



Survival of the Fittest

National Standards > Science

NS.K-4.1, NS.5-8.1 Science as Inquiry (Grade 4) (Grades 5 & 6)

- Abilities necessary to do scientific inquiry
- Understanding about scientific inquiry

NS.K-4.3, NS.5-8.3 Life Science (Grade 4) (Grades 5 & 6)

- The characteristics of organisms
- Organisms and environments
- Structure and functions in living systems
- Regulation and behavior
- Diversity and adaptations of organisms

Kentucky: Science > Scientific Inquiry > Scientific Ways of Knowing and Working Standard

S-4-SI-1, S-5-SI-1, S-6-SI-1

- Identify; Ask simple scientific questions that can be answered through observations combined with scientific information.

S-4-SI-2, S-5-SI-2, S-6-SI-2

- Use appropriate; use simple equipment, tools, skills, and mathematics in scientific investigations.

S-4-SI-4, S-5-SI-4, S-6-SI-4

- Design and conduct different kinds of simple scientific investigations to answer different kinds of questions.

S-4-SI-6, S-5-SI-6, S-6-SI-6

- Review and ask questions about scientific investigations and explanations of other students.

Kentucky: Science > Life Science >

Characteristics of Organisms

S-4-LS-1 (No standard correlation for 5th grade, emphasis on cell structure and function)

- Understand that organisms have basic needs (e.g., air, water, nutrients, and light) and can only survive when these needs are met.
- Understand that behavior of individual organisms is influenced by stimuli (e.g., touch, hunger).
- Understand that organisms have different structures that serve different functions.

Regulation and Behavior

S-6-LS-1

- Investigate how organisms obtain and use resources, grow, reproduce, and maintain stable internal conditions. Examine the regulation of an organism's internal environment.
- Analyze internal or environmental stimuli and organism's behavioral responses. Explore how organism's behavior changes through adaptation.

Ohio: Science > Science Inquiry Standard

- Develop scientific habits of mind [for] use of the processes of scientific inquiry to ask valid questions and to gather and analyze information.

Benchmark(s)

Grades 4 & 5

- B. Organize and evaluate observations, measurements and other data to formulate inferences and conclusions.

Grade 6

- B. Analyze and interpret data from scientific investigations using appropriate mathematical skills in order to draw valid conclusions.

Ohio: Science > Scientific Ways of Knowing Standard

- Realize that the current body of scientific knowledge must be based on evidence, be productive, logical, subject to modification and limited to the natural world.

Benchmark(s)

Grades 4 & 5

- A. Distinguish between fact and opinion and explain how ideas and conclusions change as new knowledge is gained.
- B. Describe different types of investigations and use results and data from investigations to provide the evidence to support explanations and conclusions.

Grade 6

- C. Give examples of how thinking scientifically is helpful in daily life.

Ohio: Science > Life Sciences

- Demonstrate an understanding of how living systems function and how they interact with the physical environment.

Benchmark(s)

Grades 4 & 5 (Grade four emphasis is on plants)

- C. Compare changes in an organism's ecosystem/habitat that affect its survival.

Grade 6

- D. Explain how energy entering the ecosystems as sunlight supports the life of organisms through photosynthesis and the transfer of energy through the interactions of organisms and the environment.
 - o Describe how organisms may interact with one another.

Needs and Survival

The peach travelers, James and his animal/insect friends, were removed from their natural environment by unplanned circumstances only to find themselves living at sea, inside a peach! Habitat, food, and behavior were changed, and adaptation was required for survival. They did what was necessary to meet their needs.

Objective

Students will

- Understand the necessity an organism meeting its basic needs for survival.
- Understand how an organism's behavior is related to its natural ecosystem/habitat.
- Research an animal/insect character from the play, James and the Giant Peach, to discover the feasibility of real-life survival inside a peach.
- Create a tri-fold display to communicate and share their research findings, and the likelihood of their chosen animal/insect's survival.

Vocabulary

- Organism
- Ecosystem/habitat
- Behavior
- Survival

Materials

- "I Wonder" handout for each student
- Tri-fold board for each group of 4 students
- Access to print and/or internet resources related to animals/insects (web sites, encyclopedia, non-fiction books, etc)
- School supplies (paper, markers, crayons, colored pencils, glue, etc)
- Chart paper

Activity

Teacher will:

- Share with students and post for continued review the standards and benchmarks (expectations) for this lesson.
- Introduce students to the task/research project and distribute the instruction handout. Emphasize the exploration of an animal/insect character being true to their natural attributes and behavior and its chances for survival within the settings—a peach, the sea, the sky—found in the play, James and the Giant Peach.
- Introduce or review the vocabulary terms and post in the classroom.
- Provide resources and materials needed by student groups for inquiry.
- Establish groups consisting of 3-4 students.
- Pose guiding questions to aid student groups toward accurate and valid data collection.
 - What does an organism need to survive?
 - How does environment impact behavior and survival?
 - What unique attributes of the animal/insect allows for its behavior?
 - How would the animal/insect adapt to a changing environment?
 - Would it have been possible for this animal/insect to survive in a peach, in the sea, in the sky? Why, or why not? What are its basic needs?
- Instruct students in the required format for presentation and communication of found information.
- Adjust requirements of project to meet individual student, group or grade level needs.

