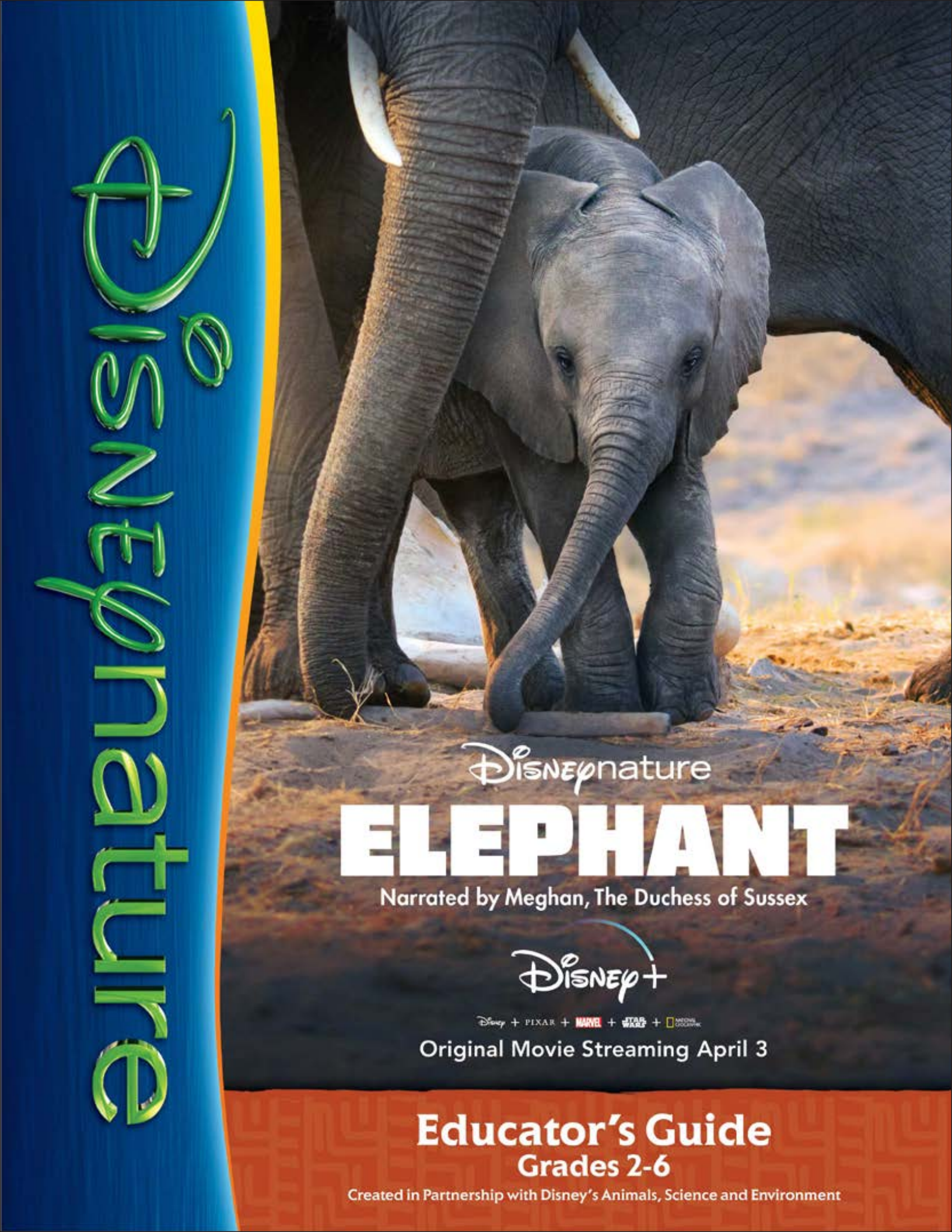


Educator's Guide

Grades 2-6

Created in Partnership with Disney's Animals, Science and Environment

Disneynature

ELEPHANT

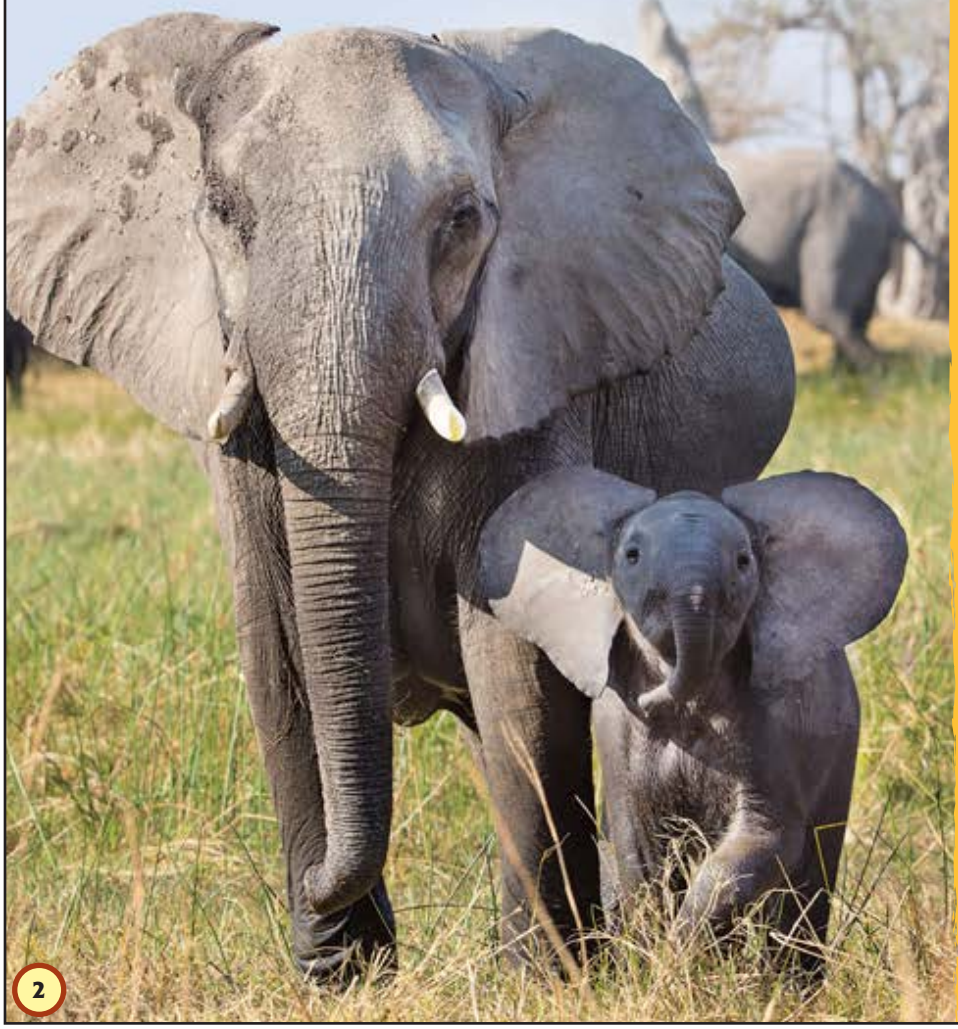
Disney+

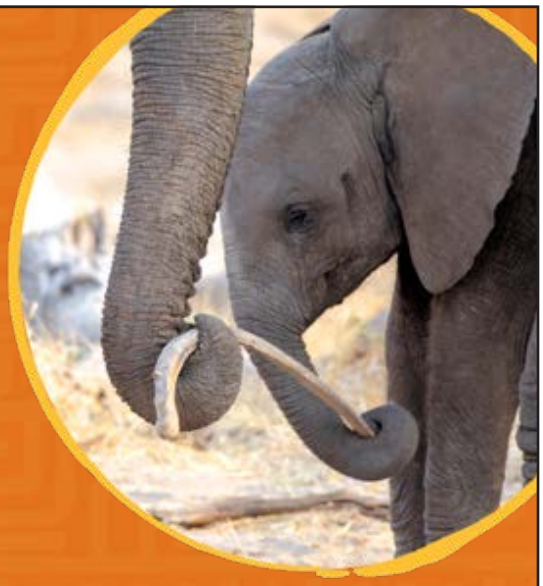
Disney + PIXAR + MARVEL + STAR WARS + NATIONAL GEOGRAPHIC

Original Movie Streaming April 3

Narrated by Meghan, The Duchess of Sussex, Disneynature's "Elephant" follows African elephant Shani and her spirited son Jomo as their herd make an epic journey hundreds of miles across the vast Kalahari Desert. Led by their great matriarch, Gaia, the family faces brutal heat, dwindling resources and persistent predators, as they follow in their ancestor's footsteps on a quest to reach a lush, green paradise.

From the studio behind "Born In China" and "Chimpanzee," "Elephant" premieres on Disney+ April 3rd 2020.





FURTHER EXPLORE THE WORLD OF ELEPHANTS

The Disneynature ELEPHANT Educator's Guide includes multiple standards-aligned lessons and activities targeted to grades 2 through 6. The guide introduces students to a variety of topics, including:

Animal Behavior and Natural History

Biodiversity

Culture and the Arts

Earth's Systems

Habitat and Ecosystems

Making a Positive Difference for Wildlife Worldwide

Content provided by education experts at Disney's Animals, Science and Environment.

EDUCATOR'S GUIDE OBJECTIVES

- ✓ Increase students' knowledge of the amazing animals and habitats of Africa through interactive interdisciplinary and inquiry-based lessons.
- ✓ Enhance students' viewing of Disneynature **ELEPHANT** and inspire an appreciation for the wildlife and wild places featured in the film.
- ✓ Promote life-long conservation values and STEAM-based skills through outdoor natural exploration and discovery.
- ✓ Empower you and your students to create positive changes for wildlife in your school, community and world.

Disney.com/nature

© 2020 Disney Enterprises, Inc.

Contents

Acknowledgments

Disney's Animals, Science and Environment would like to take this opportunity to thank the amazing teams that came together to develop the Disneynature **ELEPHANT** Educator's Guide. It was created with great care, collaboration and the talent and hard work of many incredible individuals. A special thank you to Dr. Mark Penning and the teams at Disney's Animal Kingdom for sharing all of their knowledge and insuring the accuracy of the information. These materials would not have happened without the diligence and dedication of Dr. Lizabeth Fogel from The University of Southern California and Kyle Huetter who worked side-by-side with the filmmakers, scientists and educators to help create these compelling lessons and activities. A big thank you to Elyssa Brandt for writing the marvelous background information along with Hannah O'Malley, Bethany Eriksen and Ashley Dion for their outstanding work editing content and gathering additional primary sources. The interdisciplinary and holistic approach to this guide could not have happened without the special talents of Drs. Linda Labbo & John Olive, Professors of Emeritus at The University of Georgia, Dr. NaJuana Lee from Fulton County School, Georgia, Dr. Sherry Field from The University of Texas, Austin and Dr. Todd Hutner from The University of Alabama. Lastly, thank you to Roy Conli, Samantha Rosenberg and Noah Duman at The Walt Disney Studios for their help and unwavering support of this project.

Allyson Atkins
Education Line of Business Manager
Disney's Animals, Science and Environment

Disneynature ELEPHANT

© 2020 Disney Enterprises, Inc.

U.S. EDUCATIONAL STANDARDS

U.S. STANDARDS ALIGNMENT	LESSON PLAN 1 GRADES 2-3 What Is An Elephant "Like"?	LESSON PLAN 1 GRADES 4-6 Could You Survive As An Elephant?	LESSON PLAN 2 GRADES 2-3 Why Are Elephant Footprints Important?	LESSON PLAN 2 GRADES 4-6 The Delta And The Desert	LESSON PLAN 3 GRADES 2-6 Why Is Artistic Innovation Important?	LESSON PLAN 3 GRADES 2-6 How Can Music Tell A Story?
COMMON CORE STANDARDS FOR ENGLISH LANGUAGE ARTS						
Reading for Literature • Key Ideas and Detail • Craft and Structure	• RL2.2 & RL3.2 • RL2.4 & RL3.4	• RL4.1, RL4.2, RL5.2 & RL6.1 • RL4.4, RL 5.4 & RL6.4				• RL2.1, RL2.2, RL2.3, RL3.1, RL3.2, RL3.3, RL4.1, RL4.3, RL5.2 & RL6.3 • RL2.4, RL3.5, RL4.4, RL5.4 & RL6.4
Reading For Information • Key Ideas and Detail • Craft and Structure • Integration of Knowledge		• RI4.3, RI6.1 & RI6.2 • RI4.4, RI4.5 & RI6.4 • RI4.7, RI5.7 & RI6.7				• RI2.1, RI2.3, RI3.1, RI3.3, RI4.1, RI4.3, RI5.3 & RI6.2
Writing Research to Build and Present Knowledge	W2.7, W2.8 & W3.8	W4.7,W4.8, W4.9, W5.7, W5.8, W5.9 & W6.9		W4.8, W5.8 & W6.8		
Speaking & Listening • Comprehension and Collaboration • Presentation of Knowledge and Ideas	• SL2.1, SL2.2, SL2.3, SL3.1, SL3.2 & SL3.3	• SL4.1, SL5.1 & SI6.1 • SL4.4, SL4.6, SL5.6, SL6.4 & SL6.6	• SL2.1, SL2.2l SL2.3, SL3.1, SL32. & SL3.3 • SL2.4 & SL3.4	• SL4.1, SL5.1, SL6.1 & SL6.2	• SL4.4, SL4.5, SL5.4, SL5.5, SL6.4 & SL6.5	• SL2.1, SL2.2, SL2.3, SL3.1, SL3.2, SL3.3, SL4.1, SL4.2, SL4.3, SL5.1, SL5.2, SL5.3, SL6.1 & SL6.2 • SL2.5, SL2.6, SL3.5, SL3.5, SL4.5, SL4.6, SL5.5, SL5.6, SL6.5 & SL6.6
Language • Conventions of Standard English • Vocabulary Acquisition and Use • Knowledge of Language	• L2.1 & L3.1 • L2.4, L2.5, L3.4 & L3.4	• L4.1, L5.1 & L6.1 • L4.4, L4.5, L5.4, L5.5, L6.4 & L6.5			• L4.3 & L5.3	
COMMON CORE STANDARDS FOR MATHEMATICS						
Measurement and Data		4.MD.1, 4MD.3	2.MD.1, 2.MD.4, 2.MD.9, 3.MD.3, 3.MD.4, 3.MD.5, 3.MD.8			
Geometry		6.G.1				
NEXT GENERATION SCIENCE STANDARDS						
Heredity: Inheritance and Variation of Traits	3-LS3.2, 3-LS3.B					
Biological Evolution: Unity and Diversity	3-LS4 .3, 3-LS4.C	MS-LS4.6, MS-LS4.C	2-LS4.1, 2-LS4.D, 3-LS4.3, 3-LS4.C			
Engineering Design	K-2-ETS1.2,K-2-ETS1.B	MS-ETS1.2, MS-ETS1.B	K-2-ETS1.1, K-2-ETS1.2, 3-5-ETS1.1		K-2-ETS1.1, 3-5-ETS1.1, MS-ETS1.1	K-2-ETS1.1, K-2-ETS1.2, 3-5-ETS1.1, 3-5-ETS1.2, MS-ETS1.1, MS_ETS1.2
From Molecules to Organisms: Structure and Process		4-LS1.1, 4-LS1.A, MS-LS1.4, MS-LS1.B,		4-LS1.1, 4-LS1.A, Ms-LS1.4, MS-LS1.B		
Earth and Human Activity		5-ESS3.1, 5-ESS3.C	3-ESS3.1			
Ecosystems: Interactions, Energy and Dynamics		MS-LS2.1, MS-LS2.A	2-LS2.2, 2-LS2.A, 3-LS2.1, 4-LS2.D	5-LS2.1, 5-LS2.A, MS-LS2.1, MS-LS2.A, MS-LS2.2, MS-LS2., MS-LS2.5, MS-LS2.C		
Matter and Its Interactions					2-PS1.1, 5-PS1.3, MS-PS1.3	2-PS1.1, 2-PS1.2
NATIONAL CORE ARTS STANDARDS						
Visual Arts - Creating	VA:Cr1.1.2a, VA:Cr1.2.2a, VA:Cr1.2.3a, VA:Cr2.1.2a, VA:Cr2.1.3a, VA:Cr2.2.2a, VA:Cr2.2.3a, VA:Cr2.3.2a, VA:Cr2.3.3a, VA:Cr3.1.2a, VA:Cr3.1.3a	VA:Cr1.1.4a, VA:Cr1.1.5a, VA:Cr.1.1.6a, VA:Cr2.1.4a, VA:Cr2.1.5a, VA:Cr2.1.6a, VA:Cr2.2.4a, VA:Cr2.2.5a, VA:Cr2.2.6a			VA:Cr1.1.2a, VA:Cr1.1.3a, VA:Cr1.1.4a, VA:Cr1.1.5a, VA:Cr.1.1.6a, VA:Cr1.2.2a, VA:Cr1.2.3a, VA:Cn1.2.4a, VA:Cn1.2.5a, VA:Cn1.2.6a, VA:Cr2.1.2a, VA:Cr2.1.3a, VA:Cr2.1.4a, VA:Cr2.1.5a, VA:Cr2.1.6a, VA:Cr2.2.2a, VA:Cr2.2.3a, VA:Cr2.2.4a, VA:Cr2.2.5a, VA:Cr2.2.6a, VA:Cr2.3.4a, VA:Ct2.3.5a VA:Cr2.3.6a, VA:Cr3.1.2a, VA:Cr3.1.3a, VA:Cr3.1.4a, VA:Cr3.1.5a, VA:Cr3.1.6a	VA:Cr1.1.2a, VA:Cn1.1.3a, VA:Cr1.1.4a, VA:Cr1.1.5a, VA:Cr.1.1.6a, VA:Cr1.2.2a, VA:Cr1.2.3a, VA:Cn1.2.4a, VA:Cn1.2.5a, VA:Cn1.2.6a, VA:Cr2.2.2a, VA:Cr2.2.3a, VA:Cr2.2.4a, VA:Cr2.2.5a, VA:Cr2.2.6a, VA:Cn2.3.2a, VA:Cn2.3.3a, VA:Cr2.3.4a, VA:Cr2.3.5a, VA:Cr2.3.6a
Visual Arts - Presenting					VA:Pr4.1.2a, VA:Pr4.1.3a, VA:Pr4.1.4a, VA:Pr4.1.5a, VA:Pr4.1.6a, VA:Pr5.1.2a, VA:Pr5.1.3a, VA:Pr5.1.4a, VA:Pr5.1.5a, VA:Pr5.1.6a, VA:Pr6.1.2a, VA:Pr6.1.3a, VA:Pr6.1.4a, VA:Pr6.1.5a, VA:Pr6.1.6a	
Visual Arts - Connecting	VA:Cn10.1.2a, VA:Cn10.1.3a				VA:Cn10.1.4a, VA:Cn 10.1.6a, VA:Cn11.1.2a, VA:Cn11.1.3a, VA:Cn11.1.4a, VA:Cn11.1.4a, VA:Cn11.1.5a, VA:Cn11.1.6a	VA:Cn10.1.2a, VA:Cn10.1.3a, CA:Cn10.1.4a, VA:Cn10.1.5a, VA:C10.1.6a, VA:Cn11.1.2a, VA:Cn11.1.3a, VA:Cn11.1.4a, VA:Cn11.1.5a, VA:Cn11.1.6a
C3 FRAMEWORK FOR SOCIAL STUDIES STANDARDS						
D1-Developing Questions & Planning Inquiries						D2.HIS 2 K-2 & 3-5
Geography					D2.Geo 5 K-2, 3-5 & 6-8; D2 GEO 6, K-2, 3-5 & 6-8	D2.GEO 3 K-2; D2.GEO 2 3-5 & 6-8; D2.GEO 5 K-2 & 3-5; D2.GEO 6 K-2
History					D2.HIS 2 K-2 & 3-5	
D4-Communicating Conclusions & Taking Informed Actions						D4.6 K-2, 3-5 & 6-8; D4.7 K-2, 3-5 & 6-8

© 2020 Disney Enterprises, Inc.

U.S. EDUCATIONAL STANDARDS

U.S. STANDARDS ALIGNMENT	LESSON PLAN 4 GRADES 4-6 Water Cycle Of The Okavango Delta	LESSON PLAN 5 GRADES 2-3 Matriarch, May We?	LESSON PLAN 5 GRADES 4-6 From a Rumble To A Stomp	LESSON PLAN 6 GRADES 2-6 How Can Artists Help Protect Elephants?	LESSON PLAN 6 GRADES 2-6 How Can You Help Save African Elephants?
COMMON CORE STANDARDS FOR ENGLISH LANGUAGE ARTS					
Reading For Information • Key Ideas and Detail • Craft and Structure • Integration of Knowledge					• RI4.1, RI4.2, RI4.3, RI5.2, RI5.3, RI6.1, RI6.2 & RI6.3 • RI4.54. RI4.5, RI5.4, RI5.5 & RI6.4 • RI4.7, RI5.7 & RI6.7
Writing Research to Build and Present Knowledge					W4.7, W4.8, W4.9, W5.7, W5.8, W5.9, W6.7 & W6.8
Speaking & Listening • Comprehension and Collaboration • Presentation of Knowledge and Ideas	• SL4.1, SL5.1 & SL6.1 • SL4.4, SL5.4, SL6.4 & SL6.5				• SL4.1, SL5.2, SL6.1 & SL6.2 • SL6.5
COMMON CORE STANDARDS FOR MATHEMATICS					
Measurement and Data	4.MD.4, 5.MD.2			2.MD.1, 2.MD.3, 3.MD.2, 3.MD.3, 4.MD.5, 5.MD.3, 5.MD.5	
Geometry				2.G.1, 3.G.1, 4.G.1, 4.G.2, 5.G.3, 5.G.4, 6.G.1, 6.G.4	
Operations and Algebraic Thinking	4.OA.3, 4.OA.5				
Ratio and Proportional Relationships	6.PP.1				
Statistics and Probability	6.SP.1, 6.SP.2, 6.SP4, 6.SP.5				
NEXT GENERATION SCIENCE STANDARDS					
Heredity: Inheritance and Variation of Traits		3-LS3.1, 4-LS3.2			
Biological Evolution: Unity and Diversity		3-LS4.2			
Engineering Design				K-2-ETS1.1, K-2-ETS1.2, 3-5-ETS1.1, 3-5-ES1.2, MS-ETS1.1	3-5-ETS1.1, 3-5-ETS1.2, MS-ETS1.1, MS-ETS1.2, MS-ETS1.3
From Molecules to Organisms: Structure and Process			4-LS1.1, 4-LS1.A, 4-LS1.2, 4-LS1.D, MS-LS1.8, MS-LS1.D	4-LS1.1, 4-LS1.A, MS-LS1.4, MS-LS1.5, MS-LS1.B	
Earth and Human Activity	4-ESS3.2, 4-ESS3.B, MS-ESS3.5, MS-ESS3.D			5-ESS3.1, 5-ESS3.C, MS-ESS3.3, MS-ESS3.4, MS-ESS3.C	4-ESS3.1, 5-ESS3.1, MS-ESS3.3, MS-ESS3.4, MS_ESS3.C
Ecosystems: Interactions, Energy and Dynamics		3-LS2.1, 3-LS2.D		3-LS2.1	
Earth's Systems	4-ESS2.1, 4-ESS2.A, 5-ESS2.1, 5-ESS2.2, 5-ESS2.A &B, MS-ESS2.4,MS-ESS2.5, MS-ESS2.6, MS-ESS2.C &D				
NATIONAL CORE ARTS STANDARDS					
Visual Arts - Creating				VA:Cr1.1.2a, VA:Cr1.1.3a, VA:Cr1.1.4a, VA:Cr1.1.5a, VA:Cr1.1.6a, VA:Cr1.2.2a, VA:Cr1.2.3a, VA:Cr2.1.2a, VA:Cr2.1.3a, VA:Cr2.2.2a, VA:Cr2.2.3a, VA:Cr1.1.4a, VA:Cr1.1.5a, VA:Cr.1.1.6a, VA:Cr2.1.4a, VA:Cr2.1.5a, VA:Cr2.1.6a, VA:Cr2.2.4a, VA:Cr2.2.5a, VA:Cr2.2.6a, VA:Cr2.3.4a, VA:Ct2.3.5a VA:Cr2.3.6a, VA:Cr3.1.2a, VA:Cr3.1.3a, VA:Cr3.1.3a, VA:Cr3.1.4a, VA:Cr3.1.5a, VA:Cr3.1.6a	
Visual Arts- Connecting				VA:Re7.1.5a, VA:Re7.1.6a, VA:Re7.2.2a, VA:Re7.2.3a, VA:Re7.2.4a, VA:Re7.2.5a, VA:Re7.2.6a, VA:Re8.1.2a, VA:Re8.1.3a, VA:Re8.1.4a, VA:Re8.1.5a, VA:Re8.1.6a	
C3 FRAMEWORK FOR SOCIAL STUDIES STANDARDS					
D1-Developing Questions & Planning Inquiries		D1.1.K-2 & 3-5	D1.1 3-5 & 6-8		
Geography	D2.GEO 2 3-5 & 6-8; D2.GEO 3 3-5; D2.GEO 6 3-5		D2. GEO 5 3-5 & 6-8; D2. GEO 7 3-5 & 6-8	D2.GEO 5 K-2 & 3-5; D2. GEO 11 K-2; D2.GEO 12 3-5; D2.GEO 10 6-8	
D4-Communicating Conclusions & Taking Informed Actions				D4.6 K-2, 3-5 & 6-8; D4.7 K-2, 3-5 & 6-8	

© 2020 Disney Enterprises, Inc.

