



Grade 5 Teacher Resource- Animal Olympics

Curricular Outcome: Science 5 “Multicellular organisms have organ systems that enable them to survive and interact within their environment.”

Core Concepts:

Organ systems work together to help animals survive

Different animals have adaptations that allow them to succeed in different situations

Survival in Beringia depended on how well an animal’s body was suited to survival challenges

Scientists use and compare evidence to explain why organisms are successful in certain environments

There is no “best” animal as different adaptations provide different survival advantages

Big Questions:

How do organ systems let animals survive different challenges?

Which adaptations would have been most important for Beringian survival?

Why would different animals be stronger in different areas?

How can we use evidence to explain why one animal is better suited at a task than another?

What can today’s world tell us about the challenges Ice Age animals faced?

Learning Outcomes:

Students will:

Experience physical tasks that represent survival tasks in Beringia

Compare how different Ice Age animals adapted to their challenges

Explain how organ systems and body structures contribute to survival

Use evidence to justify scientific claims

Main Activity:

Students will become Olympic athletes and Ice Age scientists. They will rotate through a series of Olympic inspired challenges that simulate survival tasks faced by animals living in

Beringia. After completing each event as a class or in groups, students will discuss how the challenge felt, determining which Ice Age animal would earn the gold medal in that event, justifying their choice using evidence from organ systems and adaptations.

This video is a great way to introduce/re-introduce human systems to students:

https://youtu.be/0JDCViWGn-0?si=Ts7onfPPv_pLufSC . Invite students to record what they learn about each system on the attached worksheet.

Introduction:

Ask students: what skills would an Olympian need to succeed? Do the fastest athletes win every event? If you lived during the Ice Age what abilities would help you survive?

Tell the class that today's Olympics are not about sports, they're about Ice Age survival. Each event will represent a challenge that animals faced during the Ice Age.

Introduce some of the Ice Age animals as today's Olympic competitors. Include the following biographies as well as strengths and weaknesses:

Woolly Mammoth: Elephant-like herbivore known for its huge size, tusks, and trunk. It is an extremely strong creature that can carry heavy loads and tolerate the cold.

Caribou: An ice age species that is extremely nimble. Can traverse deep snow due to long legs and special hooves, and has strong migration and endurance abilities.

Saiga Antelope: One of the fastest animals on the land. Very notable for top speeds, acceleration, and escaping predators.

Wolf: Very good for pack hunting, senses, agility, and speed.

Arctic Ground Squirrel: As one of nature's only "true hibernators", ground squirrels are incredible at burrowing and storing fat to stay warm. Their strengths include digging and foraging for food.

Scimitar Cat: One of the fastest, scariest apex predators from the Ice Age. Their teeth allowed them to grip and hold prey. They are known for their long-distance endurance hunting.

Steppe Bison: A powerful, fast herbivore characterized by strength and notable horns. While their herd mentality allows them to excel defensively, they are also known for their incredible abilities to push.

Students will compete in the following events. The order of events can be modified according to teacher preferences. We strongly recommend a large, outdoor space to complete most events. Events can also be omitted to teacher preference. After each event, students should use their worksheets to record which Ice Age animal they think would win gold, connecting this activity to the Ice Age.

Event 1- Endurance Run- Long Distance Migration

Students will race across a long distance to test their cardiovascular skills. Students should find that the caribou or scimitar cat would be a potential gold medallist for this category, using the respiratory, circulatory, and muscular systems.

Event 2- Heavy Carry- Carrying Heavy Food

For this event, students will compete in a relay race. They will form a line, and the first person in line will carry/ run with a heavy object to a pre-determined point. They will then carry the object back, handing it off to the next person in line. The first team to cycle through all members of their team wins. Students should find that a mammoth would win this event with their massive size, as well as their muscular and skeletal systems.

Event 3- Stand-Up Sit-Down Tag- Escaping Predators

Divide students into two equal groups of predators and prey. The predators will chase the prey while the prey attempt to evade. If a predator tags a prey, the prey must sit down. However, once a prey is sitting down, a fellow prey can tag them, and they may stand back up. Students must figure out which animal(s) would be best at evading prey. Answers include the saiga antelope, steppe bison, or caribou, who all use their muscular, skeletal, and nervous systems to avoid predators.

Event 4- Playground Obstacle Course- Crossing Uneven/Icy Terrain

Tell students that the next event will have them simulating crossing uneven terrain. Give them a path on the playground where they must climb, duck, hang, or other actions. This could also be completed individually or relay-style. The winner would be the mountain goat for this event.

Event 4- Memory Hunt- Remembering Location of Resources

This activity can be completed inside. Using a deck of cards, or optionally, Yukon-based memory game “Heads and Butts”, students will compete in a traditional memory game,

flipping cards in an attempt to make matches. Compare this to how animals must keep track of their resources and remember where their food and water supplies are. The arctic ground squirrel would excel in this event with its superb caching skills.

Event 5- Predator Explosiveness- Sprint Race

Students will complete a short distance sprint to simulate the explosive speed of a predator. A likely gold medallist for this event is the wolf due to its muscular, skeletal, and nervous system.

Event 6- Reaction Challenge- Quickly Detecting Predators

In pairs or larger groups, students will conduct the ruler drop reaction challenge. One partner will hold a ruler vertically, while the other partner should use their dominant hand and prepare to catch the ruler with their thumb and index finger. This partner's fingers should be hovering at the bottom of the ruler without touching it. Without warning, the partner will drop the ruler. The catching partner will catch the ruler as quickly as possible. Students should note at which measurement marker the ruler is caught to determine who has the fastest reaction time. Wolves and saiga antelope would excel at reacting to predators quickly due to their strong nervous systems and eye placements.

Olympic Debrief:

Once back in the classroom, bring students together to discuss the events they have participated. Ask students the following questions and other follow-up questions that may be relevant depending on the class experience.

Which challenge was the hardest?

Which animal dominated the most events?

Which events were several animals successful and why?

Which organ systems were mentioned the most/most important?

Is there one "champion" animal that can excel in all situations?

At this point, divide the class into groups. Groups will then be assigned one event and collectively decide on that event's gold medallist. They will then share their choice and their reasoning with the class. After all groups have shared, they can collaborate and attempt to name an overall world champion, a species that would dominate in the most categories. Ask students: is this species still alive today? Why or why not? Also encourage

respectful scientific debate as there can absolutely be different answers for different events.

In conclusion, inform students that Beringian survival was not always about being the strongest or the fastest, but rather involved being well-rounded in different aspects of life. Each species is an Olympian in their own way, all possessing special adaptations that would allow them to survive in select environments.

At this point, students may complete the reflection work at the end of their workbooks.