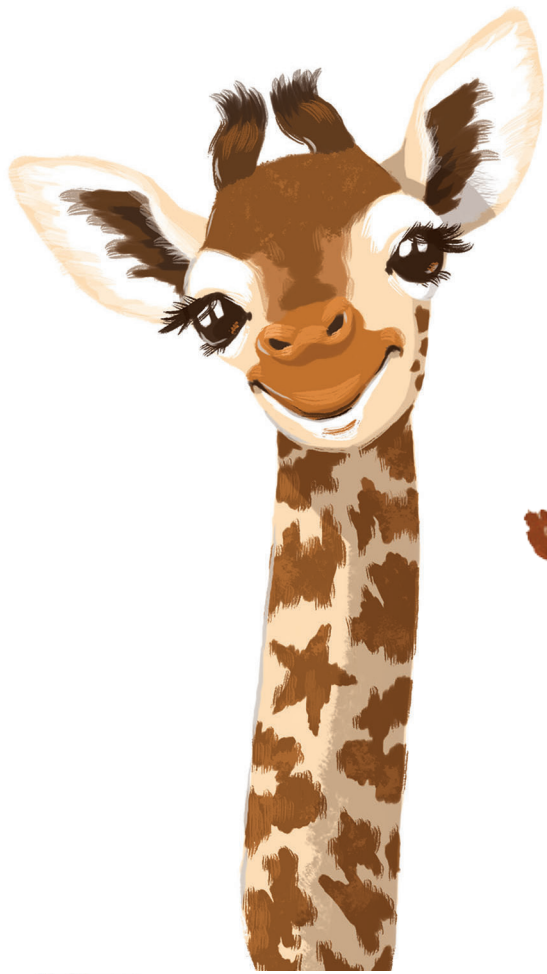


SEEING SPOTS

**Activities to Accompany
Juma the Giraffe
By Lise Levy and Monica Bond
Target ages: 7–11 years**



JUMA
the **GIRAFFE**

Objectives:

After reading Juma the Giraffe older participants will be able to:

- Identify the unique characteristics of giraffes and the significance of these characteristics.
- Identify and explain the various elements of the story in a discussion based on a set of reading comprehension questions designed to develop the characterization, setting, and plot with the chronology of events.
- Produce a story board or timeline for the book using the specific elements identified in the comprehension discussion.
- Rewrite and develop the Juma story into a play script using story board or timeline produced.
- Design and create simple costuming for each of the characters in the play that exemplifies both similarities and differences in the giraffes based on their identifying features as described in the book.
- Identify the cultural significance of animal masks and its possible connection to conservation awareness after research of the art of African mask making.
- Set up and dramatize the simple play created about Juma using script, costumes, and appropriate props.
- Discriminate individual giraffes by identifying the unique spot/coat patterns in various torso pictures of real giraffes taken in the field with an explanation of the WildID computer program that matches patterns.
- Illustrate the unique quality of giraffe coat patterns by collectively contributing individually made spots (or handprints) to a giraffe silhouette, thereby creating a mural of a unique giraffe.
- Define, give examples of, and identify methods to determine size of populations.
- Identify the different types of organisms that live in the African savannah biome.



Materials:

Juma the Giraffe book

Sheets of paper for storyboards

Giraffe mask pattern/diagram – Appendix A

8.5 x 11 inch white construction paper for mask, scissors, tape, crayons or colored pencils

Brown construction paper for coat pattern costume, scissors, safety pins

The Giraffe labeling page – Appendix B

Giraffe Facts quiz – Appendix C (or downloadable as a Powerpoint slideshow)

What's In a Pattern? – Appendix D

6-foot roll of paper with giraffe silhouette

Optional: non-toxic paint

Overview:

This multidisciplinary lesson plan presents activities designed to be incorporated into a variety of subject areas as supplemental support to existing curricula. Each activity or groups of activities, although presented here in a sequential format, can be done individually, independent from the others, or presented up to a certain point, with modifications depending on the levels of ability of the participants, instructional time available, type of supplemental curricular support desired, and/or number of participants. It is hoped that these Juma activities will provide welcome material to strengthen instructional strategies while addressing the ultimate goal of Juma to develop an appreciation of the natural world and the importance of all of the species that compose it.



