



CREATURE
CURRICULUM

Science EXPEDITION

grasslands and savanna

ACCELERATION
NAVIGATION
HEAT DISSIPATION
THERMAL IMAGING
ENGINEERING
FIRE TRIANGLE
VENTILATION
CONSERVATION

the Serengeti

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“——

**Some people talk to
animals. Not many listen
though. That's the problem.**

— A.A. Milne



INTRODUCTION

WELCOME: USING THE LESSON GUIDE

LEARNING TRACKS

MATERIAL LIST

CREATURE CURRICULUM

We're thrilled to welcome you and your child to the Creature Curriculum with this Serengeti Integrated Science Study. This year, we'll embark on an incredible educational journey, diving deep into the mysteries and wonders of the natural world. This curriculum is not just about learning facts; it's about sparking curiosity, fostering a love for science, and building a comprehensive understanding of the natural world through the fascinating creatures that inhabit it.

What is Creature Curriculum?

Creature Curriculum is a year-long, immersive educational program designed to engage children by leveraging their natural curiosity and fascination with animals. Each month, we explore a different habitat or ecosystem, using it as a context to delve into various scientific disciplines. From the depths of the ocean to the vastness of the savanna, the stark beauty of the deserts, and the icy realms of the polar regions, each habitat brings a new adventure and a new set of learning opportunities.

Beyond Animal Science: A Comprehensive Curriculum

While it might seem like an animal science curriculum at first glance, Creature Curriculum goes far beyond simply learning about animals. We use animals and their habitats as a lens to explore a wide range of scientific concepts across various disciplines.

YEARLY SCHEDULE

- September:** Oceans and Seas
- October:** Forests & Woodlands
- November:** Grasslands & Savannas
- December:** Polar Regions
- January:** Mountains & Highlands
- February:** Deserts
- March:** Islands & Archipelagos
- April:** Rainforest
- May:** Freshwater & Wetlands
- June:** Urban Wildlife
- July:** Summer Safari
- August:** Adventure Awaits

USING THE LESSON GUIDE

This Lesson Guide is designed to help you navigate each lesson in our integrated science curriculum. It provides a clear overview of what each lesson involves, including the objectives, required materials, and basic instructions. This guide will help you understand what to expect and how to prepare for each activity.

To complete the lessons, in this unit study you'll need to use the following documents:

STUDENT JOURNAL:

- Your child will use this journal to record their observations, document their work, and reflect on their learning experiences. It helps track progress and personal insights throughout the activities, but remember that this learning study really is about getting hands-on with learning so most of the learning is happening without pencil in hand.

BONUS MATERIALS

- And don't forget to check the Treasure Trove for additional documents, worksheets and activities that supplement this month's learning! Treasure Trove items are offered at no additional cost for CLUB members!

By coordinating the Lesson Guide with the Student Journals and countless extras in the Trove, you'll have a comprehensive toolkit to support your child's learning and ensure a smooth educational experience.

MULTI-AGE LEARNING:

These lessons are crafted for multi-age learning. While the main activities are designed with children aged 8-12 in mind, adaptations and simplified versions are provided when necessary to engage younger learners (ages 4-8), ensuring that everyone can participate and enjoy learning together.



Junior Adaptations and Lessons will be found with a junior tag.

SETTING THE PACE

At Creature Curriculum, we believe that flexibility is one of the **greatest strengths** of **education**, whether you're homeschooling or teaching in a public school setting. This curriculum provides a framework that can be adapted to fit your unique rhythm.

UNDERSTANDING THE SUGGESTED SCHEDULE

The timeline provided in the curriculum serves as a guideline rather than a strict schedule. Families and educators are encouraged to explore the habitats at their own pace, choosing the lessons and activities that resonate most with their students. Whether you decide to follow the suggested monthly pace or take a more leisurely approach, the goal is to ensure that learning remains **enjoyable** and **engaging for everyone**.

A SUGGESTED APPROACH TO MONTHLY STUDIES

To maintain a steady flow of learning, we recommend aiming for three lessons each week. This structure allows you to cover essential concepts without feeling overwhelmed. Here's a suggested breakdown for the month:

- **Week 1:**
 - Introduce the Project: Begin with an overview of the project options, allowing students to brainstorm ideas and outline what they want to explore.
 - Complete Three Habitat Science Lessons: Engage students with hands-on experiments.
- **Week 2:**
 - Continue with Three Science Lessons: Dive into new scientific concepts while studying creatures of the Serengeti.
 - Research for the Project: Encourage students to gather information and materials related to their chosen topic.
 - Include One Lesson from a Companion Study.
- **Week 3:**
 - Another Three Science Lessons: Further develop scientific understanding while exploring how humans interact with the habitat.
 - Deepen Learning from the Companion Study: Use this week to build on what they've learned from the companion study.
- **Week 4:**
 - Focus on Wrapping Up: Dedicate this week entirely to completing projects or lessons that were started but not finished. Students can finalize their work, prepare presentations, and reflect on what they've learned throughout the month.

INTRODUCTION TO LEARNING TRACKS

In nearly every lesson, we offer two different learning tracks to ensure that all students can engage meaningfully with the material, regardless of their learning environment or preferences. The goal is for families to choose the track that best suits their needs while still achieving the same learning objectives.



BOOKWORK TRACK

The bookwork track is designed for families who prefer a more straightforward approach to learning, especially when time is limited or access to additional materials is not available. This track focuses on written work, reading, and reflective activities that require minimal materials while still delivering a rich educational experience.

Benefits of the Bookwork Track:

- This track is perfect for days when families are busy with other activities, traveling, or simply want a less material-intensive lesson. It provides flexibility, allowing students to complete their learning independently and efficiently, while still gaining deep insights through thoughtful reflection and writing.

Key Features:

- Engaging reading passages
- Creative and reflective worksheets
- Activities that develop critical thinking
- Minimal material requirements



INTERACTIVE TRACK

The interactive track focuses on Interactive and encourages students to engage deeply through activities, experiments, and creative projects. This track is ideal for students who thrive with hands-on experiences and enjoy exploring concepts through action and experimentation.

Benefits of the Interactive Track:

- This track brings lessons to life through practical applications. It's perfect for students who enjoy working with their hands, experimenting, and creating. The interactive track encourages critical thinking and problem-solving through immersive learning experiences.

Key Features:

- Hands-on projects and experiments
- Real-world applications
- Creative art or science-based activities
- Promotes deeper engagement through active exploration

USING THE TRACKS

Both tracks cover the same key concepts and learning objectives, ensuring that no matter which option families choose, their child will gain the same valuable knowledge. Families can select the track that best fits their schedule, available materials, or learning environment. Each track is designed as a standalone lesson, delivering a complete learning experience—whether through independent written work or interactive activities.

For days when families have busy schedules or fewer materials on hand, the bookwork track offers a simple yet effective way to stay on track with learning. For days when there's time to dive deeper into hands-on exploration, the interactive track offers the opportunity to bring lessons to life.

Our aim is to support every family in creating a learning experience that works for them, whether they choose bookwork, interactive activities, or a mix of both.

A GUIDE TO NAVIGATING EXPERIMENTS

One of the most exciting aspects of science is the journey of discovery—and that often includes the unexpected! As you embark on experiments, it's important to understand that not every result will be as predicted. This isn't a sign of failure, but a powerful learning opportunity that encourages curiosity, problem-solving, and critical thinking.

WHY RESULTS MIGHT DIFFER

Experiments, by nature, are influenced by a variety of factors. Here are some reasons why your results might not turn out as expected:

1. **Temperature:** The temperature of your environment or materials can impact how reactions occur. Warmer or cooler conditions might speed up, slow down, or alter the outcome.
2. **Composition of Materials:** The composition of materials can influence experiment outcomes. For instance, food coloring might behave differently depending on whether it's water-based or oil-based, which can affect how well it mixes with different substances.
3. **Material Consistency:** The texture or consistency of materials can also impact results. For instance, finely milled flour or grains will absorb liquids differently than coarser ones, potentially affecting the outcome of baking experiments or other projects that involve mixing ingredients.
4. **Measurement Accuracy:** Small variations in measurement can lead to different outcomes. Ensuring accurate measurements of ingredients and timing can help, but remember that even small discrepancies can change results.
5. **Environmental Conditions:** Humidity, altitude, and even the time of day can subtly influence experiments, particularly those involving gases or liquids.
6. **Human Error:** Everyone makes mistakes! Whether it's misreading a measurement, mixing the wrong ingredients, or not following instructions exactly, human error is a natural part of learning.

ROLLING WITH THE RESULTS

Remember, the goal is not just to get the "right" result, but to learn from the process. When things go off-script, embrace the opportunity to explore why. This attitude fosters a love for learning and helps children develop critical thinking skills that go beyond science.

Encourage your child to keep experimenting, keep questioning, and most importantly, keep having fun. Every experiment, successful or not, brings them one step closer to understanding the world around them.

Encourage your child to view these moments as **puzzles to solve, not failures**. This mindset will help them develop resilience, creativity, and a deeper understanding of scientific principles.

“——
|

**Anyone who has never
made a mistake has never
tried anything new.**

— Albert Einstein



PROJECT BASED LEARNING

PATHFINDER PROJECTS

CREATURE FEATURES

PATHFINDER PROJECTS: IGNITING YOUNG INNOVATORS

(Designed for Children Aged 8 and Above)

Welcome to Pathfinder Projects, an opportunity for older children to apply their knowledge and creativity to real-world issues and applications related to the Serengeti. This approach is designed to shift our young learners from being mere **consumers** of information to becoming **vibrant creators** of knowledge. Each project encourages deep exploration, critical thinking, and the development of research and presentation skills. These projects are designed to be explored over the course of the month, allowing children to dive deep into their chosen topic and produce comprehensive and engaging presentations.

PURPOSE OF PATHFINDER PROJECTS:

The purpose of these projects is to allow children to apply what they've learned in a hands-on, meaningful way. By engaging deeply with a topic of their choice, they will develop research skills, creativity, and the ability to present their findings clearly. This process not only reinforces their knowledge but also fosters a love for learning and discovery.

FREEDOM OF CHOICE:

It's important to give children the freedom to choose and make decisions about their projects. This autonomy encourages engagement and investment in their work. Allowing them to select the project they are passionate about will enhance their motivation and the quality of their final presentations.

THE IMPORTANCE OF PROJECT-BASED LEARNING:

Project-based learning is a dynamic learning approach in which students actively explore real-world problems and challenges. It encourages lifelong learning, critical thinking, and collaboration. Through these projects, children will see the relevance of their studies and how they can apply their knowledge to make a difference.

MONTH-LONG EXPLORATION:

Introduce these projects at the beginning of the month. Encourage children to work on them gradually, dedicating time each week to research, gather information, and develop their presentations. The final week of the month can be dedicated to finishing touches and showcasing their projects, celebrating their hard work and achievements.

THE SERENGETI PATHFINDER PROJECTS

SERENGETI SAFARI GUIDE CREATOR:

Step into the role of a Serengeti Safari Guide! Create an exciting guidebook for explorers of the Serengeti, highlighting key animals like lions, elephants, and wildebeests, as well as tips on where to spot them. Include fun facts about their behaviors and share advice on how to observe wildlife safely and respectfully. Design your guide as a booklet or an interactive digital adventure to bring the safari to life!

SERENGETI HOT AIR BALLOON ADVENTURE

Imagine soaring above the Serengeti in a hot air balloon! Create a paper mache hot air balloon model and decorate it with patterns inspired by the animals of the Serengeti. Learn about the science behind hot air balloons—why do they float? Use your knowledge to craft a story or a visual journey of what you might see from the sky as you glide over the Serengeti plains and share your knowledge on the science behind this incredible aircraft.

SERENGETI WILDLIFE HABITAT DESIGNER:

Step into the shoes of a Wildlife Habitat Designer and create a project that showcases the different habitats within the Serengeti. Design detailed diagrams or a 3D model that highlight the unique homes of the animals—from the tall grasslands where the giraffes graze to the riverbanks where hippos live. Include facts about how each habitat supports the animals living there.

SERENGETI ANIMAL PHOTOGRAPHER AND STORYTELLER:

Become a Serengeti Animal Photographer and Storyteller! Capture the beauty of the Serengeti's wildlife—whether through drawing, photography, or creative writing—and pair your artwork with engaging stories about each animal's life and challenges. Create a digital exhibit or photo book to share the fascinating lives of lions, elephants, or zebras.

SERENGETI ECOSYSTEM ENGINEER:

Step into the role of a Serengeti Ecosystem Engineer! Design and build a model of a natural waterhole or a sustainable fence to help protect livestock from predators. Use your engineering skills to figure out how the structure will benefit both the people and animals living in and around the Serengeti. Present your blueprint or model to show off your creative problem-solving skills.

MAASAI MUSIC MAKER:

Discover the sounds of the Serengeti by becoming a Maasai Music Maker! Research the traditional music and instruments of the Maasai people. Use simple materials to create your own Maasai-inspired instrument like a drum or shaker. Share your music through a recording or live performance, and explain how music plays an important role in Maasai culture.

PROJECT-BASED LEARNING

SERENGETI WILDLIFE CHEF:

Take on the challenge of being a Serengeti Wildlife Chef! Research foods and recipes inspired by the traditional dishes of the Serengeti region. Create your own dish using local ingredients, like a fruit salad with tropical fruits or a snack made with nuts and honey. Create a recipe book or host a tasting session for your family to enjoy your Serengeti-inspired snacks.

BUG REPELLENT SCIENTIST

Become a Bug Repellent Scientist and design your own natural mosquito repellent using plants and oils. Research plants that are native to the Serengeti and known for keeping mosquitoes and other insects away. Create a recipe for your bug repellent, experiment with different mixtures, and test their effectiveness. You could also create a creative ad campaign to promote your new natural bug spray to future Serengeti explorers!

SERENGETI SAFARI VEHICLE ENGINEER

Step into the role of a Safari Vehicle Engineer! Design a special vehicle that allows tourists to experience the Serengeti safely while not disturbing the animals. Consider elements like comfort, visibility, and noise reduction. Use recycled materials to create a model of your safari vehicle and test its features, such as how well it moves or how silent it can be when navigating rough terrain. Create a presentation showing off your vehicle's design and explain how it benefits both the tourists and the animals.

SERENGETI CONSERVATION HERO:

Become a Serengeti Conservation Hero! Research the efforts being made to protect endangered species like rhinos, elephants, and cheetahs. Create a campaign to raise awareness about the importance of protecting these animals, including a poster, video, or social media plan that educates people on how they can help conserve the Serengeti's unique wildlife.

CREATURE FEATURES: EXPLORING THE WONDERS OF THE SERENGETI WILDLIFE

(Designed for Children 4- 8 years old)

Welcome to Creature Features, an exciting project designed to ignite your child's curiosity and creativity by focusing on their favorite Serengeti animal. This approach shifts our young learners from being mere consumers of information to becoming vibrant creators of knowledge.