LESSON 1
BACKGROUND INFORMATION

Elephant Adaptations

PHYSICAL ADAPTATIONS

African elephants are truly amazing animals. As the largest mammals in the world, they can grow to be 11 ft tall (340 cm) and weigh up to 11,000 lbs (4,990 kg), whereas Asian elephants only grow to be 9.8 ft tall (300 cm) and weigh 6,000–10,000 lbs (4,500 kg). To maintain a healthy lifestyle and support their large bodies, an adult elephant eats anywhere from 400–600 lbs (180–270 kg) per day. Elephants are herbivores and primarily eat grass, leaves, twigs, barks and other plants. As grazers, elephants need a habitat that contains plenty of food to support their herds. That's why the Okavango Delta is the perfect home for elephants.

Elephants have many unique and special physical adaptations that make them unmistakable with the rest of the natural world. The most distinctive feature of an elephant is their trunk. The trunk combines an elephant's upper lip and nose and elephants use this adaptation for breathing, smelling, drinking, feeding, caressing, greeting and other needs. When they're thirsty, elephants use their trunks to drink up to three gallons of water at one time! At the end of their trunks, elephants have two dexterous finger-like extremities. They'll use these to grasp items and bring them to their mouth.

Aside from their size, another distinguishing factor between African and Asian elephants are their ears. African elephants have large ears that are actually similar in shape to the continent of Africa. These large ears can act as fans for elephants and help keep

© 2020 Disney Enterprises, Inc.

LESSON 1
BACKGROUND INFORMATION

Elephant Adaptations *(continued)*

them cool on hot days. Elephants can also flap both their ears and their tails to keep insects away.

Elephants are equipped with special, thick skin that protects them from the harmful effects of their environment as well as other threats. Sparsely scattered with dark, small hairs, their gray skin can be up to 1 inch (2.5 cm) thick! This can help protect them from biting insects like mosquitos. To help protect their skin from the sun and bug bites, elephants are known to wallow in mud and take mud baths. Another reason why the Delta is the perfect habitat for elephants. Both male and female elephants have tusks that continue to grow throughout their lifetimes. While different in shape, tusks are actually just elongated incisor teeth which are made up of a material called ivory. Ivory is a substance composed mostly of dentine. While other animals have ivory on their bodies, such as walrus, elephants are one of the few animals that are considered to have commercially-prized ivory. Around the world, the beauty of elephant ivory tusks is well known, but unfortunately this poses an incredible risk for the species. Throughout the world poachers hunt elephants for their tusks seeking profit by killing the animal and selling the ivory. In some countries, it is believed that ivory has special healing and medicinal power. This is not scientifically proven, and the effort to end elephant poaching has united governments and nonprofit organizations around the world.

© 2020 Disney Enterprises, Inc.

LESSON PLAN 1

GRADES 2-3

TOPIC: ELEPHANT ADAPTATIONS | **CONTENT AREA:** ELA, ART & SCIENCE

What Is An Elephant Like?

ESSENTIAL QUESTIONS:

What is a simile? What are parables and fables? What would the blind men's vision of an elephant look like? How are the similes like an African elephant? How are they different? How do elephants use each body part (adaptation) to survive?

MATERIALS

- *Activity Sheet 1: Simile Elephant Collage*
- *Activity Sheet 2: Simile Comparison Chart*
- Scissors
- Glue
- Pencils

VOCABULARY

- Adaptation
- Collage
- Fable
- Parable
- Simile
- Snorkel
- Trumpeting
- Trunk
- Tusk

WARM UP

Tell students that sometimes the best way to describe something is by saying what it's like. Share with the class the definition of "**simile**" and share a few examples. Ask students to describe an object in the classroom with a simile, for example "the window shades are like eyelids," "the post-it notes on the bulletin board are like leaves waiting to fall, "the drinking fountain is like a little waterfall."

A simile uses "like" or "as" to describe something by making a comparison: The happy dog's tail is like a windshield wiper.

Parables and fables are short fiction stories that may use similes or metaphors to illustrate a moral.

Read aloud the story of Six Blind Men and an Elephant—A Parable, but don't share the moral. After reading the story, ask students to visualize how that elephant would look. Tell them they can compare their visualization to a **collage** made up of the similes from the story.

WHAT DOES THE BLIND MEN'S ELEPHANT LOOK "LIKE"?

Students use *Activity Sheet 1: Simile Elephant Collage* to make a clip art collage of the Blind Men's elephant. When finished, students write the moral of the story under the collage. Display the collages in the classroom and discuss the students' differing ideas of what the moral of the story could be. Share the moral of the story from the example provided. Discuss if the simile images help or don't help the blind men understand what a real elephant looks like.

WRAP UP

Hand out *Activity Sheet 2: Simile Comparison Chart*. Students work in peer pairs to complete the Simile Comparison Chart for how the simile is like and different from the related elephant body part (the **adaptation**). Ask students to draw one example of how an elephant uses body parts to survive. As a whole class, discuss the simile students thought was the most like an actual body part in appearance (looks), form (structure) and use (function). Discuss the simile that was the most different. Why? How could an elephant use several body parts at one time to survive?

Six Blind Men and an Elephant—A Parable

One day six blind men asked an African elephant if they could touch her so they could know what she looked like. She agreed.

The 1st man touched the skin on her huge side, "An elephant is like a wall."

The 2nd man touched her tail, "No, an elephant is like a rope."

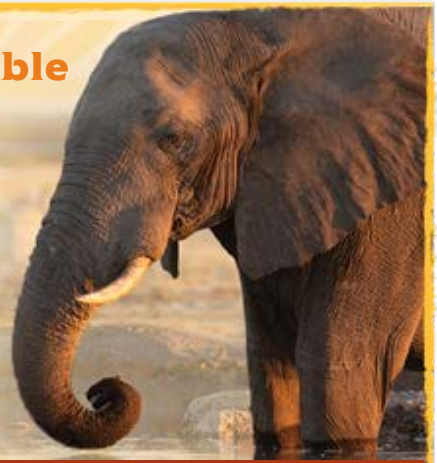
The 3rd man touched her sharp tusk, "No, an elephant is like a spear."

The 4th man touched her trunk, "No an elephant is like a big snake."

The 5th man touched her ear, "No, an elephant is like a big fan."

The 6th man touched her legs and feet, "No, an elephant is like a tree trunk."

The blind men never thought to put all of the elephant pieces together. So, they started arguing and they are still arguing to this very day.



Moral: Saying what one part of a thing is like doesn't always help you "see" the big picture.

Adapted from: http://americanliterature.com/author/anonymous/short-story/the-blind-men-and-the-elephant

Disneynature ELEPHANT

© 2020 Disney Enterprises, Inc.

LESSON PLAN 1
ACTIVITY SHEET 1
GRADES 2-3

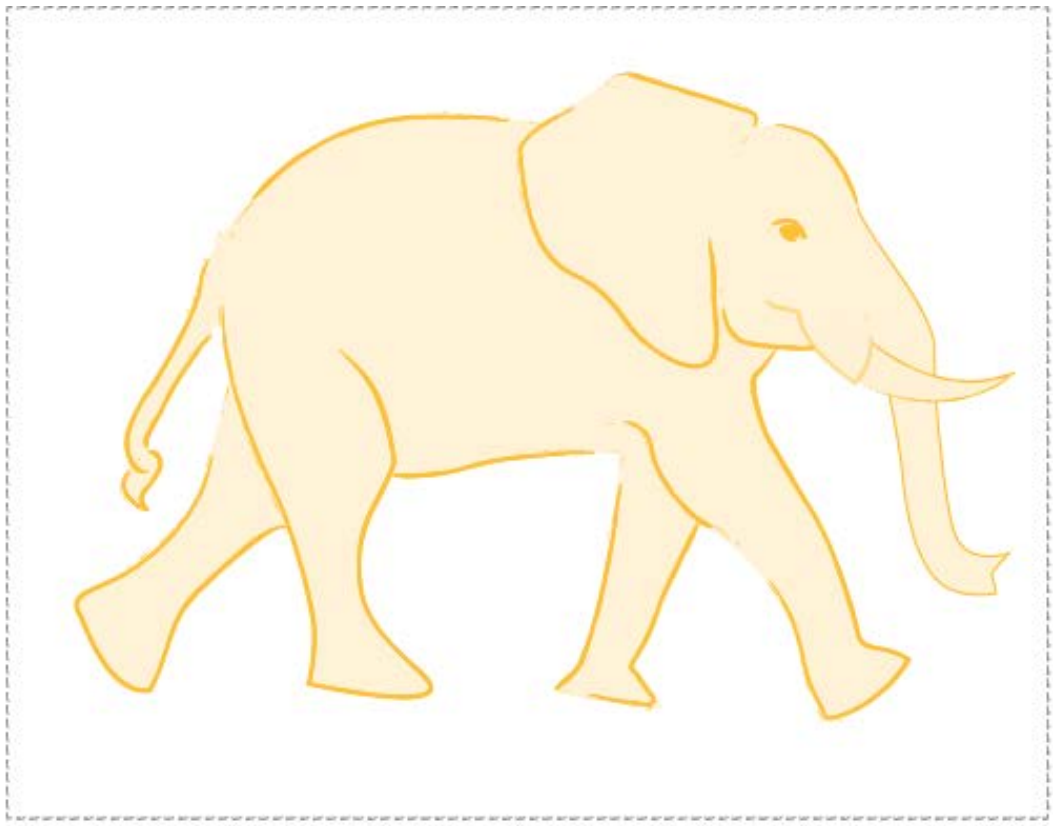
What Is An Elephant Like?

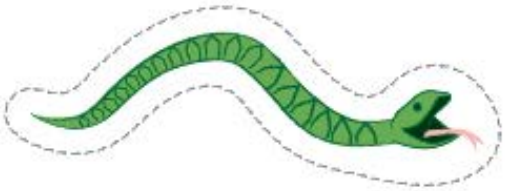
Simile Elephant Collage

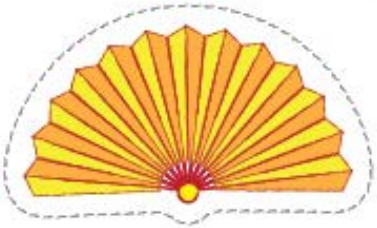
NAME _____ DATE _____

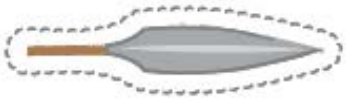
DIRECTIONS:

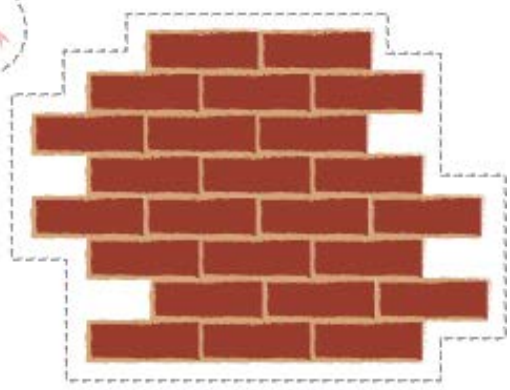
Cut out the collage pieces around the activity sheet and glue them to the correct part of the elephant outline to make a clip art collage of the elephant described in the story of Six Blind Men and an Elephant.











Disney nature
ELEPHANT

© 2020 Disney Enterprises, Inc.

LESSON PLAN 1
ACTIVITY SHEET 2
GRADES 2-3

What Is An Elephant Like?

Simile Comparison Chart

NAME _____ DATE _____

DIRECTIONS:

Describe how the elephant body parts are similar to or different from the item listed below.
Then on the back of this page, draw one example of how an elephant uses a body part to survive.

Trunk/Snake

Trunk Uses: snorkel, fork, shower head, dust bath, straw to hold water to drink, trumpeting sounds and gentle touches to communicate

An elephant's trunk is like a snake because...

An elephant's trunk is different from a snake because...

Tail/Rope

Tail Uses: Fly swatter to shoo away insects, something for elephants to grab hold of to stay close while walking

An elephant's tail is like a rope because...

An elephant's tail is different from a rope because...

Tusk/Spear

Tusk Uses: Defense, shovel, rip bark from tree, move heavy objects, display threat, rest their trunk, clear a path

An elephant's tusk is like a spear because...

An elephant's tusk is different from a spear because...

Legs and Feet/Tree Trunks

Legs and Feet Uses: Step quietly, move through mud and not get stuck, help dig holes, feel vibrations through foot pads

An elephant's legs and feet are like tree trunks because...

An elephant's legs and feet are different from a tree trunk because...

Ear/Fan

Ear Uses: Cool off, scare predators away, hear calls of other elephants, shoo away insects, communication

An elephant's ear is like a fan because...

An elephant's ear is different from a fan because...

Skin/Wall

Skin Uses: Feel insect bites, wrinkles can hold water to help cool down

An elephant's skin is like a wall because...

An elephant's skin is different from a wall because...

Disneynature ELEPHANT

© 2020 Disney Enterprises, Inc.

LESSON PLAN 1

GRADES 4-6

TOPIC: ELEPHANT ADAPTATIONS | **CONTENT AREA:** ELA, ART & SCIENCE

Could You Survive As An Elephant?

ESSENTIAL QUESTIONS:

What are components of African elephants' anatomy (adaptations)? How do elephants use one or several parts of their anatomy (adaptations) to survive daily challenges?

MATERIALS

- *Activity Sheets 1a–1d: Learning Activity Station Cards*
- Various materials listed on *Activity Sheets 1a–1c*
- *Activity Sheets 2a & 2b: Elephant Survival Game*
- Stapler
- Scissors
- Paper
- Pencils
- Glue

VOCABULARY

- Adaptation
- Dissipation
- Drought
- Evaporation
- Fable
- Parable
- Perimeter
- Simile
- Snorkel
- Trowel
- Trumpeting
- Trunk
- Tusks
- Radiation (thermal)

WARM UP

Introduce the literary genres of parables and fables. Read aloud the parable of the Six Blind Men and the Elephant, but don't share the moral of the story from the example. Discuss how accurate the students think each blind man was in using a simile to describe the elephant. After students share their ideas about what we can learn from the parable, read the moral of the story. Remind students that this lesson gives them a chance to put the moral of the story into action.

A simile uses "like" or "as" to describe something by making a comparison: The happy dog's tail is like a windshield wiper.

Parables and fables are short fiction stories that may use similes or metaphors to illustrate a moral.

LEARNING WHAT THE BLIND MEN DIDN'T

Ask students if they think they'd survive a day as an elephant in Botswana. Why or why not? Share with the students that they will start by exploring elephant **adaptations** in learning stations. After rotating through all of the learning stations, students will decide how an elephant uses or combines adaptations to survive by playing a game.

Break students into groups of four and hand out a set of *Activity Sheets 1a-1d: Learning Activity Station Cards* to each student. Every student in the group will take notes about the six adaptations from the learning station activities. Activities are cross-curricular and involve thinking like a scientist, conducting experiments, solving a math problem, creating a decorative cultural artifact and exploring elephant tracks on maps.

After small groups complete learning stations, distribute *Activity Sheets 2a and 2b: Elephant Survival Game*. Students should assemble the game boards and play the game in pairs. Scores will tell students if they would survive as an elephant in Botswana. After all pairs have completed the game, ask the class the following discussion questions:

- Which adaptations/body parts were used the most often? Which were used in combinations? Ask students to share opinions on the most difficult challenge elephants face during a typical day.
- Students may challenge each other by writing additional life event scenarios and specific adaptation(s) needed for elephant survival.
- Discuss how the learning stations and the game bring the moral of the Blind Men and the Elephant to life. How could the moral be of value to scientists?

Six Blind Men and an Elephant—A Parable

One day six blind men asked an African elephant if they could touch her so they could know what she looked like. She agreed.

The 1st man touched the skin on her huge side, "An elephant is like a wall."

The 2nd man touched her tail, "No, an elephant is like a rope."

The 3rd man touched her sharp tusk, "No, an elephant is like a spear."

The 4th man touched her trunk, "No an elephant is like a big snake."

The 5th man touched her ear, "No, an elephant is like a big fan."

The 6th man touched her legs and feet, "No, an elephant is like a tree trunk."

The blind men never thought to put all of the elephant pieces together. So, they started arguing and they are still arguing to this very day.

Moral: Saying what one part of a thing is like doesn't always help you "see" the big picture.

Adapted from: http://americanliterature.com/author/anonymous/short-story/the-blind-men-and-the-elephant

Disneynature ELEPHANT

© 2020 Disney Enterprises, Inc.

Could You Survive As An Elephant?

Learning Activity Station Cards

ACTIVITY STATION 1

Trunks

NAME _____

MATERIALS:

- Thin gray or blue knee sock
- Two mixing bowls
- Different sizes of green and brown building blocks
- Assorted nuts and bolts
- Blades of grass
- Pencils

DISCUSS FACTS ABOUT TRUNKS:

- Trunks are noses.
- Trunks suck in 3 gallons of water a time.
- Trunks blow out drinks of water to the mouth.
- Trunks intake 30–50 gallons of water daily to the mouth.
- Trunks can smell things near and far.
- Trunks have thousands of muscles but no bones.
- Trunks can rip up a tree.
- Trunks can push air out to make trumpeting sound.
- Trunks can be used similar to a shower head or snorkel.

EXPLORE TRUNKS *Grasping and Moving*

1. Turn your hand and arm into an elephant trunk. Pull the knee sock over the hand and arm you use to write.
2. Use your thumb on one side of the sock's toe and your pointer and middle finger on the other side. Push any loose sock fabric into the fold of your hand.
3. Grasp and move small objects from one container to the other. Try moving one object and then try several at one time. Try picking up a blade of grass.

RECORD YOUR ANSWERS

What was the smallest object you grasped and moved?

_____

How many objects could you pick up at one time?

_____

OBSERVATIONS ABOUT TRUNK DEXTERITY: (Choose one topic)

a) Discuss or draw a picture of what your life would be like if you had a trunk instead of hands.

b) Discuss how the structure of the trunks helps elephants complete different type of tasks.

ACTIVITY STATION 2

Tusks

NAME _____

MATERIALS:

- Thin gray or blue knee sock
- Two mixing bowls
- Different sizes of green and brown building blocks
- Assorted nuts and bolts
- Blades of grass
- Pencils
- Trowel

DISCUSS FACTS ABOUT TUSKS:

- Tusks grow up to 3.5 m long.
- Tusks weigh from 45–100 lb.
- Tusks are used to dig for water or roots.
- Tusks carry heavy tree trunks.
- Tusks are made of ivory.
- Tusks are used for defense from predators or to clear a path.
- Just like you are right or left-handed, most elephants use one tusk more often than the other.

EXPLORE TUSKS *Digging and Carrying*

1. Grasp a trowel in your writing hand and raise that shoulder to your cheek, keeping your elbow straight, maintain that position.
2. Use the trowel to dig out scoops of soil to locate water (connected rectangles of blue building blocks) and vegetable roots (green building blocks). How many scoops did it take to reach each?
3. Record your answers in the space below.
4. When you finish, reset the blocks in layers of dirt (place the blue blocks at the bottom of the shoe box).
5. Use two trowels (in position described in step 1) to pick up and carry a small branch (twigs) ten steps forward and 10 steps back.

RECORD YOUR ANSWERS

How many scoops did it take to reach water (blue plastic blocks)? _____

How many scoops did it take to reach roots (green plastic blocks)? _____

OBSERVATIONS ABOUT TUSK MOVEMENT: (Choose one topic)

a) Discuss or draw a picture of what your life would be like if you had tusks.

b) Discuss whether elephants could dig for water without tusks.

c) Discuss how the structure of the tusks helps elephants easily carry heavy objects.

Disneynature ELEPHANT

© 2020 Disney Enterprises, Inc.

Could You Survive As An Elephant?

Learning Activity Station Cards

ACTIVITY STATION 3

Ears

NAME _____

MATERIALS:

- *Activity Sheet 2: Station 3 Extension*
- Paper
- Pencil

DISCUSS FACTS ABOUT EARS:

- Ears are used as fans to circulate air.
- Ears have webs of blood vessels that run through the thin skin to cool down body temperature (process of radiation).
- Ears of elephants are unique (like fingerprints).
- Largest elephant ears measure 6' from top to bottom and 5' from side to side.
- Ears can stick out straight (looking larger) to scare off predators.
- Ears can hear other elephants from far away (up to 2.5 miles [4 km]).

EXPLORE EARS *Size of Perimeter and Area*

Follow directions on *Activity Sheet 2: Station 3 Extension* to figure out the perimeter and the area of the elephant's ear.

RECORD YOUR ANSWERS

The perimeter of the elephant's ear is _____
(Remember, the perimeter is the continuous line forming the boundary of closed geometric figures.)

The area of the elephant's ear is _____
(Remember, area is the size or total amount of space taken up by a two-dimensional surface.)

OBSERVATIONS ABOUT EAR SIZE AND PURPOSE:

Discuss: Why does the surface area of the elephant's ear matter? Would it make a difference if their ears were much smaller? Why or why not?

Discuss: What would your life be like if you had elephant ears?

ACTIVITY STATION 4

Tails

NAME _____

MATERIALS:

- Strains of thick yarn (brown, black or gray)
- 5" x 5" Cardboard for tassel base
- 5" x 5" Card stock square
- Scissors
- Markers
- Tape
- Paper
- Pencils
- Picture of fly whisk
- A fly swatter

DISCUSS FACTS ABOUT TAILS:

- Tails are tipped with very coarse, wire-like hair.
- A tail is used to swat flies and insects.
- Length of tail can be 3.25–5 ft (1–1.5 m).
- Tribal chiefs and African Presidents have carried fly whisks as a symbol of authority on special occasions (tribal ceremonies, parades, speeches).
- Dancers use fly whisks in performances.

