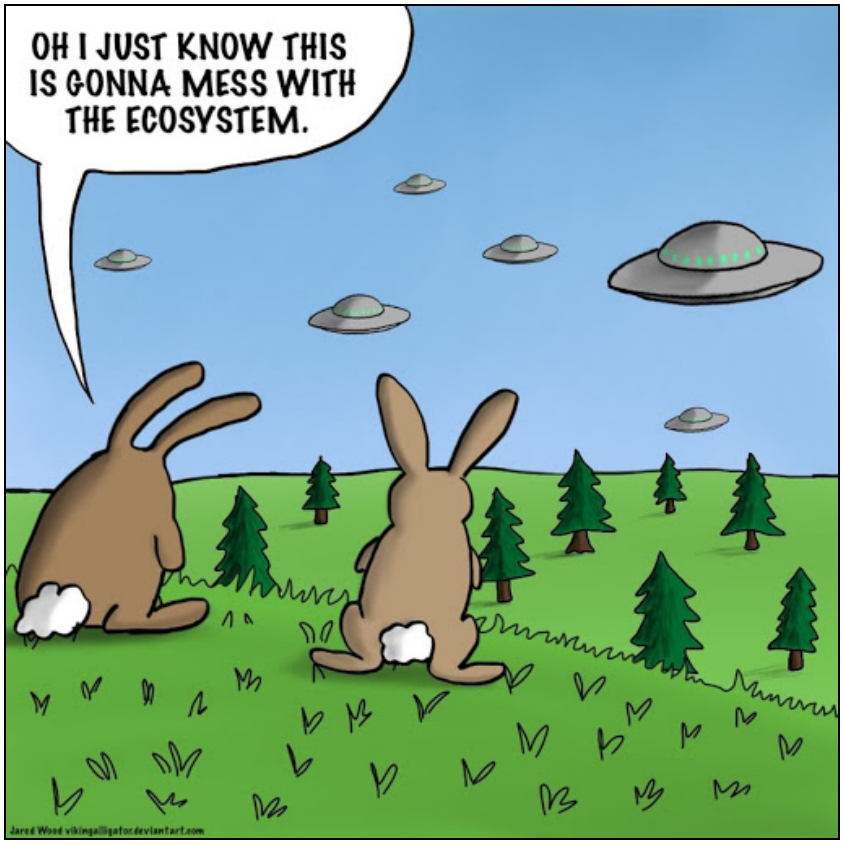
Unwanted: Invasive Species



NISD GT Process Standards

GT Process Standards provide guidance on what GT students should know, understand, and do as part of GT program services. Each lesson makes a connection to specific standards; however, teachers are encouraged to incorporate every standard where applicable.

I. Creative Thinking
Ability to look at problems or situations from a unique perspective through the use of imagination and/or innovative ideas

II. Critical Thinking
Ability to demonstrate clear, rational, open-minded thinking, informed by evidence

III. Depth & Complexity
Ability to dig deeper into a concept and to understand that concept with greater complexity

IV. Scholarly Inquiry & Research
Ability to interpret information that leads to new understandings and connects to the world beyond the classroom

V. Effective Communication
Ability to convey new learning through the use of written, spoken, and technological media

VI. Leadership & Responsibility
Demonstrates initiative, task commitment, and the elements of compromise and diplomacy

Scholarly Habits

- Scholars utilize varied resources
- Scholars exhibit curiosity
- Scholars demonstrate academic humility
- Scholars save ideas
- Scholars ponder the big idea
- Scholars see from different perspectives
- Scholars are always prepared
- Scholars display perseverance
- Scholars set goals
- Scholars take intellectual risks

Language of the Discipline

invasive

native

stage

event

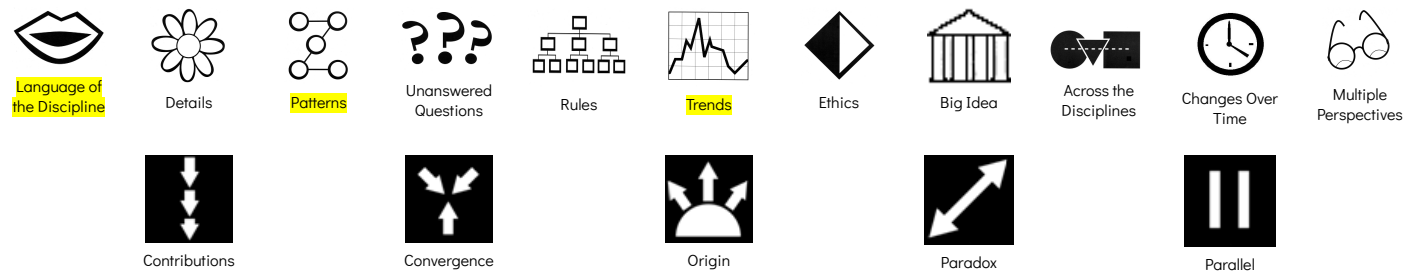
drought

reproduce

adapt

spread

Depth and Complexity & Content Imperatives



Thinking like a Disciplinarian

Thinking like an ***ecologist*** (a scientist who studies relationships among organisms and habitats of many different sizes).

Universal Generalizations

- Systems have parts that work to complete a task
- Systems are composed of subsystems
- Part of systems are interdependent upon one another and form symbiotic relationships
- A system may be influenced by other systems
- Systems interact
- Systems follow rules

Essential Questions

- What is a system?
- How are the parts of a system related to the entire system?
- How are system models used to predict and understand real world situations?