PURPOSE OF CREATURE FEATURES:

Creature Features allows children to apply what they've learned in a hands-on, meaningful way. By engaging deeply with an animal of their choice, they develop research skills, creativity, and the ability to present their findings clearly. This process reinforces their knowledge and fosters a love for learning and discovery.

FREEDOM OF CHOICE:

Giving children the freedom to choose and make decisions about their projects encourages engagement and investment in their work. Allowing them to select an animal they are passionate about enhances their motivation and the quality of their final presentations.

The Importance of Project-Based Learning Project-based learning is a dynamic approach in which students actively explore real-world problems and challenges. It encourages lifelong learning, critical thinking, and collaboration. Through these projects, children see the relevance of their studies and how they can apply their knowledge to make a difference.

MONTH-LONG EXPLORATION:

Introduce these projects at the beginning of the month. Encourage children to work on them gradually, dedicating time each week to research, gather information, and develop their presentations. The final week of the month will be dedicated to finishing touches and showcasing their projects, celebrating their hard work and achievements.

SUPPORTING YOUR CHILD'S JOURNEY:

Your role in supporting your child through their Creature Feature project is crucial. Here are some ways to nurture their journey from consumer to creator:

- Encourage Exploration: Help your child select an animal from the Serengeti that excites them, showing that learning is a journey of discovery.
- Facilitate Resources: Provide the tools, materials, or digital access they need to bring their projects to life.
- Celebrate Creativity: Acknowledge their efforts and the unique contributions they make through their projects, reinforcing the value of their creative work.

THE SERENGETI: CREATURE FEATURES

Need some inspiration? Read these ideas to your child. One of these creatures might excite them to get started, or spark an idea of their own!

LION PRIDE LEADER:

Explore the life of the Serengeti's most famous predator—the lion! Create a diorama or poster of a lion pride in action. Include details about how lions work together to hunt and raise their young. Share interesting facts about the roles of male, female, and cub lions, and their adaptations for survival in the grasslands.

ELEPHANT TRACKER:

Take a deep dive into the world of elephants, the gentle giants of the Serengeti. Build a 3D model of an elephant using recycled materials, focusing on its large ears and trunk. Learn about how elephants use these features to stay cool and communicate. Present your findings through a story or presentation on how these amazing creatures travel and survive in the Serengeti.

CHEETAH SPEEDSTER:

Discover the incredible speed and agility of the cheetah. Design a creative poster that highlights the cheetah's amazing adaptations for speed, including its lightweight body, long legs, and powerful muscles. Include a chart comparing the cheetah's sprint to other animals and even human sprinters. Share your project with a mini race simulation.

GIRAFFE GAZING:

Investigate the tallest land animal on Earth—the giraffe! Build a model of a giraffe's habitat, focusing on the trees it feeds on and the long neck that allows it to reach high into the branches. Learn about how giraffes use their height to spot predators and communicate with other giraffes. Present your findings through a drawing or skit.

HYENA TEAMWORK EXPLORER:

Hyenas are known for their unique social structure and teamwork. Create a group project that showcases how hyenas communicate, hunt, and survive in the Serengeti. Build a model of a hyena den and demonstrate their pack hunting strategies through an illustrated poster or digital presentation.

ZEBRA PATTERN DESIGNER:

Zebras are famous for their black-and-white stripes. Investigate how these stripes help zebras survive in the Serengeti, from confusing predators to keeping cool. Create an art project using paint, paper, or fabric to design your own zebra-inspired patterns. Share what you've learned in a mini fashion show or poster presentation.

MEERKAT WATCHER:

Discover the world of the small but mighty meerkat! Build a model of a meerkat colony with underground burrows, and learn how they stand guard and protect their families from danger. Present your project by explaining how teamwork and communication keep these creatures safe on the Serengeti plains.

“—

**In every walk with nature,
one receives far more than
he seeks.**

— John Muir



HABITAT STUDIES

INTRODUCTION TO THE SERENGETI

THE EQUATOR'S ROLE IN SHAPING ECOSYSTEMS

THE SCIENCE OF FIRE

WATER RESOURCES: FOUND IN BONUS LESSONS

INTRODUCTION TO THE SERENGETI

In this lesson, children will explore the vast Serengeti, identify where it is located on the globe, and understand its significance to our planet. Next, they will turn to their K-W-L chart to brainstorm what they already know about the Serengeti and its inhabitants and what they want to learn. This lesson will also introduce them to their project-based learning options, building excitement for the month ahead.

Reading Passage: "The Serengeti: A World of Grasslands and Wildlife"

Introduction: Before starting the lesson, read this passage aloud to your children to give them context and spark their curiosity.

Materials:

- Student Journal Record Sheet
- World map or globe
- Green and brown markers or colored pencils
- Chart paper and markers (optional)
- String or stakes (for marking a small square of grass in the yard)
- Scissors (for trimming grass)
- Watering can
- Ruler or measuring tape
- Optional: Mulch, shade cloth, fertilizer (for experiment variables)

Directions:

ACTIVITY 1: MAP/GLOBE EXPLORATION

Instructions: Set out books, a world map, and/or a globe. Take a moment to explore the vast Serengeti.

1. **Locate the Serengeti:** Ask the kids to point out where the Serengeti is located (Eastern Africa, mainly in Tanzania and extending into Kenya). Discuss how the Serengeti is part of a larger ecosystem that supports some of the most iconic wildlife on the planet.
2. **Discuss:** Ask if they have heard of the Serengeti before. What kind of animals live there? What do they know about this region?

ACTIVITY 2: K-W-L CHART

Instructions: Have children open their student journal to their Lesson 1 K-W-L chart.

1. **Know:** Ask them to write down what they already Know about the Serengeti in the "K" column.
2. **Want:** Then, discuss what they Want to know about the Serengeti and write these questions in the "W" column.
3. **Learn:** Explain that the "L" column will be filled in throughout the month as they Learn new things about the Serengeti.
4. **Optional:** On a large chart or poster board, create a big version of the K-W-L chart to hang in your learning space and add to it throughout the month.

ACTIVITY 3: GRASS GROWTH EXPERIMENT

Explore how environmental factors like water, sunlight, and nutrients affect grass growth, just like in the Serengeti grasslands where grazing animals naturally trim and fertilize the land. This hands-on activity will help you connect your findings to how grass ecosystems thrive and regenerate through balanced grazing.

Materials:

- String or stakes
- Scissors
- Ruler or measuring tape
- Watering can
- Notebook and pencil
- Optional: Fertilizer or compost, mulch, or shade cloth

Instructions:

1. **Mark Multiple Plots:** Divide the space into several small sections using string or stakes.
2. **Introduce Variables:**
 - Plot 1: Water frequently
 - Plot 2: Add fertilizer or compost
 - Plot 3: Cover with shade cloth to limit sunlight
3. **Make Hypotheses:** Predict how each condition will affect grass growth.
4. **Experiment and Measure:** Measure and record the grass height daily for each plot. Use your findings to create a graph comparing the different growth patterns.
5. **Analyze and Reflect:** After one week, review the results. How did each factor (water, sunlight, nutrients) affect growth? Discuss how animals in the Serengeti fertilize and maintain healthy grasslands naturally through balanced grazing.

Adapting the Experiment for Junior Explorers (Ages 4-8):

Simplified Grass Growth Observation

For younger children, the focus will shift to exploring one factor, such as watering frequency, to observe how plants grow over time. This version makes it easier to track changes while still introducing the idea of environmental impact.

HOW TO ADAPT:

- **Mark One Plot:** Use string or stakes to mark a 1x1-foot area.
- **Trim the Grass:** Cut the grass short in the marked area while leaving the surrounding lawn untouched.
- **Choose One Variable to Test:** Focus on watering—how does watering the trimmed grass every day affect growth compared to the surrounding lawn?
- **Measure Growth:** Use a ruler to measure the height of the grass each day and write it down.
- **Observe and Reflect:** After a week, compare the trimmed grass with the uncut lawn. Talk about how animals in the Serengeti help grass grow back by trimming it naturally and fertilizing it as they graze.



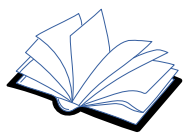
ACTIVITY 4: PREPARING FOR THE MONTH AHEAD

Set up your Creature Corner: Create a space in your home dedicated to exploring the Serengeti, including books, animal figurines, and natural objects like dried grass or small rocks.

Visit the Library: Check out books about the Serengeti, its animals, and its unique ecosystem.

Organize your Journals: Make sure each child has their journal ready for the month, with sections set aside for notes, observations, and project work.

Explore the Project Options: Introduce the project options and let the kids think about what they might be interested in. They can explore topics like animal migration, life in the Serengeti, or the role of conservation.



THE SERENGETI: A LAND OF ENDLESS GRASS AND GREAT MIGRATIONS

THE VAST SERENGETI

Stretching across East Africa, the Serengeti is one of the most famous and exciting places in the world. It's mostly in Tanzania, with part of it extending into Kenya. This huge grassland covers almost 12,000 square miles—so big it would take days to drive across! The name Serengeti comes from the Maasai language and means "endless plains." When you stand in the middle of it, that's exactly what you see: tall golden grass reaching out as far as your eyes can see, under a bright African sky.

The Serengeti is one of the richest ecosystems on Earth. While it may look like endless grassland, it's actually teeming with life. Every year, millions of animals move across the plains in search of food and water. This movement, known as the Great Migration, is one of the most amazing wildlife events on the planet.

THE MAJESTIC ANIMALS OF THE SERENGETI

The Serengeti is home to some of the most incredible animals on Earth. It's estimated that over 1.5 million wildebeests, 250,000 zebras, and 500,000 gazelles live here, and each year they take part in the Great Migration. These animals travel hundreds of miles across the Serengeti, searching for fresh grass and water. The journey is long and difficult, but it's crucial for their survival.

You might also see large herds of elephants wandering through the plains. These gentle giants use their long trunks to pull up grass and flap their big ears to stay cool under the hot African sun. Lions, the "kings of the Serengeti," also roam these lands. They live in family groups called prides and work together to hunt zebras, wildebeests, and other animals. Their powerful roars can be heard from five miles away, warning the rest of the animals that the lions are near.

LIFE ON THE PLAINS: BIG AND SMALL

The Serengeti isn't just home to big animals like elephants and lions. Smaller creatures like meerkats also thrive here. Meerkats are always on the lookout for danger, standing tall on their hind legs and keeping watch for predators like hawks and jackals. These little mammals live together in underground burrows and are always looking out for one another.

Up in the sky, vultures circle high above, using their sharp eyes to spot food. These birds play a very important role in the Serengeti, cleaning up the remains of animals after predators like lions have eaten. Without vultures, the plains would be littered with bones and scraps, making the land unhealthy for all the creatures living there.

THE ROLE OF RAIN IN SURVIVAL

Rain is a key part of life in the Serengeti. During the rainy season, the grass grows tall and green, and rivers and watering holes fill up with fresh water. This is when the animals thrive, grazing and drinking to their heart's content. But when the dry season arrives, the grass turns brown and dry, and water becomes much harder to find. The animals must travel farther to find food and water, which is why the Great Migration is so important for their survival.

The Serengeti is always changing, and life here can be tough. But nature is strong and finds ways to adapt. Every animal has its own special skills to survive in this wild land, from the lightning-fast cheetah to the long-necked giraffe and the clever teamwork of hyenas. Every creature plays a part in the balance of life on the African plains.

THE EQUATOR'S ROLE IN SHAPING ECOSYSTEMS

Note : Junior Explorers are offered an alternative lesson 2 following this one.

In this lesson, Explorers (8-12 yrs) will explore how the Serengeti is influenced by its location near the equator, while looking deeper into how rainfall (or the lack thereof) shapes this region compared to other equatorial habitats, such as the Amazon Rainforest and the Sahara Desert. Students will follow either the Bookwork Track, or the Interactive Track. Both tracks lead to the same outcome: understanding how the Serengeti's grasslands are affected by the equator, but also how rainfall uniquely determines the characteristics of each ecosystem near the equator.



BOOKWORK TRACK

Reading Passage: "Rainfall and Ecosystems Near the Equator"

Introduction: Before starting the lesson, read this passage aloud to your children to give them context and spark their curiosity.

Materials:

- Research resources (books, internet)
- Student Journals
- Writing materials

Instructions:

1. **Ecosystem Comparison Chart:** Open their student journals to the comparison chart. In each column, have students take notes on the following categories:
 - a. Rainfall (how much rain each area gets)
 - b. Temperature (how warm or hot it is year-round)
 - c. Vegetation (what kinds of plants grow there)
 - d. Animals (what types of animals live there)
 - e. This allows them to compare the climate, plants, and animals of each ecosystem in one place. Encourage them to notice how rainfall shapes each environment differently, even though they are all near the equator.
2. **Reflection Question:** Complete the reflection questions found in the student journal.



INTERACTIVE TRACK

Reading Passage: "Rainfall and Ecosystems Near the Equator"

Introduction: Before starting the lesson, read this passage aloud to your children to give them context and spark their curiosity.

Materials Needed:

- Research resources (books, internet)
- Worksheet for comparing ecosystems
- Writing materials

Instructions:

Introduce the concept of three different ecosystems near the equator: Amazon Rainforest, Sahara Desert, and Serengeti Grasslands. Locate them on a map.

1. **Ecosystem Comparison Chart:** Have your student divide a page into three columns, one for each ecosystem: Amazon Rainforest, Sahara Desert, and Serengeti Grasslands. In each column, ask them to take notes on the following categories:
 - Rainfall (how much rain each area gets)
 - Temperature (how warm or hot it is year-round)
 - Vegetation (what kinds of plants grow there)
 - Animals (what types of animals live there)
- This allows them to compare the climate, plants, and animals of each ecosystem in one place. Encourage them to notice how rainfall shapes each environment differently, even though they are all near the equator.
2. **Reflection Question:** Ask your student: "How does the amount of rainfall in the Amazon, Sahara, and Serengeti affect the plants and animals that live there?"

THE EQUATOR'S ROLE IN SHAPING THE SEASONS

JUNIOR EXPLORERS: EXPLORING THE EQUATOR

This lesson explores how the location of the Serengeti near the equator impacts its climate for younger students, and how rainfall and the equator together shape three different ecosystems—rainforests, deserts, and grasslands—for older students. Both tracks allow students to grasp the importance of the equator's warmth, while understanding the role of rainfall in supporting life in these regions.



BOOKWORK TRACK

Reading Passage: "Why is the Serengeti Always Warm?"

Introduction: Before starting the lesson, read this passage aloud to your children to give them context and spark their curiosity.

Materials Needed:

- Drawing materials (crayons, colored pencils, markers)
- Student Journal for drawing the Serengeti in the rainy and dry seasons

Instructions:

1. Begin by explaining that the Serengeti is near the equator, a line around the middle of the Earth. Because of this, the Serengeti is always warm, no matter the time of year. Show a globe or picture of the Earth if possible.
2. After reading the reading passage, explain how the Serengeti doesn't have cold winters, but it does have two seasons—the rainy season (when it's wet and green) and the dry season (when it's hot and dry).

