government spends millions of dollars every year to control invasive hydrilla in our lakes, springs and rivers.

Some researchers are trying to learn more about how certain types of submersed plants can help a lake ecosystem. Submersed aquatic plants perform several functions; they provide food and habitat for wildlife populations, such as fish, waterfowl, or **invertebrates** (animals that do not have spines in their bodies, such as snails, insects and crayfish). Submersed plants can have a powerful effect on the chemical cycles in aquatic ecosystems by adding or removing chemicals or nutrients that either help or hurt other plants and animals living in and around water bodies.

Submersed plants can also help keep the water clean and clear, and help keep the mud or sand of the bottom in place by holding onto it with their roots.

Submersed plants may increase or decrease dissolved oxygen levels in the water, depending on their numbers and the amount of sunshine they get. Over time, they may also contribute to the filling-in of water bodies such as lakes, ponds, swamps and marshes. As the plants die and decay on the bottom, dead plant parts accumulate in layers and begin to make the lake, pond, or marsh shallower.

Submersed plants occur in almost all Florida water bodies, from rivers and streams to lakes, ponds, and springs. Taken together as a whole, these plants are one of the most important parts of our natural Florida aquatic ecosystems.



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Submersed Plants Reading Activity (MS/HS) – answer in complete sentences.

1. Name three features that describe a submersed plant.

Any of the following features are acceptable answers:

- They are large plants that grow primarily below the water’s surface.
- Some plant species produce flowers are pollinated underwater or at the water’s surface.
- Some have branches and leaves that reach and spread across the water just below the surface or flowers that float on the surface.
- Other plants have flower stalks that emerge up to 6 inches above the water.
- There are some plants that live under water.

2. Two examples of submersed plants are eel grass and hydrilla. What is the main difference between these two plants?

Eel grass is a native plant that provides great habitat for fish, snails, and turtles and other aquatic life, whereas hydrilla is one of the most abundant invasive plant in Florida which costs millions to keep under control.

3. What information would you use to support the view that submersed plants are an important part of Florida’s freshwater environment?

Submersed plants provide food and habitat for wildlife populations, they affect nutrient cycles and other chemical cycles by adding or removing chemicals and they can also enhance water clarity and help stabilize bottom sediments.

4. What factors affect whether dissolved oxygen levels will increase or decrease?

Submersed plants may increase or decrease dissolved oxygen concentrations based on the following factors: abundance of plant, available light and time of day.

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

6th 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.

Common Core State Standards

6th 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.
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



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		used in a specific scientific or technical context relevant to grades 6–8 texts and topics.
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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.7.4	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.

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 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.

9th – 10th 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.

11th – 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 (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.

Sources:

UF/IFAS Center for Aquatic and Invasive Plants: <http://plants.ifas.ufl.edu/>

Plant Management in Florida Waters: An Integrated Approach: <http://plants.ifas.ufl.edu/manage/>



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