

Waddle Waddle Educator's Guide

Rev 1

April 10, 2025



Brush-Tail Games

Introduction

Below is a quick reference guide on how Waddle Waddle can be utilized across different grade bands, aligning with the Next Generation Science Standards (NGSS) and incorporating relevant English Language Arts (ELA) and Math standards where applicable.

Grades K-2

1. Understanding Animal Characteristics (NGSS K-LS1-1)
 - a. Activity: After playing Waddle Waddle, have students identify and describe the physical characteristics of penguins. Discuss how these features help penguins survive in their environment.
2. Exploring Habitats (NGSS K-ESS3-1)
 - a. Activity: Use the game to introduce the concept of habitats. Discuss what a habitat is and what makes the Antarctic a suitable habitat for penguins.
3. Counting and Cardinality (Math K.CC)
 - a. Activity: Incorporate counting exercises by having students count the number of penguins, fish, or other elements in the game, reinforcing basic counting skills.
4. Speaking and Listening Skills (ELA SL.K.1)
 - a. Activity: Encourage students to share their game experiences and strategies with the class, promoting effective communication and listening skills.

Grades 3-5

1. Food Chains and Ecosystems (NGSS 3-LS4-4)
 - a. Activity: Discuss the Antarctic food chain, highlighting the role of penguins. Use the game scenarios to illustrate predator-prey relationships and the flow of energy in an ecosystem.
2. Adaptations and Survival (NGSS 4-LS1-1)
 - a. Activity: Analyze how penguins' physical and behavioral adaptations help them survive in the harsh Antarctic environment. Relate these adaptations to challenges encountered in the game.
3. Data Representation (Math 3.MD.B.3)
 - a. Activity: Have students collect data from their game sessions (e.g., number of fish collected) and represent it using bar graphs or pictographs, integrating math skills with the game experience.
4. Opinion Writing (ELA W.4.1)
 - a. Activity: Ask students to write a persuasive piece on why penguins are essential to their ecosystem, using information gleaned from the game and additional research.

Grades 6-8

1. Human Impact on Ecosystems (NGSS MS-ESS3-3)

- a. Activity: Facilitate discussions on how human activities affect penguin populations and their habitats. Use the game as a starting point to explore conservation efforts.
2. Statistical Analysis (Math 6.SP.B.5)
 - a. Activity: Students can track various game metrics (e.g., resources collected, distances traveled) and analyze the data to determine patterns or probabilities, enhancing their statistical skills.
3. Research Projects (ELA W.7.7)
 - a. Activity: Assign students to research different penguin species, their habitats, and conservation status, culminating in presentations that connect their findings to themes encountered in the game.
4. Argumentative Writing (ELA W.8.1)
 - a. Activity: Students write essays arguing the importance of preserving Antarctic ecosystems, using evidence from their gameplay experiences and external sources.

Grades 9-12

1. Biodiversity and Ecosystem Services (NGSS HS-LS2-7)
 - a. Activity: Analyze the role of penguins within the Antarctic ecosystem and discuss how biodiversity contributes to the resilience of ecosystems.
2. Probability Models (Math S-CP.A.2)
 - a. Activity: Develop probability models based on game scenarios to predict outcomes and strategies, applying advanced mathematical concepts to gameplay.
3. Critical Analysis (ELA RI.11-12.7)
 - a. Activity: Critically evaluate multimedia sources about penguin conservation, comparing information from the game with scientific articles and documentaries.
4. Environmental Policy Debate
 - a. Activity: Organize debates on policies affecting Antarctic conservation, encouraging students to use evidence from the game and current events to support their positions.

Summary

By integrating Waddle Waddle into the curriculum, educators can create dynamic and interactive learning experiences that align with educational standards and foster a deeper understanding of ecological concepts.