ACTIVITY: Drawing the two Seasons of the Serengeti

1. **Drawing Seasons:** Have your student draw what the Serengeti looks like during the rainy season and what it looks like during the dry season using their imagination and what they've learned.
2. **Extension:** After drawing the Serengeti, have your student think about the seasons at home. Does it get hot or cold where they live? Is it green all year or does the weather change? Help them compare the Serengeti to the place where they live. Some students may live in warmer places with small seasonal changes, while others might live in places with big seasonal changes. Discuss how these differences affect the plants and animals in both places.
3. **Discussion Question:** Ask your student: "Why do you think animals like zebras and wildebeest migrate during the dry season?" Encourage them to look at the pictures they drew of the Serengeti in the rainy and dry seasons to help them understand that during the dry season, the grass dries up, and animals move to find water and fresh grass.



INTERACTIVE TRACK

Reading Passage: “Why is the Serengeti Always Warm?”

Introduction: Before starting the lesson, read this passage aloud to your children to give them context and spark their curiosity.

Materials:

- A globe or ball
- Flashlight to represent the sun
- Markers to label the equator and the Serengeti’s location on the globe
- Craft Materials: Optional (Markers, Construction Paper, Glue)
- A large clear plastic bag
- Water
- Marker, Tape
- A sunny window
- Blue food coloring (optional)

ACTIVITY 1: Using a Globe to Explore the Equator

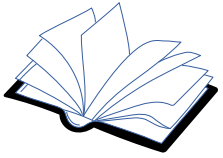
Use a globe or ball to help students understand how the Serengeti gets consistent sunlight because of its location near the equator.

1. **Locate the Equator:** Show where the equator is on the globe and where the Serengeti is located near the equator.
2. **Shine the Flashlight:** Shine the flashlight to demonstrate how the sun is always overhead at the equator, keeping the Serengeti warm.
3. **Find your Home:** Take a moment to find your home on the globe. Are you near or far from the equator? How does that affect your seasonal changes?
4. **Craft the Seasons:** After the globe activity, your junior explorer can create two distinct pictures—one of the Serengeti during the rainy season and one during the dry season. Use either the sheets in the student journal, or craft materials to bring the seasons to life!

ACTIVITY 2: Creating the Water Cycle (Hands-On Model)

Students will create a simple water cycle model using basic household materials to better understand how water moves through its various stages and how the heat of the Serengeti’s location speeds up evaporation.

1. **Draw the Diagram:** Draw the water cycle diagram on the outside of a clear ziplock bag using a marker.
2. **Add the Water:** Pour a small amount of water (about 1 inch) into the bottom of the plastic bag. By adding blue food coloring to the water you do make it slightly easier to watch.
3. **Seal the Bag:** Seal the bag and tape it to a sunny window.
4. **Observe:** Over time, watch how the water evaporates, collects on the sides of the bag (condensation), and eventually drips down (precipitation).
5. **Reflect:** Ask students to observe how the water in the bag follows the same pattern as the water cycle in nature.



THE EQUATOR'S ROLE IN THE SERENGETI

WHAT IS THE EQUATOR?

The equator is an imaginary line that circles the Earth, dividing it into two halves—the Northern Hemisphere and the Southern Hemisphere. It's located right in the middle of our planet. Places near the equator, like the Serengeti, get the most sunlight all year round. That's because the sun is almost always directly overhead or very close to it. The result? Warm temperatures and lots of sunshine, no matter the time of year!

HOT, HOT, HOT: WHY IS THE SERENGETI SO WARM?

The Serengeti lies just south of the equator, which means it's warm all year long. Unlike places far from the equator that have four distinct seasons (spring, summer, fall, and winter), the Serengeti doesn't get cold winters or mild springs. Instead, it has two main seasons: the wet season and the dry season. During the wet season, heavy rains fall, and the grass grows tall and green. In the dry season, the rain disappears, and the grass turns brown, leaving the landscape hot and dry.

The wet season usually lasts from March to May and again in November. This is when the Serengeti gets most of its rainfall. The rains are a welcome relief for plants and animals, allowing grass to grow and waterholes to fill. Herbivores like zebras and wildebeests can find plenty of food, and the predators, like lions, have more energy to hunt.

The dry season, which lasts from June to October, is when rain becomes scarce. The sun bakes the land, turning the grass brown and shrinking water sources. The animals must move around more to find food and water, leading to the famous Great Migration of wildebeests and zebras.

LIFE IN THE SERENGETI'S HEAT

Animals in the Serengeti have adapted to deal with the intense heat caused by its location near the equator. Elephants, for example, use their large ears to fan themselves and cool off. Lions spend most of their day resting in the shade, hunting only in the early morning or late evening when it's cooler. Even the grasses and trees in the Serengeti have special ways of surviving the heat. Some plants grow deep roots to reach water far underground, while others have small leaves to prevent too much water from evaporating in the sun.

RAINFALL: THE KEY TO SURVIVAL

While the sun makes the Serengeti hot, the rainfall (or lack of it) shapes the landscape and life there. Rainfall determines what kind of plants grow and, in turn, what kind of animals can live in the Serengeti. When there's a lot of rain, grasses thrive, and the herbivores, like gazelles and antelopes, have plenty to eat. But during the dry season, these animals must move to find water and food, and many of them travel hundreds of miles as part of the Great Migration. Predators follow the herbivores, relying on them for survival.

Rain and heat work together to create the Serengeti's unique environment. While the heat from the equator provides warmth and energy, it's the rain that determines when animals can thrive and when they must struggle to survive.

THE ROLE OF FIRE IN THE SERENGETI ECOSYSTEM

In this lesson, students will explore the essential role of fire in maintaining the Serengeti's grassland ecosystem. They will learn how fire promotes new grass growth, supports herbivore populations, and keeps the food chain balanced. Students will also analyze how overgrazing disrupts the fire cycle, causing imbalances in the ecosystem. The lesson offers two learning tracks: an "Bookwork" track for written activities and an "Interactive" track for interactive, science-based exploration. Both tracks lead to the same learning objectives.

Reading Passage: "The Vital Role of Fire in the Serengeti"

Introduction: Before starting the lesson, read this passage aloud to your children to give them context and spark their curiosity.



BOOKWORK TRACK

ACTIVITY: Fire in the Serengeti flowchart

Materials Needed:

- Student Journals
- Pencil

Instructions:

1. **Flowchart Matching:** After the reading, students will complete a flowchart activity where they visualize the chain reactions caused by fire (positive effects) and overgrazing (negative effects).
2. **Fill in the Blanks:** A flowchart has been started in their student journals and students will complete them using the hints given along with the information they learned in their read aloud.
3. **Discuss:** Continue the discussion afterwards. Why are fires necessary for the Serengeti ecosystem? What happens to the animals during fires? How does overgrazing prevent fires, and what is the domino effect of fewer fires in the Serengeti.

Extension for Our Oldest Explorers:

Research and Analyze Fire Management Practices: Older students can research modern fire management practices in other savanna ecosystems around the world (e.g., Australia, South America, or U.S. prairies). They will compare these practices to the natural fire cycles in the Serengeti, discussing how fire management is used to maintain balance in grassland ecosystems and prevent devastating wildfires.



INTERACTIVE TRACK

ACTIVITY 1: The Domino Effect or Ripple Effect

- **Option 1: Domino Effect:** Set up a line of dominos and knock them down to illustrate the chain reaction that fire creates in the Serengeti. Fire acts as the first domino, leading to new grass, thriving herbivores, and healthy predators.
- **Option 2: Ripple Effect:** Drop a small stone into a bowl of water to show how fire in the Serengeti creates a ripple effect. Just as ripples spread from the point where the stone hits the water, fire in the Serengeti leads to a series of positive effects. Without fire, the ripples (or positive effects) stop, leading to an unbalanced ecosystem.

ACTIVITY 2: Fire Triangle Experiment

In this activity, students will observe how fire depends on oxygen, fuel, and heat. By observing how fire reacts in different environments (small, medium, and large jars), they will learn how limited resources, like grass in the Serengeti, affect fire and the broader ecosystem.

Materials:

- 3 tea light candles
- 3 mason jars of different sizes (small, medium, and large)
- Lighter or matches (adult supervision required)
- Measuring cups
- Stopwatch or timer (for Explorers)

Instructions:

1. **Set up the candles:** Place three tea light candles on a heat-safe surface.
2. **Predict the results:** Ask students to predict which candle will go out first and why. Discuss their reasoning.
3. **Light the candles:** Light all three candles at the same time.
4. **Cover the candles:** Cover all three candles with the jars at the same time—each candle should be under a different-sized jar (small, medium, large).
5. **Observe which goes out first:** Watch closely to see which candle burns out first. The smallest jar should run out of oxygen first, showing that fire needs oxygen to survive.
6. **Connect to the Serengeti:** Discuss how fire in the Serengeti also needs fuel (grass) to survive. Just like the candles, if there's less grass, there's less fuel, and the fire can't continue. Overgrazing reduces the amount of fuel, which means fewer fires.

Reflection: After the experiment, ask the students: "What would happen if we removed all of the wax from the candle?" Why would that stop the fire? Now ask, "If we think of grass in the Serengeti as the fuel, what happens if overgrazing eats up the grass?"

Guide them to understand that removing or reducing the fuel stops the fire, just as overgrazing reduces the fuel in the Serengeti.

Extension for Explorers: Predicting Burn Times

For our older explorers, introduce an extension where they calculate and predict the burn time based on the jar size.

1. **Time the burn:** Use a stopwatch to time how long it takes for the candle in the smallest jar to burn out. Record this time.
2. **Measure the volume:** Have students either:
 - Calculate the volume of each jar using the formula for the volume of a cylinder,
 - OR
 - Use measuring cups to pour water into each jar and see how many quarter, half or full cups the jar can hold. This will help you measure the volume of the jar accurately!
3. **Predict the burn time:** Based on the volume of the small jar and the time recorded, ask students to predict how long it will take the candle to burn out in the medium and large jars. They should make a reasonable prediction by comparing the size differences.
4. **Test predictions:** Light the candles again and cover them with the medium and large jars. Time how long each candle takes to burn out and compare the results to the predictions.

WHAT IS THE VOLUME OF A CYLINDER?

The volume of a cylinder is the amount of space there is inside a cylinder.

In order to find the volume of a cylinder we first need to find the circular area of the base.

The formula for calculating the area of a circle is:

$$\text{Area} = \pi r^2$$

We then multiply the area of the circular base by the height (or length) of the cylinder.

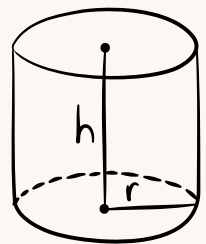
The formula for the volume of a cylinder is:

$$\text{Volume} = \pi r^2 h \text{ or } \text{Volume} = 3.14 \times r^2 \times \text{height}$$

When you calculate the volume of a cylinder using the above formula you are calculating the volume in cubic units based on the units of the radius and height that you used.

For example:

- If r (radius) and h (height) are measured in inches, the volume will be in cubic inches (in^3).
- If r and h are measured in centimeters, the volume will be in cubic centimeters (cm^3).



$$V = \pi r^2 h$$



THE VITAL ROLE OF FIRE IN THE SERENGETI

THE ROLE OF FIRE IN THE SERENGETI

Fire might sound dangerous, but in the Serengeti, it's actually very important for keeping the land healthy. Every few years, fires race across the grasslands, burning away old, dry plants to make room for fresh, green grass. It might seem scary, but without these fires, the Serengeti wouldn't be as alive as it is today! Fires make the soil rich and ready for new grass to grow. And when the rains come, the grass grows fast, turning the plains green again. This new grass is food for animals like zebras, wildebeests, and gazelles. So, fire is like nature's clean-up crew, helping the grasslands stay full of life.

But fires can be dangerous, too! They can hurt communities and their animals, which is why people sometimes set small, controlled fires on purpose. These "controlled burns" help keep bigger, more dangerous fires from happening while still giving the land what it needs.

THE FIRE TRIANGLE: WHAT DOES FIRE NEED?

Fire needs three things to start: heat, fuel, and oxygen. This is called the fire triangle! In the Serengeti, the hot sun provides the heat, dry grass is the fuel, and oxygen is all around in the air. When these three things come together—whoosh!—a fire can start. Often, these fires are sparked by lightning during the dry season. Controlled burns also use the fire triangle to help manage the land. But, what if one part of the triangle is missing? For example, if there's no dry grass, fires can't start. That's where overgrazing by animals becomes a problem.

OVERGRAZING AND ITS IMPACT ON FIRE

When too many animals, like cows and goats, eat up most of the grass, there isn't enough left for fires to burn. Without enough fires, the Serengeti starts to change. Shrubs and small trees begin to take over where grass should grow. Animals like zebras and wildebeests struggle to find food because there's less grass to eat. When there are fewer herbivores, predators like lions have less food, too! The whole Serengeti food chain gets out of balance when there aren't enough fires to keep the grasslands healthy.

FIRE, OVERGRAZING, AND THE SERENGETI'S FUTURE

Fire, grazing, and plants all work together in the Serengeti, kind of like how sunshine, water, and soil help a garden grow. Too many fires can be harmful, but without enough fires, shrubs and trees will take over the grasslands. Overgrazing by livestock means there isn't enough grass to fuel the fires, which affects the whole ecosystem. Without fires, the grass can't grow back, leaving less food for the animals who depend on it to survive.

Fires help new grass grow, keep life balanced on the plains, and make sure that the great herds of wildebeests, zebras, and gazelles can continue their migrations across the wide Serengeti grasslands, just like they have for centuries!

“——

“We have more to learn
from animals than animals
have to learn from us.”

— Anthony D. Williams



CREATURE STUDIES

CHEETAHS: ACCELERATION

WILDEBEEST: GREAT MIGRATION

TERMITES: TINY ENGINEERS

ELEPHANTS: FOUND IN BONUS LESSONS

CHEETAHS: ACCELERATION

In this lesson, students will learn about the cheetah's incredible speed and physical adaptations for acceleration. They will also explore the concept of acceleration through simple experiments, comparing their own acceleration with that of a cheetah. The lesson offers two tracks: a "Bookwork" track for learning through reading and discussion, and a "Interactive" track for interactive experiments and simulations. Adjustments for younger children and extensions for older children are provided when necessary.

Reading Passage: "Cheetahs and Speed"

Introduction: Before starting the lesson, read this passage aloud to the children to give them context and spark their curiosity.



BOOKWORK TRACK

Materials Needed:

- Student Journals
- Pencil

Instructions:

1. **Topic Introduction:** After reading the passage, review the cheetah's key physical adaptations for speed, such as long legs, flexible spine, and a large heart and lungs. Explain how these adaptations allow a cheetah to reach speeds of up to 60 mph and why acceleration is important for catching prey.
2. **Review:** Explain the concept of acceleration with simple examples, like how a car goes from a stop to moving fast, or how a sprinter starts slow but quickly speeds up.
3. **Human vs Cheetah:** Take a look at the comparison between a cheetah's acceleration and human acceleration, highlighting how cheetahs can go from 0 to 60 mph in just a few seconds. This data can be found in their journal.

