

Module 3 ~ Why Manage Invasive Plants? (MS/HS)

Weed Alert Activity



Objective: Students will learn and be able to discuss key characteristics, identification techniques, and environmental impacts of aquatic invasive plants.

Materials:

- Weed Alerts: <http://myfwc.com/wildlifehabitats/habitat/invasive-plants/weedalerts/>
 - Australian pine (*Casuarina* spp.)
 - Beach naupaka (*Scaevola taccada*)
 - Brazilian pepper (*Schinus terebinthifolius*)
 - Chinese tallow (*Sapium sebiferum*)
 - Cogon grass (*Imperata cylindrica*)
 - Giant Salvinia (*Salvinia molesta*)
 - Hydrilla (*Hydrilla verticillata*)
 - Japanese climbing fern (*Lygodium japonicum*)
 - Melaleuca (*Melaleuca quinquenervia*)
 - Old World climbing fern (*Lygodium microphyllum*)
 - Shoebuttton (*Ardisia elliptica*)
 - Water-hyacinth (*Eichhornia crassipes*)
 - Water-lettuce (*Pistia stratiotes*)
 - Water-spinach (*Ipomoea aquatica*)
 - Wild Taro (*Colocasia esculenta*)
- Drawing pencils, colored pencils or watercolors
- Paper
- Poster Board or mat board
- Photo images of invasive plants <http://plants.ifas.ufl.edu/> (see **Plant Info and Images**)
- Line drawing of invasive plants <http://plants.ifas.ufl.edu/node/482>



Activity:

1. Divide class into groups of 3-5 students per group.
2. Hand out copies of the *Weed Alert: Water hyacinth* to various groups.
3. After reading and discussing the handout, each group will design a public service announcement using one of the following (a flyer, a poster, a sticker, a doorknob hanger or a radio spot) that addresses the impacts of water hyacinth on Florida's water bodies.

Extensions:

1. Students could design their PSA in a second language.
2. Develop a contest in conjunction with your local water district where the winning design could be inserted in a utility bill (electric, phone, or water bill) or water district mailing.
3. Research and create a poster on how water hyacinth populations decrease biodiversity in Florida. <http://plants.ifas.ufl.edu/guide/intrguid.html> and <http://plants.ifas.ufl.edu/guide/invplant.html>

Additional Resources:

<http://plants.ifas.ufl.edu/eiccra.pdf>
<http://sid.fcla.edu/mrsid/bin/show.pl?client=nontypes&image=206863a1.sid>
http://www.apms.org/activity_book.pdf



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Sunshine State Standards

Note: Standards listed *italics* are touched on briefly and can be fully developed by the teacher.

6th Grade

LA.6.1.6.1: TSW use vocabulary that is introduced and taught directly.

LA.6.1.6.2: TSW listen to, read, and discuss familiar and conceptually challenging text.

LA.6.2.2.2: TSW use information from the text to answer questions related to the main idea or relevant details, maintaining chronological or logical order.

LA.6.3.1.3: *TSW pre-write by using organizational strategies and tools (e.g., technology, outline, chart, table, graph, web, story map).*

LA.6.3.2.1: *TSW draft writing by developing main ideas from the prewriting plan using primary and secondary sources appropriate to purpose and audience*

LA.6.3.3.4: *TSW revise by applying appropriate tools or strategies to evaluate and refine the draft (e.g., peer review, checklists, rubrics).*

LA.6.3.5.1: TSW prepare writing using technology in a format appropriate to audience and purpose (e.g., manuscript, multimedia).

LA.6.3.5.2: TSW use elements of spacing and design for graphics (e.g., tables, drawings, charts, graphs) when applicable to enhance the appearance of the document.

LA.6.3.5.3: TSW share the writing with the intended audience.

LA.6.4.2.1: TSW write in a variety of informational/expository forms (e.g., summaries, procedures, instructions, experiments, rubrics, how-to manuals, assembly instructions).

LA.6.5.2.1: TSW listen and gain information for a variety of purposes, (e.g., clarifying, elaborating, summarizing main ideas and supporting details).

LA.6.6.2.1: TSW select a topic for inquiry, formulate a search plan, and apply evaluative criteria (e.g., relevance, accuracy, organization, validity, currentness) to select and use appropriate resource.

LA.6.6.2.2: TSW collect, evaluate and summarize information using a variety of techniques from multiple sources (e.g., encyclopedias, websites, experts) that includes paraphrasing to convey ideas and details from the source, main idea(s) and relevant details.

LA.6.6.4.1: TSW use appropriate available technologies to enhance communication and achieve a purpose (e.g., video, online).

LA.6.6.4.2: TSW determine and apply digital tools (e.g., word processing, multimedia authoring, web tools, graphic organizers) to publications and presentations.

SC.6.L.15.1: TSW 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.

