

Unit 3

Invaders

Understanding Invasive Species

(informative/explanatory essay)

Part 1: Standards Addressed in This Activity

- W.8.2** Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.
- W.8.2.A** Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension.
- W.8.2.B** Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples.
- W.8.2.C** Use appropriate and varied transitions to create cohesion and clarify the relationships among ideas and concepts.
- W.8.2.D** Use precise language and domain-specific vocabulary to inform about or explain the topic.
- W.8.2.E** Establish and maintain a formal style.
- W.8.2.F** Provide a concluding statement or section that follows from and supports the information or explanation presented.
- W.8.4** Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
- W.8.5** With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on how well purpose and audience have been addressed.
- W.8.10** 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.

Part 2: Description of Activity

The student will create an outline or fill in a graphic organizer with information from the passages in Unit 3 and will write an essay that addresses four questions:

1. What are invasive species?
2. What are some of the negative effects of invasive species?
3. What can be done to lessen the negative effects of invasive species?
4. What are the potential consequences of these actions?

Part 3: Connecting with the Text

Students will practice taking notes, summarizing, and organizing, as well as writing a factual essay. During pre-writing, encourage students to explore the four questions by revisiting the passages and recording notes in an outline or other graphic organizer. Exemplars are included (Part 5). Students can complete this part independently, in pairs, in small groups, or as a whole class prewriting activity.

Part 4: Directions for the Student

An informative/explanatory essay educates the reader by presenting facts about a certain topic.

It does not include opinions or attempts to persuade the reader. Reread the text and record important details. Create an outline or graphic organizer.

Once your outline or graphic organizer is complete, use it to write your essay. Afterward, revise your first draft; then proofread and edit before submitting your final draft.

Parts of a well-written informative/explanatory essay:

- **Introduction**
 - engages the reader
 - tells what your essay is about
 - grabs the reader’s attention (using a quote, question, or interesting detail)
- **Body** (several paragraphs)
 - address the prompt
 - use precise language and a formal style
 - incorporate facts, definitions, concrete details, and examples
- **Conclusion**
 - summarizes the main idea of the essay
 - supports the information or explanation presented

Prompt

Write an informative essay that answers the questions listed below. Incorporate examples from the text in your explanations. Summarize with a conclusion that supports the information in your essay. Write at least five to six paragraphs.

- What are invasive species?
- What are some of the negative effects of invasive species?
- What can be done to lessen the negative effects of invasive species?
- What are the potential consequences of these actions?

Part 5: Handouts/Suggested Responses

Invaders Outline (samples 1–6)

Invaders Outline (blank)

Graphic Organizer (sample)

Graphic Organizer (blank)

Proofreader's Checklist

Invaders Outlines (Sample 1)

Brown marmorated stink bugs (Lesson #14)

- I. Characteristics
 - A. "Hitchhikers"
 - B. Main defense is foul-smelling substance
 - C. Wide-ranging diet (fruits and vegetables)
 - D. Reproduce and spread rapidly
- II. Harmful Effects
 - A. Agricultural
 - 1. Affect at least 9 agricultural states
 - 2. Cause millions of dollars in damages to crops
 - B. Home invaders
 - 1. Enter houses in winter
 - 2. Annoy and harm humans/may cause allergic reaction
- III. Possible solutions/potential consequences
 - A. Pesticides
 - 1. Can contaminate groundwater
 - 2. May kill off beneficial insects
 - B. Bug traps
 - C. Samurai wasps
 - 1. Natural enemy of the BMSB
 - 2. Risk to other insect species or other unknown threat

Invaders Outlines (Sample 2)

Zebra Mussels (Lesson #15)

- I. Characteristics
 - A. Transported in ballast water
 - B. Quickly reproduce
 - C. Have few predators
- II. Harmful Effects
 - A. Environment
 - 1. Disturb the balance of life
 - 2. Consume food and oxygen
 - 3. Crowd out other species
 - B. Economy and/or human health
 - 1. Decrease water quality
 - a. Reduce water flow
 - b. Obstruct drains
 - c. Damage equipment
 - 2. Pollute shorelines
 - 3. Razor-sharp shells can cut human skin
 - 4. Absorb pollutants and pass them on in food chain
- III. Possible solutions/potential consequences
 - A. Pesticides have been used
 - B. Educate the public (anglers, divers, people who use waterways)
 - 1. Dispose of unused bait
 - 2. Completely dry all gear
 - 3. Drain buckets, pumps

Invaders Outlines (Sample 3)

Invasive Plants & Kudzu (Lesson #16)

- I. Characteristics of Kudzu
 - A. Green leafy vine and sweet-smelling flowers
 - B. Grow easily and spread quickly
 - C. Cover and smother everything in its path
- II. Harmful Effects
 - A. Economy
 1. Cost Americans millions per year
 2. Degrade property values
 3. Hurt agriculture
 4. Disturb public utilities and operations
 - B. Environment and/or human health
 1. Destroy habitats
 2. Crowd out native plants
 3. Diminish availability of water
 4. Deplete nutrients in soil
 5. Spread easily
- III. Possible solutions/potential consequences
 - A. Difficult to eradicate; vines grow back if cut, burned, or dug out
 - B. Owners must work together across property lines
 - C. Herbicides can harm native organisms and pollute waters