ACTIVITY: Cheetah Adaptation Poster

1. **Create a Poster:** Students will create a poster that illustrates the cheetah's physical adaptations for speed. They will include labeled drawings of features like long legs, a muscular tail, and large nasal passages, explaining how each feature contributes to the cheetah's ability to accelerate so quickly.
2. **Discussion:** Why is acceleration important for cheetahs when hunting prey? How do cheetahs use their speed and acceleration to survive in their habitat? How does the cheetah's acceleration compare to other animals?

Extension Question: Why might sprinters start their race on a sprinters block? How does this help them accelerate?



INTERACTIVE TRACK

ACTIVITY: Sprint Experiment

Comparing Human and Cheetah Acceleration

In this activity, students will conduct a simple sprint experiment to calculate their own acceleration and compare it to the cheetah's.

Materials:

- Stopwatch
- Measuring tape (to measure distance)
- Paper for recording results
- Internet access for videos (optional)

Instructions:

1. **Measure the distance:** Mark out a distance for students to sprint (e.g., 10–20 meters).
2. **Time the sprint:** Use a stopwatch to time how long it takes for students to complete the sprint.
3. **Calculate acceleration:**
 - $\text{Acceleration} = \text{Change in speed} / \text{Time}$
 - Have students calculate their acceleration by using their sprint time and distance.
4. **Compare results:** Compare the students' acceleration to the cheetah's acceleration, which can go from 0 to 60 mph (about 27 meters per second) in about 3 seconds. Discuss how the students' results compare to the cheetah.
5. **Reflection:** Have students reflect on how quickly they can accelerate compared to a cheetah and why cheetahs need to accelerate so fast to catch their prey.

Extension for Older Explorers:

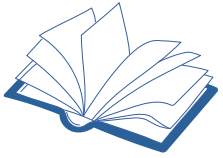
1. Older students can calculate their speed in meters per second and compare it to the cheetah's. Encourage them to create a chart or graph comparing their acceleration times to the cheetah's for a visual representation of the differences.
2. Cheetah Sprint Simulation: Watch videos or online resources of cheetahs running to see how their bodies move and how acceleration plays a role in their sprints. Discuss how their physical features, like long legs and strong muscles, contribute to their rapid acceleration.



JUNIOR

Adjustments for Younger Children:

For younger children, the sprint experiment can be simplified. Instead of calculating acceleration, they can focus on timing their sprints and simply compare their speed to a cheetah's, emphasizing the difference without needing to perform calculations. The cheetah simulation can also be more about observing and discussing the cheetah's movements and physical features.



CHEETAHS: THE SPEED CHAMPIONS OF THE ANIMAL KINGDOM

Cheetahs are known as the fastest land animals on Earth. They can reach speeds of up to 70 miles per hour—faster than most cars drive on city streets! But what really makes cheetahs special is their ability to accelerate, which means how quickly they can go from standing still to full speed. Imagine a sprinter at the start of a race: they push off the starting block with all their might, building up speed in a few seconds. Cheetahs do the same thing, but much faster! In just three seconds, a cheetah can go from 0 to 60 miles per hour. That's almost as fast as a car speeding down the highway!

BUILT FOR SPEED AND POWER

Cheetahs are perfectly designed for speed. Their long legs are like powerful springs, pushing them off the ground with incredible force. These legs help cheetahs cover a lot of ground very quickly, allowing them to sprint after fast prey like gazelles. But it's not just their legs that help them move so quickly—their entire bodies are built for speed.

Cheetahs are lightweight, with long, flexible spines that stretch and contract like a rubber band when they run. This helps them take big strides, almost like they're flying through the air with each leap. And when they need to make a quick turn to follow their prey, their long tails act like a rudder on a boat, helping them steer and keep their balance.

ACCELERATION: CHEETAH VS. SPRINTER

Let's think about acceleration—how fast something can speed up. If you've ever watched a sprinter race, you've seen how they crouch down and get ready to explode off the starting line. They push off the ground as hard as they can, picking up speed with each step. Cheetahs do something very similar, but they do it much faster and with more power.

Their powerful back legs push off the ground with such force that a cheetah can accelerate faster than a sports car! Their acceleration is what gives them the edge when chasing down quick, nimble animals like antelopes. In the wild, a cheetah only has a few seconds to catch its prey, so being able to reach top speed quickly is super important.

ADAPTATIONS FOR THE CHASE

Cheetahs have many other adaptations that help them during the chase. Their large nasal passages allow them to take in more oxygen while they run, which helps them keep up their speed. Their large hearts pump blood quickly to their muscles, giving them the energy they need to sprint at full power. Even their claws help—they act like cleats, digging into the ground for better grip as they race after their prey.

But while cheetahs are incredible at sprinting, they can't keep up this speed for long. After just 20 to 30 seconds of sprinting, they need to stop and catch their breath. Their hunts are short and fast, and if they don't catch their prey quickly, they usually have to give up and try again later.

SPEED WITH A PURPOSE

So why do cheetahs need to be so fast? In the Serengeti, where they live, food can be hard to catch. Their prey, like gazelles and antelopes, are fast and alert. Without their speed and acceleration, cheetahs wouldn't be able to catch enough food to survive. It's their incredible design, from their powerful legs to their flexible spines and long tails, that allows them to be the kings and queens of speed in the animal world.

WILDEBEEST AND THE GREAT MIGRATION

In this lesson, students will explore the concept of migration by learning about the wildebeest migration across the Serengeti. They will map the migration route, learning essential mapping skills such as creating a legend, labeling landmarks and landforms, and using a compass rose. The lesson offers two tracks: a “Bookwork” track for written work focusing on maps and legends, and a “Interactive” track where students create a detailed migration map.

Reading Passage: "The Great Wildebeest Migration"

Introduction: Before starting either lesson, read this passage aloud to the children to give them context and spark their curiosity.



BOOKWORK TRACK

Materials:

- Student Journals
- Pencil

1. **Topic Introduction:** After reading the reading passage, review the reasons for migration, such as searching for fresh grass and water, and talk about the dangers they face along the way (e.g., crossing rivers like the Mara, avoiding predators).
2. **Mapping the Migration Route:** Open their journals to the blank map of the Serengeti and surrounding areas. Students will mark the key points of the migration route, including starting areas, rivers they must cross, and final grazing destinations.
3. **Label the Dangers:** Mark the dangers along the way, such as river crossings, predators, or lack of water during the dry season.
4. **Adding a Legend and Compass Rose :** Students will add a legend to their map, showing symbols for rivers, grasslands, mountains, and predators. They will also add a compass rose to their map, showing the cardinal directions (North, South, East, West).
5. **Discuss:** Why do wildebeest need to migrate each year? What obstacles do they face during their migration? How does the wildebeest migration impact the Serengeti ecosystem?
6. **Reflect:** Answer the reflection questions provided in the student journals.



INTERACTIVE TRACK

ACTIVITY: Large, Interactive Migration Map

In this hands-on activity, students will create a large, interactive map of the wildebeest migration using paper or other materials to make it more dynamic.

Materials:

- Large butcher paper or several sheets of paper taped together to create a large surface
- Markers, colored pencils, or crayons
- Small trinkets, toys or animal cutouts to represent the migrating wildebeest
- Yarn or string to represent rivers and paths
- Computer (optional)

Instructions:

1. **Draw the Map:** On the large paper, students will draw the Serengeti landscape, focusing on key areas of the wildebeest migration, such as the Mara River and key grazing lands.
2. **Add Landmarks and Dangers:** Use yarn to trace rivers and paths, and place animal cutouts or symbols at different points of the map to represent herds and obstacles.
3. **Create a Legend and Compass Rose:** Students will create a detailed legend for the map, showing symbols for different landmarks and dangers. They will also add a compass rose to indicate direction.
4. **Interactive Migration Path:** As they map the migration, students can move the animal cutouts along the route to show how wildebeest travel from one area to another, overcoming challenges.
5. **Reflect:** Discuss why wildebeest need to move across such long distances and how the map helps them understand the journey these animals take every year. Ask students how different parts of the ecosystem, such as rivers and grasslands, are important to the wildebeest's survival.

Alternative Hands-On Activity: Migration Mapping with Technology

If available, older explorers can use an online mapping tool (such as Google Earth) to trace the migration route of the wildebeest and add digital landmarks to their map. This activity can introduce them to basic GIS (Geographic Information Systems) technology and help them visualize the migration route on a real-world map.



THE GREAT MIGRATION: THE JOURNEY OF THE WILDEBEESTS

THE GREAT MIGRATION: THE JOURNEY OF THE WILDEBEESTS

Every year, millions of wildebeests take part in one of the greatest adventures in the animal kingdom—The Great Migration. Imagine this: over 1.5 million wildebeests, along with hundreds of thousands of zebras and gazelles, all moving together across the Serengeti. It's like nature's biggest road trip! These animals travel hundreds of miles, searching for fresh grass to eat and water to drink. Why do they go through such a huge journey? It's because the Serengeti is a land of extremes. During the dry season, the grass dries up, and the rivers shrink. So, the wildebeests follow the rain, moving toward greener pastures that will help them survive.

WHY DO WILDEBEESTS MIGRATE?

The wildebeests are on a mission! They need food, and they know the best way to find it is to follow the rains. When it rains, grass grows tall and green, perfect for munching on. But when the dry season hits, the grass disappears, so the wildebeests move on. Their journey takes them in a giant loop from the southern Serengeti to the northern Maasai Mara in Kenya. They've been making this trek for thousands of years, and their survival depends on it. Wildebeests don't travel alone though. In fact, over a million wildebeests, zebras and gazelles journey because there's safety in numbers. Lions and cheetahs might want to make a meal out of them, but when there are so many animals moving together, it's actually harder for predators to catch one. Zebras are like the lookout crew—they have sharp eyesight and can spot fresh grass or danger from far away, helping the herd navigate.

DANGERS ALONG THE WAY

But it's not all smooth sailing. The migration is full of challenges. One of the scariest moments comes when the herd must cross rivers like the Mara River. Here, the wildebeests face fast currents, steep banks, and lurking crocodiles. It's like the ultimate obstacle course! Some wildebeests make it, while others aren't so lucky, but the herds keep moving, driven by their need for food and water.

WILD WILDEBEEST ADAPTATIONS

Wildebeests are the marathon runners of the animal world. They're built to go the distance! Their strong, tough hooves help them travel across rocky, uneven ground without getting worn out. Their noses can even sniff out rain from miles away, helping them know where to head next. And if danger strikes? Wildebeests can run up to 50 miles per hour! They may not be as fast as a cheetah, but they're quick enough to escape predators most of the time.

THE CIRCLE OF LIFE ON THE MOVE

The Great Migration is not just about the wildebeests' journey—it's a whole ecosystem in action. Along the way, thousands of wildebeest calves are born, learning to walk and run within minutes so they can keep up with the herd. But the migration also means danger, with predators like lions, hyenas, and crocodiles lurking. For every wildebeest that doesn't make it, new life is born, and the cycle continues. The wildebeests' movement even helps the land itself. As they graze, they leave behind nutrient-rich soil, allowing fresh grass to grow back, not just for themselves but for all the animals in the Serengeti. The Great Migration is li

TERMITES AND ENGINEERING

Note : *Junior Explorers are offered an alternative lesson 6 following this one.*

In this lesson, students will explore how termites inspire modern engineering through the concept of biomimicry, focusing on the Eastgate Centre in Harare, Zimbabwe. The lesson offers two tracks: a Bookwork Track where students will study termite-inspired designs and reflect on biomimicry, and an Interactive Track where they will build a model structure inspired by termite engineering principles.

Reading Passage: "Termites: The Tiny Engineers of the Savanna"

Introduction: Start by reading this passage aloud to the children to give them context and spark curiosity.



BOOKWORK TRACK

Materials:

- Student Journals
- Pencils

Introduction:

Introduce students to biomimicry and the Eastgate Centre, a shopping and office complex that mimics termite mound ventilation to regulate temperature. Highlight the benefits of this design, including lower energy use and a comfortable indoor environment in a hot climate. Explain the parallels between the structure of termite mounds—such as their network of ventilation tunnels—and how the Eastgate building circulates air naturally.

ACTIVITY: Biomimicry Reflection Questions

Students will reflect on what they've learned by answering questions like:

1. How do termite mounds keep cool, even in extreme heat?
2. What is biomimicry, and how was it used to design the Eastgate Centre?
3. Why might engineers study animals like termites to solve human challenges?



INTERACTIVE TRACK

ACTIVITY: Build a Termite Inspired Building

Students will build their own termite inspired building a variety of available materials and explore how ventilation works.

Materials:

- Paper, cardboard, or recycled materials
- Straws or tubes (to mimic ventilation tunnels)
- Tape or glue
- Thermometers (for optional temperature testing)

Instructions:

1. **Begin the Mound:** Use clay or playdough to begin shaping the termite mound, focusing on creating a tall, structured shape.
2. **Add Ventilation Tunnels:** As they go, insert straws into the mound to act as ventilation tunnels. Discuss how these tunnels allow air to flow through, keeping the mound cool.
3. **Strengthen the Structure:** Add small stones or sticks around the mound to simulate how termites use materials from their environment to make the mound strong.
4. **Ventilation Experiment:** Use a small fan or blow air gently through the straws to demonstrate how air flows through the tunnels.
5. **Reflection:** Discuss how termites use natural engineering to create airflow and regulate the temperature inside the mound.

TERMITES AND ENGINEERING

JUNIOR EXPLORERS: ENGINEERING ALONGSIDE THE TINY TERMITE

In this lesson, students will explore how termites create complex mounds using natural engineering principles, such as ventilation systems. The lesson offers two tracks: a Bookwork Track where students will learn about termite engineering and reflect on its principles, and an Interactive Track where they will build their own model termite mound.

Reading Passage: "Termites: The Tiny Engineers of the Savanna"

Introduction: Start by reading this passage aloud to the children to give them context and spark curiosity.



BOOKWORK TRACK

Materials:

- Student Journals
- Pencils

1. **Introduction:** Introduce students to the complex mounds that termites build and the engineering principles they use, such as natural ventilation, structural stability, and heat regulation. Explain how the mound's design helps termites survive by keeping the interior cool even in hot climates.

2. **Engineering Principles Reflection:** Students will answer reflection questions based on the reading:

How do termites use their mounds to stay cool?

Why is ventilation important in termite mounds?

What makes termite mounds strong enough to last in the wild?

ACTIVITY: Label the Termite Mound

1. **Label a Mound:** Provide students with a simple diagram of a termite mound. They will label key parts, such as ventilation tunnels, chambers for termites, and the exterior structure.
2. **Create a Legend:** Include a legend or short description of each part to reinforce their understanding of how these features contribute to the termite mound's overall function.
3. **Reflection:** Complete the reflection questions in their student journals.



INTERACTIVE TRACK

ACTIVITY: Build a Model Termite Mound

Students will build their own termite mound model using clay or playdough and explore how ventilation works by incorporating straws or sticks.