SS.6.E.1.1: *TSW identify the factors (new resources, increased productivity, education, technology, slave economy, territorial expansion) that increase economic growth.*

7th Grade

LA.7.1.6.1: TSW use new vocabulary that is introduced and taught directly.

LA.7.1.6.2: TSW listen to, read, and discuss familiar and conceptually challenging text.

LA.7.2.2.2: TSW use information from the text to state the main idea and/or provide relevant details.

LA.7.3.1.3: *TSW prewrite by using organizational strategies and tools (e.g., technology, outline, chart, table, graph, Venn Diagram, web, story map, plot pyramid) to develop a personal organizational style.*

LA.7.3.2.1: *TSW draft writing by developing main ideas from the pre-writing plan using primary and secondary sources appropriate to the purpose and audience*

LA.7.3.3.4: *TSW revise by applying appropriate tools or strategies to evaluate and refine the draft (e.g., peer review, checklists, rubrics).*

LA.7.3.5.1: TSW prepare writing using technology in a format appropriate to audience and purpose (e.g., manuscript, multimedia).

LA.7.3.5.2: TSW use elements of spacing and design for graphics (e.g., tables, drawings, charts, graphs) when applicable to enhance the appearance of the document.



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- LA.7.3.5.3: TSW share the writing with the intended audience.
LA.7.4.2.1: TSW write in a variety of informational/expository forms (e.g., summaries, procedures, instructions, experiments, rubrics, how-to manuals, assembly instructions).
LA.7.5.2.1: TSW use effective listening strategies for informal and formal discussions, connecting to and building on the ideas of a previous speaker and respecting the viewpoints of others when identifying bias or faulty logic.
LA.7.6.2.1: TSW select a topic, develop a prioritized search plan, and apply evaluative criteria (e.g., relevance, objectivity, scope of content in print and online sources) to select appropriate resources for research.
LA.7.6.2.2: TSW assess organize and check the validity and reliability of information in text, using a variety of techniques by examining several sources of information, including both primary and secondary sources.
LA.7.6.4.1: TSW select and use appropriate available technologies (e.g., computer, digital camera) to enhance communication and achieve a purpose (e.g., video, presentations).
LA.7.6.4.2: TSW evaluate and apply digital tools (e.g., word processing, multimedia authoring, web tools, graphic organizers) to publications and presentations.
SC.7.E.6.6: TSW identify the impact that humans have had on Earth, such as deforestation, urbanization, desertification, erosion, air and water quality, changing the flow of water.
SC.7.L.15.3: TSW 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: TSW 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: TSW examine multiple perspectives on public and current issues.

8th Grade

- LA.8.1.6.1: TSW use new vocabulary that is introduced and taught directly.
LA.8.1.6.2: TSW listen to, read, and discuss familiar and conceptually challenging text.
LA.8.2.2.2: TSW synthesize and use information from the text to state the main idea or provide relevant details.
LA.8.3.1.3: TSW prewrite by using organizational strategies and tools (e.g., technology, spreadsheet, outline, chart, table, graph, Venn Diagram, web, story map, plot pyramid) to develop a personal organizational style.
LA.8.3.2.1: TSW draft writing by establishing a logical organizational pattern with supporting details that are substantial, specific, and relevant.
LA.8.3.3.4: TSW revise by applying appropriate tools or strategies to evaluate and refine the draft (e.g., peer review, checklists, rubrics).
LA.8.3.5.1: TSW prepare writing using technology in a format appropriate to audience and purpose (e.g., manuscript, multimedia).
LA.8.3.5.2: TSW use elements of spacing and design for graphics (e.g., tables, drawings, charts, graphs) when applicable to enhance the appearance of the document.
LA.8.3.5.3: TSW share the writing with the intended audience.
LA.8.4.2.1: TSW write in a variety of informational/expository forms (e.g., summaries, procedures, instructions, experiments, rubrics, how-to manuals, assembly instructions).
LA.8.5.2.1: TSW demonstrate effective listening skills and behaviors for a variety of purposes, and demonstrate understanding by paraphrasing and/or summarizing.
LA.8.6.2.1: TSW select a topic and develop a search plan with multiple research strategies, and apply evaluative criteria (e.g., scope and depth of content, authority, reputation of author/publisher, objectivity, freedom from bias) to assess appropriateness of resources.
LA.8.6.2.2: TSW assess, organize, synthesize, and evaluate the validity and reliability of information in text, using a variety of techniques by examining several sources of information, including both primary and secondary sources.



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LA.8.6.4.1: TSW use appropriate available technologies to enhance communication and achieve a purpose (e.g., video, digital technology).

LA.8.6.4.2: TSW evaluate and apply digital tools (e.g., word, processing, multimedia authoring, web tools, graphic organizers) to publications and presentations.

SS.8.A.1.2: TSW analyze charts, graphs, maps, photographs and timelines; analyze political cartoons; determine cause and effect.

SS.8.G.5.1: *TSW 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: TSW describe the impact of human modifications on the physical environment and ecosystems of the United States throughout history.