ACTIVITY #1: READING COMPREHENSION/PARTS OF A STORY

Summary and Background:

The goal of this discussion will be to address the basic parts of a story (Characterization, Plot, Setting) as they relate to this particular story. It should be explained to older readers that even though this is a young children's story and very simple to read, it has the same basic parts that any story does and that they can use this simple story to identify those basic parts.

Objective:

The participants will be able to identify and explain the various elements of the story in a discussion based on a set of reading comprehension questions designed to develop the characterization, setting, and plot with the chronology of events.

Materials:

Blackboard/Whiteboard
Chalk/Markers

Procedure:

1. Participants will be asked to read Juma the Giraffe independently with a concentration on the details of the story.
2. After all have read the story the basic parts of any story should be explained, or reviewed for those already familiar. The words Characterization, Plot, and Setting should be written across the top of a board or presentation paper in front of the group so that columns are created for each story part.
3. A discussion should then begin using the following discussion questions that are designed to identify those parts from the Juma story. As each is answered orally, the answers should be written on the board or presentation paper under the correct part of a story heading.

Subject Area:

Language Arts,
Geography

Duration:

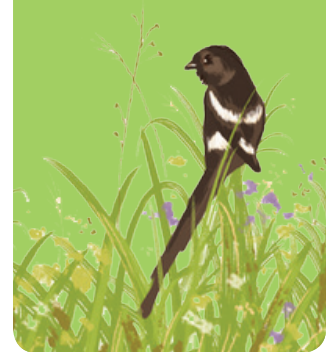
Variable

Setting:

Classroom

Skills:

Reading Comprehension,
Identification, Research



Discussion Questions:

- A. Who are the characters in this story? Give the names of each of these characters.
- B. How are each of the characters described and distinguished from each other?
How are they different and how are they the same?
- C. Why are each of the given characteristics helpful for the characters that have them?
What are the advantages of these characteristics?
- D. Where does this story happen? What are some of the things you would see in this place?
(A geography research activity on the African savanna could be initiated here.)
- E. What are the important events or actions that take place in the story?
- F. When and specifically where do each of these events or actions happen?
- G. What is the problem or conflict that is presented? Which characters are involved in this? Why is there a problem?
- H. How is the problem solved or fixed? Which character(s) solve(s) or fix(es) the problem?
- I. What is finally determined or decided? What is the meaning that one can get from this story?



ACTIVITY #2: MAKING THE STORY INTO A PLAY

PART A: Creating the Play

Summary:

In this activity the participant(s) is/are asked to recreate the story of Juma into a play using all of the information identified in the reading comprehension discussion. They must first identify what is needed to make a play: script with action, dialogue, and scenes; props; costuming. Then they can use the information in the comprehension section to create each part.

Objectives:

The participants will be able to:

1. Produce a story board or timeline for the book using the specific elements identified in the comprehension discussion.
2. Rewrite and develop the Juma story into a play script using story board or timeline produced.

Materials:

Sheets of paper for storyboards

Procedure:

1. Have participants divide the story into parts by grouping related actions together and creating scenes; i.e. Introduction of characters and setting, Waterhole reflection, Mama's and Juma's discussion.
2. Once the story parts are identified, create a story board using one sheet of paper for each of the scenes. On the front of each scene page have the participants illustrate the setting and characters in that scene and identify all that is illustrated with labels. Again, as suggested in the previous activity, this may be an opportunity for researching the African savanna ecosystem. The back of the page will be where the actions of the characters (stage directions) and dialogue will be written.
3. These pages will then provide the set designs for each scene on the front and the makings of the script on the back. This can be as simple or as advanced as the skills of the participants and availability of resources allow.
4. A list of materials can then be included on the scene pages to identify costuming and props that could be created for the production.

Subject Area:

Extended Language Arts,
Visual Arts, Social Studies

Duration:

Variable

Setting:

Classroom

Skills:

Reading Comprehension,
Identification, Research,
Construction





PART B: COSTUMING

Summary:

The activities in this section can be used to supplement the staging of the Juma play or serve as an individual extended exploration of giraffe characteristics and African culture. With either use, discussion should develop from the costuming that would be needed for the play; possibly starting with the question, How can a person be made to look like each of the giraffes in the play?