EXPLORE ELEPHANT TAILS

Make a Decorative Fly Whisk

Make the whisk tail: Wrap yarn 20–30 times around the 5" x 5" tassel base. Tie off the tassel by slipping a 5" length of yarn between the tassel cardboard base and the top edge of the wrapped yarn. Pull the ends of the tie-off piece together and tie 3-4 tight knots. Cut the other end of the wrapped yarn and slip off from the tassel base. Gently pull the loose tassel ends together.

Make the whisk handle: Tape the tied yarn knots to the inside left bottom corner of the 5"x 5" card stock. Starting from the left side, tightly roll the card stock until it forms a cylinder with the tassel hanging from one end. Securely tape the cylinder edge to close it. Use markers to create geometric patterns on the handle.

Display the fly whisks in the classroom.

OBSERVATIONS ABOUT ELEPHANT TAILS:

Write a paragraph comparing the design and use of a modern fly swatter with a traditional African fly whisk. How are they alike? How are they different?

Discuss whether holding a fly swatter represents authority? Why or why not?

Disney Nature ELEPHANT

© 2020 Disney Enterprises, Inc.

Could You Survive As An Elephant?

Learning Activity Station Cards

ACTIVITY STATION 5

Skin

NAME _____

MATERIALS:

- Heat lamp (supervised) or a desk lamp with directional shade or gooseneck
- Spray bottle with water
- Digital thermometer with probe (cooking thermometers work)
- Aluminum foil
- Card stock
- Record sheet
- Stopwatch
- Paper
- Pencils
- Rulers

DISCUSS FACTS ABOUT SKIN:

- The largest male elephant recorded was 24,000 lbs; skin weighed 2,000 lbs (900 kg+); skin was 1" thick (1/10th" around ears and eyes); was 13' tall (ground to shoulder).
- Insects, flies or bees can bite or sting elephants.
- Water collects in skin wrinkles to aid in cooling.
- Sweat glands limited to feet—so elephants need to cool their skin in other ways.

EXPLORE SKIN & TEMPERATURE

Prepare station:

1. Accordion fold a 12"x5" strip of foil for each small group & wrinkle the top fold to simulate elephant skin.
2. Make "shade": cut card stock the size and shape to overlap the lamp shade by 3" all around.
3. Adjust desk lamp to shine to the 6" above the folded foil.
4. Insert digital thermometer probe in the inner foil folds.

Record Sheet:

Title: TEST - Conditions & Skin Cooling

Make three columns: #1 Shade; #2 Shade & Water; #3 Water.

Record room temperature at the top of each column.

Number 1 to 9 on left side of columns. List 15 second increments beside the numbers (15 sec, 30 sec, 45, 1 minute, 1 minute 15 sec, etc…)

RECORD YOUR ANSWERS

Test 1: Shade: Student 1–turn on lamp, leave uncovered until 90F; Student 2–place shade between lamp and foil; Student 3–start stop watch and call out each 15 seconds; Student 4–record temperatures every 15 seconds.

Test 2: Shade & Water: Students repeat steps from Test 1, adding sprays of water every 15 seconds.

Test 3: Water: Students repeat steps in Test 2, removing shade. (Challenge—test shade, water and fanning)

OBSERVATIONS ABOUT SKIN:

Discuss which condition cooled the elephant the fastest? Slowest? How does evaporation help elephants cool down?

ACTIVITY STATION 6

Feet

NAME _____

MATERIALS:

- Eight round sponge stencil sticks (1 1/4" and 3/4") or sponges cut in circles (to make a handle, clamp a clothespin in the middle of the sponge)
- 12" x 18" Tan construction paper
- Ink pads (dark brown and light brown)
- Crayons

DISCUSS FACTS ABOUT FEET:

- Elephants walk quietly because a fatty, spongy tissue cushions the back of the foot.
- The feet bones angle to the front toes, so they walk on their tip toes.
- The sounds of sticks or rocks breaking when an elephant walks are muted by their cushiony pad.
- African elephants have four front toe nails and three back toe nails.
- Feet spread out when an elephant steps down, but get smaller when they step up, so they won't get stuck in mud.

EXPLORE FEET *Tracking Footprints*

1. Use crayons to draw a bird's eye view of different types of terrain in Botswana where one elephant or a mother and calf might travel (a sandy or sand dune path, over logs around a watering hole, entering and exiting a river, around trees, near a camp, near a pride of lions).
2. Dip the larger sponge on the dark brown ink pad and press lightly to make adult footprints. Dip the smaller sponge in light brown for adolescent footprints.

Take Turns: After the ink dries, students in small groups display pictures and tell stories about the elephants journeys from the beginning of the track to the end.

OBSERVATIONS ABOUT FEET:

Discuss: How alike and how different were the stories shared in your small group?

Discuss: What patterns of movement did you notice?

Discuss: How did the anatomy of their feet help the elephants survive?

Disneynature ELEPHANT

© 2020 Disney Enterprises, Inc.

LESSON PLAN 1
ACTIVITY SHEET 1D
GRADES 4-6

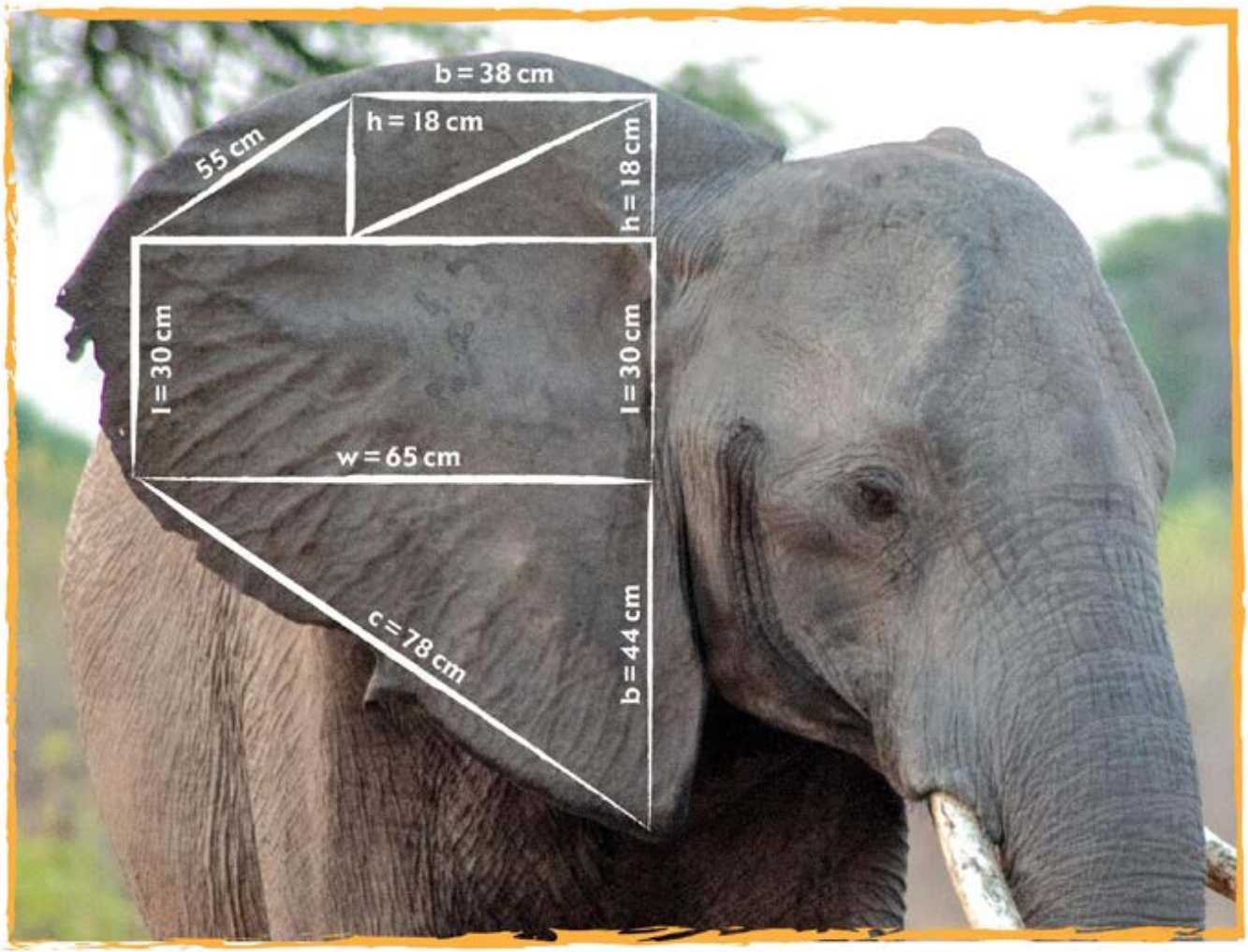
Could You Survive As An Elephant?

Station 3 Extension

NAME _____ DATE _____

DIRECTIONS:

Follow the steps to figure out the perimeter and the area of the elephant's ear.
Check your answers with others in your small group and resolve differences.



Steps to find perimeter & area

1. Idenfity the geometric shapes drawn over the elephant's ear (rectangle, right triangles and a parallelogram).
2. Using the measurement on the photo, calculate the perimeter of the elephant's ear, that is the total distance around the outside of the whole shape (do not include the interior segments).
3. Calculate the area of each geometric shape using the measurements on the photo. The following area formulas may help you:
   - Area of a rectangle is length times width
   - Area of a right triangle is half the height times the base
   - Area of a parallelogram is length of the base times the height
4. Using the area measurements from #3, calculate the approximate area of the elephant's ear.

Disneynature ELEPHANT

© 2020 Disney Enterprises, Inc.

LESSON PLAN 1
ACTIVITY SHEET 2A
GRADES 4-6

Could You Survive As An Elephant?

Survival Game

DIRECTIONS:

Cut out the back of the game board below and the front on *Activity Sheet 2b*. Glue the front and back together, then fold the side flaps towards the front. Finally, cut slits in the side flaps. Follow the instructions on the back to play the game.

Back of Game Board

Your skin is only 1" (2.5 cm) thick and you need to protect yourself from the sun.

How can you put dirt on your back like sunscreen?

cut

You've walked a long way to get to the river and now need to cool down.

How can you cool your head?

cut

A swarm of flies starts flying around your back legs and biting you.

How can you avoid bug bites?

cut

You need to cross a deep pool of water in the Chobe River.

How can you get to the other side of the river?

cut

You're walking and it's very hot.

How can you cool yourself down?

Could You Survive A Day As An Elephant In Botswana?

A Game For Two Players

Game Goal:

The goal is to work together as one elephant to earn enough points to survive.

Game Play:

- Each player takes a turn reading aloud the life event, then the other player chooses the adaptation card or cards she/he would use. You can play up to 4 adaptation cards at a time.
- Next, the player who read the life event lifts the flap and reads aloud the answer.
- Players get one point for each correct adaptation card and keep a tally of correct answers.

Game Scores:

- 14–17 points: Congratulations, you would survive.
- 10–13 points: You may survive if you stay close to the herd.
- 1–9 points: You would not survive unless you are a baby elephant and are taken care of by your mother and the herd.

Game Extension:

Challenge each other by writing additional life event scenarios and specific adaptation(s) needed for elephant survival.

You are going by a camp and don't want people to notice you.

How can you sneak by the camp?

cut

A hungry lion is stalking a baby elephant in your herd.

How can you scare off the lion?

cut

There's no grass during the drought, so you need to eat something else.

How can you rip the bark off a tree?

cut

A heavy log is blocking the path.

How can you move the log?

cut

You haven't seen any water in two hours and you need to drink.

How can you find water?

fold

fold

Disneynature ELEPHANT

© 2020 Disney Enterprises, Inc.

Could You Survive As An Elephant?

Survival Game

Front of Game Board

I will use my **TRUNK** to throw dirt on my back like sunscreen.

I will use my **TRUNK** to suck up water and spray on my head.

I will use my **TAIL** to swat away flies.

I will use my **TRUNK** like a snorkel to breathe air while I cross the river.

I will flap my big **EARS** like a fan.

My big **FEET** are shaped internally so I can sneak by on my tip toes.

My **TUSKS, EARS, TRUNK** and **LEGS** help me charge the lion.

My **TUSKS** are ten feet long and weigh 90 pounds; I can use them to rip thebark off a tree.

My **TUSKS** and **TRUNK** and sometimes my **LEGS/FEET** help me move the log.

My **TUSKS, TRUNK, LEGS/FEET** help me dig a hole and find water.

Disney nature
ELEPHANT

© 2020 Disney Enterprises, Inc.

LESSON 2
BACKGROUND INFORMATION

Elephants As A Keystone Species

BOTSWANA'S GEOGRAPHICAL LANDSCAPE

Botswana proudly boasts some of the best wildlife viewing in the world, with tourists flocking to the country each year to experience the incredible sights. While relatively flat, about 70 percent of the land in Botswana makes up the Kalahari Desert.

THE KALAHARI

The Kalahari Desert consists of undulating hills of sand that support a fine layer of grassland. Dry lakes and dunes account for the majority of the desert, creating an arid utopia. Very little water flows in the Kalahari Desert, in fact, the flowing waters of the Okavango Delta completely dry up and end in this land of sand and sun.

In the Kalahari Desert, water is found only in scarce and scattered watering holes. Nearly all of the rain that falls, is soaked up or evaporates almost immediately. Despite the absence of water in the southern area of the Kalahari, the desert is home to various animals and visitors throughout the year. The main species found in the south are springbok, wildebeest, oryx, duiker and kudu.

Traveling to the northern region of the Kalahari, the desert gives way to open woodlands and fertile landscape. Commingling with the Okavango swamp lands, the northern Kalahari supports an array of life, including a diversity of animals. After strong rains, the surface area of the northern region of the Kalahari becomes a lush landscape, sprouting vegetation, including trees, grasslands and shrubs. When this occurs, wildlife is especially drawn to the area for the rich grazing opportunities. Because of its vast size, the entire Kalahari region is home to several biomes: grasslands, savannas and dry, arid deserts. A key feature of the Kalahari is the gray clay, rich in salt. The salt provides essential minerals, or essential electrolytes, to the visiting wildlife of the desert. The northern reaches of the Kalahari provide habitat for giraffes, zebras, buffalo, large predatory cats and elephants.

THE OKAVANGO DELTA

Making up a large portion of northwestern Botswana, the Okavango Delta is one of the most widely recognized landscapes of Botswana. With lily pad covered lagoons and sprawling channels, the Delta supports an array of life vastly different than that of the Kalahari Desert. Beginning as the vast, winding Okavango river, the water travels southeastward from Angola and Namibia until it reaches 70 miles (113 km) into Botswana. There, the river empties into the wide swampland of the Okavango Delta. On average, about 2.5 trillion gallons of water enter the Delta each year.

Typically, a delta flows to the ocean or open water. However, the Okavango is unique in that its rivers widen and open up to create large marshlands, known to seasonally flood. As the dry

© 2020 Disney Enterprises, Inc.

LESSON 2
BACKGROUND INFORMATION

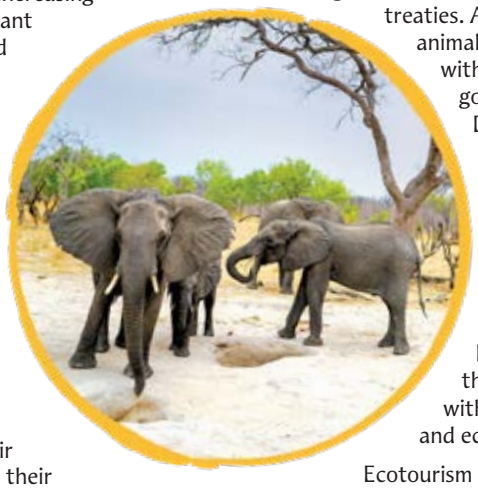
Elephants As A Keystone Species *(continued)*

season takes over the rest of the country, the Okavango River swells and floods, emptying its contents into the swamp of the Delta. This creates a unique relationship between the water and the animals in the region. Native flora and fauna have biologically synced their bodies to coincide with the natural cycles of their environment. Plants flourish seasonally, and large animals know they can return to the Delta when water and resources are scarce elsewhere. While the Delta is typically full in the winter, the swamplands are present throughout the year and never quite run dry.

With flowing water and lush lands during the dry winters, the Okavango Delta supports some of the world's most beloved mammals. Zebras, cheetahs, lions and elephants are just a few of the diversity of species that call the Delta home. In recent years, the elephant population has been increasing in the region, a true miracle for the elephant population worldwide. As the largest land animals on Earth, the elephants serve as a keystone species for this ecosystem. Elephants have flocked to the Delta as it has provided a safe haven for their herds. With resources always present and protections for wildlife, it's the perfect place for large, vulnerable mammals to visit.

AN ELEPHANT'S ROLE IN THE ECOSYSTEM

Elephants help play a very important role in the environment, especially in the Okavango Delta. Elephants are what's known as a keystone species. Their daily activities and interactions influence their environment, often to the benefit of other animals and wildlife that live there. African elephants have a special ability to locate underground water, a useful trait during times of drought. By digging shallow pools to get access to the water, they open resources to other animals in the area. With their large size, elephants also help knock down trees, which opens the savanna to grass growth and expansion that other species might need. After eating the leaves and seeds of trees and other plants, elephants then deposit rich fertilizer through their dung that increases plant growth through the recycling of nutrients.



A HOME FOR ALL

With its beauty, natural mystique and incredible support for wildlife, the Okavango Delta was officially recognized as the 1,000th UNESCO World Heritage Site in 2014. A World Heritage Site is a landmark or area designated by the United Nations Educational, Scientific and Cultural Organization (UNESCO) as having cultural, historical, scientific or other form of significance and is legally protected by international treaties. As a protected World Heritage Site, animals and wildlife can come to this sanctuary with habitat protection enforced by the government. The marshlands of the Delta won't be encompassed in urban expansion, these protections are part of what makes the title so special.

The Delta also supports the lives of thousands of people by providing lush resources and year-round water access. Five ethnic, indigenous groups make up the population surrounding the Delta. Largely untouched by modern society, the people and animals live in harmony with the natural systems of the environment and ecosystem.

Ecotourism has also increased in the region. Ecotourism is often focused around activities and experiences that can only take place in the natural environment; for example, kayaking, hiking, safari, etc. People from across the globe travel to experience the wondrous Okavango Delta and the elephant haven of Botswana.

© 2020 Disney Enterprises, Inc.

LESSON PLAN 2

GRADES 2-3

TOPIC: ELEPHANTS AS A KEYSTONE SPECIES | **CONTENT AREA:** SCIENCE

Why Are Elephant Footprints Important?

ESSENTIAL QUESTION:

What is a keystone species? Why are elephants an integral part of the Okavango Delta and Kalahari ecosystems?

MATERIALS

- *Activity Sheet 1: Observations of Your Ecosystem*
- Tape measure
- Butcher or craft paper
- Markers
- Clipboards
- Paper
- Scissors
- Yarn

VOCABULARY

- Abiotic
- Biotic
- Biome
- Ecosystem engineer
- Gardener
- Keystone species
- Plankton
- Landscape builder
- Microecosystem
- Perimeter

WARM UP

Tell students that a **keystone species** is one that is vital to the life of an ecosystem. Share the ecosystem definition from the call out:

> **An ecosysytem is a biological community of interacting organisms and their physical environment.**

Elephants are a keystone species living in Botswana's Okavango Delta and Kalahari Desert. Ask students to discuss in what ways African elephants might act as a keystone species? Guide students to consider elephants' roles as engineers, gardeners and even landscape builders in an ecosystem. Remind students of the size and strength of elephants, as well as how they move through territories in herds. Continue discussing their role as:

Ecosystem Engineers - making, modifying or maintaining a habitat that supports a variety of forms of life. During the dry season, elephants may dig for hours to get to water and build a watering hole for other species to use.

Gardeners - planting and transplanting seeds—their dung dispenses seeds of plants up to 40 miles (65 km) away from their origin.

Landscape Builders - physically shaping or reshaping a landscape. Elephants cut paths through forests as they trample trees and bushes, opening up new pathways for other animals.

ELEPHANT FOOTPRINTS LEAVE MORE THAN A TRAIL

Ask students if they can imagine the size of an elephant's foot. An adult elephant's foot can measure 17 inches (43 cm) in length and width. Mark that size on chart paper. Its circumference is about 53 inches (135 cm). Show students the perimeter with a tape measure. Now measure a student's foot. Draw it on poster paper and compare the two footprints. Explain that elephants not only impact large ecosystems (the Okavango Delta and Kalahari Desert **biomes**), the depressions made from their footprints also create small microecosystems (similar to those we might find in our own backyards underneath a rock, a puddle or in a pond). Share the information in the second call out "Elephant Footprints Are Important Because..." Have students draw and cut out a true-sized elephant footprint out of brown butcher or craft paper. Next, have students imagine a microecosystem within the footprint. Discuss what plants, animals, insects, water, sand, earth or seeds might they find in the Delta?

ELEPHANT FOOTPRINTS ARE IMPORTANT BECAUSE...

Elephant footprints are a critical microecosystem or habitat for aquatic invertebrates, like water beetles. Researchers have found 61 species from 27 taxonomic orders in elephant footprints in Kibale National Park in Uganda. After several days, 18 artificial footprints made by researchers resulted in 410 individual invertebrates, such as beetles and plankton, as well as frogs and tadpoles. The organisms and plankton that grow in an elephant's footprint thrive in their microecosystem but also serve the larger ecosystem (pollination, food chain).

WRAP UP

Ask students to discuss a "What if" question. What would happen to the Okavango Delta

Disneynature ELEPHANT

© 2020 Disney Enterprises, Inc.

LESSON PLAN 2

GRADES 2-3

TOPIC: ELEPHANTS AS A KEYSTONE SPECIES | **CONTENT AREA:** SCIENCE

Why Are Elephant Footprints Important?

(continued)

and Kalahari Desert in Botswana if elephants disappeared? How important are keystone species to an ecosystem?

KEEP GOING

Tell students that just as researchers have studied what grows in an elephant's footprint in Uganda, they can study a small section of microecosystems within their own backyards, or in the school yards.

OPTION 1:

Students place a large cotton sock over a shoe. Spritz the bottom and sides with water from a spray bottle, then walk all around their backyard for at least 10 minutes. Students carefully remove the sock, spray on a little more water, and place the damp sock in a sandwich bag, closing the opening. Students bring their sock in the bag to school.

Tape the bag to an index card with the students' names and addresses. Tape the bags to a window that gets plenty of light. Students keep a daily record (at the same time of day) that makes note of any changes to the socks. How many days does it take for seeds to sprout (may take up to 2 weeks)? Do all of the things growing on the socks look the same? What is different? If you have time, locate, determine if the address/origin of the seeds came from different cardinal directions on a map (Did socks from the south, east, west, or north have things in common?). How were their sock footprint travels similar to those of African Elephant footprint microecosystems?

OPTION 2:

Based on the Donald Silver book series "One Small Square," students will take a 36 inches (91.5 cm). length of yarn, a clipboard, markers or crayons, and *Activity Sheet 1: Observations of Your Ecosystem* with them to the playground or garden in the school yard. They draw all of the biotic and abiotic things they see within a square they form with the yarn. Students return to the classroom and discuss what they observed. Have them also share how their microecosystems were similar to or different from those of the African elephant footprint.

