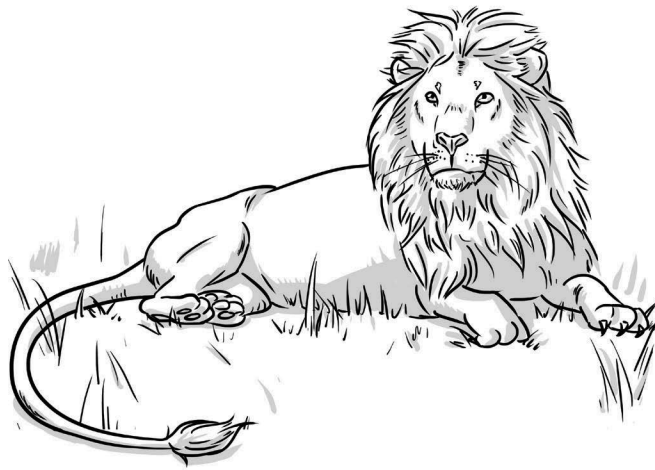


The Animal Kingdom: Science Themes for Primary Children

Teacher Manual



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Chapter One

Introduction

The Theme: A Plan for Teaching Children in the Primary Grades

A thematic approach to teaching provides teachers with a long-range plan that interrelates subjects and gives children opportunities for practice in many areas of skills development. In addition, it allows teachers to accommodate children's different ability levels, learning styles, and interest areas.

The animal kingdom is a theme whose major content focus is drawn from the life sciences: biology, ecology, and environmental studies. Most children enjoy learning about animals, and their enjoyment can be used to encourage them to explore and investigate nature and the animal kingdom. The activities in the student book are fused with the language arts and furnish extended opportunities for children to develop understanding and to broaden concepts.

The materials presented in this book enable teachers to capitalize on their students' enthusiasm by providing creative ideas for learning activities that put science concepts to work while sharpening skills. The activities enable students to work independently, with a partner, or in small groups. Children learn how to attack problems with confidence and to take pleasure in skill mastery and in doing well. They also come to understand and appreciate the beauty and bounty of nature.

Modular Organization

The Animal Kingdom is divided into ten independent but related learning modules—one for each month of the school year. Each module is a relatively self-contained unit; they can be taught separately or in a sequence. A modular approach that is not interdependent is not only practical to organize but has several other advantages:

- Children can succeed in each module, regardless of prior experience (i.e., entering into the class later in the year or being sick does not penalize a child).
- Each module allows children to learn, practice, and expand skills at different levels of proficiency.
- The relatively few modules covered allow for a more in-depth approach that encourages investigation of topics.
- These investigations allow children to use thinking processes, research skills, and study skills in order to develop science concepts and become independent learners.

Each module introduces a different animal and explores its adaptations to the environment. There is a passage about the animal to read aloud to the children. The questions that follow the passages should motivate the children to learn more about the animals and their habitats. The children are encouraged to recall, summarize, and explain what they have learned.

A Planning Sheet is included for each unit. This format allows for flexibility in planning which skills are to be taught and which materials and resources are to be used. The Planning Sheet aids teachers in designing learning experiences that will enable children to apply concepts and discover more about natural phenomena.

Chapter Three of this book contains information that teachers can use to help them plan the modular lessons. This information uses Bloom's Taxonomy as a basis for structuring learning opportunities for children that will include struggling students as well as children ready to engage in higher-order thinking tasks. It provides many helpful examples; teachers are encouraged to use these as springboards to creating their own questions and activities.

Learning by Doing: Process Skills Development

In order to solve problems and develop science concepts, children need to learn how to use a number of specific process skills. These skills enable them to learn how to evaluate and interpret information and reach a logical conclusion. The children can then share what they have learned with confidence. Some important process skills are:

FINDING INFORMATION

- Observing
- Researching
- Recording

USING INFORMATION

- Measuring
- Classifying
- Comparing and contrasting
- Validating

SHARING INFORMATION

- Communicating

Skills mastery helps children achieve cognitive growth. Both content and process are important if children are to assimilate knowledge and become independent learners. Children's self-concepts are enhanced by developing independence as learners: seeking information, working on problems, and sharing the results of their efforts.