Materials:

- Clay or playdough
- Straws (for ventilation tunnels)
- Small stones and sticks (to add structural elements)
- Scissors and glue (optional)
- Fan (optional for extension)

Instructions:

1. **Begin the Mound:** Use clay or playdough to begin shaping the termite mound, focusing on creating a tall, structured shape.
2. **Add Ventilation Tunnels:** As they go, insert straws into the mound to act as ventilation tunnels. Discuss how these tunnels allow air to flow through, keeping the mound cool.
3. **Strengthen the Structure:** Add small stones or sticks around the mound to simulate how termites use materials from their environment to make the mound strong.
4. **Ventilation Experiment:** Use a small fan or blow air gently through the straws to demonstrate how air flows through the tunnels.
5. **Reflection:** Discuss how termites use natural engineering to create airflow and regulate the temperature inside the mound.



TERMITES: THE TINY ENGINEERS OF THE SAVANNA

When you think of great builders, you might imagine humans creating skyscrapers, bridges, or houses. But did you know that some of the most amazing builders on Earth are actually tiny termites? These little insects, smaller than a grain of rice, build towering mounds that can be as tall as a full-grown person! In the Serengeti, termite mounds are more than just piles of dirt—they're cleverly designed structures that keep termites safe, cool, and thriving in one of the hottest places on Earth.

THE GREAT TERMITE MOUND: A SUPER-SMART DESIGN

Termite mounds may look like giant dirt castles, but they're actually engineering masterpieces. Inside, the mounds are full of tunnels, chambers, and even ventilation shafts that help control the temperature. Think of it like a natural air conditioning system! In the hot savanna, the temperature outside can soar to over 100 degrees Fahrenheit, but inside the mound, it stays cool and comfortable, thanks to the termites' clever design. Scientists have even studied termite mounds to learn how to design buildings that stay cool without needing electricity.

How do they do it? The mounds have special vents and tunnels that allow hot air to escape while bringing fresh, cooler air in—kind of like the way our homes use fans to keep air moving. These tunnels are so well-designed that the mounds stay cool during the hottest days and even warm during cold nights!

TEAMWORK MAKES THE DREAM WORK

Termites are all about teamwork. There are thousands—sometimes even millions—of termites in a single mound, and each one has a specific job to do. Some termites go out and collect food, like bits of grass and wood, to bring back to the colony. Others take care of the queen, who spends her life laying eggs to keep the colony growing. Then there are the worker termites, who are the real builders. They're the ones who gather mud, saliva, and even poop (yep, it's true!) to create the walls of the mound. Together, they work like a construction crew, with each termite adding tiny bits to the mound until it's strong, insulated, and ready to stand up to the elements.

WHY TERMITE MOUNDS MATTER

Why do termite mounds even matter? Well, these mounds play a big role in the ecosystem. As the termites dig and build, they mix up the soil, which helps plants grow. The mounds also provide shelter for other animals, like lizards, birds, and even some mammals. Some animals might dig into the mounds to make a home, while others use them as lookout spots to keep an eye out for predators.

Termites themselves are also important in the food chain. Many animals, like armadillos, anteaters, and birds, depend on termites as a food source. So, by building their mounds and thriving in the savanna, termites are helping to keep the whole ecosystem in balance.

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**Nature is not a place to
visit, it is home.**

— Gary Snyder



HUMAN INTERACTION STUDIES

THE MAASAI PEOPLE

SCIENCE OF MATERIALS

CONSERVATION AND ANTI-POACHING EFFORTS

TOURISM: FOUND IN BONUS LESSONS

THE MAASAI PEOPLE

In this lesson, students will learn about the Maasai people, their traditional lifestyle, and how they live in harmony with the Serengeti environment. The lesson includes the option to create Maasai-inspired jewelry to explore the cultural significance of their art and traditions. The Bookwork Track focuses on reading, writing, and reflection, while the Interactive Track allows students to engage in a hands-on cultural activity.



BOOKWORK TRACK

Materials:

- Student Journals
- Pencils
- Colored pencils

Reading Passage: "The Maasai and Their Connection to the Serengeti"

Introduction: Start by reading this passage aloud to the children to give them context and spark curiosity.

Introduction: Introduce the Maasai people, focusing on their history, way of life, and their close relationship with the Serengeti environment.

Discuss how the Maasai live sustainably by raising livestock and coexisting with wildlife in the Serengeti.

ACTIVITY: Drawing, Labeling, and Describing Maasai Jewelry and Clothing

1. **Draw and Label:** After reading about the Maasai people, have the students draw a traditional Maasai warrior or woman. They should focus on including details such as the vibrant shukas, beadwork, sandals, and other significant attire.
2. **Bead Colors and Meanings:** A list of common Maasai bead colors and their meanings can be found in their student journals:
 - **Red:** Bravery, unity, and blood, which is important to the Maasai culture.
 - **Blue:** The sky, which provides rain for cattle.
 - **Green:** Nourishment and land, symbolizing health and well-being.
 - **Yellow:** Hospitality, as it represents the sun.
 - **White:** Purity and health, often associated with milk, a staple in the Maasai diet.
 - **Orange:** Generosity and friendship.
 - **Black:** Represents the hardships the Maasai face, but also symbolizes the people and their ability to endure.
3. **Write a Description:** After they draw and label their Maasai figure, students will write a short description explaining the colors they chose for the jewelry or clothing. They should explain why they picked those specific colors and what they believe those colors say about the person they drew. Encourage them to think about how the colors represent the figure's qualities or life.



INTERACTIVE TRACK

ACTIVITY: Create Maasai-Inspired Jewelry

Students will make their own piece of jewelry inspired by Maasai beadwork, learning about the cultural significance of different colors and patterns.

Materials:

- Beads in various colors (representing the colors of Maasai jewelry, such as red, blue, white, and green)
- String or elastic for threading the beads
- Scissors
- Paper and markers (for students to plan their designs)

Reading Passage: "The Maasai and Their Connection to the Serengeti"

Introduction: Start by reading this passage aloud to the children to give them context and spark curiosity.

Instructions:

1. **Show Examples of Maasai Jewelry:** Provide visual examples of Maasai necklaces, bracelets, and earrings. Discuss the meaning behind the colors and patterns.
 - Red: Represents bravery, strength, and the Maasai people's connection to the earth.
 - Blue: Symbolizes the sky and rain, which are essential for the Maasai's cattle.
 - White: Represents purity and health.
 - Green: Symbolizes the land and pastures that sustain the Maasai and their livestock.
2. **Plan the Design:** Have students sketch their jewelry design on paper, deciding which colors they want to use and what patterns they want to create.
3. **Create the Jewelry:** Using beads and string, students will create their own Maasai-inspired necklaces or bracelets. Encourage them to talk about the colors they chose and why.
4. **Reflection and Sharing:** After completing their jewelry, students can share their pieces and discuss the significance of the colors and patterns they used. **Reflection Question:** How does creating jewelry help us understand the Maasai people's connection to their environment and culture?

Adjustments for Junior Explorers:

For younger children, simplify the jewelry-making process by using larger beads or pre-made kits. Focus on teaching them about the colors and the meanings behind them while they create their jewelry.

Extension for Older Explorers:

Older students can research the meaning of patterns in Maasai beadwork and incorporate more complex designs into their jewelry. They can also explore how Maasai beadwork has changed over time due to influences from other cultures and globalization.



THE MAASAI AND THEIR CONNECTION TO THE SERENGETI

WHO ARE THE MAASAI?

The Maasai are one of the most famous groups of people living in East Africa, known for their bright clothing, beadwork, and deep connection to the land. They live mostly in Kenya and Tanzania, near the vast Serengeti, and their history goes back hundreds of years. Unlike many other people in the world today, the Maasai still live a traditional way of life. They raise cattle, sheep, and goats, and much of their daily routine revolves around caring for these animals.

COLORFUL CLOTHING AND BEADWORK

One thing that makes the Maasai stand out is their amazing clothing and jewelry. If you were to visit a Maasai village, the first thing you might notice is how colorful everything is! The Maasai wear shukas, which are long pieces of fabric wrapped around their bodies, often in bright red, blue, and purple. These colors aren't just for style—they hold deep meanings for the Maasai. The Maasai are also known for their intricate beadwork, which they wear as necklaces, bracelets, and earrings. Each color of the beads tells a story:

- Red stands for bravery and strength.
- Blue represents the sky and the rain, which helps their cattle grow strong.
- Green is a symbol of the land, health, and fertility.
- White represents purity and the milk that their cattle provide.

LIVING WITH THE LAND AND ANIMALS

The Maasai don't live in big cities or towns. Instead, they live in small villages made of huts, which are built using mud, sticks, and grass. These huts are often arranged in a circle, with a special area in the middle for their animals to stay safe at night. The Maasai have a unique way of living with the animals around them. For example, even though lions roam the same lands, the Maasai use their knowledge of the animals' behaviors to avoid conflict. They also believe that cattle are a sacred gift, and they take great care in looking after their herds, which provide them with milk, meat, and a sense of pride.

WHY JEWELRY IS SO IMPORTANT

For the Maasai, wearing jewelry isn't just for decoration—each piece tells a story. When Maasai girls and boys grow up, they are given special pieces of jewelry to mark important moments in their lives. The colors and patterns of the beads represent different stages, like becoming a warrior or getting married. Even the size of the jewelry can be important, with bigger, more elaborate pieces often reserved for people with important roles in the community.

PROTECTING THE SERENGETI TOGETHER

The Maasai's traditional way of life is also key to protecting the Serengeti. Because the Maasai respect the land and the animals they share it with, they've helped preserve this incredible ecosystem. They know that if the balance of the Serengeti is upset, it could hurt the plants, animals, and even their own way of life. That's why the Maasai work with conservationists to ensure the Serengeti remains a place where both people and animals can thrive together.

THE SCIENCE OF MATERIALS IN THE SERENGETI

This lesson explores the properties of different materials used for survival in the Serengeti. Whether it's canvas tents, Maasai shúkàs, jeep covers, or ranger gear, materials must be carefully chosen for their breathability, waterproofing, and durability. Students will discover how these materials help people stay comfortable and safe in the Serengeti's changing climate.



BOOKWORK TRACK

Materials:

- Student Journals
- Pencils

Reading Passage: "The Right Materials for Life in the Serengeti"

Introduction: Start by reading this passage aloud to the children to give them context and spark curiosity.

Overview: In the Serengeti, people need special materials to stay cool in the heat, dry in the rain, and comfortable in the outdoors. For example, canvas tents are breathable to let air in but waterproof enough to block rain. Maasai shúkàs are lightweight for hot days but also warm enough for cool nights. Even jeeps need covers that keep rain out while letting air flow. Knowing the science behind these materials helps rangers, tourists, and locals thrive in the changing environment of the Serengeti.

ACTIVITY: Compare and Analyze Materials

1. **Explore Materials:** Open their student journals to view a listing different types of materials (canvas, vinyl, wool, polyester). Students will write down the properties of each (e.g., breathable, waterproof, lightweight).
2. **Discussion:** Discuss which materials would work best for different items in the Serengeti—like tents, blankets, or jeep covers.
3. **Reflection Questions:**
 - a. Why is breathability important for tents in hot climates?
 - b. How do waterproof materials help during the rainy season?
 - c. What material would you choose to make your own tent and why?



INTERACTIVE TRACK

ACTIVITY: Build a Tent and Protect the Cotton Ball

In this Science of Materials Challenge, students will explore how materials like waterproof fabrics help protect people and things from rain. The goal is to build a tent over a cotton ball and test if it stays dry during the “rainy season.” This activity encourages creative thinking, problem-solving, and hands-on exploration of materials.

Materials:

- Cotton ball (acts as the “camper”)
- Various materials for the tent structure:
 - Plastic wrap, Wax paper, Aluminum foil, Coffee filters
 - Paper, Cardboard
 - String or pipe cleaners (for tent frame)
- Spray bottle filled with water (to simulate rain)
- Small container or tray (to place the tent and catch the water)

Reading Passage: "The Right Materials for Life in the Serengeti"

Introduction: Start by reading this passage aloud to the children to give them context and spark curiosity.

Instructions:

1. **Set the Scene:** Just like safari lodges in the Serengeti, the students’ tents must protect their camper from heavy rain while allowing air to circulate. The cotton ball camper should stay dry through the rainy season simulation.
2. **Build the Tent Frame:** Use materials like string, pipe cleaners, or small sticks to create a frame. This frame must support the tent’s covering and include an opening or flap through which the cotton ball camper can be placed after the tent is complete.
3. **Cover the Tent:** Select materials such as foil, plastic wrap, or wax paper to cover the frame. Students should consider the properties of each material—how waterproof or breathable it is—and try different combinations for the best results.
4. **Place the Cotton Ball Camper:** After the tent is built, place the camper inside through the opening or flap to ensure the design allows for both protection and accessibility. *For our older explorers, they should be opening a flap not picking the tent up to place the camper inside.*
5. **Test the Tent with Rain:** Use the spray bottle to simulate heavy rain for 20–30 seconds. Spray evenly over the tent to test its waterproofing during the wet season.
6. **Observe the Results:** Check the cotton ball camper after the rain stops. Did it stay dry? If not, brainstorm ways to improve the design. What materials might work better?



INTERACTIVE TRACK- EXTRA EXTENSION

ACTIVITY: Create Your Own Waterproof Coating

In this bonus challenge, students explore the science behind waterproof coatings by experimenting with different substances. Just like tents in the Serengeti need protection from rain, students will test which materials can transform fabric into something water-resistant. This hands-on activity encourages students to make predictions, experiment, and observe the changes.

Materials Needed:

- A small piece of absorbent fabric (like an old dishcloth, cotton shirt, or towel)
- Coating options: Suggest waxes (beeswax, soy wax), oils (vegetable oil, coconut oil), or petroleum jelly—but allow students to brainstorm and select their own!
- Heat source (hairdryer, iron, or warm sunny spot—adult supervision required)
- Parchment paper or foil (to protect surfaces)
- Paintbrush, spoon, or cloth for applying substances
- Spray bottle with water (to test waterproofing)

Instructions:

1. **Brainstorm & Predict:** Ask students to predict which substances might be effective at waterproofing. Let them write or draw their ideas in their journal. They should consider properties such as thickness, absorption, and whether the substance feels oily or solid at room temperature.
2. **Prepare the Fabric:** Lay the piece of fabric flat on parchment paper or foil to prevent mess.
3. **Apply the Coating:** Encourage students to try different substances (wax, oil, jelly, etc.) and apply them to sections of the fabric using brushes, cloths, or spoons. They can try rubbing solid substances like wax directly onto the material.
4. **Heat & Absorb:** If they choose to use wax, cover the waxed fabric with parchment paper and gently press with an iron or blow hot air using a hairdryer to help the substance soak into the fabric.
5. **Cool & Test:** Let the treated fabric cool. Once ready, spray water onto each section to see if the coating works. Watch closely—does the water bead up and roll off? Or does it soak into the fabric?