© 2020 Disney Enterprises, Inc.

LESSON PLAN 2
ACTIVITY SHEET 1
GRADES 2-3

Why Are Elephant Footprints Important?

Observations Of Your Ecosystem

NAME _____ DATE _____

DIRECTIONS:

1. Take a 36 inches (91.5 cm) length of yarn, a clipboard, markers or crayons, and this activity sheet to the playground or garden in the school yard. Form a square with the yarn.
2. Draw and then list all of the biotic and abiotic things you see. Draw a line from the things on the list to the drawings.
3. Return to the classroom and discuss what you observed. Do you think the season, time of day, being in the shade or sun or being close to a water source may have affected what you observed? You may also share how the observed microecosystems were similar to or different from those of the African elephant footprint.

Schoolyard Microecosystem

Biotic Things		Abiotic Things
_____		_____
_____		_____
_____		_____
_____		_____
_____		_____
_____		_____
_____		_____
_____		_____

Disney nature ELEPHANT

© 2020 Disney Enterprises, Inc.

LESSON PLAN 2

GRADES 4-6

TOPIC: ECOSYSTEMS OF BOTSWANA | **CONTENT AREA:** SCIENCE, ELA

Which Ecosystems Do Elephants Call Home?

ESSENTIAL QUESTIONS:

What is an ecosystem? What types of animals and plants live in the Okavango Delta? What types of animals and plants live in the Kalahari Desert? How are the Okavango Delta and the Kalahari Desert similar and how are they different? What factors of a functioning ecosystem do the Okavango Delta and the Kalahari Desert share so that living things can live within their optimal range of tolerance?

MATERIALS

- *Activity Sheet 1: Images for Venn Diagram*
- *Activity Sheet 2: Okavango Delta & Kalahari Desert Venn Diagram*
- Pencils
- Paper

VOCABULARY

- Abiotic
- Adaptations
- Arid
- Biotic
- Carnivore
- Climate
- Ecosystem
- Community
- Delta
- Desert
- Grassland
- Herbivore
- Marshland
- Omnivore
- Species
- Population
- Predator
- Prey
- Savanna
- Semi-arid
- Swamp
- Wetland

WARM UP

Ask students to imagine what it would be like to be a male elephant in Botswana. You might weigh up to 5 tons (11,000 lbs). As an herbivore you would need to eat up to 600 lbs (270 kg) of plant material (leaves, plants, twigs, roots, bark) and drink up to 50 gallons (190 L) of water a day. You would walk an average of 15 miles (25km) a day. Ask students what factors in the **ecosystem** would impact the quality of your life? Explain that the type of food you eat, the type of soil you walk on, and the conditions you need for your survival would all depend on factors in the ecosystem. Hand out *Activity Sheets 1* and *2* to pairs of students. Ask students to look at the bird's-eye view map of Botswana at the top of *Activity Sheet 1*. Where in Botswana is the Okavango **Delta** located? (to the Northwest). Where in Botswana is the Kalahari **Desert** located? (to the South and Southwest). Why do students think the Kalahari Desert looks like a brownish-beige blanket, but the Delta looks like a green fan?

PICTURE THIS

COMPARING & CONTRASTING THE OKAVANGO DELTA AND THE KALAHARI DESERT

Explain to students that pairs will use the pictures of the Okavango Delta and Kalahari Desert on *Activity Sheet 1* to identify similarities and differences between the two ecosystems. Tell students that the graphic organizer on *Activity Sheet 2* is where they will write patterns (e.g., animal **adaptations**, presence of water, etc.) they see in the pictures. Patterns that occur in both ecosystems are written in the middle. Some patterns are only found in the Okavango Delta and not in the Kalahari Desert. Others are found in the Kalahari Desert, but not in the Okavango Delta. Some students may need extra support to identify factors and patterns within or across the ecosystems. Share the definition of an ecosystem and the factors in the call out on the next page. Write the **abiotic** and **biotic** factors on the board as an anchor chart for students to reference.

© 2020 Disney Enterprises, Inc.

LESSON PLAN 2

GRADES 4-6

TOPIC: ECOSYSTEMS OF BOTSWANA | **CONTENT AREA:** SCIENCE, ELA

Which Ecosystems Do Elephants Call Home?

(continued)

LIVING AND NON-LIVING FACTORS:

As students examine pictures and complete *Activity Sheet 2*, remind them to consider factors that interact within an ecosystem:

1. Non-Living Factors (Abiotic)
soil
rocks
water
air
climate
sunlight
temperature

2. Living Factors (Biotic)
animals:
carnivores, herbivores, omnivores, predators, prey

plants:
grass, cactus, trees, flowers

WRAP UP

Divide the class into three groups. Student pairs in group 1 will share Venn diagram section 1) How the Okavango Delta is different. Students in group 2 will then share Venn diagram section 2) How the Kalahari Desert is different. The final group will share Venn diagram section 3) How the Okavango Delta and Kalahari Desert are alike.

Discuss what plant and animal adaptations may help a **species** survive within a range of tolerance in an ecosystem. How do the carnivores, herbivores and **omnivores** help maintain stable populations within an ecosystem?

Invite students to write a short paragraph about the most important relationships they discovered in their Venn diagrams. Encourage them to include which factors were the same in both ecosystems. Display the Venn diagrams and paragraphs in the room so students can continue to compare their insights.

KEEP GOING

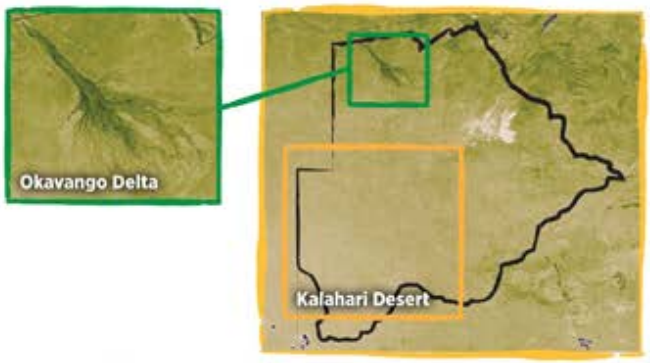
Some students may enjoy figuring out their own species range of tolerance by finding out which abiotic and biotic factors support life within their own ecosystems. For example, what adaptations or inventions help them survive across different weather conditions?

© 2020 Disney Enterprises, Inc.

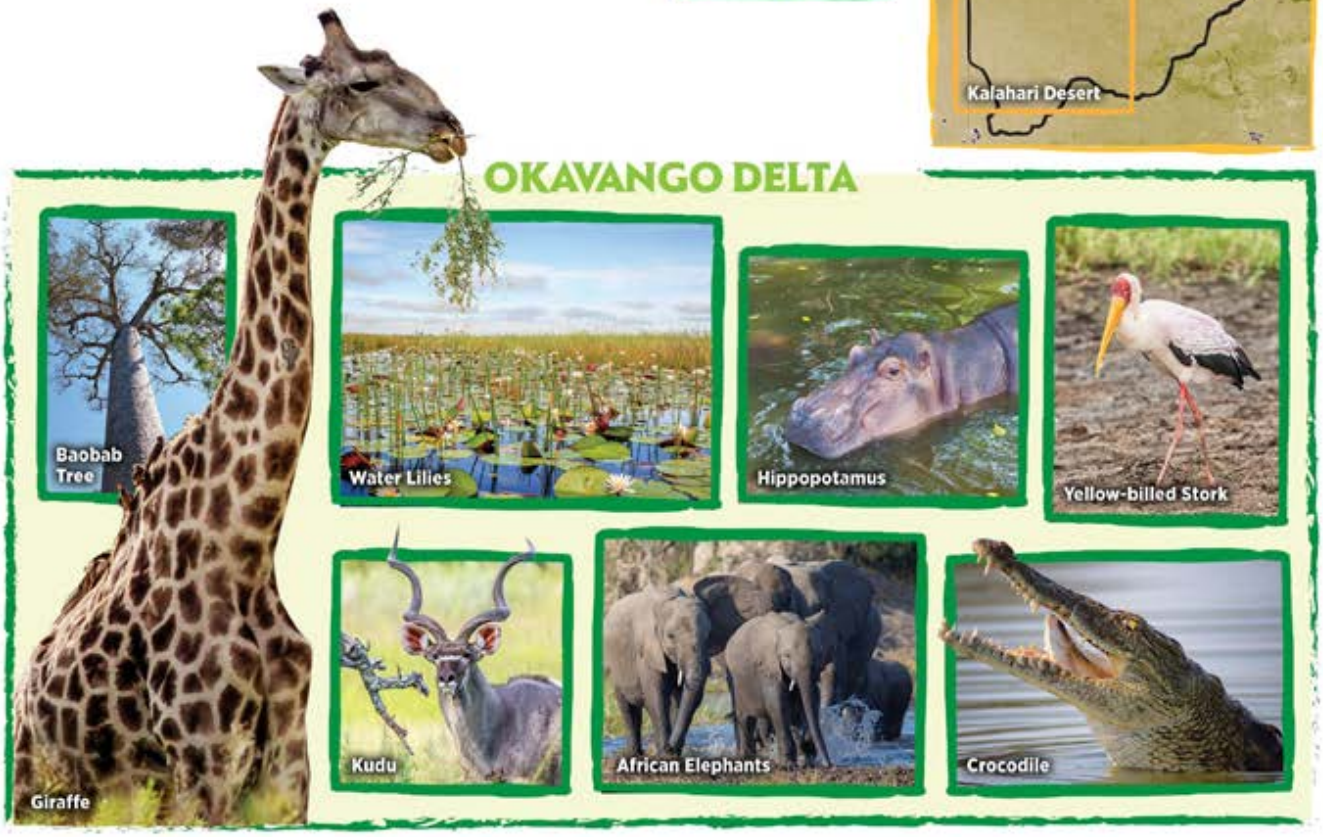
LESSON PLAN 2
ACTIVITY SHEET 1
GRADES 4-6

Ecosystems of Botswana

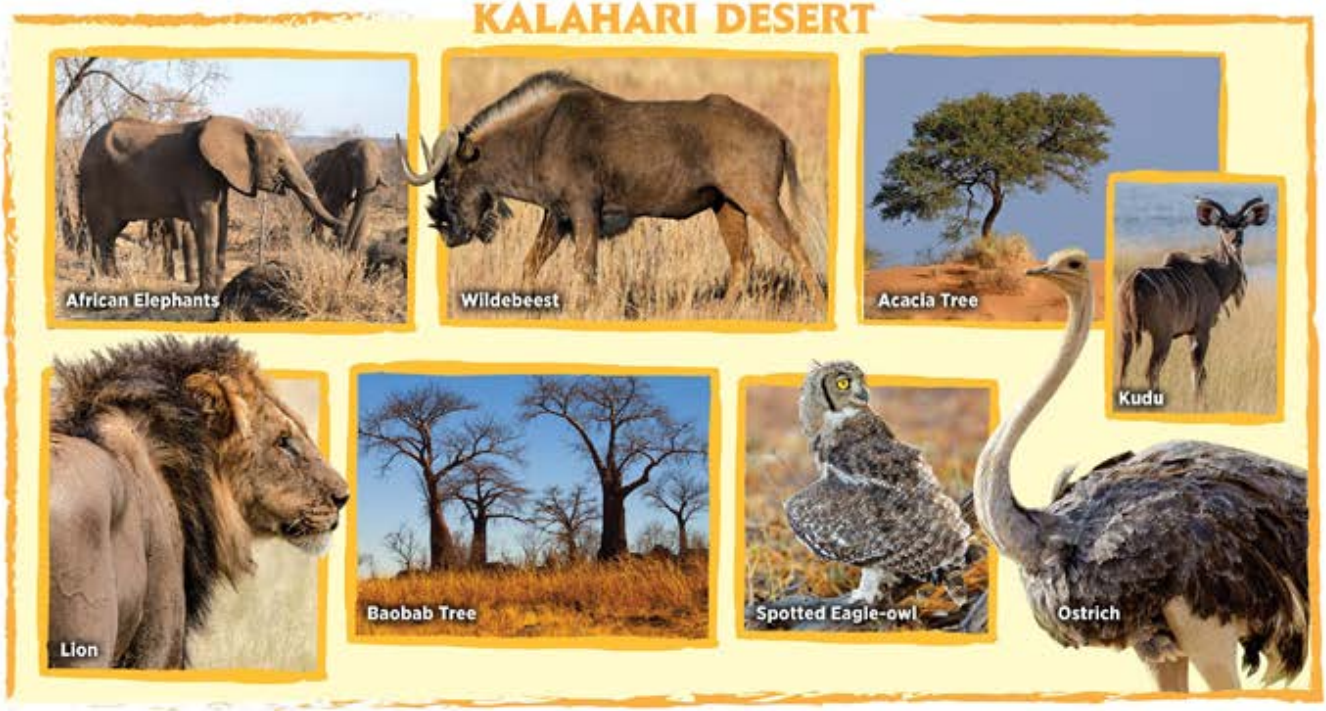
Images for Venn Diagram



OKAVANGO DELTA



KALAHARI DESERT



Disney nature
ELEPHANT

© 2020 Disney Enterprises, Inc.

LESSON PLAN 2
ACTIVITY SHEET 2
GRADES 4-6

Ecosystems of Botswana

Okavango Delta & Kalahari Desert Venn Diagram

NAME _____ DATE _____

OKAVANGO DELTA

List how the Okavango Delta is different from the Kalahari Desert:

List how the Okavango Delta and Kalahari Desert are alike:

KALAHARI DESERT

List how the Kalahari Desert is different from the Okavango Delta:

Disneynature ELEPHANT

© 2020 Disney Enterprises, Inc.

LESSON 3
BACKGROUND INFORMATION

Botswana Art And Culture

BOTSWANA CUSTOMS AND CULTURE

The rich culture of Botswana has been passed down from generation to generation. The presence of traditions can be found throughout the country, from urban spaces to rural villages. In traditional Botswana culture, elders impart values and morals on the younger populations through storytelling. As such, sharing oral histories has been a longstanding tradition amongst the people. Storytelling has long been the primary method of entertainment, teaching of history and passing on of customs. Botswana is made up of multiple cultural and ethnic groups. Historically, the Tswana people, a large ethnic group consisting of smaller groups of people with unique traditions. The Tswana people have long made their living off of agricultural uses of the land, learning the natural systems of Botswana. Cattle have long been a traditional symbol of status and wealth in Botswana. Even today, cattle are still prized by most, if not all, people of Botswana. Western culture has slowly been introduced to the more urban areas of Botswana and common items, like technology, can be seen in everyday life. However, in the more rural and tribal areas, the people uphold a more traditional way of life. Another large grouping is the Bantu. Bantu is a general term for over 400 different ethnic groups in Africa.

MUSIC

Music has always played an important role in Botswana culture and life and can be heard everywhere you go in the country. Traditional music of Botswana has been passed down to generations through oral histories. Across social and ethnic groups throughout Botswana, different forms of music and instruments are utilized. However, since the revolution of 1966 and with urbanization, Botswana has lost the use of many traditional instruments. A few key staple instruments are still used today though. Community singing is usually done in age or social groups. This is typically an a capella, without instrument, style of singing. Community singing can include chanting and creating unique sounds, using only the human body. The most popular type of singing in Botswana is known as "call and response." The leader of the group calls out or chants a line, and the group repeats it back to the leader. Drums have been present in traditional Botswana music for thousands of years, and they continue to play a large role today. Creating the beats that people dance, sing or chant to or even on their own, drums are one of the most important musical instruments in Botswana. Idiophones, self-sounding instruments, remain popular amongst different groups in Botswana. These instruments can include rattles, clapping pieces and bells. They often accompany singing or drums. Because instruments have always been handmade, they have never been standardized and mass produced. Meaning, each instrument is completely unique in the sound it will produce. Accompanying the music of Botswana is dance. Dance is also a long standing tradition, often introduced to children at a young age. Whether as part of a tribal ritual, mimicking the movement of the larger mammals like elephants that share the lands or just an expression of art, dance has always held an important role in Botswana culture. Songs and dances in Botswana have been a means to connect with ancestral spirits, often honoring them. Dance has also been incorporated into oral histories and storytelling. Acting out history has allowed the traditional culture and customs to survive in today's modern world.

ART

Art comes in many forms in the country of Botswana. Whether pottery, basket weaving, bushman art or wooden crafts, each is special and unique. Pottery and clay pots have been used in Botswana for over 2,000 years. As a handmade craft, these pieces serve as functional art, much like baskets and other crafts. These special crafts can also be used to tell a story. By portraying a scene from history, a deity and animals, these pieces can continue to pass on past customs and traditions to future generations. In Botswana, children learn from their mothers the art of craft—including pottery, basket weaving and tool making. Craft items can be made of clay, reeds and grasses and animal hides. Wooden crafts have long been used as tools and utensils for people in Botswana. The Hambukushu in northern Botswana are well-known for their extreme artistry and craftsmanship of wooden crafts. Most known for their depiction of animals and animal scenes, these crafts have long been sought after in Botswana and around the world. The earliest artists of Botswana were the Bushmen people. They were masters of rock painting, tool shaping and extreme crafters in the substrates they used. Bright and full of detail, Bushmen paintings have long been sought after and mimicked. These pieces are known to depict scenes of history and traditional life, allowing us a peek into what the past might have looked like. Depicting scenes of humans and elephants has long been a common theme of traditional Botswana art across many social and ethnic groups. The people of Botswana have learned to grow and live in harmony with the environment, including large mammals like elephants. These art pieces allow us to learn about the interactions and relationships over time between humans and wildlife.

© 2020 Disney Enterprises, Inc.

LESSON PLAN 3

GRADES 2-6

TOPIC: BOTSWANA ART & CULTURE | **CONTENT AREA:** ART, SOCIAL STUDIES

Why Is Artistic Innovation Important?

ESSENTIAL QUESTIONS:

How can modern artists use traditional folk techniques of Botswana to create modern artwork? What can we learn about texture from Botswana architecture? How does texture create visual interest?

MATERIALS

- Air-dry clay (white)
- Butter knives
- Rolling pins
- Wax paper
- Water in bowls
- Cellophane tape
- Objects for creating low reliefs in the clay (lace, popsicle sticks, seed pods, modeling tools, dinnerware, etc.)
- Non-toxic paint (metallic or earth colors)
- Raffia or ribbon
- 3" Square templates cut from cardboard
- Pencils
- Tea light candles or battery votives
- *Activity Sheet 1: Make Lekgapo Tiles*

VOCABULARY

- Ceramic clay
- Lekgapo
- Low relief
- Mural
- Symbols
- Texture
- Ornaments (architectural)
- Subtractive technique
- Vernacular architecture

KEEP IN MIND

While this lesson is about texture as an artistic element of Lekgapo, it is also about helping students understand the importance of artistic innovations that are based on rich cultural traditions.

To innovate is a way of honoring history. It means to "make changes" in something established, especially by introducing new methods, ideas or products.

WARM UP

Share with students that traditions in all cultures are passed down from parents and/or elders to children across generations. Some traditions may involve holiday celebrations. Students may recall some holiday traditions their families celebrate. Explain that in rural areas of Botswana, mothers pass down to their daughters the traditions of decorating the outside of their houses with **Lekgapo**, the art of **texture** that is represented in ornamental **murals**. How do students think ornamental murals are made? Mention that common shapes in lekgapo are repeating triangle and other geometric patterns. Lekgapo uses **symbols** of growing food and sustaining life. Some tiles feature lines that symbolizes planting crops, a seasonal activity in some families. Some of the patterns were given names such as Ngwedi, Moeme, Mmapharane and Filisi and each name was influenced by its shape. From ancient times, the women in the family selected the decorative mural designs and patterns.

In Vernacular or Folk Architecture, indigenous people—not professionally trained architects—use local materials and traditional designs to build and decorate their homes.

Given the hot temperatures in Botswana, they would often wake up before sunrise to prepare materials and begin designing. The local materials would include cow dung, which when mixed with water, was rich in color and texture. They would use their fingers to smear the mixture and create textured designs on floors or exterior walls.

INNOVATING ON THE TRADITIONAL BOTSWANAN ART OF LEKGAPO

Tell students that decorating murals on houses in Botswana appears to be a declining practice in many rural and especially in urban areas. Some Botswanan architects do honor the tradition by decorating commercial buildings with traditional painted designs. One way students can join modern African artists in continuing the rich cultural history from the early peoples of Botswana, is to use Lekgapo techniques to bring texture to life in **low relief** clay tiles. Decide which art project students will do (making a single tile or making a candle holder). Help students follow the directions on *Activity Sheet 1: Make Lekgapo Tiles*.

WRAP UP

Students display the tiles or candle holders they have created and do a Gallery Walk. The student artists talk about why they chose their designs and what they found most enjoyable/challenging about working with clay. Remind them about the significance of linear and geometric patterning that is often seen in clothing, basketry and architectural decoration throughout Africa. These shapes hold meaning and history. Close the activity by asking students to imagine how proud a woman from rural Botswana must have felt when she finished decorating the outside walls of her house with a personalized mural. Discuss the importance of continuing and innovating on cultural traditions.

Disneynature ELEPHANT

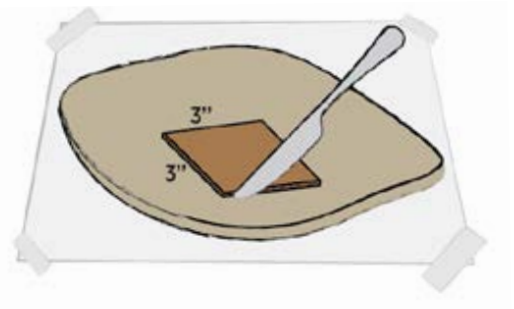
© 2020 Disney Enterprises, Inc.

Why Is Artistic Innovation Important?

Make Lekgapo Tiles

PREPARE THE CLAY:

1. Place a strip of wax paper on the work surface and tape down with cellophane tape.
2. Knead a ball of clay until it is soft. If the clay feels too dry, add drops of water until it feels softer.
3. Use a rolling pin to roll the clay flat to 3/4" thickness.
4. Place a 3" square cardboard template on top of the slab of clay.
5. Use a butter knife to cut out the sides of the 3" square from the flattened clay.

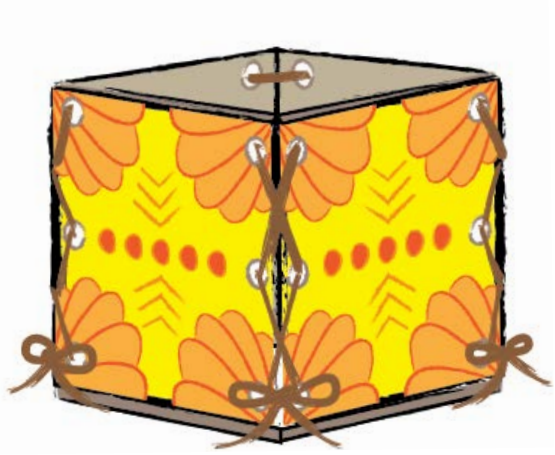


MAKE A SINGLE TILE:

1. Place the 3" square of clay on the workspace.
2. Use objects to press low relief designs into the clay (lace, popsicle sticks, seed pods, modeling tools, eraser end of pencils, dinnerware, etc.).
3. Use a pencil to make a hole in the top center if you want to hang the tile. Or follow the directions below to make a candle holder.
4. Paint the clay after it is dry (two to three days).
5. Tie a ribbon or length of raffia through the top hole.