Planning Sheet

Module: _____

Concepts: _____

Vocabulary: _____

Questions to stimulate thought and discussion:

Remembering _____

Understanding _____

Applying _____

Analyzing _____

Evaluating _____

Creating _____

Planning Sheet

Knowledge Objectives: _____

Skill Objectives: _____

Related Subjects: _____

Activities: _____

Resources and Materials: _____

Values and Attitudes: _____

Evaluation: _____

Planning a Learning Center

Animals generally are highly appealing to young children, and multiple resources about animals are readily available. The teacher's task is not only to provide these multiple resources but to be aware of their value, purpose, and intent. Children need access to learning materials, but they also need the freedom to use those materials if they are to develop skills of self-management and self-direction.

A practical first step for teachers who want to develop self-management skills in their students is to involve the children in the planning of the unit by developing a learning web. This is a good way to organize thoughts, ideas, and questions into appropriate learning activities. This web need not be completed at once but may be augmented as the students' needs, abilities, and interests suggest new directions for learning.

As the children complete the learning web, they learn classifying and outlining skills. As an added bonus, the web can serve as a point of reference for evaluation, review, and reinforcement of concepts.

The degree of the children's involvement in planning learning activities will vary according to their level of maturity. The process may take several days, depending on the ability of the group to sustain involvement. Use the following simple steps:

1. List the topic on a large whiteboard.
2. Encourage the children to brainstorm and call out ideas related to the topic. Record their ideas.
3. Plan a learning web by grouping related ideas.
4. Work with the children to develop a list of questions.
5. Use the learning web and questions based on Bloom's Taxonomy (see Chapter Three of this book) to help plan learning activities at different levels.
6. Develop a list of resources, materials, experts, and fieldtrips. Encourage suggestions from the children.
7. Have the children select topics they wish to explore.
8. Plan for sharing and evaluation.

Planning with the children gives them direction and purpose, fosters goal-oriented behavior, and develops oral expression. They learn to express their thoughts and respect the ideas of others.

The activities suggested by the learning web can be incorporated within the framework of a learning center. This flexible approach encourages peer interaction and accommodates a wide range of abilities. Learning center experiences encourage children to relate ideas and try things out for themselves.

Learning centers vary in structure and form and can be readily adapted to many types of classrooms. However, planning a learning center that meets divergent student needs involves more than assembling a random assortment of clever, theme-related activities to keep children occupied. The goals of a learning center are to:

- Provide a wide variety of materials and resources at different ability levels
- Promote open-ended, student-selected activities
- Encourage process-oriented (as opposed to product-oriented) education
- Expand the knowledge that children assimilate, and extend concepts related to the theme
- Improve and expand thinking and learning skills
- Extend opportunities to engage in problem-solving experiences
- Foster social development by encouraging positive habits and attitudes
- Provide opportunities for product development, sharing, and evaluation by the children

Keep the learning center simple. Avoid the excessive use of elaborate and often distracting decorations. Whenever possible, use real objects and accurate reproductions.

Learning Centers

<ul style="list-style-type: none"> • Provide a framework for theme activities • Provide for different levels of learning <ul style="list-style-type: none"> • below level • at level • above level 	<ul style="list-style-type: none"> • Provide subject knowledge • Provide for skills development • Provide for enrichment outside the bounds of the regular curriculum <ul style="list-style-type: none"> • teach • reinforce • enrich 	<ul style="list-style-type: none"> • Utilize different learning modalities • Review facts • Extend learning and concepts • Develop vocabulary • Encourage independent study • Promote special interests <ul style="list-style-type: none"> • data research • data organization • data sharing
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Every learning center needs six things to make it work:

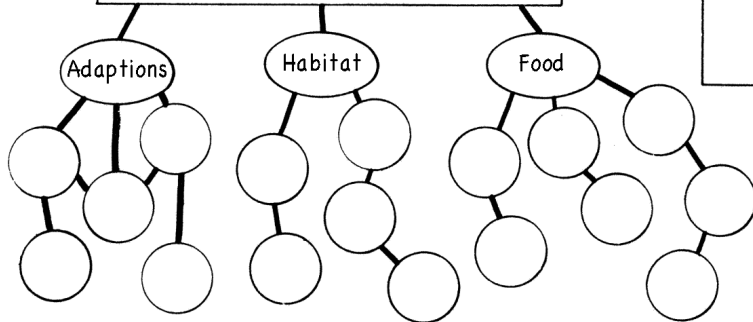
1. Teacher attention (i.e., relevance to classroom work)
2. Suitable materials and resources
3. Rules for center use
4. Specific directions for activities
5. Children engaged in cooperative learning with one another
6. Recognition and use of children's products