THE RIGHT MATERIALS FOR LIFE IN THE SERENGETI

The Serengeti is a place of extreme weather, with hot, dry days and rainy seasons that bring sudden storms. To live and work here, people need materials that can handle both the heat and the rain. From tents to clothing and even safari vehicles, the right materials make a big difference in staying comfortable and keeping safe in the wilderness.

CANVAS TENTS: COOL IN HEAT, DRY IN RAIN

Most safari lodges in the Serengeti use canvas tents instead of buildings. Canvas is a special material because it can breathe, meaning air can flow through to keep the tent cool when it's hot. But canvas can also be waterproofed, so when rainstorms arrive during the wet season, the inside stays dry. Using tents instead of buildings is better for the environment because tents can be easily moved, leaving the land untouched.

THE MAASAI AND THEIR SHÚKÀS

The Maasai people live in the Serengeti and wear colorful blankets called shúkàs. These blankets are lightweight and breathable, perfect for keeping cool on hot days. But they also keep the Maasai warm on chilly mornings. The shúkàs are not just practical—they are also beautiful and represent important cultural meanings, with different colors symbolizing bravery, health, and nature.

JEEP COVERS AND RANGER GEAR: PROTECTION ON THE MOVE

Safari vehicles, called jeeps, need special covers to handle the Serengeti's changing weather. These covers are made from canvas or vinyl—materials that block rain but allow air to flow, keeping the inside cool. Rangers who protect animals in the Serengeti also need clothing that is breathable and durable. Their uniforms help them stay cool under the hot sun, and their waterproof gear protects them during sudden rainstorms.

WHY MATERIALS MATTER IN THE SERENGETI

Using the right materials in the Serengeti isn't just about staying comfortable—it's about working with nature. Whether it's a tent that doesn't damage the land or a uniform that helps rangers stay cool, every material plays an important role. People, tourists, and the Maasai all need breathable, waterproof, and durable materials to adapt to the Serengeti's climate. The use of smart materials helps everyone live in harmony with this wild and beautiful landscape.

CONSERVATION AND ANTI-POACHING EFFORTS

This lesson explores the role of anti-poaching efforts in the Serengeti and how these efforts help protect endangered wildlife. Students will learn about the challenges faced by conservationists and the impact of poaching on ecosystems.



BOOKWORK TRACK

Materials:

- Student Journals
- Pencils
- Colored pencils

Reading Passage: "Protecting Wildlife in the Serengeti"

Introduction: Start by reading this passage aloud to the children to give them context and spark curiosity.

Introduction: Introduce the concept of poaching and how it threatens animals like elephants, rhinos, and lions. Explain that poaching happens when people hunt animals illegally, often for their tusks or horns. Discuss how anti-poaching teams in the Serengeti work to protect these animals. Rangers use methods like patrolling the park, using drones to monitor areas, and collaborating with local communities. Explain the role of conservation organizations that support anti-poaching efforts and the positive impact these efforts have on protecting animals.

ACTIVITY: Creating a Conservation Poster

1. **Research Endangered Animals:** Students choose an endangered animal in the Serengeti (like elephants or rhinos) and learn why it's endangered and how poaching affects it.
2. **Plan the Poster:** Students decide on the main message of their poster and plan what information to include, such as explaining poaching, its effects, and how to help.
3. **Design the Poster:** Students draw or use images of their chosen animals, adding facts and information in simple, clear sections. Bright colors and bold titles should make it stand out.
4. **Add a Call to Action:** Encourage students to include a call to action, telling people how they can help, like supporting conservation or learning about wildlife protection.
5. **Present the Poster:** Students can present their posters to a family member, friend or classmate, discussing how their message can raise awareness about poaching.

Reflection Questions:

- Why do you think people poach animals like elephants and rhinos?
- How do anti-poaching teams protect animals in the Serengeti?
- What would happen to the Serengeti if animals like elephants and rhinos disappeared?



INTERACTIVE TRACK

ACTIVITY: Wildlife Protection Simulation

In this hands-on activity, students will simulate the challenges faced by anti-poaching teams as they work to track and protect animals across vast areas. Our oldest explorers will explore how technology, like drones and thermal cameras, help overcome these challenges by covering large distances and detecting heat signatures from both animals and poachers.

Materials:

- Paper and pencils
- A large outdoor space or indoor open area
- Small toys or animal cutouts (to represent the animals needing protection)
- Stopwatch

Instructions:

1. **Set Up the Space:** Hide the animal cutouts around the area to represent endangered species like elephants or rhinos.
2. **Patrolling the Serengeti (2 or More Players):** Divide into two teams—rangers and poachers. Rangers must find and "protect" the hidden animals before the poachers locate them. Rangers stay near an animal for 5 seconds to protect it, while poachers attempt to grab them first.
 - a. **Solo Variation:** If working alone, the child plays as the ranger, racing against an imaginary poacher (timer) to protect the animals.
3. **Switch Roles:** After several rounds, switch roles so everyone can experience being both a ranger and a poacher.
4. **Debrief:** Discuss strategies used and how real-life conservationists and technology (like drones) assist in covering large areas to protect wildlife from poachers.

ACTIVITY: Extension for our Oldest Explorers:

Technology in Anti-Poaching Efforts: Older students can research technologies like drones or camera traps used in anti-poaching efforts. They will write a short report detailing how these technologies improve wildlife protection in the Serengeti. The report should explain how drones, equipped with thermal cameras, help conservationists monitor large areas, detect illegal activities, and protect endangered species, especially at night, by detecting the heat emitted by animals or poachers.

Heat Transfer with Metal and Cloth Experiment:

- **Objective:** Understand how different materials retain or transfer heat and connect it to thermal camera technology.
- **Materials:** Metal spoon, plastic spoon, fabric, ice cubes.
- **Activity:** Hold ice cubes in each material and observe how quickly they melt. Discuss how heat conduction works—metal conducts heat faster than plastic, so the ice melts faster on the metal spoon. Connect this concept to thermal cameras, which detect differences in heat emitted by various objects or living beings, just like how different materials in the activity conduct heat differently. This mimics how wildlife tracking in anti-poaching efforts detects the presence of animals or poachers based on heat signatures.



PROTECTING WILDLIFE IN THE SERENGETI

Imagine being responsible for protecting animals across an area the size of Belgium. That's the challenge faced by rangers in the Serengeti, where poaching (illegal hunting) threatens wildlife. Poachers often target animals like elephants and rhinos for their tusks and horns, which are valuable for various reasons. In some cultures, they are seen as symbols of wealth or status, and are used to make decorations or ornaments. Although poaching can bring quick profit, it comes at a cost—disrupting the ecosystem and pushing these animals closer to extinction.

THE PROBLEM WITH POACHING

Poaching doesn't just affect the animals being hunted—it harms the entire Serengeti ecosystem. When elephants are removed from their environment, it disrupts the delicate balance of nature. Elephants play an important role in shaping the land. They knock down trees, which creates open spaces for grasslands to grow. Without these grasslands, animals like zebras and wildebeests can struggle to find food. This ripple effect impacts other species too. Fewer grazers means less food for lions, cheetahs, and other predators. So, when poaching happens, it can cause a chain reaction that affects many more animals than just the ones being hunted.

THE STRUGGLES OF RANGERS

Rangers in the Serengeti have one of the toughest jobs in the world. For many years, they had to rely on old methods like walking or driving across the plains to try and catch poachers in the act. But the Serengeti is massive, making it easy for poachers to hide and escape detection. Covering thousands of square miles on foot or by vehicle is like trying to find a needle in a haystack. Now, thanks to new technology, things are changing. Drones and thermal cameras are helping rangers protect the animals more effectively. Drones can fly high above the plains and cover large areas in a short amount of time. They send video footage back to the rangers on the ground, helping them spot illegal activity from a distance. Thermal cameras, which detect body heat, can be used to track poachers even at night when it's dark and harder to see.

WHY PROTECTING THE SERENGETI MATTERS

The Serengeti is one of the most important wildlife areas in the world, home to animals like elephants, rhinos, lions, giraffes, and more. Without these animals, the Serengeti would not be the same. That's why stopping poaching is so important—not just for the animals being hunted, but for the entire ecosystem. Every animal plays a role in keeping the balance of nature. Without elephants, the landscape changes. Without grazers like zebras and wildebeests, the predators lose their food source.

THE FUTURE OF ANTI-POACHING

While technology like drones and thermal cameras has made a big difference, poaching is still a huge challenge. Poachers continue to find new ways to hunt and hide from rangers. However, conservationists are hopeful that with better technology and more awareness of the importance of wildlife protection, the Serengeti can remain a safe haven for its incredible animals.

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**The grass is greener
where you water it.**



BONUS LESSONS

WATER RESOURCES AND AVAILABILITY

ELEPHANTS AND HEAT DISSIPATION

TOURISM WORKING TOGETHER

BONUS LESSONS OVERVIEW

These bonus lessons are available to extend learning or offer alternative options if certain concepts have already been covered in the core lessons. They allow for additional exploration of the Serengeti through engaging topics and activities. Use them flexibly to fit your family or class schedule, interest levels, or curriculum needs.

BONUS LESSONS:

1. Water Resources and Availability

- Explore the importance of seasonal water availability, learning how animals like wildebeest, zebras, and elephants adapt during dry and wet seasons.

2. Elephants and Heat Dissipation

- Learn about elephant adaptations for cooling down, like their large ears, and conduct related experiments.

3. Tourism Working Together

- Discuss how tourism can benefit both the environment and local Maasai communities when managed well.

Any worksheets or additional resources for these lessons are located in the Treasure Trove Fact File for easy access. These lessons can be mixed in wherever they fit or saved for future exploration!

WATER RESOURCES IN THE SERENGETI

Note : Junior Explorers are offered an alternative lesson 10 following this one.

Students will take on the perspective of an animal traveling through the Serengeti during the wet and dry seasons, reflecting on how water availability affects behavior, migration, and survival. This activity encourages creative writing, critical thinking, and scientific understanding.



BOOKWORK TRACK

Reading Passage: "Water in the Serengeti"

Introduction: Before starting the lesson, read this passage aloud to your children to give them context and spark their curiosity.

Materials

- Student Journals
- Writing materials

ACTIVITY: Write a Water Survival Story.

Students will choose an animal that lives in the Serengeti, such as a wildebeest, zebra, elephant, or lion. They will write a story from the animal's perspective, explaining its journey to find water during different seasons and the challenges it faces along the way.

Prompts to Guide the Writing:

1. How does the animal know where to find water? Does it follow a river, the rain, or another herd?
2. What challenges does the animal face when water is scarce? (e.g., predators near water holes, competition with other animals, or a shrinking water source)
3. How does the animal feel when it finally finds water? (e.g., relief, excitement, safety)
4. How does the animal help other animals by finding water?

Reflection Question:

After writing their story, students will answer a reflection question:

- What does your story show about the importance of water in the Serengeti?

Optional Addition: Illustrate the Story

Students can draw an illustration of their animal at a water hole during either the wet or dry season, showing the surrounding landscape.



INTERACTIVE TRACK

Reading Passage: "Water in the Serengeti"

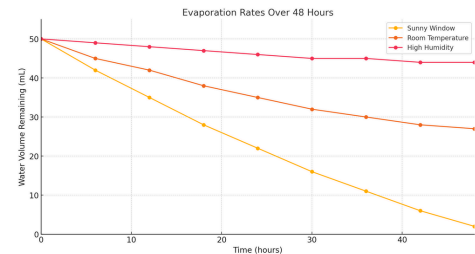
Introduction: Before starting the lesson, read this passage aloud to your children to give them context and spark their curiosity.

Activity: Evaporation Experiment – How Temperature and Humidity Affect Water Availability

This hands-on experiment allows students to explore how environmental factors, like temperature and humidity, impact evaporation. They'll use their findings to simulate real-world droughts and discuss how ecosystems respond to changing water availability.

Materials:

- 3 shallow containers (e.g., petri dishes or trays)
- Water (50 mL per container)
- Thermometer
- Measuring cup or pipette for accuracy
- Sunny window for a high-temperature condition
- Plastic bag or lid for a high-humidity condition



Instructions:

- 1. Prepare the Containers:** Add 50 mL of water to each container.
- 2. Label and Place Containers:**
 - Container 1: Place in a sunny window (high temperature, low humidity).
 - Container 2: Place at room temperature (ambient conditions).
 - Container 3: Cover with a plastic bag to simulate high humidity.
- 3. Record Initial Data:** Note the starting water levels and environmental conditions (temperature and humidity).
- 4. Observe Over 48 Hours:** Every 6-12 hours, check the water levels and record the new measurements. Use a measuring cup or pipette to measure how much water remains in each container.
- 5. Graph and Analyze:** Create line graphs showing how water levels change over time under different conditions. Compare evaporation rates across the three environments and draw conclusions.
- 6. Discussion and Reflection:** Which condition had the fastest evaporation rate? Why? How did high humidity affect the evaporation rate compared to the sunny window? What do these results tell you about the importance of water availability during the dry season in the Serengeti?

Sample Data Analysis:

Use this formula to calculate the evaporation rate for each condition. Compare the rates between the three containers to see which condition had the greatest impact on water loss.

$$\text{Evaporation Rate} = \frac{\text{Initial Volume} - \text{Final Volume}}{\text{Time (in hours)}}$$

WATER RESOURCES IN THE SERENGETI

JUNIOR EXPLORERS: THE WATER CYCLE IN THE SERENGETI

In this lesson, Junior Explorers will discover the importance of water resources in the Serengeti and how they impact the ecosystem. From rivers and lakes to seasonal water holes, water plays a key role in sustaining life. Through this exploration, students will learn how the water cycle supports wildlife and plants and how animals depend on these water sources during different seasons.



BOOKWORK TRACK

Reading Passage: "Water in the Serengeti"

Introduction: Before starting the lesson, read this passage aloud to your children to give them context and spark their curiosity.

Materials

- Student Journals
- Writing materials
- Map of the Serengeti (provided in journal)
- Colored pencils or markers

ACTIVITY: Water Cycle Diagram

1. **Label the Water Cycle:** After reading the passage, students will create a **water cycle diagram** in their student journals.
2. **Review the Main Elements:** The diagram will include the main elements of the water cycle: evaporation, condensation, precipitation, and collection.
3. **Label each Part:** They will label each part and explain its role in supporting the Serengeti's ecosystem.

Discuss:

- Why is the water cycle important for life in the Serengeti?
- What happens to animals and plants when there is less rainfall in the Serengeti?
- How do seasonal water holes help animals survive the dry season?

ACTIVITY 2: Mapping Water Sources in the Serengeti

1. **Locate and Count Rivers:** Look at the Serengeti map in the journal. Identify and circle all the rivers within the green area of the national park.
2. **Find the Biggest River:** Which river seems the largest? Trace it with a colored pencil.
3. **Understand Seasonal Changes:** Discuss how these rivers and water sources dry up during the dry season, forcing animals to migrate or rely on shrinking waterholes.
4. **Observation:** Use the map to understand which parts of the Serengeti (marked in green) depend the most on rivers. How do the animals know where to find water?



