

# Project-Based Learning

## Invasive Species Infographic

High School

Environmental  
Systems



# Invasive Species Infographic

## High School

## Environmental Systems

### Overview

The local wildlife agency has released a Request for Submissions for infographic designs that raise awareness in the community of the threat of invasive species.

While designing their infographic, students will explore the impact that invasive species have on ecosystems.

Students must demonstrate understanding by meeting the design requirements and communicating how their design raises community awareness and promotes environmental stewardship.

### Guiding Questions

What is the role of native plants and animals within our local ecosystem? How do they compare to plants and animals in ecosystems from other biomes?

How can the introduction or removal of invasive species alter the food chain and affect existing populations in an ecosystem?

How can species extinction alter the food chain and affect existing populations in an ecosystem?

What are the causes of species diversity? What changes can occur in an ecosystem if species and genetic diversity is increased or reduced?

Invasive Species Infographic

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## PBL Project Guide

### Timeframe

This project will take approximately ten 50-minute class periods.

### Step-by-Step Overview

- Introduce Launch Video
- Introduce Entry Document
- Facilitate Know/Need to Know activity
- Students engage in an exploration activity
- Groups brainstorm initial design products and assign roles/responsibilities
- Groups alternate between facilitated content experiences and design time
- During design time, groups integrate new content into design and re-evaluate product(s).
- Groups finalize product(s) and presentation
- Groups present according to project guidelines
- Content Debrief
- Summative Assessment

## Invasive Species Infographic

## PBL Resources

### Project Resources

- Launch Video: <https://vimeo.com/38735974>
- Entry Document text
- Anticipated Knows/Need to Knows
- Strategies/considerations for implementation

### Resources to Assemble/Prepare

You will need to prepare the following resources ahead of time:

- Format Entry Document
- Sample authentic products similar to project expectations
- Informational resources about native species and habitats

## Invasive Species Infographic

## Entry Event Guide

### Launch Video

Invasive Species PSA:

<https://vimeo.com/38735974>

Purpose:

Engages and introduces students to the topic of invasive species. Use video to solicit student responses to the following question:

*What qualifies a species to be called invasive?*

Post student responses.

### Entry Document

Format:

Request for Submissions from a local wildlife agency. Edit document to include logistics such as submission dates and presentation requirements.

## Invasive Species Infographic

### Entry Event Guide *continued*

#### Entry Document

The local wildlife agency has a mission to protect the ecological, cultural, and economic integrity of our natural environment. We are proud to work with local communities, organizations, and others to protect this treasure for future generations.

For many years, the ecological and recreational values of our area have been threatened by a number of non-native plants and animals. Our organization is starting an education campaign to raise awareness of this threat. As part of the campaign, we would like to display an infographic on our website that will raise community awareness and promote environmental stewardship.

#### Submission Requirements:

Infographic submissions must communicate the relationships of biotic and abiotic factors within habitats, ecosystems, and biomes. Submissions should also focus on the following:

- Role of organisms in an ecosystem
- Impacts of invasive species on our natural ecosystem
- Populations and food chains of the our area

#### Presentation requirements:

Groups will present their infographic along with a 5-minute presentation to wildlife agency staff members on the due date. Additional considerations will be given to submissions that demonstrate creativity and are aligned with our mission.

## Invasive Species Infographic

### What do we KNOW about the project?

#### Content

- Infographic must communicate the relationships of biotic and abiotic factors within habitats, ecosystems, and biomes
- Focus on the role of organisms in an ecosystem
- Focus on impacts of invasive species in our natural environment
- Focus on populations and food chains in our area

#### Product

- Submit an infographic that raises community awareness and promotes environmental stewardship
- 5-minute presentation of infographic

Additional responses will vary



## Invasive Species Infographic

### What do we NEED to know about the project?

#### Content

- What are the relationships of biotic and abiotic factors within habitats, ecosystems, and biomes?
- What is the role of organisms in an ecosystem?
- What are the impacts of invasive species in our natural ecosystem?
- What are the populations and food chains in our area?

#### Product

- What is an infographic?
- What is an educational campaign?
- What is environmental stewardship?

Additional responses will vary

## Invasive Species Infographic

### Implementation Guide

#### Websites

Infographic Design:

<http://piktochart.com/>

<https://infoagr.am/>

Invasive Species Resources:

<http://www.invasivespeciesinfo.gov/index.shtml>

Design Process:

[http://www.sciencebuddies.org/engineering-](http://www.sciencebuddies.org/engineering-design-process/engineering-design-process-steps.shtml)

[design-process/engineering-design-process-](http://www.sciencebuddies.org/engineering-design-process-steps.shtml)

[steps.shtml](http://www.sciencebuddies.org/engineering-design-process-steps.shtml)

#### Teaching Strategies/Considerations

Consider the guiding questions for the project when selecting content workshops. A combination of research and hands-on activities should be included.

Have students develop an understanding of impacts of invasive species in the local ecosystem before designing infographic.

Consider having students use science notebooks or journals to meet the project expectations of recording their design process, design revisions, etc. Have them create rough drafts of their design.

## Invasive Species Infographic

### Assessment/Presentation

#### Final Group Product

- Infographic that meets submission requirements
- 5-minute presentation of infographic

#### Rubric

- Students will use the entry document as a real world rubric to meet expectations of the project

#### Individual

- Individual assignments as they pertain to each content workshop
- Journal entries documenting what the individual has contributed to the product(s)
- Summative assessment

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