THE ANIMAL KINGDOM LEARNING CENTER

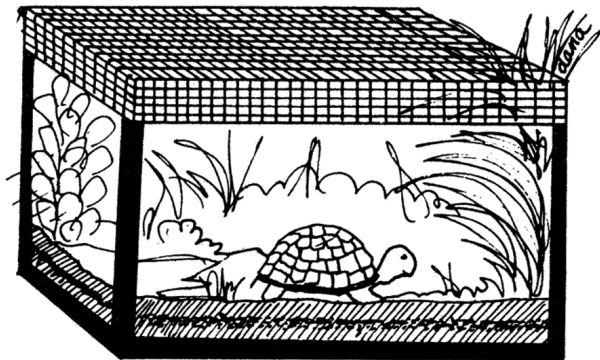


is the animal of the month
for the month of

picture of
the animal



Activities



Chapter Two

Overall Theme Plan: *The Animal Kingdom*

Theme: The Animal Kingdom

The Animal Kingdom is a thematic unit for children in kindergarten through the third grade. It is specifically designed to develop concepts and expand vocabulary. Activities provide opportunities for creative behavior. These experiences encourage children in the primary grades to develop higher-level thinking skills. Children become independent learners as they expand their study skills and engage in problem-solving exercises.

Module: Animal of the Month

The student book features a different animal each month. Children of all ability levels are intrigued by animals and are curious about nature. Discovering the animal kingdom motivates and holds inquisitive young children's interest.

Modular Units

Whale
Cat
Deer
Horse
Lion
Elephant
Kangaroo
Robin
Ladybug
Turtle

General Concept

In every environment, animals have certain problems, but they have special ways of overcoming those problems. These special ways are called adaptations. Animals live in water environments or land environments because they are adapted to life in those environments.

Knowledge Objectives

Throughout each unit, children acquire information and understanding. They develop concepts and expand their vocabulary. Learning is structured to promote higher-level thinking skills and problem-solving abilities. The objectives of *The Animal Kingdom* include:

1. To identify what zoologists, ornithologists, and veterinarians do
2. To understand the difference between vertebrates and invertebrates and to be able to give examples of each
3. To be able to identify and discuss the problems of life in land environments
4. To be able to identify and discuss the problems of life in water environments
5. To be able to identify the kind of environment each animal studied normally inhabits
6. To be able to state how each animal's adaptations suit it to live in a certain environment
7. To know the adaptations of various animals in order to compare and contrast them
8. To be able to classify animals according to the types of food they eat (omnivores, herbivores, carnivores)
9. To be able to explain how an animal's adaptations help it obtain food
10. To be able to explain how an animal's adaptations provide protection from danger
11. To be able to explain how an animal's adaptations affect locomotion
12. To be able to explain how an animal's adaptations enable it to hibernate
13. To be able to classify animals as predator or prey
14. To be able to explain how some animals are adapted to live both on land and in water
15. To be able to explain how animals are interdependent and interact with other living organisms in the environment
16. To be able to explain the common needs of animals: food, water, air, and warmth
17. To understand that aquatic mammals have the same needs for air as do land mammals
18. To understand the concept of a life cycle
19. To understand that the stages of the life cycle vary with different animals
20. To understand that each stage in the life cycle may have many different adaptations
21. To understand that all animals reproduce
22. To be able to identify some of the differences between methods of reproduction and their effect on stages of the life cycle
23. To understand that humans must play a part in protecting animals and the natural environment

Skills Development

Children learn to use a number of specific skills as they work through each module. They:

1. Observe carefully using all their senses, study, and think about what they see (e.g., explore a natural habitat and acquire information)
2. Read to answer questions and acquire information
3. Gather information from pictures, photographs, and charts
4. Gather and retain facts from listening to information sources (readings, recordings, etc.)
5. Develop an ability in oral language through questions, brainstorming, and group discussion
6. Develop record-keeping skills by writing and other means, such as photos and drawings
7. Recognize and are able to name the various animals and their physical characteristics
8. Recognize different animal characteristics as adaptations for survival
9. Recognize and are able to classify a variety of environmental and animal sounds
10. Recognize a variety of plant and animal life in each of several habitats
11. Learn how to plan and outline a flow chart to guide study activities
12. Select and choose appropriate resources for learning activities
13. Practice using specific tools, measuring devices, equipment, and other materials to obtain information and develop projects
14. Develop library, study, and research skills
15. Develop an awareness of animals in our cultural heritage (both in fact and fantasy) through literature, nursery rhymes, poetry, and other sources
16. Apply math and other subject area skills (e.g., maps, social studies) for use in charts, graphs, or recording devices to explain animal growth and behavior
17. Learn about organizations interested in preserving wildlife
18. Expand writing and research skills by writing to wildlife agencies and environmental organizations
19. Learn how to classify, group, and code information about animals and related topics
20. Learn how to compare and contrast animals and related topics
21. Validate information through problem solving and investigations
22. Compile information necessary to complete projects
23. Participate in discussions, planning, and work projects in a cooperative manner
24. Assume responsibility for maintaining materials, projects, work space, and equipment in good order

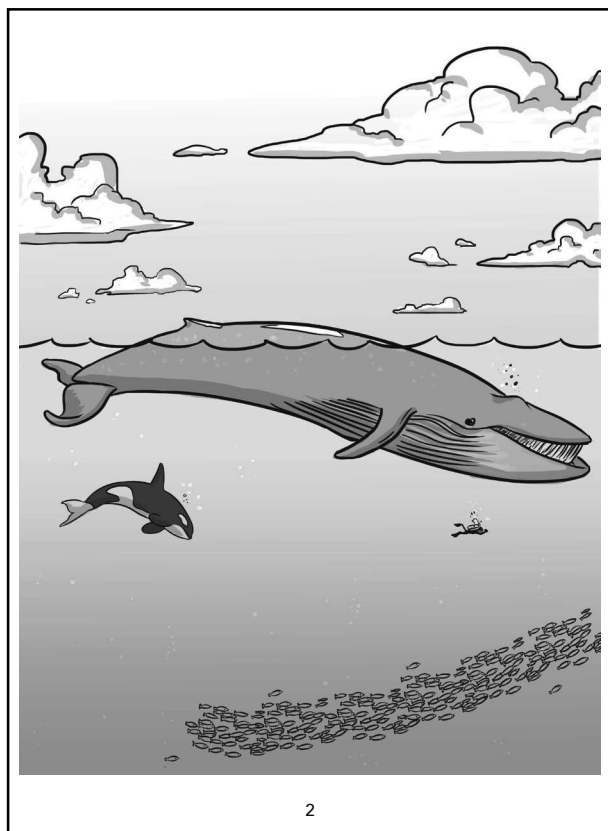
Values and Attitudes

The learning activities in *The Animal Kingdom* will promote children's self-reliance and skills mastery. These are necessary elements for children to experience joy in learning. Gains in self-concept will enable youngsters to cope with a variety of emotional, social, and intellectual demands. In addition, helping children discover the wonder of natural phenomena will help to instill a respect and reverence for all life.

Evaluation

Teachers should evaluate the children on an individual basis for concepts learned, skills mastered, and social growth. This can be accomplished through observations and informal tests. Student performance in various activities can also be evaluated and recorded by the teacher.

Whale



Animal Kingdom Planning Sheet

Animal of the month: Month:

My Activities Plan

Some things I want to know about:

Food

Habitat

Adaptations

Habitat

The _____ is home to the whale.

Draw some things found in this habitat.
Draw the animal too.

Can you include other animals that might live here?

4

Animal Record Sheet

Animal's Name: Whale

Draw the animal.

Now label the animal's parts.

Record of important facts:

- _____
- _____
- _____
- _____
- _____
- _____

Special words: _____

Animal's habitat: _____

5

Animal Facts: Whale

Passage to Read Aloud

If you wanted to find the biggest animal in the world, where would you look? You would look in the ocean. The blue whale is larger than any other animal, and it lives in the ocean. The place where an animal lives is called its *habitat*. Who has seen a whale? It is hard to imagine just how big a blue whale is without ever seeing one. It is about 100 feet long, which is about as long as two semi trucks lined up in a row. The blue whale can weigh as much as 150 tons, or more than twenty elephants.

These huge animals never leave the water. Whales are well-adapted to their life in the ocean. They have a fish-like form. They have front flippers and a flat tail to propel them through the water. Yet they are not fish. Whales are warm-blooded creatures. They are mammals. Mother whales have live babies and feed them milk.