INTERACTIVE TRACK

Reading Passage: "Water in the Serengeti"

Introduction: Before starting the lesson, read this passage aloud to your children to give them context and spark their curiosity.

ACTIVITY: Create a River Flow Model

In this hands-on activity, students will learn how rivers, rainfall, and seasonal water holes shape life in the Serengeti.

Materials:

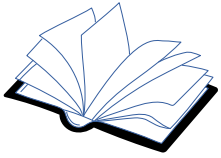
- A plastic tray or shallow container
- Sand, soil, or play dough
- Small rocks or pebbles
- Watering can or spray bottle
- Small plastic animals or paper cut-outs (optional)

INSTRUCTIONS:

1. **Build the Landscape:** Have students create a small model landscape in the tray using sand or soil. They can add hills, valleys, and flat plains to represent the Serengeti's varied terrain.
2. **Place Water Sources:** Add small "lakes" or seasonal water holes by making depressions in the soil.
3. **Simulate Rainfall:** Use a watering can or spray bottle to sprinkle water over the landscape, simulating a rainy season.
4. **Observe:** Watch how water moves through the landscape, filling lakes and rivers. Note areas where water pools or runs off quickly.
5. **Change the Seasons:** Let the students remove the water or adjust the terrain to simulate the dry season, observing how water sources shrink or disappear.
6. **Add Animals:** If available, add small animals to show where they would gather near water sources during the wet and dry seasons.

Reflection:

1. Where did most of the water flow?
2. What happens to animals when the water holes dry up?
3. How does the terrain (like hills or flat plains) affect water movement?



WATER IN THE SERENGETI: A PRECIOUS RESOURCE

A LAND OF WET AND DRY SEASONS

The Serengeti in East Africa is famous for its wide-open plains and amazing wildlife, but it's also a place where water can be difficult to find. This region experiences two main seasons: the wet season and the dry season. During the wet season, which lasts from March to May, rain fills rivers, lakes, and water holes, and the landscape turns green with life. But in the dry season, from June to October, the sun beats down, rivers shrink, and water becomes scarce, making it harder for animals to survive.

HOW MUCH RAIN DOES THE SERENGETI GET?

The Serengeti is considered semi-arid, meaning it doesn't receive much rain—only about 20–40 inches a year, mostly during the wet season. While rain plays a role in filling water sources, the Serengeti's intense heat causes water to evaporate quickly. This process, where water turns into vapor and rises into the air, makes it harder to keep rivers and lakes full. As the water disappears, animals have to search for other sources to survive.

WHERE DO ANIMALS FIND WATER?

When water becomes scarce, animals rely on permanent rivers, shrinking lakes, and hidden water holes. Elephants have an amazing ability to smell underground water and use their trunks to dig into dry riverbeds. Other animals follow ancient migration paths that lead them to water sources used by their ancestors for generations.

WHY DOES WATER EVAPORATE SO QUICKLY?

The Serengeti's hot, dry air speeds up evaporation, especially during the dry season. With little moisture in the air to slow down the process, water vanishes from rivers and puddles faster than it can be replaced by rainfall. This makes it a constant struggle for animals to find enough water until the next rainy season begins.

HOW FAR DO ANIMALS TRAVEL FOR WATER?

During the Great Migration, animals like wildebeests and zebras travel up to 1,200 miles a year in search of water and fresh grass. Along the way, they must cross dangerous rivers like the Mara River, where crocodiles wait to ambush them. The journey is long and difficult, but without it, these animals wouldn't survive the dry season.

WATER IS LIFE IN THE SERENGETI

The Serengeti teaches us that water is the lifeblood of the ecosystem. Rivers, lakes, and seasonal water holes provide the resources that every living thing depends on—from towering elephants to tiny insects. Animals migrate, adapt, and sometimes even share scarce water sources to make it through the toughest times. In this harsh but beautiful land, water truly means survival.

ELEPHANTS AND HEAT DISSIPATION

In this lesson, students will explore how elephants manage heat using their large ears and other adaptations. They will learn about the concept of heat dissipation and conduct an experiment to measure temperature changes using a model of an elephant's ear. The lesson offers two tracks: an "Bookwork" track for learning through reading and drawing, and a "Interactive" track for building models and conducting experiments.



BOOKWORK TRACK

Reading Passage: "How Elephants Keep Cool"

Introduction: Start by reading this passage aloud to the children to give them context and spark curiosity.

Materials:

- Student Journals
- Pencils
- Colored pencils

Introduction:

Introduce elephants and explain their large ears, thick skin, and other adaptations that help them manage heat in hot climates. Discuss the concept of **heat dissipation**—how elephants use their large ears to release heat by flapping them and increasing blood flow.

DRAWING ACTIVITY: Elephant Ear Diagram

1. **Draw the Elephant Ear:** Students will draw an elephant and label its adaptations for cooling down. Focus on labeling the ears as the primary adaptation for heat dissipation.
2. **Label:** Add labels for other adaptations, such as mud baths to cool down and large size to store water.
3. **Discussion Questions:**
 - How do elephants use their ears to cool down?
 - Why do elephants need to stay cool in hot climates?
 - What role does the size of their ear play in being able to stay cool?
 - How do other animals manage heat differently from elephants?



INTERACTIVE TRACK

Reading Passage: "How Elephants Keep Cool"

Introduction: Start by reading this passage aloud to the children to give them context and spark curiosity.

ACTIVITY 1: Model Elephant Ear Construction

In this activity, students will build a model of an elephant ear and use it to investigate how heat is dissipated.

Materials:

- Construction paper or cardboard
- Black paper (optional)
- Scissors, glue, and tape
- Markers
- A small thermometer (if available)

Instructions:

1. Create an Elephant Ear Model:

- Use construction paper to create a large model of an elephant's ear. If using black paper, you can cover part of the ear model with it to illustrate heat absorption. Tape the ear to a base (like a box or water bottle) to represent the elephant's body.

2. Discuss How the Model Works:

- Explain that elephant ears are large and filled with blood vessels, allowing the blood to cool as it flows through the ears. If you studied the Boreal Forest, relate this back to the surface area of a deciduous tree.

3. Optional Step:

- If black paper is used, discuss how it absorbs heat more quickly and how this relates to the temperature changes observed in the next activity.

ACTIVITY 2: Heat Dissipation Experiment

This experiment will help students understand how large ears help elephants cool down.

Materials:

- The elephant ear model from the previous activity
- Thermometer
- A fan or small heat source (optional)
- Black paper (optional)

Instructions:

- 1. Set Up the Experiment:** Place the elephant ear model in a warm or sunny area. If using black paper, attach it to the ear model to observe how it absorbs heat.
- 2. Take Initial Temperature:** Use the thermometer to measure the initial air temperature around the ear model. If using black paper, measure the temperature of the paper as well.

3. Test with and without Flapping: Have one student wave the ear model back and forth (simulating an elephant's ear flapping) while another student takes temperature readings. Compare the temperature with the ear in motion versus stationary.

4. Observe and Record: Measure the temperature differences recorded during the experiment. Discuss how the temperature drops when the ear model is waved, simulating how elephants cool themselves with their ears.

5. Conclusion: Discuss: Relate the findings back to how elephants use their large ears to dissipate heat effectively. Emphasize the connection between surface area, airflow, and heat dissipation.

Extension for Older Explorers:

Older students can deepen their understanding of heat dissipation by exploring various aspects of their elephant ear models. They can experiment with different sizes of ear models—creating small, medium, and large versions—to investigate how the size of an ear impacts its ability to dissipate heat.

- **Size Comparison:** Students can construct models of varying dimensions and place them in identical conditions during the heat dissipation experiment. They should measure and record the temperature around each model after simulating ear flapping to observe how the size affects cooling efficiency.
- **Data Analysis:** After conducting their experiments, students can graph their temperature readings over time. By plotting the data, they can visually compare the effectiveness of different ear sizes in dissipating heat. This activity encourages students to analyze trends and draw conclusions.
- **Real-World Connections:** Encourage students to research how the adaptations of elephant ears relate to other animals with similar cooling mechanisms, such as fennec foxes or certain species of birds. They can present their findings, highlighting how size and structure play a crucial role in thermoregulation across different species.



BONUS SUCTION & WATER PRESSURE FUN CHALLENGE

Objective: In this challenge, students explore the concepts of suction, water pressure, and problem-solving by using a straw (the elephant's trunk) to transfer water from one glass (the river) to another (the elephant's mouth).

Materials Needed:

- 2 clear glasses (one filled with water and one empty)
- 1 straw per student/ team
- Stopwatch or timer (optional for added challenge)

Challenge Setup:

1. **Prepare the Workspace:** Place the full glass of water (the river) on one side of the table. Place the empty glass (the elephant's mouth) on the opposite side, ensuring there's enough space between them for the activity.
2. **Explain the Rules:**
 - One Straw: Each student/team has one straw, which represents the elephant's trunk.
 - One Hand Only: Participants can only use one hand to touch the straw. The other hand must remain behind their back or resting on the table.
 - You may not use your mouth.
 - No Touching the Glasses: Participants cannot touch the glasses at any time during the challenge.
3. **Starting the Challenge:** Begin the challenge by saying, "On your mark, get set, go!" Students will have to think about how to get the water from one glass to the other, using only the straw!

How to Complete the Challenge:

1. **Creating Suction:** To suck up water, participants need to put the straw into the water, cover the top of the straw with their thumb, and then lift the straw out of the glass while keeping their thumb over the top of the straw.
2. **Transferring Water:** Once the straw is over the elephants mouth (empty glass), they can release their thumb to allow water to empty into the glass.
3. **Challenge:** Suck the water up with one hand and pass the straw to your other hand without losing any water.

Reflection and Discussion:

- How did they create suction, and what challenges did they face?
- How does this relate to how elephants use their trunks to drink water?
- What lessons did they learn about suction and water pressure?

Extensions:

- Challenge: Suck the water up with one hand and then pass the straw to your other hand without losing any water. This will help you practice maintaining suction and control over the liquid.
- Teamwork: Work in pairs to see if you can pass the straw from one person to another without losing any water. Discuss how you can retain pressure while transferring the straw to keep the water from falling out.



HOW ELEPHANTS KEEP COOL & ALL ABOUT HEAT DISSIPATION

Today, we're going to learn about one of the largest and most fascinating animals on our planet: the elephant! Elephants are not just known for their size; they have some incredible adaptations that help them survive in their habitats, especially in hot climates.

THE BIG EARS

Let's start with their ears. Did you know that an elephant's ears can be as big as a small car? These enormous ears aren't just for hearing; they play a vital role in helping elephants stay cool! When elephants get too warm, they flap their ears back and forth. This action allows air to flow over the surface of their ears, which helps them dissipate heat. You see, elephants have many blood vessels close to the surface of their ears. When the warm blood flows through these vessels, the air cools it down before it returns to the elephant's body. This process is called heat dissipation.

UNDERSTANDING HEAT DISSIPATION

So, what exactly is heat dissipation? It's the process by which an animal loses heat to its surroundings to maintain a healthy body temperature. For elephants, having large ears means they have a greater surface area to release heat. The more surface area they have, the more heat they can lose! This is why elephants can often be seen flapping their ears, especially when it's extra hot outside.

OTHER COOL ADAPTATIONS

But that's not all! Elephants have other adaptations that help them cope with heat, too. For example, they love to take mud baths. When they cover themselves in mud, it cools their skin and protects them from the sun. The mud also acts like sunscreen, shielding their sensitive skin from harmful UV rays. Elephants are also social creatures. They live in herds, which helps them take care of one another. When one elephant finds a cool spot or a water source, they can share this information with the rest of the herd. This social behavior is essential for their survival in the wild.

Oh and we can't forget their trunk! Elephants can use their trunks to spray water on themselves, further cooling their bodies. Their trunks are versatile tools that help them drink, eat, and even greet one another!

WHY THESE ADAPTATIONS MATTER

These adaptations are vital for elephants, especially as they face the challenges of living in hot environments. By efficiently dissipating heat and using strategies to keep cool, elephants can thrive in their habitats.

TOURISM AND SAFARI LODGES

In this lesson, students will explore the impact of tourism on the Serengeti and the Maasai people, focusing on the idea that tourism can have both positive and negative effects. The goal is to show that tourism can benefit local communities and wildlife if done responsibly. Students will apply these concepts by creating their own safari lodge, thinking through how to attract tourists while ensuring that the lodge benefits the Maasai and the Serengeti.



BOOKWORK TRACK

Materials:

- Student Journals
- Pencils
- Colored pencils

Reading Passage: "Tourism in the Serengeti – The Good and the Challenges"

Introduction: Start by reading this passage aloud to the children to give them context and spark curiosity.

Introduction: Discuss the challenges that come with tourism, such as overcrowding, waste, and disturbances to wildlife, emphasizing that it's all about how tourism is done to ensure it benefits everyone involved.

RESEARCH ACTIVITY: Successful Lodges in the Serengeti

1. **Research:** Children will read about a real safari lodge in the Serengeti. They should explore: What makes the lodge attractive to tourists? How does the lodge involve the local Maasai people? How does the lodge protect the wildlife and the ecosystem? They can use the internet, books, or other resources to learn about sustainable practices and the ways that real lodges benefit both the community and the environment.
2. **Design a Safari Lodge Blueprint:** Students will then use colored pencils to draw a basic blueprint of their own safari lodge. Encourage them to label key features, such as eco-friendly huts, solar power, and guided tours that teach tourists about Maasai culture and wildlife conservation. They should think about how their lodge can attract tourists while minimizing its environmental impact.
3. **Reflection Questions:** What are some benefits of tourism in the Serengeti for the Maasai and the wildlife? What challenges can too much tourism cause? How can tourists enjoy the Serengeti while helping to protect it?

HUMAN INTERACTION : LESSON 12

JUNIOR ACTIVITY: Simplified Research for Junior Explorers

1. **Talk about Tourism and Safari Lodges:** Show images or describe a simple safari lodge to the students. Discuss basic features, such as where the lodge might be located, what animals it would be near, and how the Maasai people might help out at the lodge. Explain that tourists come to see animals like elephants, zebras, and lions.
2. **Create a Safari Lodge Picture:** Junior students will draw their ideal safari lodge using colored pencils. They should include fun features, such as huts, a watering hole for animals, and Maasai guides who help tourists learn about the Serengeti. Encourage them to imagine what their lodge would look like from the outside, and what makes it special.
3. **Fill-in-the-Blank Writing Prompt:** In their journals, have students complete a few simple sentences about their safari lodge.



INTERACTIVE TRACK

ACTIVITY: Launch Your Own Safari Lodge

Students will design and launch their own safari lodge, thinking about how it can be attractive to tourists while also benefiting the Maasai and protecting the environment. They can either create a poster or a small 3D model of their lodge.

Materials:

- Poster board or construction paper, markers, colored pencils
- Cardboard, clay, glue, or other materials for 3D models
- Internet for additional research (optional)

Reading Passage: "Tourism in the Serengeti – The Good and the Challenges"

Introduction: Start by reading this passage aloud to the children to give them context and spark curiosity.

