DESIGNING AN ANTI-GRIEVER

Overview

Book: *The Maze Runner* by James Dashner

Grades 6-12

One of the terrors in the book is the fact that the Grievers chase anyone entering the maze. In this PBL, students will use the Engineering Design cycle to plan, build, and test a device that would help them repel the Grievers in the maze.

This lesson can be divided into two sessions with one for research and one for development of the prototype.

Standards

CCR.R.1	Read closely to determine what the text says explicitly and to make logical inferences from it: cite specific textual evidence when writing or speaking to support conclusions drawn from the text.
MS-ETS1-1	Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.
SL.7-12.1	Initiate and participate effectively in a range of collaborative discussions with diverse partners*, (grade level appropriate)* building on others' ideas and expressing their own clearly and persuasively.
SL.9-12.4	Present information, findings, and supporting evidence clearly, concisely, and logically such that listeners can follow the line of

	reasoning and organization, development, substance, and style are appropriate to purpose, audience, and task.

Objectives

Students will research defensive mechanisms in the natural world.

Students will generate a list of the defensive mechanisms used by plants and animals.

Students will brainstorm ideas with others.

Students will draw or construct a prototype Anti-Griever.

Students will share designs and acknowledge feedback.

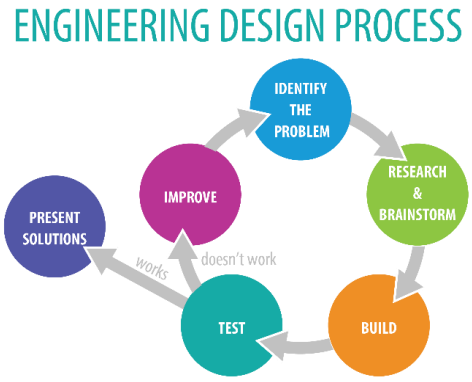
Students will evaluate and modify designs.

Materials Required

Drawings: paper, crayons, markers, and pencils
Model construction: tin foil, cardstock, rubber bands, paper clips, paper plates, popsicle sticks, yarn, string, masking tape, newspaper, and any other craft materials.

Procedure

1. View the video *The Maze Runner at NIU – Anti Grievers* http://www.stemread.com/the-maze-runner/ or read an excerpt from the book that describes the beasts.
2. Review the engineering design process.



3. Divide students into groups.
4. Allow time for students to research defense mechanisms used by plants and animals.
5. Have students make a list of ideas that might help defend against the Grievers.
6. Have the students brainstorm ideas for designing an Anti-Griever
7. Allow 20-30 minutes for students to draw or construct a prototype of their idea.
8. Have each group share their prototype design. Allow time for questions and feedback.
9. Allow 5-10 minutes for students to modify designs after hearing feedback. If students do not want to modify the design, have them come up with reasons why they think their original design is best.

Extensions

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.

1. Review the section of the video when James Dashner describes the grievers. Talk about sensory words that he used to portray sights, sounds, feelings, etc. What other words portray various sensory images? Have students write a paragraph about what happens when their inventions meet a griever. Tell students to include sensory words in their writing to help enrich the scene.
2. Have students write a story about a time when they were scared. Talk about what happens to our bodies when we are frightened, such as heart pounding, sweating, or feeling very cold. Have students include some of these concepts in their stories.
3. Read about other defensive weapons found in the natural world. Have students create and present a commercial for the animal that they think is the coolest.
4. Discuss what other inventions the runner would find useful. Have student draw or write about their ideas. Be sure to have students relate the existing problem to the solution created.

Rubric

RUBRIC	Exceeds (3)	Meets (2)	Partially Meets (1)	Does Not Meet (0)
RESEARCH	Students used at least three resources in a variety of formats.	Students used two resources in a variety of formats.	Students used only one resource.	Students did not participate in research.
LIST	Generated list is 10 or more items.	Generated list is 7-9 items.	Generated list is 4-6 items.	Generated list is 3 or fewer items.
PROTOTYPE	Prototype is extremely well designed and carefully constructed to meet a specific purpose(s).	Prototype is well designed and constructed to meet a specific purpose.	Prototype is partially constructed with no particular purpose.	Prototype is poorly constructed with no particular purpose.
EXPLANATION	Students were able to very clearly communicate the workings of the prototype and the reasons they selected specific functions.	Students were able to communicate the workings of the prototype and the reasons they selected specific functions.	Students were partially able to communicate the workings of the prototype , but had no clear reasons they selected specific functions.	Students did not communicate the workings of the prototype or reasons for the functions.
Total N/12				

STEM Read and SmartSpace@NIU are part of Northern Illinois University's STEAM Works Initiative.