Whales have a layer of thick fat under their skin called blubber. This helps them keep warm in the cold polar oceans. This is called *adaptation*. They breathe air like people. Most whales travel close to the surface and come up every fifteen minutes or so to breathe. Fish have gills for breathing. Whales have lungs. They breathe through blow holes on top of their heads. The whale's spout is a stream of air and water being squirted out of the hole on top of its huge head.

There are different kinds and sizes of whales. Some whales have teeth and are called toothed whales (*odontocetes*). Sperm whales, killer whales, and porpoises belong to this group. Whales that don't have teeth are called baleen whales (*mystecetes*). The blue whale is a baleen whale, so it doesn't have teeth. Instead, it has a strainer of whale bone that hangs down inside its mouth. This traps small fish and plants called plankton. It also keeps out larger fish that might get caught in the whale's throat. Some other baleen whales are humpbacks, grays, and fin tails.

The whale has small eyes but good vision. Its eyes are well suited to life in the ocean. A whale's ears are no more than tiny holes in the side of its head, but whales' hearing is very good. Whales make gnashing noises with their mouths. Then they listen with their keen ears for the echoes to bounce back from things in their path. This is called *sonar*. This is especially helpful to toothed whales who hunt squid deep in the ocean where it is very dark.

Whales live and travel in family groups. When winter comes to the Arctic and Antarctic Oceans, whales travel many thousands of miles to places where the ocean is warm. As they cruise along, they make great dives and leaps in the water. They communicate and warn one another of danger using whistles, groans, squeaks, and other shrill sounds that can be heard for many miles.

Whales have their babies in the warm waters. The father whales are called bulls. The mothers are called cows. A cow has a calf every other year. She is pregnant for ten to twelve months. Baby whale calves are born tail first so they will not drown. Once the calf is out of her body, the cow quickly pushes her baby to the surface so it can breathe. The calf cannot suck, so the cow squirts milk into her baby's mouth. Soon the babies grow larger. Then the whales start on their long trip back to the cold polar oceans where food is plentiful.

In the past, whales were valuable to people. Whales were used to make soap, perfume, and animal foods. People have hunted and killed many whales. Today there aren't many whales left. We must be careful, or someday they will be extinct.

QUESTIONS:

1. Can you describe a whale?
2. How does a whale's keen hearing help it find food?
3. How do you know that a whale is a mammal?
4. If you were a baby whale, what would your life be like?
5. Which of a whale's adaptations to life in the ocean do you think is most important for its survival?

Whale Planning Sheet

Module: _____

Concepts: _____

Vocabulary: _____

Questions to stimulate thought and discussion:

Remembering _____

Understanding _____

Applying _____

Analyzing _____

Evaluating _____

Creating _____

Whale Planning Sheet

Knowledge Objectives: _____

Skill Objectives: _____

Related Subjects: _____

Activities: _____

Resources and Materials: _____

Values and Attitudes: _____

Evaluation: _____

Cat



Animal Kingdom Planning Sheet

Animal of the month:

Month:

Cat

My Activities Plan

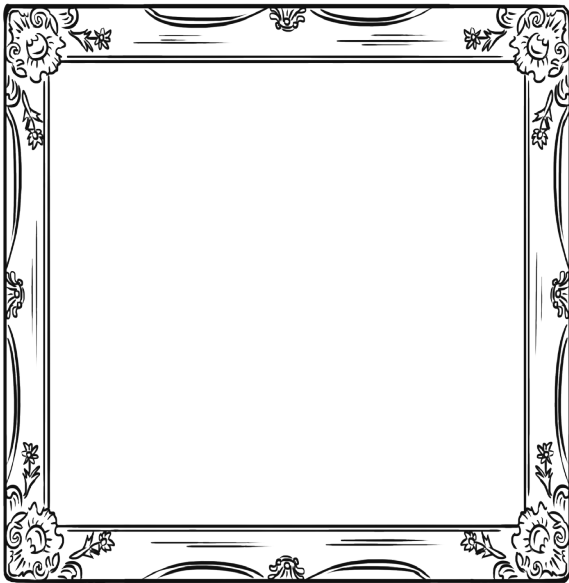
Some things I want to know about:

Food

Habitat

Adaptations

The Cat Family Portrait



A baby cat is called a _____.

8

Animal Record Sheet

Animal's Name: Cat

Draw the animal.

Now label the animal's parts.

Record of important facts:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Special words: _____

Animal's habitat: _____

9