MAKE A CANDLE HOLDER:
(REQUIRES FIVE TILES)

1. Follow the instructions above to make five tiles. Four of the tiles will make up the sides of the candle holder, and one is the base.
2. Use a pencil to make holes along the left and right sides of four of the tiles. Make the holes in the same places on all four.
5. After the clay is dry (two to three days), paint the four side tiles. Do not paint the base tile or the bottom edges of the side tiles.
6. Making sure your design is facing outward, align the holes on the left and right sides. Lace up the sides with ribbon or lengths of raffia and tie off.
8. Glue the base of the candleholder to the sides with ceramic glue.
9. Once dry, place a tea light candle or battery votive candle in the candle holder.



Disney nature ELEPHANT

© 2020 Disney Enterprises, Inc.

LESSON PLAN 3

GRADES 2-6

TOPIC: TRADITIONAL MUSIC OF BOTSWANA | **CONTENT AREA:** MUSIC, ELA, ART, SOCIAL STUDIES

How Can Music Tell A Story?

ESSENTIAL QUESTIONS:

What are the traditional musical instruments of Botswana? How are musical instruments of Botswana used in traditional songs and dances? Why is traditional music important to a culture? How can traditional musical instruments create music or sound effects to accompany and interpret a story?

MATERIALS

- See *Activity Sheet 1: DIY Botswana Musical Instruments* materials for students in small groups to each make one of four instruments
- *Activity Sheet 2: Telling a Story with Music*
- Pencils

VOCABULARY

- Beat
- Call and response
- Dance rattle
- Harmony
- Instrumentation
- Intensity
- Lengope
- Matumba
- Mbira
- Mood
- Pitch
- Rhythm
- Tines
- Traditional music
- Ululation

WARM UP

Ask students to share ways **traditional music**, dance and song are present in their lives or community. What special occasions involve celebrating with traditional music of our cultures? How does traditional music draw people together? Invite students to get a sense of traditional music in Botswana by viewing a video or listening to 2–3 minutes of a tribal dance song. Ask them to pay attention to: a) how the **beat** is maintained through clapping, stomping with **dance rattles**; b) how vocal forms and styles such as **call and response**, **harmony**, and **ululation** impact the **mood** of music. Discuss students' observations. What instruments or vocal forms did they hear? What was the mood of the song (happy, energetic, frantic, calm, content, sad)?

Cultural note: Music and dance in traditional Botswana tribal culture may involve a family, a community gathering or a performance. Traditional instruments help bring songs and dances to life. Folk music relies on clapping, dancing and vocal songs that celebrate daily life, cultural values, favorite stories or passages through stages of life. Ululations, loud high-**pitched**, **rhythmical** howling sounds, represent praise. Call and response is a musical phrase of lyric given by one performer and answered or repeated by a group of other performers.

Mbira: A traditional African instrument.

TELL A STORY WITH MUSIC!

Make the Instruments: Students will make DIY versions of Botswana traditional instruments and use them to accompany and interpret a Botswana elephant story. Break students up into four different groups and assign each group one of the four musical instruments.

Group 1 will each make a **dance rattle**

Group 2 will create the **lengope** (mouth bow)

Group 3 will make a **mbira** (finger piano)

Group 4 will make the **matumba** drum

Hand out directions for each group's instruments (found on *Activity Sheet 1: DIY Botswana Musical Instruments*). After students have made the instruments, give them 5-10 minutes to practice playing them for different effects.

POTENTIAL MUSICAL EFFECTS

Intensity: loud or soft

Pitch: higher or lower notes

Beat: like a heartbeat, a steady and repeated base pattern

Rhythm: flow of the music, based on the beat, but without a steady pattern

PLAY THE INSTRUMENTS WITH THE STORY

The story on *Activity Sheet 2: Telling a Story with Music* is adapted from a children's picture book, *Molelo The Fire Elephant* by Sylvia M. Medina and Krista Hill. Use *Activity Sheet 2* to guide students through the story using the instruments they created at music cues. Share with students that the first part of the story is a fictional narrative based on real life events and a real elephant. The last part of the text is about the elephant's life in the Botswana Elephant Sanctuary. The Sanctuary involves a collaboration among the Botswana Department of Wildlife & National Parks and Elephants Without Borders. Follow directions on *Activity Sheet 2: Telling a Story with Music* to align scenes from the adapted story with music cues (prompts to play) and instruments (which ones to play). If time allows, invite another class to attend a performance of *Molelo the Fire Elephant*.

Disneynature ELEPHANT

© 2020 Disney Enterprises, Inc.

LESSON PLAN 3

GRADES 2-6

TOPIC: TRADITIONAL MUSIC OF BOTSWANA | **CONTENT AREA:** MUSIC, ELA, ART, SOCIAL STUDIES

How Can Music Tell A Story?

(continued)

WRAP UP

Ask students to discuss the given examples of how playing instruments highlighted story events. How did the music they played help express characters' emotions? How did instruments capture characters' actions? Discuss students' insights and feelings about playing traditional Botswana instruments. What was the most challenging? Fun? How does traditional music draw people together? How does sharing Molelo's story help elephant conservation efforts?

KEEP GOING CHALLENGE

Call and response is a vocal pattern in some folk songs that builds on community performances. One person (occasionally can include two or three singers), will sing a line of lyrics (the call) and the rest of the singers will sing a related line of lyrics (the response). This pattern of singing is a central part of many Botswana traditional songs. An enhanced version of call and response might involve not only singing but accompanying the vocals with traditional instruments. Students can explore this musical pattern as follows:

1. Students select a familiar childhood song ("Row, Row Your Boat", "The Wheels on the Bus", "If You're Happy and You Know It", etc.)
2. They start by singing the original song, remembering the lyrics, and noting how the call and response pattern invites everyone in the choir to participate.
3. Students will keep the tune but replace the original lyrics with lines inspired by Molelo the Botswana Elephant's story. Use the example song box to the right to help your class get started.
4. After completing the example song, ask the class to brainstrom seven call and response verses set to a different inspiration song. Write call and response verses on chart paper as students suggest and agree upon lyrics.
5. The teacher guides the group to sing the song by identifying the "callers" for each verse and pointing to lyrics as the class sings.

Example Song

Inspiration Song: "The Wheels on the Bus"
New Song Title: "Molelo Has Helpers"

Verse 1

Call: Leo wakes up and stretches his trunk, stretches his trunk, stretches his trunk

Response: Leo wakes up and stretches his trunk, until Masego says "Leo we're late!"

Verse 2

Call: Leo splashes and rolls in the mud, rolls in the mud, rolls in the mud

Response: Leo splashes and rolls in the mud, until Mom says "Watch out for fire!"

Verses 3-7

Call:

_____

_____

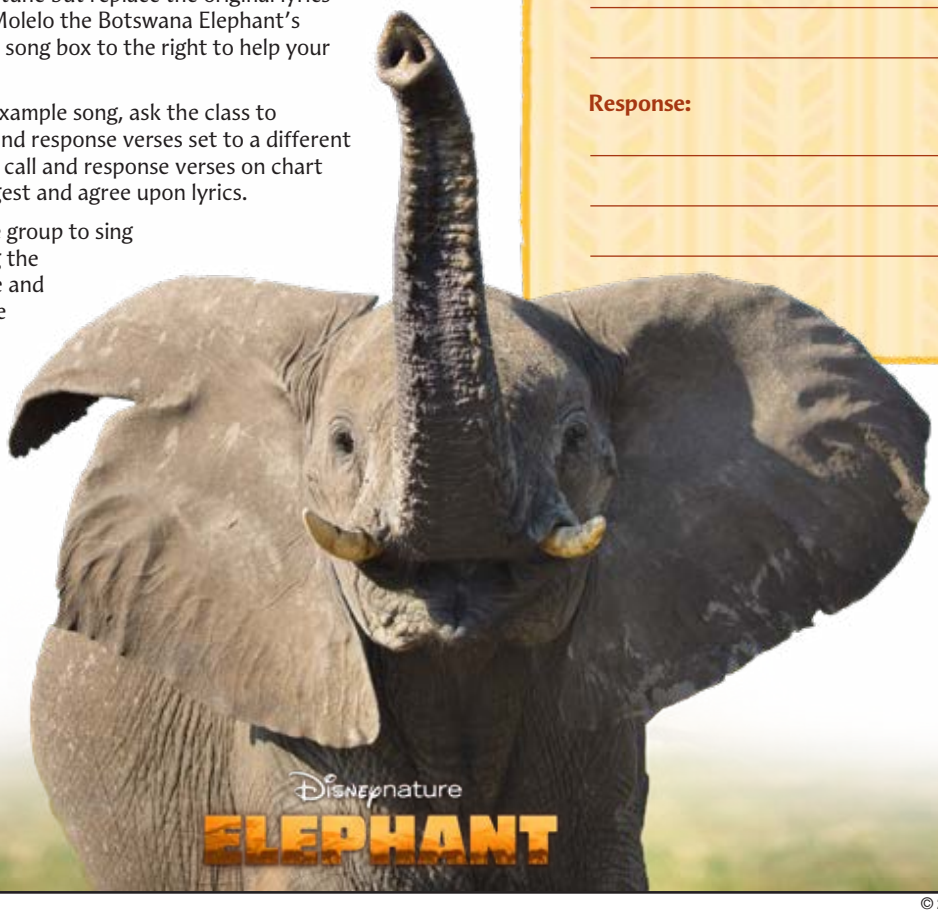
_____

Response:

_____

_____

_____



© 2020 Disney Enterprises, Inc.

LESSON PLAN 3
ACTIVITY SHEET 1A
GRADES 2-6

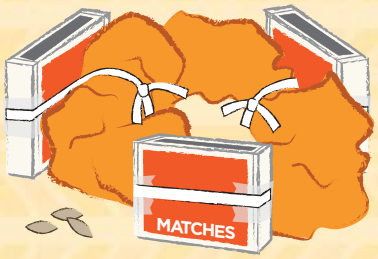
How Can Music Tell A Story?

DIY Botswana Musical Instruments

Dance Rattle

MATERIALS FOR EACH INSTRUMENT:

- Hair scrunchie
- Three small empty matchboxes
- Birdseed or dried rice
- Tape
- Curling ribbon
- Teaspoon



1. Add 3/4 tsp of birdseed or dried rice to each of the three empty matchboxes and tape the ends closed.
2. Tape a 3" length of curling ribbon to the long side of the matchbox then bring the ends of the ribbon to the other side of the matchbox and tie two tight knots in the middle.
3. Tie the loose ribbon ends around the scrunchie with three knots. Trim the knots and arrange the matchboxes on the outside of the scrunchie.

Playing: Dance rattles are used in many traditional songs in place of drums. Dancers stomp their feet to make the beat. To play, slip the scrunchie onto your ankle and stomp or shake your foot. A group may choreograph dance steps to a 4/4 beat. Optional position: place the dance rattle on your wrist.

Lengope
AKA Mouth Bow

MATERIALS FOR EACH INSTRUMENT:

- String that can be tied tightly
- Bendable stick (reed or twig) approximately 12" long
- Disposable cup
- Scissors
- Plastic wrap
- Craft knife for an adult to cut a slit in the cup
- Cellophane tape

1. Wrap the string tightly around one end of the stick, about 1 inch (2.5 cm) from the end. Tie a knot.
2. Bend the stick to create a bow and tie the other end of the stick to the opposite end. Tie a knot.
3. Take the cup with a slit and place one end of the stick into the slit.

Playing: A lengope is a simple string instrument. It may be used for solo performances. Cover, wrap and tape the end of the stick opposite the cup with plastic wrap and place it in your mouth. Hold the stick with your teeth. Use one hand to hold the bow and with the other hand lightly pluck the string. Bending the bow while playing will change the pitch from high to low.

Disneynature ELEPHANT

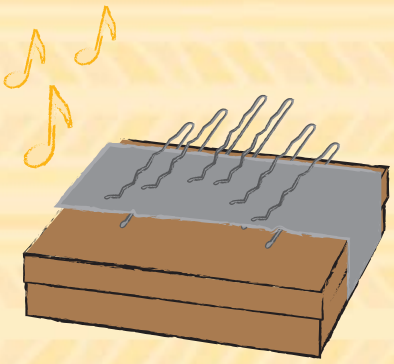
© 2020 Disney Enterprises, Inc.

LESSON PLAN 3
ACTIVITY SHEET 1B
GRADES 2-6

How Can Music Tell A Story?

DIY Botswana Musical Instruments

Mbira
AKA Finger Piano



MATERIALS FOR EACH INSTRUMENT:

- Recycled cardboard jewelry gift boxes (3x4 inches [8x10 cm])
- Six large bobby pins
- Duct tape
- Cellophane tape
- Ruler
- Pencil

1. Spread open 6 large, thick bobby pins to approx. 35-45 degree angles.
2. Tape the straight sides of the first 2 bobby pins at least 1 1/4 inches (3 cm) from the bottom on both the left and right sides of the box.
3. Work toward the middle of the box, taping the next set of bobby pins 2 inches (5 cm) from the bottom edge, and the middle two bobby pins at 2 1/4 inches (6 cm) from the bottom edge.
4. Guide duct tape under the top inside edge of the bobby pins, press in place, and continue wrapping and pressing the tape around the box.

Playing: The box of the mbira vibrates to produce sounds as metal tines of the bobby pins are plucked. To play, lightly hold the sides of the box with your fingers, cup your hands together and use your thumbs to pluck different bobby pins to make musical melodies.

Matumba Drum

MATERIALS FOR EACH INSTRUMENT:

- Two paper cups (one smaller than the other)
- Scissors
- Tape
- Newspaper
- Decoupage glue
- Non-toxic acrylic paint
- Rubber bands
- Yarn or string
- Beads (optional)
- Large thick balloons or punching balloons
- Permanent markers

1. Choose a big and small cup. Place the bottom of the small cup on the bottom of the big cup. Trace around the small cup with permanent marker.
2. Cut a hole around the tracing on the bottom of the big cup (cut to the inside of your line).
3. Cut the bottom out of the small cup (cut just the interior bottom of the cup).
4. Turn the small cup upside down so the hole is facing upward and then place the large cup on top so that the hole in the bottom is facing downward. Tape the bottoms of the cups together.
5. Use decoupage glue to paste strips of newspaper over the surface of the cups. Paint the dried surface with white paint and allow to dry.
6. Paint designs on the surface of the drum and allow to dry.
7. Cut open a balloon and stretch it tightly over the top of the large cup, securing it in place with rubber bands (cut off any excess balloon).

Optional: wrap and tie yarn (threaded or not threaded with beads) around the small cup to create texture.

Playing: Matumba drums are percussion instruments that maintain the beat of music. Players may also innovate, adding rhythmic beats to enhance a song. Place the drum between your knees, tilt the top slightly away from you and use your fingers to make drum beats.

Disneynature ELEPHANT

© 2020 Disney Enterprises, Inc.

LESSON PLAN 3
ACTIVITY SHEET 2A
GRADES 2-6

How Can Music Tell A Story?

Telling A Story With Music

DIRECTIONS:

Part A. Read the story aloud. Stop at scene 1. Explain that some words in the story are music cues (prompts to play an instrument). There are two music cues in scene 1. Read the cues from the tables. Suggest which instrument should be played for each cue. Suggest and write music cues and instruments for the remaining scenes on the table.

Part B. Continue to read the story aloud, pausing for each music cue so students can play the instrument for 10-15 seconds.

Hint 1: More than one instrument may be played on a cue (ex. fire)

Hint 2: You may play the role of conductor, following the story music cues and pointing to an instrumental group when it is their turn. Whistling, clapping or ululating is encouraged any time instruments are playing.

Molelo The Fire Elephant An adapted story	Story Music Cues	Instruments
Scene 1: It's early morning under the shade of an acacia tree in Botswana. Lille Leo the elephant stretches his trunk and wakes up. Masego, the red-billed oxpecker is flapping her wings frantically, "Leo, we're late, we're late. It's past time to go to the waterhole!"	• Leo stretches his trunk and wakes up • Masego flaps her wings frantically	**Mbira** • lowest to highest note **Matumba** • fast and light
Scene 2: At the waterhole, Leo joins the herd to drink, splash and roll in the mud. He doesn't want a sunburn! Mother walks over and hugs Leo with her trunk. She warns, "Don't wander too far today because poachers have been starting fires. The herd needs to stay close together."		
Scene 3: Leo crosses the waterhole to meet Masego, who is chewing on a grub from a bull elephant's back. Leo hears a roaring sound. Hot wind blows. It is a fire! He gets lost in the thundering stampede. The smoke makes him tired. Choking, he slumps down and sleeps. His mother comes to him in a dream. "Leo, trust the people who will come to you." She is a welcome sight, but she fades away.		
Scene 4: When Leo wakes up, his skin feels like it is burning. A man named Ronny tells him not to worry. "We'll take you to a safe place." After a bumpy ride, Leo falls asleep again. This time he wakes up on a cot inside a fenced room. Kelly and Mike are there to help him at the research station. "Hi, baby," Kelly says, "Can you drink the bottle so you'll get better?" Leo refuses. He wants his mother. The next time he dreams, mother says, "Drink milk to become a big, strong elephant and return to the Delta one day."		

Disneynature ELEPHANT

© 2020 Disney Enterprises, Inc.

LESSON PLAN 3
ACTIVITY SHEET 2B
GRADES 2-6

How Can Music Tell A Story?

Telling A Story With Music

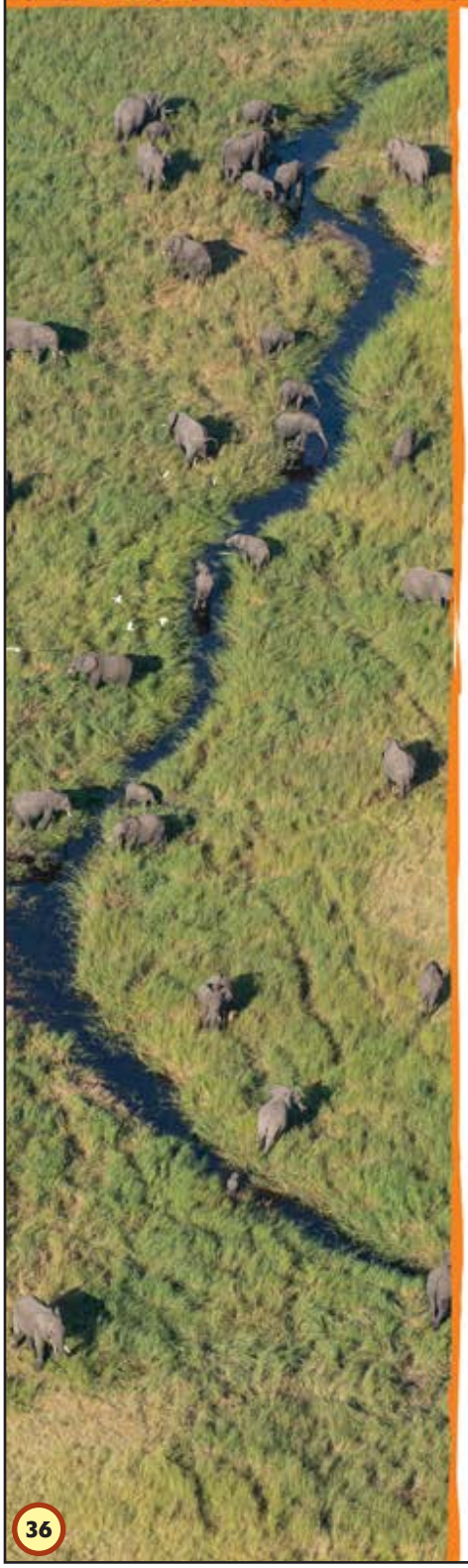
Molelo The Fire Elephant An adapted story	Story Music Cues	Instruments
Scene 5: Leo gets stronger and moves to the Botswana Elephant Sanctuary. He even gets a new name, Molelo, which means "from the fire." Molelo splashes in the waterhole but doesn't talk to other elephants. He is lonely until he meets a girl elephant Tuli, who is also an orphan. They play chase and relax at the waterhole. They feel safe here.		
Scene 6: Panda, an older female elephant, soon arrives and makes it a point to meet the kids. Panda is like a mom to them. She tells Molelo, "You can't stay a man-calf all your life. You need to eat more than milk." She shows them which tasty grasses to eat. Molelo begins to grow.		
Scene 7: One day, an old friend, Masego, flutters in, "I've been looking for you, Leo." "I'm Molelo now. Come and see the sanctuary and hear my good news. When I grow up I'll go home to the Delta."		
Scenes based on Molelo's real life at the Botswana Elephant Sanctuary:		
Scene 8: Molelo drank up to 40 liters of milk, sweetened with coconut, a day. Later he learned to eat leaves, grasses, shoots (known as browse). Molelo went on many walks with Tuli and Panda. He was fascinated with wildlife, including warthogs, he met along the way.		
Scene 9: Leo is also a teacher and a greeter when students visit the Sanctuary. Students learn how the Sanctuary and Elephants Without Borders are helping conserve the species and habitats.		

Disneynature ELEPHANT

© 2020 Disney Enterprises, Inc.

LESSON 4
BACKGROUND INFORMATION

Botswana's Natural Landscape



BOTSWANA'S GEOGRAPHICAL LANDSCAPE

Botswana proudly boasts some of the best wildlife viewing in the world, with tourists flocking to the country each year to experience the incredible sights. About 70 percent of the land in Botswana makes up the Kalahari Desert.

THE KALAHARI

The Kalahari Desert consists of undulating hills of sand that support a fine layer of grassland. Dry lakes and dunes account for the majority of the desert, creating an arid utopia. Very little water flows in the Kalahari, in fact, the flowing waters of the Okavango Delta completely dry up and end in this land of sand and sun. In the Kalahari, water is found only in scarce and scattered watering holes. Nearly all of the rain that falls is soaked up or evaporates almost immediately. Despite the absence of water in the southern area of the Kalahari, the desert in whole is home to various animals and visitors throughout the year. The main species found in the south are springbok, wildebeest, oryx, duiker and kudu. Travelling to the northern region of the Kalahari, the desert gives way to open woodlands and fertile landscape. Commingling with the Okavango swamp lands, the northern Kalahari supports an array of life, including a diversity of wildlife. After strong rains, the surface area of the northern region of the Kalahari becomes a lush landscape, sprouting vegetation, including trees, grasslands and shrubs. When this occurs, wildlife is especially drawn to the area for the rich grazing opportunities. Because of its vast size, the entire Kalahari region is home to several biomes: grasslands, savannas and dry, arid desert. A key feature of the Kalahari is the gray clay, rich in salt. The salt provides essential minerals, or essential electrolytes, to the visiting wildlife of the desert. The northern reaches of the Kalahari often include giraffes, zebras, buffalo, large predatory cats, elephants and other large and medium-sized mammals.

THE OKAVANGO DELTA

Making up a large portion of northwestern Botswana, the Okavango Delta is one of the most widely recognized landscapes of Botswana. With lily pad covered lagoons and sprawling channels, the Okavango Delta supports an array of life vastly different than that of the Kalahari Desert. Beginning as the vast, winding Okavango River, the water travels southeastward from Angola and Namibia

© 2020 Disney Enterprises, Inc.