Students will:

- Review project instructions and work co-operatively to complete the task.
- Conduct research to gather facts on the basic needs, environment, habitat, and behavior of a chosen animal/insect character.
- Note how the animal/insect was personified in the play.
- Research, gather information, and compare the findings of the factual animal/insect to that of the fictional character. (Note similarities and differences in physical attribute, natural behavior, food requirements, etc.)
- Use scientific vocabulary during discussion and in written work.
- Participate in data collection and presentation that includes an animal/insect factual profile, fictional personified traits, and the degree of feasibility for its real-life survival within the play's storyline and plot.

Performance Assessment

Teacher will evaluate students' ability to:

- Conduct inquiry, research and data collection.
- Use scientific vocabulary.
- Share orally, and in written form, conclusions drawn from research (may include general statements, graphic organizers, labeled diagrams, etc).
- Compare factual data to the fictional characterization in the play with regards to an animal/insect's survival.

James and the Giant Peach
Handout: Student Use



The peach travelers, James and his animal/insect friends, were removed from their natural environment by unplanned circumstances only to find themselves living at sea, inside a peach! Habitat, food, and behavior were changed, and adaptation was required for survival. They did what was necessary to meet their needs and survive their amazing journey. But can it be truly possible, to live and survive in and on a peach? **"I wonder?"**

Scientists ask questions and inquire to guide their exploration and data collection. Now, it your turn to do the same! Your task is to conduct an inquiry and gather data on an animal/insect of your choice from the play, James and the Giant Peach.

Fact or fiction? What will you find?

First: Think of the travelers' basic needs and how they met those needs on their journey. Discuss your thoughts with your group team members and list them on chart paper.

Second: Complete a KWL* chart (see attachment) to share your prior knowledge on what you know about your teams' chosen animal/insect and its physical attributes, natural habitat, food requirements, etc.

Third: Decide with your team members how these animal/insect traits compare to the fictional character in the play.

Fourth: Decide what information is needed to confirm or add to your prior knowledge. Plan and conduct research using various resources to gather factual information on your animal/insect.

Fifth: Share information with team members to create a compilation of findings for visual and written presentation. Your presentation may include labeled diagrams, charts, etc.

Sixth: Create a tri-fold board display to share your findings. Be sure to compare and include factual data about your animal/insect to that of its fictional, personified character, and its real-life survival on a giant peach.

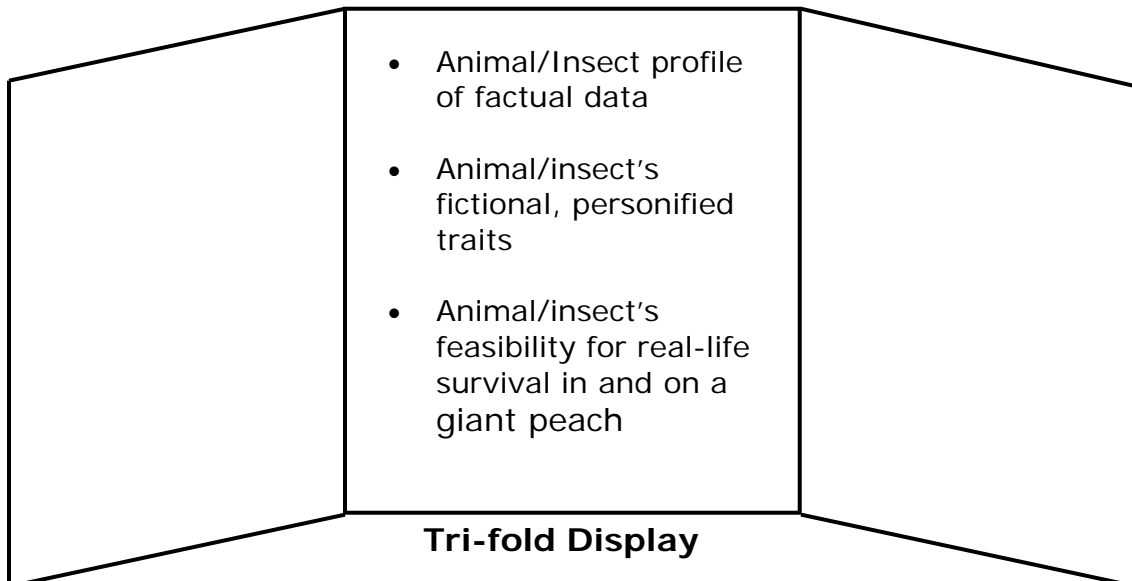
*KWL > What I Know, What I Want to Learn, What I Learned

"I Wonder" - cont.

Animal/Insect Research

What I Know	What I Want to Learn	What I Learned

Be sure to include



- Animal/Insect profile of factual data
- Animal/insect's fictional, personified traits
- Animal/insect's feasibility for real-life survival in and on a giant peach

Tri-fold Display