Supported TEKS

Science

3.9ABC, 4.9ABC, 5.9ABC (Organisms and environments. The student knows and can describe patterns, cycles, systems, and relationships within the environments. The student is expected to: (A) observe and describe the physical characteristics of environments and how they support populations and communities of plants and animals within an ecosystem; (B) identify and describe the flow of energy in a food chain and predict how changes in a food chain affect the ecosystem such as removal of frogs from a pond or bees from a field; and (C) describe environmental changes such as floods and droughts where some organisms thrive and others perish or move to new locations.)

3.10AB, 4.10A, 5.10A (Organisms and environments. The student knows that organisms undergo similar life processes and have structures that help them survive within their environments. The student is expected to: (A) explore how structures and functions of plants and animals allow them to survive in a particular environment; and (B) investigate and compare how animals and plants undergo a series of orderly changes in their diverse life cycles such as tomato plants, frogs, and lady beetles.)

RLA

3.1A, 4.1A, 5.1A (Developing and sustaining foundational language skills: listening, speaking, discussion, and thinking--oral language. The student develops oral language through listening, speaking, and discussion. The student is expected to listen actively, ask relevant questions to clarify information, and make pertinent comments)

3.1C, 4.1C, 5.1C (Developing and sustaining foundational language skills: listening, speaking, discussion, and thinking--oral language. The student develops oral language through listening, speaking, and discussion. The student is expected to speak coherently about the topic under discussion, employing eye contact, speaking rate, volume, enunciation, and the conventions of language to communicate ideas effectively)

3.1D, 4.1D, 5.1D (Developing and sustaining foundational language skills: listening, speaking, discussion, and thinking--oral language. The student develops oral language through listening, speaking, and discussion. The student is expected to work collaboratively with others by following agreed-upon rules, norms, and protocols)

3.1E (Developing and sustaining foundational language skills: listening, speaking, discussion, and thinking--oral language. The student develops oral language through listening, speaking, and discussion. The student is expected to develop social communication such as conversing politely in all situations)

3.4, 4.4, 5.4 (Developing and sustaining foundational language skills: listening, speaking, reading, writing, and thinking--fluency. The student reads grade-level text with fluency and comprehension. The student is expected to use appropriate fluency (rate, accuracy, and prosody) when reading grade-level text.)

3.6E,4.6E, 5.6E (Comprehension skills: listening, speaking, reading, writing, and thinking using multiple texts. The student uses metacognitive skills to both develop and deepen comprehension of increasingly complex texts. The student is expected to make connections to personal experiences, ideas in other texts, and society)

3.6F, 4.6F, 5.6F (Comprehension skills: listening, speaking, reading, writing, and thinking using multiple texts. The student uses metacognitive skills to both develop and deepen comprehension of increasingly complex texts. The student is expected to make inferences and use evidence to support understanding)

3.6G, 4.6G, 5.6G (Comprehension skills: listening, speaking, reading, writing, and thinking using multiple texts. The student uses metacognitive skills to both develop and deepen comprehension of increasingly complex texts. The student is expected to evaluate details read to determine key ideas)

3.7F, 4.7F, 5.7F (Response skills: listening, speaking, reading, writing, and thinking using multiple texts. The student responds to an increasingly challenging variety of sources that are read, heard, or viewed. The student is expected to respond using newly acquired vocabulary as appropriate)

# Instructional Plan	# Date:
Invasive Species (1 week)	
Objectives: Students will understand... • that invasive species cause system disruptions that change an ecosystem. • that invasive species disrupt the function and rules of a system.	
Learning Experiences	**Resources/Materials**
Skill Stations (Slide 2)	BI_Unwanted Lesson Slides
Let's Get Curious: Political Cartoon (Slide 5) Remind students that last week we learned about ecosystem disruptions. Are there other ecosystem disruptions you can think of? Show students the political cartoon. Ask students what message this cartoon is giving. Discuss with students. Explain to students that we are focusing on another disruption from invasive species.	
Trends (Slide 6) Tell students that we will use trends to study invasive species. Define trends with students and watch the Byrdseed.tv video.	 Byrdseed.tv Trends
Define Invasive and Native (Slide 7) Discuss what invasive means. Are baby sisters invasive? Is getting a pet considered invasive?	 optional video on Invasive Species from TedEd
Systems Test (Slide 8) Show the systems test slide and remember how an ecosystem is a system. Ask students to predict which statements stick out to them when they consider the idea of an invasive species.	
Invasive Species Game (Slide 9) Tell students that in order to understand invasive species they are going to act it out in a game. Follow the game instructions to take students through playing the game. Discuss the common patterns they observe within invasive species survival.	CI_Invasive species Game Instructi... DI_Invasive Species Game Cards EI_Event and Stage Spinner Cards adapted to Google docs from Invasive Species Game
Invasive Species Top 10 Research BINGO (Slide 10) Introduce students to the top 10 invasive species of Texas website . Students will explore each one and complete the research BINGO in 15 minutes. Students can try to get a	 FI_Invasive Species Research BIN...

BINGO of 4 in a row, but if they finish early encourage them to complete another BINGO. After research, discuss the findings. Students will notice that many of these spaces can have more than one species. Discuss how that connects to what they learned during the game about the common characteristics of invasive species and their ability to survive. **Research on UNwanted Organisms (Slide 11)** Students will then choose one invasive species and create an UNwanted poster using the Texas Invasives Database.	Choose one of these templates: GI_Wanted Poster HI_WantedPoster_InvasiveSpecies....
Reflection/Metacognition (Slide 12) In what ways do the strengths of invasive species help it survive environmental changes? What could halt the trend of spreading invasive species? Is it valid to say that the problem with invasive species is unavoidable in today's world?	