LESSON 4
BACKGROUND INFORMATION

Botswana's Natural Landscape *(continued)*

until it reaches 70 miles (113 km) into Botswana. There, the river empties into the vast, wide swampland of the Okavango Delta. On average, about 2.5 trillion gallons of water enter the Delta each year. Typically, a delta flows to the ocean, or open water. However, the Okavango is unique in that its rivers widen and open up to create large marshlands, known to seasonally flood. As the dry season takes over the rest of the country, the Okavango River swells and floods, emptying its contents into the swamp of the Delta. This creates a unique relationship between the water and the animals in the region. Native flora and fauna have biologically synced their bodies to coincide with the natural cycles of their environment. Plants flourish seasonally, and large animals know they can return to the Delta when water and resources are scarce elsewhere. While the Delta is typically full in the winter, the swamplands are present throughout the year and never quite run dry. With flowing water and lush lands during the dry winters, the Okavango Delta supports some of the world's most beloved mammals. Zebras, cheetahs, lions, elephants are just a few of the diverse species that call the Delta home. In recent years, the elephant population has been increasing in the Delta, a triumph for the elephant population worldwide. As the largest land animals on Earth and in the Delta, the elephants serve as a keystone species for this ecosystem. Elephants have flocked to the Delta as it has provided a safe haven for their herds. With resources always present and protected habitats, it's the perfect place for large, vulnerable mammals to visit.

© 2020 Disney Enterprises, Inc.

LESSON PLAN 4

GRADES 4-6

TOPIC: CLIMATE & WATER CYCLE IN THE OKAVANGO DELTA | **CONTENT AREA:** SCIENCE & MATH

What Is The Water Cycle In The Okavango Delta?

ESSENTIAL QUESTIONS:

Why does the Okavango Delta flood at certain seasons? Why does it go dry? What impact does the cycle of flooding have on the ecosystem? How can scientists and wildlife managers use water cycle data to help protect wildlife in the Delta?

MATERIALS

- Chart paper
- Markers
- Papers
- Pencils
- *Activity Sheet 1: Seasonal Climate Data*
- *Activity Sheet 2: Plan an Ecotourism Trip*
- *Activity Sheet 3: Water Cycle Notes*

VOCABULARY

- Climate
- Delta
- Flood plain
- Weather

WARM UP

Remind students that the Okavango **Delta** goes through an annual cycle of flooding and drying. Ask students why they think this might be the case. Answers will likely focus on the relationship of rain to flooding. Write down students' answers on a piece of chart paper so you can return to this at the end of the lesson. Share with students the answer that there is a delay from the wet season to the flood season because the water from the Angolan Highlands needs time to reach the **flood plain** of the Delta. The answer to this question is important to understand how to protect the wildlife of the Delta. Show this video of the Delta changing over time: https://www.youtube.com/watch?v=VPEcSpEZy-s. Display a map of the region and ask students why this is such an important question. Google maps: https://www.google.com/maps/place/Okavango+Delta/@-19.3193406,22.7265653,168890m/data=!3m2!1e3!4b1!4m5!3m4!1s0x19566cd6a10d2727:0x415c0ceb3cb2bae!8m2!3d-19.6510095!4d22.9058802

CLIMATE OF THE OKAVANGO & WATER CYCLE IN THE DELTA

Place students in groups of 2-4. Provide each group with *Activity Sheet 1: Seasonal Climate Data*. Remind students that they are using the data to answer the guiding questions. Why does the Okavango Delta flood when it does and why does it go dry when it does? Allow students to examine the map of the region and the data from *Activity Sheet 1*. Ask students to think about how they might analyze the data. What patterns can they look for? What mathematical tools (e.g. graphs) can they use to analyze the Delta?

WRAP UP

Small groups share the graphs or data representations of the water cycle of the Delta and provide an explanation for why and when the Delta floods. Compare their explanations with the chart paper predictions students filled out at the beginning of the lesson.

KEEP GOING

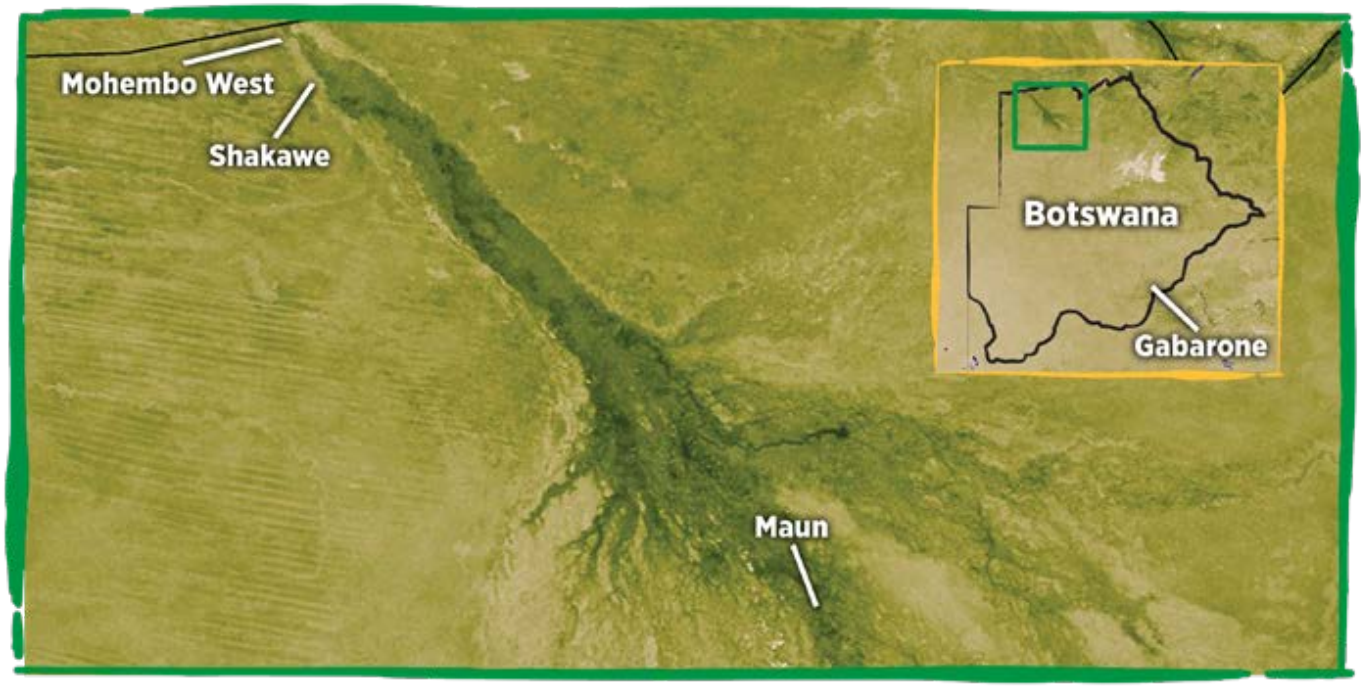
Students in groups of two will step into the shoes of an ecotourism guide by completing *Activity Sheet: Plan an Ecotourism Trip*.

© 2020 Disney Enterprises, Inc.

LESSON PLAN 4
ACTIVITY SHEET 1
GRADES 4-6

What Is The Water Cycle Of The Okavango Delta?

Seasonal Climate Data



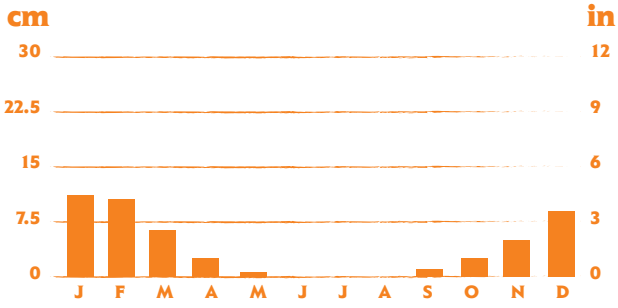
Height of Okavango Delta Flood Water (monthly averages in centimeters)

	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
MOHEMBO WEST	116.62	168.30	211.20	244.64	210.98	142.74	104.79	78.96	57.75	36.04	32.27	62.93
MAUN	105.96	105.15	103.60	98.58	100.26	111.82	128.48	135.88	135.70	128.93	123.71	110.52

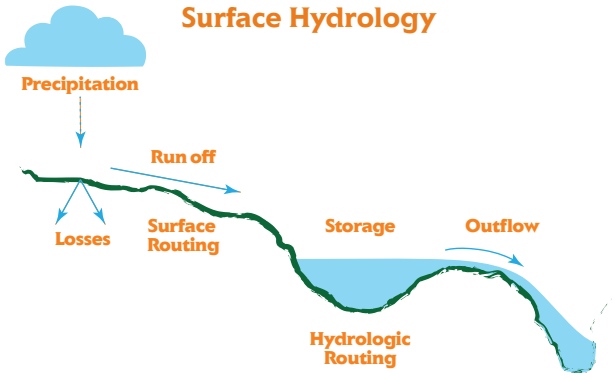
Rainfall Totals for Select Cities in Botswana (monthly averages in centimeters)

	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
SHAKAWE	13.21	11.93	7.11	3.05	0.00	0.00	0.00	0.00	0.51	1.27	5.84	8.89
GABORONE	3.30	3.05	2.03	1.27	0.76	1.02	0.00	0.51	0.51	1.27	1.78	3.30
MAUN	10.41	9.40	8.12	2.54	0.51	0.00	0.00	0.00	0.51	1.27	2.54	3.05

Okavango Delta Average Rainfall



Surface Hydrology



Disney nature ELEPHANT

© 2020 Disney Enterprises, Inc.

LESSON PLAN 4
ACTIVITY SHEET 2
GRADES 4-6

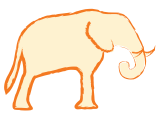
What Is The Water Cycle Of The Okavango Delta?

Plan An Ecotourism Trip

NAME _____ DATE _____

DIRECTIONS:

1. Imagine you are vacation planners for an ecotourism lodge in Botswana. Families contact you to ask for advice about the best time to plan their trips.
2. It is up to you to figure out what time of year they should travel to the Okavango Delta.
3. Using the resources on *Activity Sheet 1: Seasonal Climate Data* and *Activity Sheet 3: Water Cycle Notes*, fill in the table below.
4. You will give families advice on which time of year would be best for traveling. (Record both summer or winter and wet or dry season).
5. Be prepared to explain why conditions vary at different times of the year.

The families and what they want to see	Recommended season (summer/winter)	Recommended time of year (wet season/dry season)	Recommended months
 **THE ALEX FAMILY** *"We want to see herds of different animals in one place."*			
 **THE O'CASE FAMILY** *"My son saved up for a pair of binoculars. He would love to go birdwatching."*			
 **THE LOPEZ FAMILY** *"We love fishing. Can we go during a time when we can catch some fish? We'll throw them back."*			
 **THE PATEL FAMILY** *"We want to see the migration of some animals. How about zebras?"*			
 **THE AMARI FAMILY** *"We want to cruise the waters to see papyrus and lily pads up close, and find out what kind of insects there are."*			
 **THE WILLIAMS FAMILY** *"The kids want to see elephants—lots of elephants and I want to see fish."*			

Disneynature ELEPHANT

© 2020 Disney Enterprises, Inc.

LESSON PLAN 4
ACTIVITY SHEET 3
GRADES 4-6

What Is The Water Cycle Of The Okavango Delta?

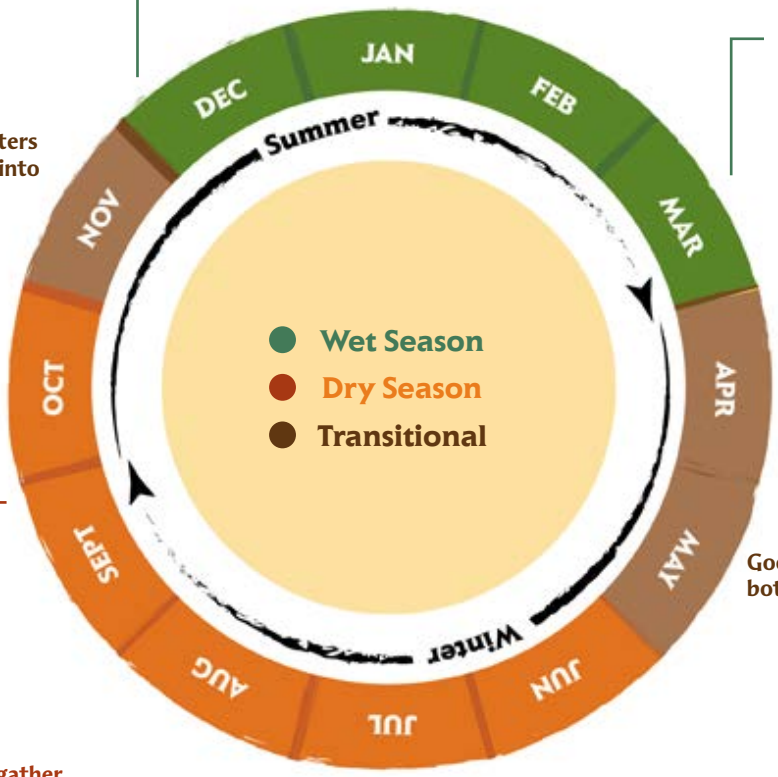
Water Cycle Notes

Summer rains fall in the Angolan Highlands in January & December. Waters start their six month journey to the Delta.

Migrant birds arrive to the Delta in January and December.

Thousands of zebras migrate during the middle to the end of the summer season.

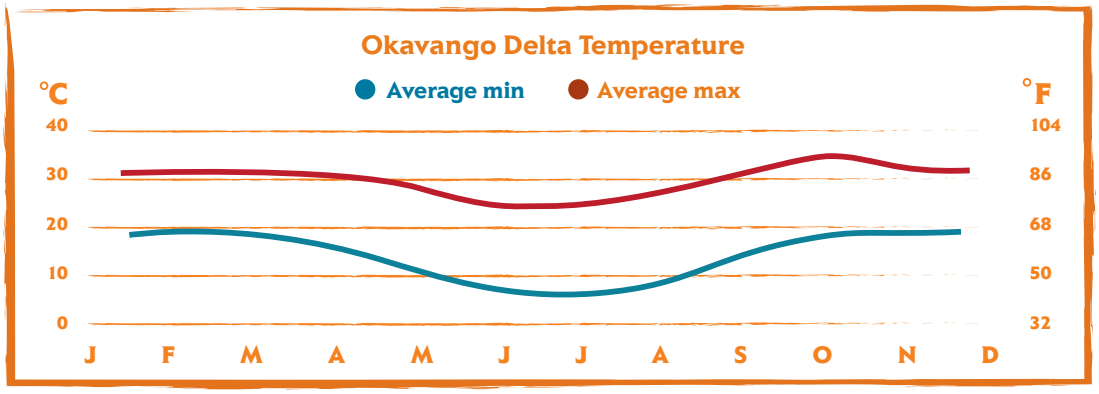
From September to November, receding waters force thousands of fish into the Okavango River.



Good climate with a mix of both wet and dry season.

Large herds gather around waterways in hottest months.

Flood water starts to reach the Delta in June. Flood levels are at their heighest in July.



Disney nature ELEPHANT

© 2020 Disney Enterprises, Inc.

LESSON 5
BACKGROUND INFORMATION

Elephant Communication

VOCALIZATION AND COMMUNICATION

Elephants are also known for their special, trumpeting call. This sound, as well as other vocalizations, are made by using their trunks. In addition to vocalizing, elephants may use their trunks to embrace another elephant, caress and greet another elephant or even ward off another elephant. While elephants are largely recognized for their loud trumpeting calls, you might not realize that people can't actually hear most of their vocalizations. Elephants produce low frequency rumblings that they most often use to communicate with herd members. These sounds, known as infrasounds, are usually between 1 and 20 hertz. Most sounds that humans hear are between 20 and 20,000 hertz. These special low frequency vocalizations help elephants keep in touch up to 2.5 miles (4 km) away!

SOCIAL STRUCTURE AND BEHAVIORS

Elephants are complex animals. While the females are social animals and most often can be found in small herds, males are typically solitary animals that roam on their own. The female herd leader is typically an older, experienced cow (term for female elephants) and provides guidance and protection for her herd. The females seek harmony within their groups and form strong bonds with one another. By living in large family groups, the females are able to help protect each other from predators such as lions, crocodiles and hyenas. While elephants really don't have many predators, they can be vulnerable to attacks at times. The males, called bulls, tend to be more competitive. As the bulls reach sexual maturity, they become combative and often disrupt the harmony of female groups. At this age, they will usually venture out on their own. Young bulls spend their time sparring with other young bulls, as a way of building hierarchy. Only the most highly ranked bulls compete for breeding with the females. Other than people, elephants are one of the only animal groups known to mourn the passing of a family or herd member. Elephants in mourning are very vocal, and can be heard crying out for their loved one. When an elephant comes across the body of a deceased elephant, they will spend time smelling the body, lifting the bones and carrying them around. Scientists believe the mourning of elephants is a strong indicator of their intelligence and emotional awareness.

Elephants are crepuscular, which means they are typically active both during the day and at night. However, their activity level decreases during the hottest parts of the day. They usually sleep and rest in the afternoon and around midnight. Young elephants will sleep anywhere from four to five hours per day and adults only sleep for about two to three hours each day. Elephants have a gestational period longer than any other terrestrial animal—females carry their calves for about 22 months! On average, females give birth to a new calf once every five years, making it a very special occasion for the elephant population worldwide.

© 2020 Disney Enterprises, Inc.

LESSON PLAN 5

GRADES 2-3

TOPIC: ELEPHANT COMMUNICATION | **CONTENT AREA:** SCIENCE, SOCIAL STUDIES

Matriarch, May We?

ESSENTIAL QUESTIONS:

In what ways do matriarchs of elephant herds communicate? What are some gestures and sounds elephants use to show how they feel, what they need, or what they want to do?

MATERIALS

- Play area
- List of elephant gestures

WARM UP

Ask the class to imagine what it might feel like to be able to communicate like an elephant. What do the gestures and sounds they make mean? Tell students they will play an adaption of a familiar game so they can show what they know about elephant communication. Explain the rules of Matriarch May I? (See section "Play Matriarch, May We?") Make sure students understand how elephants use their bodies (trunks, ears, feet) to communicate with other elephants. Introduce the elephant gestures on the call out. As a group, practice some movements: exploring and eating with their trunks, stomping feet to show danger or tell others to get away, making the body as large as possible and flapping ears to chase predators away, etc.

ELEPHANT GESTURES:

"Want to Play?"
wiggle head

"Excited"
head up, open eyes wide

"Listening to distant messages"
feet flat, raise one knee

"Sniff-toward"
raise straight arm (trunk) points and sniffs

"Alarmed"
hands flap by ears

"Shelter" under mom
crouch down to walk

PLAY "MATRIARCH, MAY WE?"

Goal of the game: The first team members of the elephant herd to reach the Matriarch wins.

Game play: Divide the class into small teams of two or three students.

Roles: The Matriarch (the teacher) stands on one side of the playing area. The elephant herd (teams of students) faces the teacher and stands in line several yards from the Matriarch.

Requests: Students in teams (from left to right) take turns asking to move forward by filling in the blank, "Matriarch may we…?" (Students make requests such as: take two giant elephant steps forward? Take three baby calf steps forward? Take two backwards steps, etc.) Students use their imaginations about how to move based on what they know about elephant movement.

Team Rules: If the speaker for the team forgets to say "Matriarch may we…" they have to return to the starting line. Students will use gestures, foot stomps, their "trunks" and sounds, trumpeting, low rumbles and other elephant gestures as they play.

Matriarch Responses: The matriarch can approve, deny or add conditions. For example, "Matriarch, may we take two giant elephant steps forward?" To which mother elephant replies, "Yes, you may, if you show how big and strong you are by trumpeting and waving your ears." Or, "Matriarch, may we take four calf steps forward? And the matriarch replies, "Yes, you may if you use your trunks to explore around you while moving slowly." Or, "You can take four steps forward and two steps backward." Other movements might include silent steps, loud stomping, stampeding/running steps, splashing in the waterhole steps, ear flapping steps. See the call out on this page for other options related to elephant gestures.

WRAP UP

Have students discuss the game and recount their favorite movements, how they felt while role-playing elephants and what they would change about the game when they play it again.

Disneynature ELEPHANT

© 2020 Disney Enterprises, Inc.

LESSON PLAN 5

GRADES 4-6

TOPIC: ELEPHANT COMMUNICATION | **CONTENT AREA:** SCIENCE, SOCIAL STUDIES

How Do Elephants Communicate?

ESSENTIAL QUESTIONS:

How do elephants communicate with each other? What are the key communication messages that elephants convey?

MATERIALS

- *Activity Sheet 1: Comparing Communication*
- *Activity Sheet 2: Chart of Elephant Behaviors*
- Chart paper
- Marker
- Paper
- Pencils
- Optional: computer connected to internet

VOCABULARY

- Matriarch
- Migrate
- Rumble
- Trumpet

WARM UP

Explain that elephant groups are **matriarchal**—they are led by, and generally made up of, female members who have sophisticated ways of communicating with one another and keeping the group connected and safe. As male elephants grow, they begin living on the edges of the herd, and when they are teenagers, they leave the family. Adult bull elephants may live alone or in groups of about 10. In order to thrive, elephants must **migrate** across Botswana and other parts of Africa to follow water and food. At the same time, other animals are doing the same thing. Ask students to imagine how elephants might communicate with one another to be able to stay together in their herd and migrate safely toward water and food. Then, have students generate questions they have about the ways that elephants communicate and record responses on chart paper or a dry-erase board. The questions that students generate should include the essential questions of the lesson. If not, add questions that are not generated.

FROM A RUMBLE TO A STOMP

Explain that scientists have discovered that elephants use specific sounds and movements that can be placed into broad categories of meaning. This lesson will focus on seven types of communication:

1. Care/Compassion
2. Greeting
3. Monitoring
4. Exploring
5. Group Defense & Danger Threats
6. Mother/Calf
7. Food Protest & Food Sharing

Hand out *Activity Sheet 2: Chart of Elephant Behaviors*. As a class, review the types of communication (i.e. gestures, sounds—with description of each). Hand out *Activity Sheet 1: Comparing Communication*. Divide the class into 8 small groups and assign each group a category on *Activity Sheet 2*. Students will follow directions to write a mini-scenario (a few sentences in the space provided or on a separate piece of paper) of the types of communications in sound and gestures used by elephants and those used by people. Tell students they will act out both mini-scenarios for the class. As a challenge, students could come up with other scenarios, or string elephant communications together and challenge other students to decipher the message.

ELEPHANT SOUNDS:

Do you want students to hear the difference between the sounds elephants make to:

- Greet each other?
- Comfort a calf?
- Scare off a predator?

Find audio clips listed in the Elephant Communication Chart in the resources section at: https://www.elephantvoices.org/multimedia-resources/introduction.html

WRAP UP

Display the chart paper of questions students had about the ways that elephants communicate. Review the essential questions. Ask students which elephant behaviors were the most interesting? Which elephant communication behaviors surprised them? Discuss how elephant and human communications are alike and different. What role does communication play within a community or family?

KEEP GOING

As an outdoor activity, invite students to closely observe a pet or a friend's pet to determine the sounds and movements they use to communicate. Students will design an observational chart with categories (i.e. hunger, playfulness, attention seeking, greetings, etc.) listed on the left side. They will leave space to the right to record their observations. Provide time in a few days for them to share their findings.

"Elephants love reunions. They recognize one another after years of separation and greet each other with wild boisterous joy. There's bellowing and trumpeting, ear flapping and rubbing. Trunks entwine."