Instructions:

1. **Name Your Lodge:** Encourage students to come up with a creative name for their lodge that reflects the unique experience they want to offer tourists.
2. **Why Choose Your Lodge?:** Have students write down a few reasons why tourists should choose their lodge. Encourage them to include things like:
 - Location: Is it near a river, migration route, or scenic area?
 - Activities: Does it offer wildlife safaris, Maasai cultural experiences, or guided hikes?
 - Facilities: Comfortable rooms, outdoor spaces, dining areas that offer local cuisine.
3. **Create a Poster or Model:** Students will either create a poster advertising their safari lodge or build a 3D model using materials like cardboard, clay, or recycled items. The poster or model should highlight the lodge's unique features and how it benefits both tourists and the local community.
4. **Present Your Lodge:** Have students present their safari lodge to the group, explaining why tourists would want to visit and how the lodge helps support the Maasai and the Serengeti environment.



TOURISM IN THE SERENGETI – THE GOOD AND THE CHALLENGES

The Serengeti is one of the most famous places in the world, filled with incredible wildlife like lions, elephants, zebras, and giraffes. It's also home to the Maasai people, who have lived on these lands for hundreds of years. Every year, thousands of people travel from all over the world to visit the Serengeti. They come to see the animals in their natural habitat and experience the beauty of the African plains. As you may know by now, this is called tourism, and it can be both good and challenging for places like the Serengeti.

THE GOOD: HOW TOURISM HELPS

Tourism can be a very positive thing for the Serengeti and the Maasai people. When visitors come to the Serengeti, they spend money on things like staying in safari lodges, going on guided tours, and buying souvenirs. This helps the local people, including the Maasai, earn money to support their families. Tourism also provides jobs, like being tour guides or lodge workers, and it helps local businesses grow. Tourists also learn about the importance of protecting wildlife and the environment. When they see animals like elephants or cheetahs in their natural habitat, they realize how important it is to keep the Serengeti safe for future generations. Many tourists become advocates for conservation, helping raise money or support projects that protect the Serengeti's animals and environment. In this way, tourism can actually help protect the very place people come to visit!

THE CHALLENGES: HOW TOURISM CAN CAUSE PROBLEMS

However, tourism can also bring some challenges. One of the biggest problems is when too many people visit at once. Large numbers of tourists can disturb the animals, making them feel stressed or scared. For example, if a jeep full of tourists gets too close to a lion pride, it might cause the lions to leave the area and lose their chance to hunt.

Another problem is waste. When tourists come to the Serengeti, they sometimes leave behind trash, which can harm the environment. Too many vehicles driving through the park can also damage the land, crushing plants and causing soil erosion. If not managed carefully, tourism can create a negative impact on the very places people want to see.

RESPONSIBLE TOURISM: FINDING THE BALANCE

The key to making tourism work well for everyone is called responsible tourism. This means finding ways to let people visit the Serengeti while still protecting the land, the animals, and the Maasai people's way of life. Many safari lodges in the Serengeti are now focusing on eco-friendly practices. This includes using solar power instead of electricity, recycling waste, and making sure they don't harm the land.

Some lodges also work directly with the Maasai people, hiring them as guides or sharing profits with the community. This helps the Maasai continue their traditional way of life while also benefiting from tourism. Responsible tourism helps ensure that the Serengeti stays beautiful and wild for years to come, while allowing visitors to have an amazing experience.

“—

I just wish the world was
twice as big, and half of
it was still unexplored.

— David Attenborough



RESOURCES

CREATURE CLUB: TREASURE TROVE

BOOK SUGGESTIONS

MOVIES AND SHOWS

FIELD TRIP SUGGESTIONS

THE TREASURE TROVE

The Treasure Trove is an extensive online collection available to everyone, featuring hundreds of activity packs and worksheets designed to support and supplement the habitat of study in the Creature Curriculum. This invaluable resource offers a wealth of bonus materials that enrich and expand upon the core curriculum.

For Creature Club members, unlimited downloads are completely free, making it easy to access engaging activities that enhance the learning experience!

In the Treasure Trove, you'll find a variety of engaging tools, including but not limited to:

Interactive Quizzes and Games

Test knowledge and reinforce learning with fun, educational quizzes and games.

Printable Worksheets and Activity Sheets

Enhance Interactive with a variety of worksheets and activities.

Creative Writing Prompts

Inspire storytelling and critical thinking with prompts related to the habitats and creatures studied.

How-to-Draw Guides

Foster artistic skills with step-by-step drawing instructions featuring the animals and plants explored each month.

Coming Soon:

Exclusive Interviews

Gain insights from professionals in various fields, including marine biologists, conservationists, and wildlife photographers.

CURATED READING FOR SERENGETI AND GRASSLANDS EXPLORATIONS

Here are a handful of reading suggestions to look for on your next trip to the library!

Fictional Young Novels (Ages 8-12)

- "The White Giraffe" by Lauren St. John
 - Description: After moving to a wildlife reserve in South Africa, Martine discovers a mystical connection with a rare white giraffe. This magical adventure blends themes of wildlife conservation, friendship, and courage.
- "A Long Walk to Water" by Linda Sue Park
 - Description: Based on a true story, this novel follows the journeys of two children in Sudan: one girl in 2008 fetching water for her family, and one boy in 1985 who becomes a refugee. The story highlights the vital role water plays in African life and the struggles of those living in dry, harsh environments like the Serengeti.
- "The Elephant's Girl" by Celesta Rimington
 - Description: This touching story follows a girl who was saved by an elephant and raised in a Nebraska zoo. Though set in the U.S., the novel explores deep bonds with elephants, offering parallels to the importance of elephants in African ecosystems like the Serengeti.
- "African Adventure" by Willard Price
 - Description: In this action-packed novel, two brothers travel to Africa to capture wild animals for a zoo. Along the way, they encounter dangerous wildlife and challenges in the grasslands. It's a thrilling story that introduces readers to the beauty and risks of African wildlife.
- "The Butterfly Lion" by Michael Morpurgo
 - Description: This emotional novel tells the story of a boy who befriends an orphaned white lion cub in Africa. As they grow older, their bond remains strong despite the separation, and the story highlights the challenges of growing up in the African savanna.

Non-Fiction Boreal Forest Books (Ages 6-12)

- "Serengeti: Plains of Grass" by Lesley Anne Dyer
 - Description: This beautifully illustrated book introduces children to the incredible diversity of life in the Serengeti. It explains the annual migration, the roles of predators and prey, and the importance of conservation.
- "The Great Migration: Journey to the Northern Serengeti" by Jonathan Scott
 - Description: This book details the famous annual migration of wildebeest, zebras, and other animals across the Serengeti, explaining the challenges these animals face and the complex relationships within the ecosystem.
- "African Savanna" by Donald M. Silver
 - Description: A part of the "One Small Square" series, this book provides a close-up view of the African savanna, highlighting the plants, animals, and ecosystems that thrive there. It helps children understand the role of water, the seasonal changes, and the animals' survival strategies.

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- "The Elephant Scientist" by Caitlin O'Connell
 - Description: This engaging non-fiction book takes young readers on a journey to Africa to learn about elephants and the scientists who study them. It's perfect for exploring the intelligence and complex social behaviors of elephants, animals central to the Serengeti.
 - "Lions" by Seymour Simon
 - Description: This non-fiction book dives into the life of lions, teaching readers about their behavior, pride dynamics, hunting strategies, and their role as apex predators in African grasslands like the Serengeti.
 - "The Great Serengeti: The Journey of the Wildebeest" by Katie Smith Milway
 - Description: This book focuses on the epic migration of wildebeest across the Serengeti. It delves into the obstacles these animals face, the predators they encounter, and how this mass movement sustains the ecosystem.

Picture Books (Ages 4-8)

- "Over in the Grasslands: On an African Savanna" by Marianne Berkes
 - Description: A beautifully illustrated, rhyming book that introduces young readers to the animals of the African grasslands, teaching them about different species and their behaviors in a fun and engaging way.
- "Bringing the Rain to Kapiti Plain" by Verna Aardema
 - Description: This rhythmic, cumulative tale set in Africa follows the story of a young boy who helps end a drought. The book introduces children to life on the plains and the importance of water for the animals and people living there.
- "The Hunter and the Ebony Tree" by Anna Cunningham
 - Description: A tale of a young hunter who learns respect for the animals of the African plains. The book provides insights into the relationship between the people and the wildlife of the Serengeti.
- "We All Went on Safari" by Laurie Krebs
 - Description: Set in Tanzania, this counting book takes children on a journey through the grasslands, introducing them to animals like lions, elephants, and zebras while teaching basic counting in both English and Swahili.
- "Giraffes Can't Dance" by Giles Andreae
 - Description: A heartwarming story of a giraffe named Gerald who struggles to dance like the other animals but eventually finds his rhythm. This story encourages self-confidence while introducing the animals of the African savanna.
- "Lila and the Secret of Rain" by David Conway
 - Description: A young Kenyan girl sets out to save her village from drought by unlocking the secret of rain. This story helps children understand the importance of rainfall in the grasslands and its role in the lives of people and animals.
- "Mama Panya's Pancakes" by Mary and Rich Chamberlin
 - Description: Set in Kenya, this story focuses on the importance of sharing and community. It introduces children to life in an African village, showing the close relationship between people and their environment.
- "The Water Princess" by Susan Verde
 - Description: Based on the childhood of Georgie Badiel, this book tells the story of a young girl in Africa who dreams of bringing clean drinking water to her village. It introduces themes of water scarcity in a way that resonates with children.

ON TOPIC: TV SHOWS & MOVIES

Note to Parents and Educators:

Before watching, we recommend previewing each movie or TV show to ensure it aligns with your family's values and viewing preferences. While these selections are educational and connected to our Serengeti study, content such as wildlife behavior, predator-prey dynamics, or themes of survival might not be suitable for all ages. Please take a moment to review the content to determine if it is appropriate for your children.

TV Shows and Episodes

1. "Planet Earth II" (BBC)
 - Episode to Watch: "Grasslands"
 - Description: This episode explores the world's grasslands, focusing on the Serengeti and its unique wildlife. It showcases the diverse animal life, the challenges of the dry season, and the incredible Great Migration of wildebeest and zebras
2. "The Lion Kingdom" (Smithsonian Channel)
 - Description: Follow the lives of lion prides in the Serengeti as they navigate the complex challenges of survival. The show provides an in-depth look at lion behavior, hunting strategies, and pride dynamics in the Serengeti.
3. "Nature" (PBS)
 - a. Episode to Watch: "Serengeti Rules"
 - b. Description: This episode explores how key species in the Serengeti, like lions and wildebeest, help maintain the balance of the ecosystem. It dives into the science of how their interactions shape the landscape.
4. "Serengeti" (Discovery Channel)
 - a. Description: This documentary series offers an immersive view of the wildlife in the Serengeti, following various animals through the changing seasons as they deal with survival, family, and the beauty of the African plains.
5. "Wild Kratts" (PBS Kids)
 - a. Episode to Watch: "The Great Creature Tail Fail"
 - b. Description: The Kratt brothers explore the Serengeti, learning about the unique adaptations of African wildlife like cheetahs, elephants, and giraffes as they investigate how animals survive in this rich grassland.
6. "Africa" (BBC)
 - a. Episode to Watch: "Savannah"
 - b. Description: This episode focuses on the savannahs of Africa, including the Serengeti, highlighting the impressive survival strategies of its wildlife and how the animals adapt to the wet and dry seasons.

Movies

1. "The Lion King" (Disney)
 - Description: Set in a fictional version of the African savannah, this classic animated movie introduces children to the circle of life in the Serengeti-like environment. It emphasizes themes of family, survival, and the balance of the ecosystem.
2. "Serengeti" (IMAX)
 - Description: This film takes viewers on an awe-inspiring journey through the Serengeti, focusing on the majesty of its landscapes and the epic survival stories of the animals that live there.
3. "The Crimson Wing: Mystery of the Flamingos" (DisneyNature)
 - Description: This visually stunning documentary follows the lives of flamingos in Tanzania's Lake Natron, located near the Serengeti. It showcases the challenges flamingos face during their life cycle, offering a glimpse of the Serengeti's lesser-known birdlife.
4. "Born Free" (Columbia Pictures)
 - Description: Based on the true story of Elsa the lioness, this film is set in the African savannah and chronicles the bond between a couple and the lioness they raised. It provides insight into lion behavior and life in the wild.
5. "Elephant" (DisneyNature)
 - Description: Follow the journey of an African elephant and her herd across the vast plains of Africa, showcasing the life of elephants in the savannah and the challenges they face during their migration in search of water.

FIELD TRIP SUGGESTIONS

Note: These ideas are starting points for exploring nature and making connections to the Serengeti and African grasslands. When planning a field trip, consider reaching out ahead of time to see if someone can offer a small tour or presentation about the animals or ecosystems you're studying.

Many places are happy to accommodate school and homeschool groups, especially if they know it's part of an educational study. Reach out before you go and ask if there is someone available to give your child(ren) a "behind the scenes" experience or extra time for a short interview. Use these field trips to compare your local environment with the Serengeti, bringing learning to life.

Habitat Studies

- Nature Reserve or Grassland Area: Visit a local grassland or nature reserve and observe plants and animals. Discuss similarities and differences with the Serengeti.
- Botanical Garden: Explore a garden with grassland or savanna sections to learn about plant adaptations similar to those in the Serengeti.
- Wildlife Refuge or Conservation Area: Visit a wildlife refuge to explore grassland habitats and learn about their importance to local wildlife.
- State or National Park: Visit a park with open plains or prairies. Join a guided hike or program on grassland ecology.

Creature Studies

- Zoo with African Animals: Visit a zoo to observe Serengeti animals like lions, giraffes, and elephants, and learn about their adaptations.
- Wildlife Rehabilitation Center: Explore a wildlife center to observe animals in care and compare their adaptations to Serengeti wildlife.
- Bird Sanctuary: Visit a bird sanctuary and compare local birds with those of the Serengeti, like vultures and eagles.
- Safari Park: Visit a safari or wildlife park where African animals roam freely, observing their social structures and behaviors.

Human Interaction Studies

- Farm Visit: Tour a local farm and compare modern farming techniques with Maasai pastoral practices and their effects on grasslands.
- Cultural Center or Museum: Visit a cultural center or museum to learn about the Maasai people and their relationship with the Serengeti.
- Conservation Center: Visit a conservation center to learn about protecting grasslands and the animals that depend on them.
- Farmers' Market: Explore a farmers' market or tour sustainable farms, comparing efforts in balancing agriculture and conservation.

Feel free to adapt these suggestions based on your local resources and explore your surroundings!



THANK YOU

We sincerely thank you for choosing our curriculum and for being a part of our educational community. Your support allows us to continue offering high-quality, affordable educational resources.



If you found this curriculum valuable, we would be grateful if you could share your experience with others. By spreading the word and leaving a review, you help us reach more families and ensure we can keep our prices low, making quality education accessible to all. Thank you once again, and we wish you and your family many more adventures in learning!

See you next month,

The Creature Curriculum Team