9th - 12th Grades

LA.910.1.6.1: TSW use new vocabulary that is introduced and taught directly.

LA.1112.1.6.1: TSW use new vocabulary that is introduced and taught directly.

LA.910.1.6.2: TSW listen to, read, and discuss familiar and conceptually challenging text.

LA.1112.1.6.2: TSW listen to, read, and discuss familiar and conceptually challenging text.

LA.910.2.2.1: TSW analyze and evaluate information from text features (e.g., transitional devices, table of contents, glossary, index, bold or italicized text, headings, charts and graphs, illustrations, subheadings).

LA.1112.2.2.1: TSW analyze and evaluate information from text features (e.g., transitional devices, table of contents, glossary, index, bold or italicized text, headings, charts and graphs, illustrations, subheadings)

LA.910.2.2.2: TSW use information from text to answer questions or state the main idea or provide relevant details.

LA.1112.2.2.2: TSW use information from text to answer questions or state the main idea or provide relevant details.

LA.910.3.1.3: *TSW pre-write by using organizational strategies and tools (e.g., technology, spreadsheet, outline, chart, table, graph, Venn Diagram, web, story map, plot pyramid) to develop a personal organizational style.*

LA.1112.3.1.3: *TSW pre-write by using organizational strategies and tools (e.g., technology, spreadsheet, outline, chart, table, graph, Venn Diagram, web, story map, plot pyramid) to develop a personal organizational style.*

LA.910.3.2.1: *TSW draft writing by developing ideas from the prewriting plan using primary and secondary sources appropriate to the purpose and audience.*

LA.1112.3.2.1: *TSW draft writing by developing ideas from the prewriting plan using primary and secondary sources appropriate to the purpose and audience.*

LA.910.3.3.4: *TSW revise by applying appropriate tools or strategies to evaluate and refine the draft (e.g., peer review, checklists, rubrics).*

LA.1112.3.3.4: *TSW revise by applying appropriate tools or strategies to evaluate and refine the draft (e.g., peer review, checklists, rubrics).*

LA.910.3.5.1: TSW prepare writing using technology in a format appropriate to the purpose (e.g., for display, multimedia).

LA.1112.3.5.1: TSW prepare writing using technology in a format appropriate to the purpose (e.g., for display, multimedia).

LA.910.3.5.2: TSW include such techniques as principle of design (e.g., margins, tabs, spacing, columns) and graphics (e.g., drawings, charts, graphs).

LA.1112.3.5.2: TSW include such techniques as principle of design (e.g., margins, tabs, spacing, and columns) and graphics (e.g., drawings, charts, graphs).

LA.910.3.5.3: TSW share writing with others, or submitting for publication.

LA.1112.3.5.3: TSW share writing with others, or submitting for publication.



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LA.910.4.2.1: TSW write in a variety of informational/expository forms, including a variety of technical documents (e.g., how-to-manuals, procedures, assembly directions).

LA.1112.4.2.1: TSW write in a variety of informational/expository forms, including documents using precise technical and scientific vocabulary (e.g., manuals, procedures, directions).

LA.910.5.2.1: TSW select and use appropriate listening strategies according to the intended purpose (e.g., solving problems, interpreting and evaluating the techniques and intent of a presentation).

LA.1112.5.2.1: TSW demonstrate effective listening skills and behaviors for a variety of purposes, and demonstrate understanding by critically evaluating and analyzing oral presentations.

LA.910.6.4.1: TSW use appropriate available technologies to enhance communication and achieve a purpose (e.g., video, digital technology).

LA.1112.6.4.1: TSW select and use appropriate available technologies (e.g., computer, digital camera) to enhance communication and achieve a purpose (e.g., video, presentations).

LA.910.6.4.2: TSW routinely use digital tools for publication, communication and productivity.

LA.1112.6.4.2: TSW routinely use digital tools for publication, communication and productivity.

SC.912.L.14.7: TSW relate the structure of each of the major plant organs and tissues to physiological processes.

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

SC.912.L.17.2: TSW 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: TSW analyze how population size is determined by births, deaths, immigration, emigration, and limiting factors (biotic and abiotic) that determine carrying capacity.

SC.912.L.17.7: TSW characterize the biotic and abiotic components that define freshwater systems, marine systems and terrestrial systems.

SC.912.L.17.8: TSW 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: TSW predict the impact of individuals on environmental systems and examine how human lifestyles affect sustainability.

SS.912.C.2.10: TSW monitor current public issues in Florida.

SS.912.C.2.11: TSW analyze public policy solutions or courses of action to resolve a local, state, or federal issue.

SS.912.G.5.4: TSW analyze case studies of how humans impact the diversity and productivity of ecosystems.

SS.912.G.5.5: TSW use geographic terms and tools to analyze case studies of policies and programs for resource use and management.

SS.912.G.5.6: TSW analyze case studies to predict how a change to an environmental factor can affect an ecosystem.



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