– Jennifer Richard Jacobson
Author, *Small as an Elephant*

Disneynature ELEPHANT

© 2020 Disney Enterprises, Inc.

LESSON PLAN 5
ACTIVITY SHEET 1
GRADES 4-6

How Do Elephants Communicate?

Comparing Communication

CATEGORY ASSIGNED _____

NAMES _____

_____

_____

DIRECTIONS:

1. Read aloud the scenario for your category. Then use the Elephant Communication Chart to find out what elephants would do in that situation.
2. Write a mini-scenario (a few sentences in the space provided or on a separate piece of paper) of the types of communications in sound and gestures elephants (A) and people (B) would use.
3. Be prepared to act out both mini-scenarios for the class.

Category	A) How does an elephant communicate?	B) How does a person communicate?
CARE/COMPASSION A mother needs to soothe her cranky baby.		
GREETING You meet and greet friends you haven't seen for a while.		
MONITORING You are curious about something unusual you see, hear or smell.		
EXPLORING You want to go to a new area on the playground, and you want your friends to come along right now.		
GROUP DEFENSE & DANGER THREATS **(Talking & listening from afar)** You need to let someone who is 2.5 miles (4 km) away know a storm is coming.		
MOTHER/CALF A toddler runs to her mother after falling into a puddle.		
FOOD PROTEST & FOOD SHARING You forgot your lunch and want someone who has more than enough food to share but they won't.		
PLAY You are alone on the playground and are looking for someone to play with you.		

© 2020 Disney Enterprises, Inc.

LESSON PLAN 5
ACTIVITY SHEET 2
GRADES 4-6

How Do Elephants Communicate?

Chart Of Elephant Behaviors

Context	Sounds	Gestures
CARE/COMPASSION		
Care for child	Cooing-rumble	Gently caresses, directs with trunk, mother stands over calf to give shade.
Compassion for deceased	Approaches to the dead are done in silence	Gently uses trunk, hind or fore feet to touch or stroke the bones or the body. May back up towards the bones or body. May cover the body with vegetation.
GREETING		
When herd members have separated for a while and are reunited.	Overlapping rumbles and trumpets	Gentle positioning of head-to-head, gentle trunk rubbing and entwining.
MONITORING		
Considering a smell, object, or sound of interest	Sounds are not normally used	Eyes open or blink, may sniff the air. Tip of the trunk curled under. Elephant faces toward whatever is interesting.
EXPLORING		
Exploring the surrounding environment	Low murmur or rumble	Trunk to ground, trunk outreached and whole body faces direction desired.
Directional stance and signal "to go" (an elephant may give the signal many times [up to 30] before the herd begins to move)	May be quiet then give very low rumble	Trunk to ground, trunk outreached and whole body faces direction desired.
GROUP DEFENSE & DANGER THREATS		
Listening from afar	Sound is seismic—traveling underground up to 2.5 miles (4 km) through feet to skull and ears.	Receiver of sound stops in place, 3 feet (1 raised at knee) or all 4 feet firmly planted on the ground—herd gathers.
Attentive watchfulness	Very low rumble	Head is up, ears are up... the herd may freeze in place.
Sounding an alert	Deep/loud trumpet burst or noisy roaring	Ears full/flapping or folded, foot stomp/dust flies; herd may run together and bunch up.
Rush and mob predator	Trumpet blast	Trumpet blast and elephants chase off predators.
MOTHER/CALF		
Baby calf is hungry	Calf gives a cry-rumble	Calf tries to nuzzle head into position, trunk may be in the way, shuffles feet.
Mom reassures calf	Low, gentle cooing-rumble	Gentle trunk pushing, gentle feet pushing.
FOOD PROTEST & FOOD SHARING		
An elephant may protest when denied access to food by another elephant	Protest—Sharp roar	Hungry elephant moves close to food.
Share food with injured elephant	Sharing—may be silent	Elephants use trunks to put food into the mouths of older or injured hungry elephants.
PLAY		
Invitation to play	Sounds are not normally used	Waggling the head or looking at an elephant who might want to play and folding the trunk to rest on tusks.
Playing with sounds: adults and juveniles may play by making different types of trumpet sounds—just for fun	Playful trumpeting	May involve lifting the trunk and raising the head. Play may also include sparring, chasing, tail grabbing.

© 2020 Disney Enterprises, Inc.

LESSON 6
BACKGROUND INFORMATION

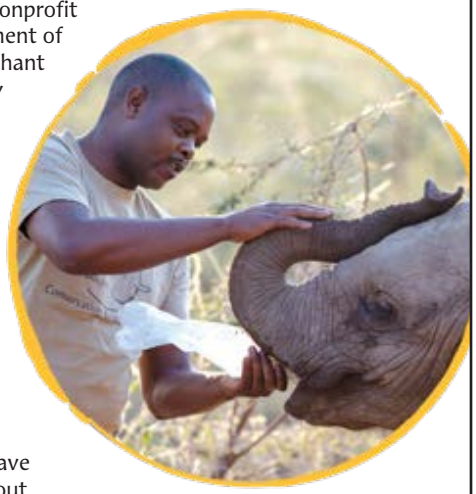
Elephant Threats And Conservation

RELATIONSHIP WITH PEOPLE

Elephants and humans have had a long and complex history. As the largest land mammals in the world, elephants can often disrupt life for people in Botswana and other countries. Farmers for example have had a difficult time living in harmony with the elephants due to trampling or consumption of crops. This can severely impact the livelihood of a farmer and their family, which might cause them to retaliate with harm to the elephant. However, because of protections for elephants and their important role in the ecosystem, Botswanans have found new ways to live in harmony with elephants. People have developed special fences that might be covered in chili powder or other natural ingredients that would deter an elephant from crossing the boundary. In other parts of Africa, conservation programs such as Save the Elephants have collaborated with researchers to discover ways to decrease human-wildlife conflicts. Through years of study, scientists have determined that elephants are afraid of bees. By creating fences with bee boxes on and around them, an elephant who disturbs or crosses these fences causes the bees to buzz and the elephants to leave out of fear. Providing additional benefit, the bees farmed in this manner are also making honey which provides an additional source of income to the farmer while keeping their crops safe and elephants unharmed. This is just one of the ways individuals around the world are seeking unique and innovative methods to protect elephants and increase their populations.

CONSERVATION IN BOTSWANA

The government of Botswana has long recognized the importance of protecting elephants. Conservation has become a part of the culture and way of life in Botswana. From a ban on hunting and poaching, to increased efforts with nonprofits and an increase in ecotourism, protecting elephants has truly been in the best interest of the people of Botswana. The country is internationally recognized and known for their conservation successes. Botswana first introduced their ban on elephant hunting in 2014. With the help of nonprofit organizations, the government of Botswana realized the elephant population had declined by about 30 percent between the years of 2007-2014. Now, the elephant population has increased and rebounded so strongly in Botswana, there is more concern over how to peacefully manage these large, growing populations. The country of Botswana has relied on the assistance and support of nonprofits throughout their fight to save elephants. Elephants Without Borders (EWB) is just one of many nonprofit organizations that works to study, record and save wild elephant populations. The organization is headquartered in Botswana and works very closely with the government and the Department of Wildlife and National Parks as it strives to uncover and understand migratory patterns of elephants. Because of their role as a keystone species, it's important to understand their movements and patterns. Elephants Without Borders typically conducts aerial surveys on behalf of the government which in turn uses the surveys to assess the elephant populations and make decisions on hunting rules and regulations. Elephants are a large contributing factor to the tourism industry in Botswana as well. Each year, thousands of people flock to Botswana to experience the elephant oasis of the Okavango Delta. With the largest wild population of elephants in the world, Botswana has seen its tourism industry steadily increase over the years. In fact, the number of visitors to Botswana each year is around 2-2.6 million people, making it larger than the country's population! Throughout Africa, elephants need and rely on the protection they receive from nonprofits and governing agencies to ensure their species stays safe. However, because of increases in wild populations in Botswana, the government has lifted the hunting ban. This means elephants no longer enjoy as many protections as they used to in the country. Organizations both in Botswana and around the world, like the Disney Conservation Fund, are working to raise awareness around the importance of protecting elephants to ensure future generations can see these incredible animals grazing across the Okavango Delta.



© 2020 Disney Enterprises, Inc.

LESSON 6
BACKGROUND INFORMATION

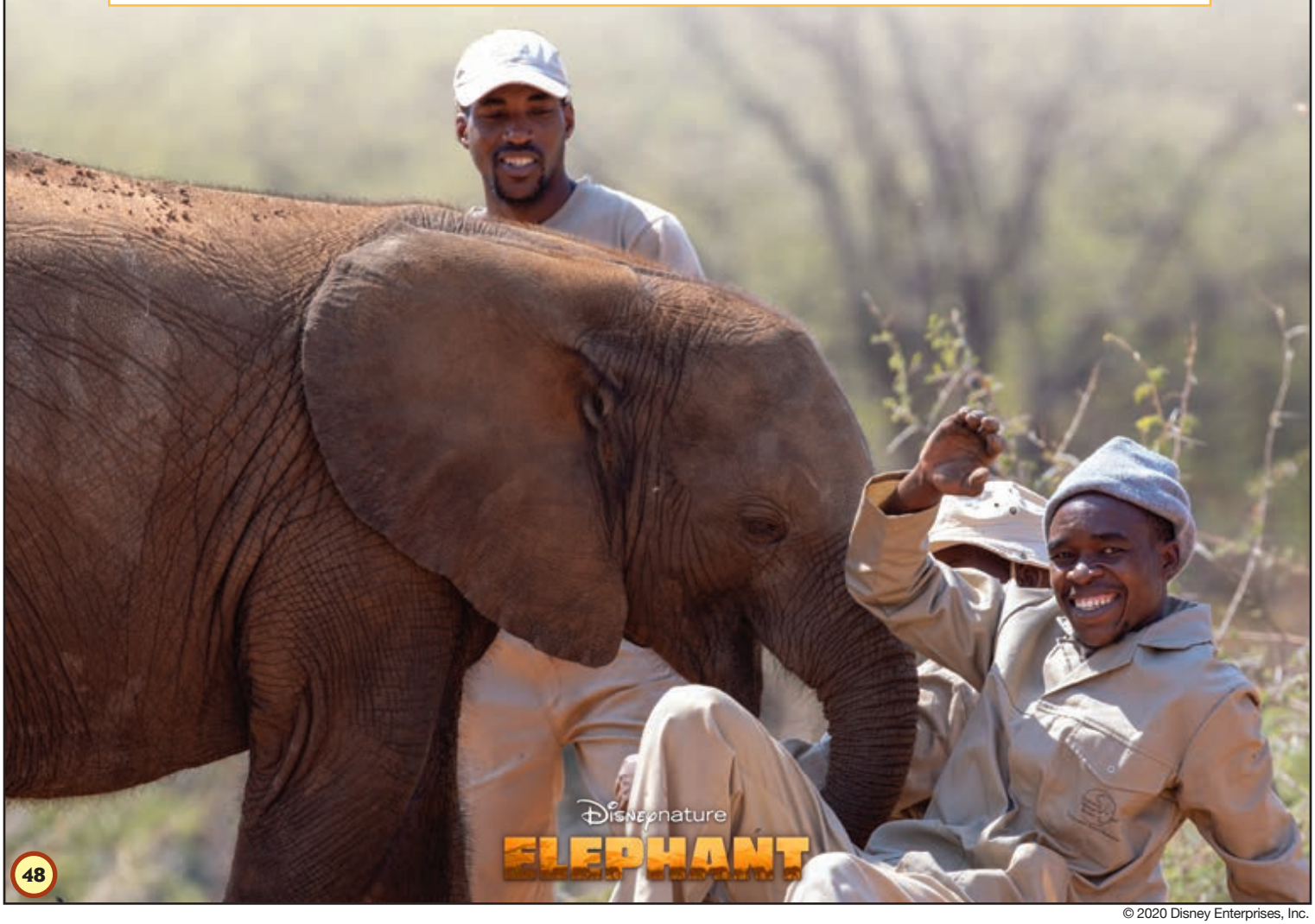
Elephant Threats And Conservation *(continued)*

HOW YOU CAN HELP ELEPHANTS

Elephants around the world need support and help from people. As a vulnerable species, as listed by the International Union for Conservation of Nature (IUCN) Red List, it is so important that we all do our part to help protect and conserve these beautiful giants. Nearly 100,000 elephants have been lost in the last decade. The three main threats elephants face are poaching, habitat loss and human-elephant conflict. There are ways we can all help elephants, small actions that when added together, make a big difference. When shopping for a souvenir, ensure that it is eco-friendly and wildlife-friendly. By purchasing these types of souvenirs and products, you are helping protect the resources wild animals depend on. Did you know that by learning about elephants you can help protect them too? Visit your local AZA-accredited zoo to see these incredible animals up close and learn about their behaviors and habits. Then, help spread the word about these animals by doing a school project or joining a conservation organization. By spreading the word, you can help others learn about the importance of protecting these amazing animals. Support or volunteer with a wildlife or conservation organization that is conducting research and actively working to protect species.

Disney CONSERVATION FUND

In recognition of **ELEPHANT**, Disneynature and the Disney Conservation Fund are supporting Elephants Without Borders, an organization working in Botswana to ensure people and elephants thrive. Elephants Without Borders is working on strategies to protect Botswana's elephant haven, helping to reduce human-wildlife conflict through education, economic development, and solutions that either redirect elephant migration away from people, or provide communities with tools that help to protect themselves and their properties when elephants are nearby.



© 2020 Disney Enterprises, Inc.

LESSON PLAN 6

GRADES 2-6

TOPIC: THREATS & CONSERVATION | **CONTENT AREA:** ART, SOCIAL STUDIES, MATH

How Can Artists Help Protect Elephants?

ESSENTIAL QUESTIONS:

How can artists use their artwork to raise awareness about animal protection issues? How does drawing animal shapes and contour lines help sculptors envision volume and mass?

MATERIALS

- Chenille stems in a variety of colors or aluminum florist wire (comes in many colors)
- 8 1/2" x 11" Construction paper (black and white)
- Glue dots
- Thin blue painters tape
- Pencils
- 28 Gauge wire
- 18 Gauge wire
- Paper
- Beads
- Wire cutters (used with adult supervision)
- Pencil
- Seed beads in a variety of colors
- Small buttons that can be affixed to the 28 gauge wire
- *Activity Sheet 1: Making Wire Sculptures*

VOCABULARY

- Additive sculpture
- Armature
- Conservation
- Conservationists
- Contour line
- Dynamic form
- Linear qualities of wire
- Mass
- Movement
- Open/closed sculpture
- Pattern
- Line as texture
- Poacher
- Space
- Static
- Texture
- Volume

WARM UP

Share with students that many African elephant herds migrate hundreds of miles before crossing the border into Botswana. They cross the dry Kalahari Desert and finally reach the life-giving waters of the Okavango Delta. Students may be surprised to learn that even though elephants are surefooted, some of them do not finish the journey or even reach the borders of Botswana. **Poachers** set up thousands of snares over vast territories to trap elephants and illegally sell their tusks. Wildlife **conservationists** are finding ways to protect elephants outside Botswana by removing snares whenever and wherever they find them. **Conservation**-minded artists are also using their talents to work with conservation groups to raise awareness of the threats and to raise funds for the protection of these animals. Artists use barbed wire from the snares to make artwork to protect the very animals the snares were meant to harm. Hand out *Activity Sheet 1: Making Wire Sculptures*. Draw students' attention to the pictures at the top. One picture shows the materials used to make an elephant snare. Many times, the snares include barbed wire. The second picture shows an elephant wire sculpture made entirely from snares.

"WIRING UP"

MAKING ANIMAL WIRE SCULPTURES

One-way students can join modern African artists in expanding efforts to make artworks that raise awareness about the threat of poaching to elephants is to make and display wire sculptures. Decide which art project is most suited to the abilities of your students: A. making a Linear Wire sculpture (wiring drawing sculpture of an elephant), or B. making a 3D Beaded Wire Sculpture of an elephant. Guide students as they follow the directions on *Activity Sheet 1: Making Wire Sculptures.*

Disney nature ELEPHANT

© 2020 Disney Enterprises, Inc.

TOPIC: THREATS & CONSERVATION | **CONTENT AREA:** ART, SOCIAL STUDIES, MATH

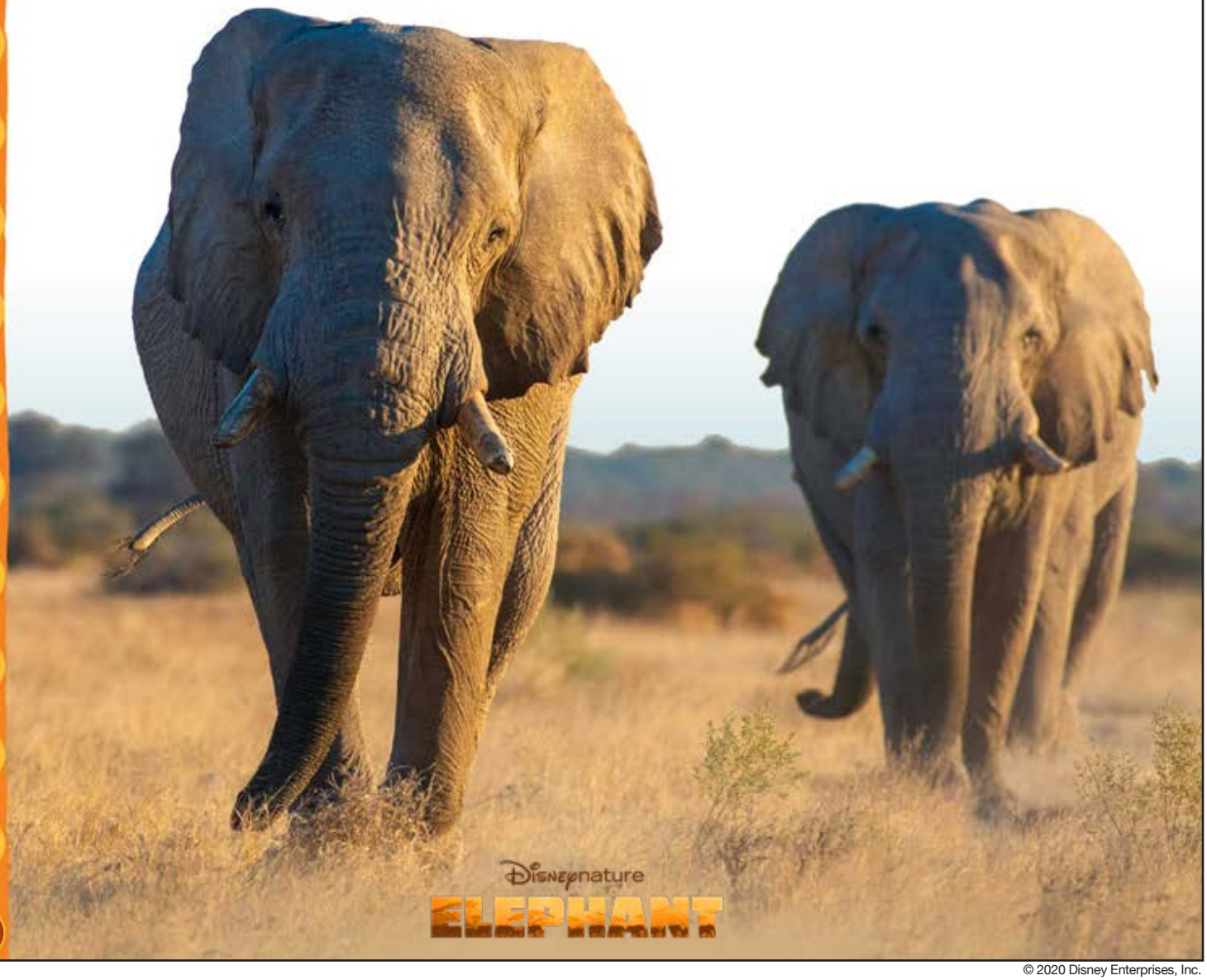
How Can Artists Help Protect Elephants?

(continued)

WRAP UP

Guide students in a conversation to think through and talk about how artwork can bring awareness to conservation, the art they created, and what they learned through the design and problem-solving process.

- What was the easiest and most difficult part of working with wire (artist process)?
- What was your favorite part of creating this artwork (artist's voice)?
- What differences did you notice between your 2D drawing and your 3D wire sculpture? (check for understanding)
- Is your sculpture open (moving into **space**, **dynamic**) or closed (**static** or not moving space)?
- How does your work suggest weight? Are the wires put together in a way that suggests simple, open shapes? Does this give your artwork a feeling or lightness or heaviness? Are the wires wrapped around themselves tightly to create more solid **volume**? Does this give your artwork a feeling of lightness or heaviness?
- What part does visualizing play in making and finishing a wire sculpture?
- How does artwork bring awareness to conservation efforts?
- What animal in your area would you represent in a wire sculpture to raise awareness of threats to the animal?



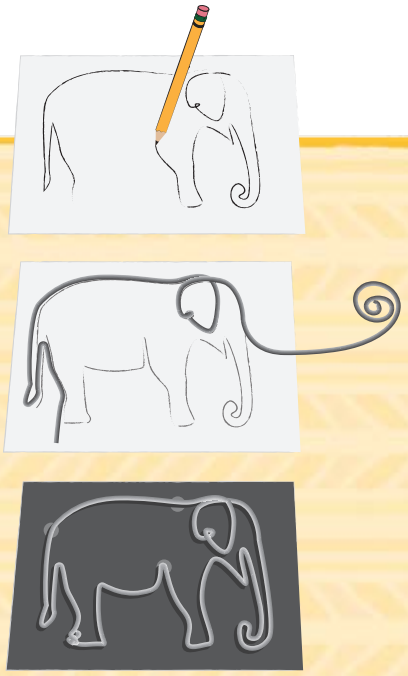
© 2020 Disney Enterprises, Inc.

LESSON PLAN 6
ACTIVITY SHEET 1
GRADES 2-6

How Can Artists Help Protect Elephants?

Making Wire Sculptures

An artist used materials from snares to create an elephant sculpture.

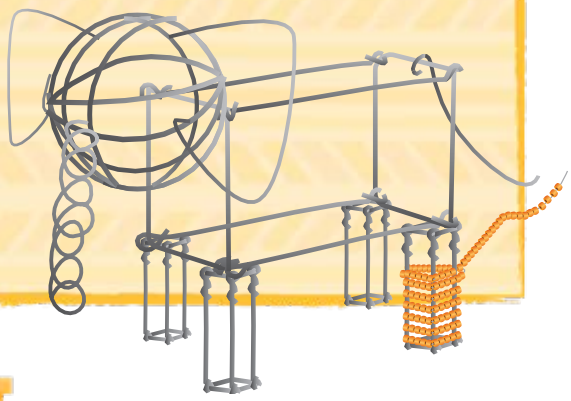


OPTION 1:
Linear Wire Sculpture

1. Make a line drawing of an elephant on a 8 1/2" x 11" construction paper. Don't lift the pencil from the paper so you make one continuous line. The size of the sketch will also be the size of your finished sculpture.
2. Start bending the chenille sticks or craft wire at the bottom of the drawing. Wrap, tie, and manipulate the wire to match the lines of the drawing. As you work, think about how a viewer's eyes will move through your artwork—you are creating movement in artwork. When needed, tape short strips of blue tape along the wire to hold it in place. End bending the wire at the point where you started. Twist the two ends together.
3. Move the sculpture to the piece of black paper. Loosely attach the wire sculpture with several glue dots to make interesting shadows on the paper.
4. Display sculptures on a bulletin board.