Objectives:

The participants will be able to:

1. Design and create simple costuming for each of the characters in the play that exemplifies both similarities and differences in the giraffes based on their identifying features as described in the book.
2. Identify the cultural significance of animal masks and its possible connection to conservation awareness after research of the art of African mask making.

Materials:

Giraffe mask pattern/diagram – Appendix A

8.5 x 11 inch white construction paper for mask, scissors, tape, crayons or colored pencils


Brown construction paper for coat pattern costume, scissors, safety pins

SECTION 1. MASK MAKING:

Background:

One of the suggestions to the above discussion question could be the use of masks. The following art activity gives instructions for creating a giraffe mask. After mask construction, a review can take place of the unique characteristics of the giraffe, both as a species, i.e. ossicones, long neck and long legs; and between individuals, i.e. fur spot patterns. By making the masks with the characteristics, then reviewing the characteristics afterwards, the concept is reinforced first tactilely/physically, and again visually and aurally by discussion.

Procedure:

1. Each child receives a 2 pieces of 8.5 x 11 inch white construction paper.
 2. Using the diagram provided in Appendix D, trace and cut out the shapes.
 3. Make sure the eyeholes are cut exactly where the child's eyes will look out (this will require some folding and testing before cutting the eyeholes).
 4. Decorate the cheeks (just below the eyehole) with unique spot patterns—encourage the child to be creative with colors and shapes—and draw eyelashes around the eyes.
- 

5. Fold A under the mask and tape to make nostrils.
6. Cut a long strip of paper to make a strap, and tape to the sides of the mask at B making sure the mask fits snugly to the child's head.
7. Color the ears like a giraffe's and curl slightly, then tape to the sides of the mask at B so they point outwards.
8. Cut two more strips of paper and create two cylinders: tape to the tops of the mask to form ossicones. See picture for example mask.



9. Mask Making Research Exercise: After making the mask, engage participants in a small research project on the history of mask making and especially as it relates to African culture (the setting for this story), and respect for wildlife. This project can start with this link: www.historyofmasks.net and expand according to interest and time. Information can be shared by presentation, in discussion, or, if done individually, by written report. Emphasis should be on the identification of the mask wearer with the animal it portrays.

SECTION 2. COAT PATTERN COSTUMING:

In this costuming activity, the characters' unique coat spot patterns should be discussed so that the dialogue can be illustrated. This can be accomplished simply by having the participants draw and cut out the distinguishing shapes of spots for each giraffe on brown paper and then attaching the distinguishing spots on the clothes of the actors playing each role, using, for example, safety pins or tape. During this exercise the unique spot patterns of individual giraffes should be discussed which will lead into the following science activities.

NOTE: With all the necessary pieces for the play now set, there will be some time where preparations for the production, if it is to be performed, will need to take place; i.e. rehearsals, set construction, etc. (see Activity #8 below), outside of formal instructional time. It is suggested that formal instructional activities continue from this point with the *What Makes A Giraffe A Giraffe?* and *What's In A Pattern?* activities so that they can reinforce and define giraffe characteristics. The *Gathering Around the Waterhole* activity can also take place here, as a way to further explore the African savanna and the many different animals and plants that are found there.

ACTIVITY #3: WHAT MAKES A GIRAFFE A GIRAFFE?

Summary:

In this exercise the characteristics of the giraffe are explored. Those characteristics that are similar and individually unique to all giraffes are identified on a diagram of the giraffe and discussed as to their function and advantage. This activity also involves reading and discussing the giraffe facts from the last two pages of the Juma book.

Objective:

The participants will be able to identify the unique characteristics of giraffes and the significance of these characteristics.