Invaders Outlines (Sample 4)

Invasive Birds (Lesson #17)

- I. Characteristics
 - A. Reproduce and spread rapidly
 - B. May be beneficial or appreciated by humans
 - 1. Starling helped farmers by eating insects
 - 2. Mute Swan is beautiful and elegant
- II. Harmful effects
 - A. Economy
 - 1. Damage agricultural products
 - 2. Disturb public utilities and operations
 - 3. Droppings clog drainage systems, damage roofing
 - 4. Bird strikes damage planes
 - B. Environment and/or human health
 - 1. Compete with native species
 - 2. Cause overgrazing
 - a. Decreases natural vegetation
 - b. Leads to soil erosion
 - c. Destroys habitats
 - 3. Droppings are messy and unpleasant
 - a. Pollute environment
 - b. Degrade water quality
 - 4. Bird strikes are dangerous to human lives
- III. Possible solutions/potential consequences
 - A. Poisons, traps, natural remedies do not eradicate
 - B. Can only be controlled by limiting food supply

Invaders Outlines (Sample 5)

Rats (Lesson #18)

- I. Characteristics
 - A. Highly invasive; live all over the world
 - B. Prefer to live near humans
 - C. Quick, agile, mobile
 - D. Expert hitchhikers
 - E. Highly adaptable, aggressive, able to flourish anywhere
 - F. Omnivorous
 - G. Extremely prolific and able to reproduce when young
- II. Harmful effects
 - A. Economy
 - 1. Damage crops; invade food stores
 - 2. Chew through electrical wires, water pipes, insulation
 - 3. Cause structural damage
 - B. Environment and/or human health
 - 1. Spread disease
 - 2. Compete for food
 - 3. Prey on native animals/endanger native organisms; have helped cause extinctions
- III. Possible solutions/potential consequences
 - A. Poisons, traps, natural remedies
 - 1. Only a temporary remedy
 - 2. Intensify reproduction when colony is threatened
 - a. Best controlled by limiting food supply

Name: Sample

Invaders Outlines (Sample 6)

Invasive Burmese Pythons (Unit Quiz)

- I. Characteristics
 - A. Reproduce rapidly
 - B. Excellent swimmers
 - C. Habitat generalists
 - D. Powerful predators, capable of killing and eating large animals
 - E. Kill by constriction
- II. Harmful effects
 - A. Environment
 - 1. Kill threatened or endangered species
 - 2. Extremely invasive in Everglades National Park
 - 3. Have dramatically decreased mammal population in ENP
 - B. Human health
 - 1. Can transmit salmonella poisoning to humans
- III. Possible solutions/potential consequences
 - A. Federal law bans import and export

Name: _____

Invaders Outline

Title of Text: _____

I. Characteristics

A.

B.

C.

D.

II. Harmful Effects

A. Economy

1.

2.

3.

B. Environment and/or human health

1.

2.

3.

III. Possible solutions/potential consequences

A.

B.

C.

Name: Sample

Invaders Graphic Organizer (Sample)

Paragraph and Purpose		Reasons and Evidence
1	Introduction: What are some of the characteristics of invasive species?	<p>May be plants or animals; introduced intentionally or unintentionally; mostly due to globalization/international travel and trade; harmful to economy, environment, and/or human health; characteristics: reproduce and spread rapidly; have few or no natural enemies</p> <p>Examples: nutria, BMSB, zebra mussel, kudzu, European starling, mute swan, rat, Burmese python</p>
2	What are some of the negative effects of invasive species?	<p>Economy: wipe out vegetation, harm crops (BMSB); damage infrastructure (zebra mussel, rats) and farmland (nutria, rats);</p> <p>Environment: cause erosion, habitat loss; crowd out native species (birds, nutria, python) and threaten endangered species, cause pollution, hurt water supply (kudzu, birds),</p> <p>Human health: pass on pollutants through the food chain (zebra mussel), cause pollution, spread disease (birds, rats)</p>
3	What can be done to lessen the negative effects of invasive species?	<p>Eradication is difficult, often impossible; few or no natural predators; reproduce and spread faster than can be killed; poisons, pesticides, bug traps; cutting, burning, digging out plant roots; precautions taken by people who use freshwater lakes; removing food supply</p>
4	What are the potential consequences of these actions?	<p>Pesticides contaminate soil and water; samurai wasp—too many unknowns; species may respond by intensifying reproduction (rats); federal law (Lacey Act)</p>
5	Conclusion:	<p>Main cause of invasive species is human activity (globalization, transportation & trade); eradication impossible; control/prevention may be possible; requires education, cooperation, and care</p>

Name: _____

Invaders Graphic Organizer

Paragraph and Purpose		Reasons and Evidence
1	Introduction: What are some of the characteristics of invasive species?	
2	What are some of the negative effects of invasive species?	
3	What can be done to lessen the negative effects of invasive species?	
4	What are the potential consequences of these actions?	
5	Conclusion:	

Proofreader's Checklist

Informative/Explanatory

Did I...

- _____ clearly state main ideas and give supporting details?
 - _____ give relevant facts, definitions, concrete details, and examples?
 - _____ include interesting words and transition words and phrases?
 - _____ end with a concise conclusion?
 - _____ use correct capitalization, spelling, and punctuation?
-

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