OPTION 2:
3D Beaded Sculpture

1. Use toy replicas of elephants as visual guides to capture volume and mass of the animal with contour lines.
2. Fit lengths of blue tape along the curves of a toy elephant to create a visual map of contour lines that define the shapes. Refer to the lines of the tape to create a contour line sketch of the elephant.
3. Form the armature (skeleton) of the basic animal shape with 18 gauge wire. Shape wire into a rectangular prism (box) to represent the body. Attach or extend wire to form rectangular boxes for legs, a sphere for the head, a spiral for the trunk, etc.
4. To make the skin, thread beads onto 28 gauge wire. Be sure to secure the end of the wire with tape so the beads won't fall off as you work.
5. Twist the end of a beaded wire to an inside point on the armature. Then spiral, bend, tie, cut and wrap the wire around the outside of the armature, snugly looping it around that part of the body and back to the inside armature. Cut and join each wire in place as you move forward. Fit the wires snugly to the armature so they aren't too loose, but also be aware of the intended size and shape of the armature. As you work, imagine that the beaded wires are forming the elephant's skin.
6. Sculptures are 3D and can stand alone (no need for a base) to display, but they may also be displayed on found pieces of wood.



© 2020 Disney Enterprises, Inc.

LESSON PLAN 6

GRADES 4-6

TOPIC: THREATS & CONSERVATION | **CONTENT AREA:** SOCIAL STUDIES

How Can You Help Save African Elephants?

ESSENTIAL QUESTIONS:

How do the Botswana government and local and international nonprofit organizations work together to help protect African Elephants? Are there any endangered or at-risk species where you live? How can you help conserve endangered species in your state?

MATERIALS

- Laptops/tablets for research and social media campaign
- Poster paper
- Markers
- *Activity Sheet 1: Create A Local Conservation Campaign*

VOCABULARY

- Conservation
- Endangered species
- Nonprofit organization
- Threatened species

WARM UP

Ask students to share with a partner one thing they learned about how unique elephants are from Disneynature **ELEPHANT**. Ask students if they have ever heard someone talk about conservation or endangered species. Give students the definition of conservation and endangered species. Discuss why students think some animals are endangered. Ask them why they think people may or may not want to conserve endangered species.

CONSERVATION EFFORTS FOR THE AFRICAN ELEPHANT

Explain that countries such as Botswana and nonprofit groups such as Elephants Without Borders work together to protect the African elephant. Recently, Elephants Without Borders worked with the Association of Environmental Clubs of Botswana, the Ministry of Basic Education, the Dept. of Wildlife and National Parks, and the Districts Environmental Educators to raise awareness of the importance of conservation goals with students and communities. Discuss the importance of collaboration among organizations to bring about change. Organize students into small groups that will do research to find at least three ways Botswana and nonprofits work to protect elephants. Research topics may include: threats to elephants, solutions to elephant-human conflict, trafficking of ivory, conservation efforts of different groups and other topics of student choice.

Elephants Without Borders organized a national student/school rally titled "Connecting Students to Nature: Students are Key to Sustainable Education."

Activities included:

- Essay Writing
- Poetry in Setswana
- Public Speaking
- Artifacts—crafts and designs from waste materials

WRAP UP

Make a Graffiti Board out of butcher or craft paper and attach to a bulletin board. Graffiti Boards are a shared writing space [e.g., a large sheet of paper or whiteboard] where students record their comments and questions [or findings] about a topic. Write the topics for research at the top of each Graffiti Board section. Give the small groups of students 10-15 minutes to write three things they learned from their research on the Graffiti Board. Discuss what students discovered that was the same and different and why their findings are important insights into conservation.

Conservation: A careful preservation and protection of something; especially planned management of a natural resource to prevent exploitation, destruction.

Endangered species: A species threatened with extinction.

KEEP GOING

Ask students if they think there might be any endangered species in their state or region. Direct students to use the U.S. Fish and Wildlife Service website to find some species in their state that are endangered. Have students research a local endangered animal and then vote on what species to "adopt" as a class. This species will then be the focus of a conservation campaign.

In the United States, the Endangered Species Act is a federal law implemented to aid in the conservation of threatened and endangered plants and animals and their

© 2020 Disney Enterprises, Inc.

LESSON PLAN 6

GRADES 4-6

TOPIC: THREATS & CONSERVATION | **CONTENT AREA:** SOCIAL STUDIES

How Can You Help Save African Elephants?

(continued)

habitats (link to official summary: https://www.epa.gov/laws-regulations/summary-endangered-species-act). Encourage students to research the Endangered Species Act, or similar policies positioned to protect wildlife in your region. What impact have these policies had for animals in the past ten years? Ask students to consider the effect that current or future changes to expand or restrict such policies can have on local wildlife. Share with students that within the U.S. federal government, there are many proposed changes aimed at weakening the Endangered Species Act, many of which will place threatened species in more peril. Ask students to think of ways in which they can become involved as active citizens in the democratic process to ensure endangered species have a voice and will be protected to secure their survival.

Hand out *Activity Sheet 1: Create A Local Conservation Campaign.* Point out how the example offers approaches to conservation at the state or local level. Students design a poster and a social media campaign that includes the following:

1. Why is the species in need of protection?
2. Two or three things people can do to protect their local species.
3. Local leaders who they can "tag" to raise awareness of the species and promote action.
4. A hashtag for their campaign.

© 2020 Disney Enterprises, Inc.

LESSON PLAN 6
ACTIVITY SHEET 1
GRADES 4-6

How Can You Help Save African Elephants?

Create a Local Conservation Campaign

NAME _____ DATE _____

DIRECTIONS:

Brainstorm ideas for a local conservation poster and social media campaign. Sketch your poster layout on the back of this page.

REMEMBER:

Posters should include practical conservation ideas that fit the local context. For example:

- Habitat protection ideas
- How to handle human-wildlife encounters
- Contact information to report dangers to wildlife or people to write to encourage support

Poster headline:

_____

Conservation ideas for poster:

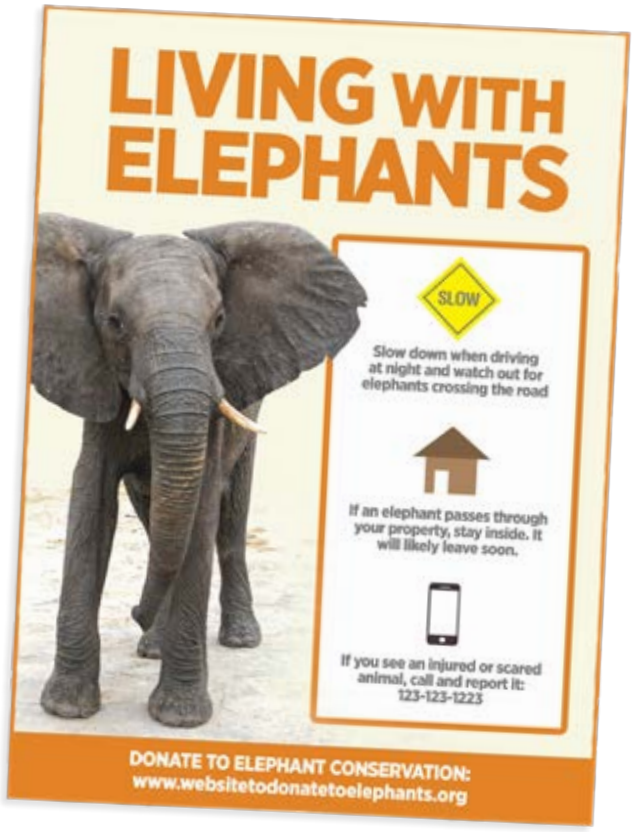
_____

_____

_____

_____

Example:



CONSERVATION EVENT IDEAS:

Potential events to help build a culture of conservation:

- Clean up campaigns
- Tree and garden planting
- Wildlife excursions
- Educational movie nights
- Eco-literacy walks or parades
- Wildlife workshops

Ideas for a social media campaign:

_____

_____

_____

Campaign hashtag:

_____

Event ideas:

_____

_____

Building a community committed to conservation awareness begins with YOU!

Disneynature ELEPHANT

© 2020 Disney Enterprises, Inc.

Glossary

Abiotic The absence of living things; physical, not biological

Adaptation The adjustment to environmental conditions

Additive sculpture A sculpture that is created by adding and attaching items to it

Arid Very dry; not having enough rainfall to support diverse agriculture

Beat To hit or strike something repeatedly to create sound, like in music

Biome A major ecological community, like a rainforest or desert

Biotic Relating to, consisting of or caused by living things

Call and response A musical phrase in which the first and often solo part is answered by a second and often ensemble part

Carnivore An animal that feeds on other animals

Ceramic clay A nonmetallic mineral that is often used to create pottery

Climate The general weather conditions of a specific region

Collage A creative or artistic work made up of various materials or images

Community A unified body of individuals that live in the same region or make up a specific area

Conservation The preservation, protection or management of natural resources

Conservationist A person who works to protect and preserve natural resources

Contour line A certain point referenced on a map where all areas are of the same elevation

Dance rattle An instrument used in traditional African song or dance, rattles can be worn, shaken or hit to create music

Delta A landform created by a river depositing sediment

Desert A warm area of land that receives little to no rainfall throughout the year

Dissipation To disappear and scatter in different directions

Drought A prolonged or chronic period of dryness and lack of rain

Ecosystem The community of organisms and their functioning environment

Ecosystem engineer An animal or organism that creates, maintains, changes or destroys their environment

Endangered species A species with limited or decreasing population that could be at risk of extinction

Evaporation The change from a liquid state to a vapor state; scatter, disperse in different directions

Fable A fictional story that focuses on a single story

Floodplain An area of flat or level land that may become submerged in water during a time of flooding

Gardener A person who tends/works a garden and grows and cares for the plants that grow there

Grassland A land that is primarily made up of foliage, like grases

Harmony To exist in peace and a lack of conflict

Herbivore An animal that eats only plants and other vegetation

Instrumentation The use of instruments for a particular, or specific, purpose

Intensity The magnitude, or extreme force of a situation

Keystone species A species that play an important role in their environment and other species rely on that species for their life and survival

© 2020 Disney Enterprises, Inc.

Landscape builder Physically shaping or reshaping an environment

Lekgapo A traditional African craft and design pattern

Lengope An african instrument used in traditional Setswana music a mouth bow

Line as texture The use of lines in different patterns to create texture by using different distances between lines to create depth and texture

Linear qualities of wire The effect of wire that makes it looks almost drawn by pencil or pen

Low relief Often used to refer to the lowest point in a certain area of geography, or terrain

Marimba A musical instrument originating from South and Central African and America

Marshland An area of land characterized by soft soil and land and the presence of grasses

Mass A quantity or measurement often relating to the size of something

Matriarch A society or community that is led by a woman

Mbira An African instrument, also often called the thumb piano as it is played with your thumbs

Microecosystem An ecosystem that exists within a larger area but has defined characteristics

Migrate To move or relocate from one country to another

Mood The quality of one's feelings at a certain point in time

Movement The manner or style in which something moves

Mural A piece of art that is created on the wall of a building or a large structure

NGO (non-profit organization) An organization that exists and operates independently of the government

Omnivore An animal that feeds on both plants and animals

Open/closed sculpture A work of art where there is usually either one focal point, closed, or multiple focal points and the art seems to fill all open areas, open

Ornaments (architectural) Decorations that are usually on the outside of a building or home as part of the architecture of the structure

Parable A short story, often times made up of fiction, that features a religious meaning or moral

Pattern A model, picture or object that is made up of imitating images

Perimeter The boundary or length of an object

Pitch In music, pitch relates to how high or low a specific musical note is

Poacher A person that often trespasses and kills or takes a wild animal

Population The total number of people, animals or inhabitants in a specific area or region

Predator An animal or organism that obtains food by killing or hunting another living animal or organism

Prey An animal that is taken as food by a predator, or another animal that is hunting it

Plankton The floating or swimming small animal and plant life that can be found in a body of water

Radiation (thermal) The process in which energy, in the form of radiation, is emitted by a heated surface in all directions

Rhythm A recurring pattern of sound, often in music

Rumble A special form of communication that is only detectable by elephants

Savanna A temperate and treeless plain or grassland region

Semi-arid A region or environment with light rainfall throughout the year

Simile A figure of speech that compares two different things and is introduced with the word 'like' or 'as'

Snorkel A plastic tube that is used for breathing while swimming submerged beneath the surface

Space The boundless and limitless area in which things exist

Species A class of animals or individuals with common traits

© 2020 Disney Enterprises, Inc.

Static Something that has little or no change

Subtractive technique The process to create art, like sculpture, in which material or items are removed

Swamp A wetland or region of land that is at least partially covered with water

Symbol An act, image or sound that often has cultural significance

Texture The visual or physical appearance of something

Threatened species A species that is in danger of being considered endangered and might require official protections

Tines A long, slender object that protrudes from something

Traditional music Music that dates back to early traditions in a specific community

Trowel A hand tool that is used to apply, shape or smooth a certain, often plastic, material

Trumpeting A special vocalization, unique to elephants, where an animal uses its trunk as an instrument to create a loud call, similar to the sound of a trumpet, communicating to others that might be far away

Trumpet A loud sound, or vocalization, produced by elephants using their trunks

Trunk An elephant's nose and upper lip that is used to smell, taste and grasp different objects

Tusk A long, large tooth made of ivory that extends out of an elephant's mouth

Ululation Creating a loud, sometimes high-pitched, and often rhythmic sound to express joy, sorrow or celebration

Vernacular (architecture) A type of architecture, often homes or small buildings, created by hand with local materials

Volume The amount of space occupied by an object, or filling an object

Wetland A region of land that is covered, at least intermittently, by shallow water

Weather The state of atmospheric conditions, relating to rain, wind, winter, summer, etc.

Sources:

https://www.merriam-webster.com/dictionary/

https://www.britannica.com/

http://www.wcs.k12.mi.us/cousino/wcsart/art%20foundatons%20site/line.html

http://www.mi.sanu.ac.rs/vismath/gerdesnovember2012/nonahedral.pdf

http://geo.msu.edu/extra/geogmich/Relief.html

© 2020 Disney Enterprises, Inc.

Resources

ELEPHANTS

- **National Geographic - Elephant Communication:** https://blog.nationalgeographic.org/2013/04/24/elephants-communicate-in-sophisticated-sign-language-researchers-say/
- **Elephant Voices - Gestures:** https://www.elephantvoices.org/multimedia-resources/elephant-gestures-database.html
- **Elephant Voices - Seismic Communication:** https://www.elephantvoices.org/elephant-communication/seismic-communication.html
- **Independent - Six Facts About Elephant Families:** https://www.independent.co.uk/voices/comment/six-facts-about-elephant-families-9015298.html
- **Wonderopolis - Why Do Elephants Have Big Ears:** https://www.wonderopolis.org/wonder/why-do-elephants-have-big-ears-2
- **Elehost - The Feet:** http://elephant.elehost.com/About_Elephants/Anatomy/The_Feet/the_feet.html
- **Elephant Conservation - Elephant Interesting Facts:** https://elephantconservation.org/elephants/just-for-kids/
- **Telegraph - Elephants Use Hot Spots to Stay Cool:** http://www.telegraph.co.uk/earth/wildlife/7663160/Elephants-use-hot-spots-to-stay-cool.html
- **Footprints:** http://media.gettyimages.com/photos/elephant-footprints-in-the-mud-after-rains-picture-id148708306?s=170667a
- **World Wildlife Fund - Elephant Species:** https://www.worldwildlife.org/species/elephant
- **Wildpro - Feeding Behavior:** http://wildpro.twycrosszoo.org/S/0MProboscidae/Elephantidae/Loxodonta/Loxodonta_africana/11LoxAfrBehFeed.htm
- **Molelo The Fire Elephant:** Medina, S. M. & Hill, K., illustrator - Spicer M. (2018). Molelo The Fire Elephant, Green Kids Club: Idaho Falls, ID ISBN: 9781939871787.

CONSERVATION

- **Humane Society - Kenyan Art Project Turns Poachers to Conservationists:** https://www.humanesociety.org/all-animals-magazine
- **Michigan State University - Snares to Wares:** https://msutoday.msu.edu/feature/2016/snares-to-wares/
- **Elephants Without Borders - National Rally Connecting Students to Nature:** http://elephantswithoutborders.org/community/national-rally-connecting-students-to-nature/

ARCHITECTURE

- **Scribd - What is Vernacular Architecture:** https://www.scribd.com/document/52232523/What-is-Vernacular-Architecture
- **US Fish and Wildlife Service - Endangered Species Map:** https://www.fws.gov/endangered/map/index.html
- **US Fish and Wildlife Service - Endangered Species:** https://www.fws.gov/endangered/
- **International Elephant Foundation - Elephant Conservation:** https://elephantconservation.org/

MUSIC AND DANCE

- **Dance Rattles:** http://photo.buet.us/galerie/ZA_Rencontres/ZA2622_DSC0920R.jpg
- **Pen & the Pad - How to Denote a Song in a Script:** https://penandthepad.com/denote-song-script-12048513.html
- **Tufts - Music Mood Classification:** https://sites.tufts.edu/eeseniordesignhandbook/2015/music-mood-classification/
- **Wikipedia - Baton:** https://en.wikipedia.org/wiki/Baton_(conducting)
- **KidzSearch - Conducting:** https://wiki.kidzsearch.com/wiki/Conducting
- **Fun Music Company - What Does the Orchestra Conductor Do:** https://funmusicco.com/what-does-the-orchestra-conductor-do/
- **Music Africa - Traditional Music and Instruments in Botswana:** https://www.musicinafrica.net/magazine/traditional-music-and-instruments-botswana
- **Xylophone:** https://www.pinterest.fr/pin/526006431455315286/
- **Mouth Bow Performance:** https://www.youtube.com/watch?v=DFIK4mD6O3o
- **Mouth Bow:** https://upload.wikimedia.org/wikipedia/commons/thumb/2/2e/MusicalBow.gif/350px-MusicalBow.gif
- **Mbira Performance:** https://www.youtube.com/watch?v=tKbfUEhjuH4
- **Drum Performance:** https://www.youtube.com/watch?v=yWOyaJjQyeg
- **Relentlessly Fun, Deceptively Educational - Mouth Bow Musical Instrument:** https://deceptivelyeducational.blogspot.com/2015/09/mouth-bow-musical-instrument.html
- **Dance Performance:** https://www.youtube.com/watch?v=coCeJllwLRw&index=3&list=RDr1PuW1uMyJ4
- **Smithsonian - Traditional Music of Botswana:** https://folkways.si.edu/traditional-music-of-botswana-africa-a-journey-with-tape-recorder-along-southern-botswana-from-mochudi-to-kang/world/album/smithsonian
- **Art Smarts - Create Your Own African Djembe Drum:** http://artsmarts4kids.blogspot.com/2008/10/create-your-own-african-djembe-drum.html

© 2020 Disney Enterprises, Inc.

ART

- **Crayola - Air-Dry Clay:** https://www.crayola.com/things-to-do/how-to-landing/airdry-clay/
- **Facing History - Grafiti Boards:** https://www.facinghistory.org/resource-library/teaching-strategies/graffiti-boards
- **WikiHow - How to Color Air Dry Clay:** wikihow.com/Color-Air-Dry-Clay
- **USA Today - Traditional Art of Botswana:** https://traveltips.usatoday.com/traditional-art-botswana-22751.html
- **Thought Co. - What is Texture in Art:** https://www.thoughtco.com/definition-of-texture-in-art-182468
- **Lekgapo Craft Example:** http://4.bp.blogspot.com/-x-nwsie_EqE/T3MXf8EORLI/AAAAAAAABnQ/V5Wn09nlkmY/s1600/IMG_4109.jpg
- **Clay pot:** https://c2.staticflickr.com/8/7066/6955582604_1fc98bc68a_z.jpg
- **Example of Pottery:** https://www.pinterest.com/pin/213709944793086923/
- **Example of Clay Tiles:** https://i.pinimg.com/736x/cb/54/55/cb54559e9d299695895c2c92acb8a5a0--pottery-art-pottery-ideas.jpg
- **Example of Copper Tiles:** https://www.copper.org/consumers/arts/2013/march/images/js-embossed-tiles.jpg
- **Wikipedia - Ornament:** https://en.wikipedia.org/wiki/Ornament
- **Ehow - Make Wirebeaded Sculpture:** https://www.ehow.com/how_8594796_make-wirebeaded-sculpture-animals.html
- **Wildlife Alliance - Sculpture Made of Snares:** https://www.wildlifealliance.org/this-sculpture-is-made-entirely-of-snares/
- **Norton - Gateways to Art:** http://www.wwnorton.com/college/art/gatewaystoart/ch/02/outline.aspx
- **Britannica - Ornament:** https://www.britannica.com/technology/ornament

GEOGRAPHY AND ENVIRONMENT

- **Traveller - Why the Kalahari Desert is an Unforgettable African Landscape:** https://www.traveller.com.au/making-tracks-in-the-kalahari-gnrzwd#ixzz5UnpaVkHY
- **Google Maps - Map of Botswana:** https://www.google.com/maps/place/Botswana/@-22.280834,20.1915668,1415280m/data=!3m1!1e3!4m5!3m4!1s0x1ea44321d1452211:0xf1647c2a8715af7b!8m2!3d-22.328474!4d24.684866
- **International Rivers - The Okavango Delta:** https://www.internationalrivers.org/resources/the-okavango-delta-3629
- **Book All Safaris - Okavango Delta Safaris:** https://www.bookallsafaris.com/all/d/africa-and-the-middle-east/botswana/okavango-delta-1
- **Scientific American - Elephant Footprints Become Tiny Critter Havens:** https://www.scientificamerican.com/podcast/episode/elephant-footprints-become-tiny-critter-havens/
- **ResearchGate - Okavango Tributaries:** https://www.researchgate.net/figure/Okavango-River-Basin-including-all-main-tributaries-and-the-Okavango-Delta-with-its_fig2_259851348
- **Okavango Delta Explorations:** https://www.okavangodelta.com/general-information/seasons/
- **National Geographic - Okavango Delta:** https://www.nationalgeographic.com/magazine/2017/11/africa-expedition-conservation-okavango-delta-cuito/?user.testname=none
- **Scientific American - The Amazing Biodiversity Within an Elephant's Footprint:** https://blogs.scientificamerican.com/extinction-countdown/elephant-footprint/
- **Think Elephants International - Elephants, the Ecosystem's Engineers, Gardeners and Architects:** http://thinkelephants.blogspot.com/2012/10/elephants-ecosystems-engineers.html
- **ResearchGate - Monthly Discharge Value:** https://www.researchgate.net/figure/Monthly-mean-discharge-values-describing-the-inner-annual-flow-characteristics-and-flood_fig4_259851348
- **Okavango Flood:** https://www.youtube.com/watch?v=VPEcSpEZy-s
- **Okacom:** http://www.okacom.org/
- **Waterflow:** http://image.slideserve.com/661023/theory6-n.jpg
- **Okavango Delta:** http://okavangodata.ub.bw/ori/
- **Weather Forecast - Angola Weather:** https://www.weather-atlas.com/en/angola/menongue-climate
- **Expert Africa - Botswana Safari:** https://www.expertafrica.com/botswana
- **One Small Square Backyard:** Silver, Donald, M. & Wynne, Patricia (1997). One Small Square: Backyard. NY: NY, McGraw-Hill Education. ISBN-10: 9780070579309

© 2020 Disney Enterprises, Inc.