Materials:

Juma the Giraffe book

The Giraffe labeling page – Appendix A

Crayons or colored pencils

6 ft. Giraffe silhouette from Activity #7 to use when labeling parts (optional)

Giraffe Facts quiz – Appendix C (or downloadable as a Powerpoint slideshow)

Procedure:

1. Ask participants to describe what they learned about physical characteristics of giraffes from the Juma story and giraffe facts pages. Ask for the special characteristic that giraffes possess: the longest neck in the animal kingdom. Based on the book, have participants explain the advantage giraffes have with a long neck and long legs (answer: to eat leaves higher in the trees than other herbivores). Describe other ways this long neck helps them (answer: they can see danger, males fight with their necks).
2. Ask about other helpful characteristics that giraffes possess: e.g., long thick tongue, long swishy tail, spots on their fur, and what are the functions of those characteristics? Write the answers on a chalkboard or whiteboard.
During this activity, the participants can use The Giraffe labeling page (Appendix B) to identify the characteristics that are listed by circling or drawing them in/on the giraffe silhouette as they are described and listed.
Long tongue: To help them strip leaves off the trees.
Long swishy tail: To keep away the biting flies.
Ossicones: To help males during fighting (like deer antlers).
Spots: To hide them from lions and hyenas, and also perhaps for individual recognition, like our faces are different and we can recognize each other.
3. Guide discussion to the concept of similarities and differences of physical characteristics and, when given, ask if the characteristic given is one that all giraffes have (e.g., long neck and legs, long tongue, long tail, ossicones), or whether it changes depending on each giraffe (unique spot pattern, shape of ossicones based on age and sex, height depending on age and sex).
4. Participants can take the five-question Giraffe Facts quiz (Appendix C) to test their knowledge. This quiz can be downloaded either as a PDF for individuals, or as a Powerpoint slideshow for use a group activity.

Subject Area:

Reading, Science

Duration:

1 Hour

Setting:

Classroom

Skills:

Reading Comprehension,
Identification



ACTIVITY #4: WHAT'S IN A PATTERN?

Summary:

This activity (Appendix D) challenges participants to become field researchers and match individual real giraffe field research photographs with the same giraffe from research photographs taken at another time. This is even a fun exercise for adults!

Objective:

The participants will be able to discriminate individual giraffes by identifying the unique spot/coat patterns in various torso pictures of real giraffes taken in the field with an explanation of the WildID computer program that matches patterns.

Materials:

What's In a Pattern? – Appendix D

Background:

The patterns on giraffe fur are unique to each individual—no other giraffe in the world has the same pattern, and the pattern never changes. Scientists can use these patterns to identify each giraffe in a population and study them over long time periods. A computer program called Wild ID helps to match the patterns from photographs taken in the field so the scientists can keep track of hundreds and even thousands of giraffes.

Procedure:

1. From the Background section above, explain WildID to the participants.
2. Using Appendix D, have students match each real giraffe photograph in the left column with the same giraffe in the right column.

Subject Area:

Science

Duration:

1 Hour

Setting:

Classroom

Skills:

Observation, Analysis



ACTIVITY #5: GATHERING AROUND THE WATERHOLE—POPULATIONS

Summary and Background:

Through the discussion and exploration in this activity the participants will be asked to investigate the ecological concept of population, a group of organisms of one species (kind) that live in the same area, and ways to determine a population's size, by first using the illustrations in *Juma* and then expanding into their own environment. It will also help participants to become familiar with the different types of organisms that live in the African savanna biome. A biome is a major type of ecosystem with characteristic environmental conditions and easily recognized plant and animal life (other examples of biomes include forests and deserts). The savanna biome is a mixture of isolated and small groups of trees, with shrubs, and covered by grasses. The giraffe is a characteristic animal of the African savanna biome.

Objectives:

The participants will be able to:

1. Define, give examples of, and identify methods to determine size of populations.
2. Identify the different types of organisms that live in the African savanna biome.

Materials:

Juma the Giraffe book

Optional: Computer with Internet Access or reference books on the African savanna

Procedure:

1. Have the participants look at the illustrations in *Juma the Giraffe* and individually, on a sheet of paper, make a column list of all of the living things that they see, under the heading SPECIES. Remind them that both plants and animals should be considered for this list. This could be an opportunity to identify unfamiliar plants and animals of the African savanna using reference material. You can use the field guide on the **Juma the Giraffe** website for this: www.jumathegiraffe.com/field-guide.html
2. Once their individual lists are completed, create a group list on the board asking for submissions from all participants' individual lists. Ask the participants to add any species to their lists that they did not have so that theirs contains all that are on the class list. Then, on the board, next to the SPECIES heading on the column list of plants and animals, write POPULATION SIZE and LOCATION to form two more columns, so that each plant and animal is constituting a row of a data table. Have the participants copy that data table from the board.

