



# THE CREATURES IN AREA X

## Overview

Book: *Annihilation* by Jeff VanderMeer

Grades 9-12

Area X seems to no longer be a welcoming environment for humans, but new creatures are beginning to form. The Crawler appears to be evolving as it proceeds through various levels of the Tower. In this PBL, students will design a model of an organism and predict the adaptations and changes that it might undergo in Area X.

## Standards

HS-LS4-2	Construct an explanation based on evidence that the process of evolution primarily results from four factors: (1) the potential for a species to increase in number, (2) the heritable genetic variation of individuals in a species due to mutation and sexual reproduction, (3) competition for limited resources, and (4) the proliferation of those organisms that are better able to survive and reproduce in the environment.
HS-LS4-5	Evaluate the evidence supporting claims that changes in environmental conditions may result in: (1) increases in the number of individuals of some species, (2) the emergence of new species over time, and (3) the extinction of other species.
RST.9-12.1	Cite specific textual evidence to support analysis of science and technology texts.

RST.9-12.2	Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.
RST.9-12.9	Compare and contrast finding presented in a text to those from other sources, noting when the findings support or contradict previous explanations or accounts.
VA:Cr1.2.II	Choose from a range of materials and methods of traditional and contemporary artistic practices to plan works of art and design.
SL.9-12.4	Present information, findings, and supporting evidence, clearly, concisely, and logically such that listeners can follow the line of reasoning, the organization, development, substance, and style are appropriate to purpose, audience, and task.
ISTE Standard 6c	Communicate complex ideas clearly and effectively by creating or using a variety of digital objects, such as visualizations, models, or simulations.

## Objectives

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Students will research and evaluate information about species evolution or adaptation.

Students will research and evaluate information about extinction.

Students will create a unique organism and predict its evolutionary path or possible adaptations.

Students will provide evidence that supports their theory of the evolution or adaptation of their organism.

Students will create a digital visualization, model, or simulation describing the changes their organism will undergo.

## Materials Required

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Paper

Scrap paper for brainstorm session

A variety of art mediums, such as colored pencils, paint, or gel pens

Access to internet and/or library

Access to projector and screen to display digital visualization

## Procedure

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1. Ask students to discuss some of the biological life and adaptations that occurred in Area X. Review the type of environment that is present in Area X. If possible, have students read some of these passages from the book.
2. Allow time for students to research adaptations and evolution of various species.
3. Have students explore some instances of extinction of a species.
4. Ask students to keep a log of the various resources they use.
5. Tell students that they are going to design a biological organism that would survive and thrive in Area X.
6. Have students brainstorm ideas (you might want students to Pair Share) and make sketches of the organism in its original form.
7. Provide time for students to create an artistic creation of the organism.
8. Have students share their organisms with the class. Allow discussion time for students to predict how the organism might adapt and evolve.
9. Provide time for students to create a digital presentation, model, or simulation of the phases that the organism will go through to adapt and evolve. Remind students that they must be able to provide evidence for a particular type of adaptation, such as environmental change, extinction of another species, limited resources, etc.
10. Allow time for each student to present the digital presentation.

## Extensions

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W.7-12.3	Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences.
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1. Have students write a narrative about the discovery and analysis of their unique organism in Area X.
2. Have students find any information about new species that have been discovered recently. Write a “press release” about the new species.

3. Provide software that would allow students to animate the evolution of their unique organism.
4. Have students create a sequence of drawings of the Crawler as they predict it might evolve.

## Rubric

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<b>RUBRIC</b>	<b>Exceeds (3)</b>	<b>Meets (2)</b>	<b>Partially Meets (1)</b>	<b>Does Not Meet (0)</b>
Research	Student can document the use of 8 or more resources used in research	Student can document the use of 5-7 resources used in research	Student can document the use of 2-4 resources used in research	Student used fewer than 2 resources in research
Unique organism	Organism is unique (not something that already exists), the artwork is very well done and created with many details	Organism is unique, artwork is well done with some details	Organism is unique, but artwork is sloppy and has few details	Organism is not unique, poorly portrayed with no real details
Digital presentation	Presentation showed information, findings, and strong supporting evidence, clearly, concisely, and logically sequenced	Presentation showed information, findings, and supporting evidence, logically sequenced	Presentation showed information, but lacked supporting evidence and was not in a logical sequence	Presentation did not show information or findings
Prediction of adaptations	Predictions were well thought out	Predictions were backed up with	Predictions were backed	Predictions had no relationship to

	and backed up with strong supporting evidence	supporting evidence	up with little supporting evidence	any supporting evidence
Total N/12				

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