Subject Area:

Environmental
Science/Math

Duration:

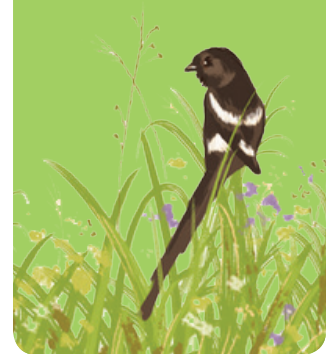
1 Hour


Setting:

Classroom

Skills:

Observation, Counting,
Addition, Analysis



- 
3. Direct the participants to turn to the first waterhole scene (pages 8–9). Tell them to count the number of giraffes that are in the illustration and record that beside Giraffe on their list in the POPULATION SIZE section. They should also be told to record Waterhole in the LOCATION section. Tell the participants that they have now identified the population size of giraffes in the area around the waterhole. Using this statement and the board table, ask the participants come up with a useable definition of population. Write that definition on the board to use going forward.
 4. Next, have them look for, count, and record on their data tables the number of any other animals from the list, shown in this illustration, in their respective POPULATION SIZE section, and, again, record Waterhole in the respective LOCATION section. In this case there are only 3 rhinoceros. When completed ask for these additions for the board data table. Remind the participants that plants should be included as well and ask what plants are shown. The response should be grass. That can be recorded in the SPECIES section and again Waterhole in the LOCATION section. Then ask what should be the entry for the POPULATION SIZE section. This is when there can be a discussion about how to determine the count when there are so many. How to make estimates can be discussed here or you may opt to just use the word “many” or “too many to count”, depending on the math skills of the participants, to describe the POPULATION SIZE. This may also be a time to discuss why there are so many of one species and not of others. Have the participants think of factors that can affect the size of a population. For older participants this may be an opportunity to investigate the concept of carrying capacity, the largest number of individuals of a population that a given environment can support.
 5. Have the participants, individually or in small groups, go through the illustrations on other pages to find other populations of other plants and animals and record their size (count) and location, as before, in the appropriate places. This can be divided up by pages and then each assignment can record their results on the board data table when completed. This may generate some discussion about similar locations, i.e. the waterhole, on different pages having different numbers of the same species. Also there may need to be duplicate species recordings because a location has changed. These are all good opportunities to reinforce the concept of population. Always bring the group’s attention back to the definition on the board.
 6. Ask them if they think that the population size numbers that they got from the pictures in the book are the same as what they would be if they were actually standing in the same area of the savanna. (They should realize that there are limits to the area seen in a picture and that the area is much larger, therefore their counts would be lower than what the population sizes are in actuality.)
 7. To demonstrate these concepts even further have the participants identify various populations around school or home and have them determine the size of each. Have them explain how their choice is a population and how they determined its size.
 8. Propose that they could consider the human population in their class, school, and/or community where they live. Ask them how they would accurately determine the size of each group. You could initiate a geography discussion or research project of demographics here.
- 

THOUGHT QUESTIONS:

1. What problems did you have getting accurate population size measurements?
2. What considerations must be made to obtain population sizes in each of the following situations:
 - a. A large non-moving population in a large area; such as a field of flowers?
 - b. A moving population within a large area; such as giraffes on the savanna?
 - c. Migrating populations; such as ducks and geese or zebra and wildebeest?



ACTIVITY #6: JUMA, THE PLAY PRODUCTION

Summary:

This activity can be done as a culminating project exhibiting all that has been learned about giraffes and their African savanna habitat. Using the script created from the story board activity (#2) along with the set design, props, and costuming, the participants will organize the production of the play.

Objectives:

The participants will be able to set up and dramatize the simple play created about Juma using script, costumes, and appropriate props.

Materials:

Storyboard Scene Illustrations from Activity #2
Giraffe Masks from Activity #2
Costuming from Activity #2
Class Giraffes from Activity #7
Various leaves and branches for props

Procedure:

The following actions need to be considered in play production:

1. Choose main actors including a narrator, and possibly supporting actors with non-speaking roles.
2. Constructing simple sets from story board scene illustrations.
3. Finding the appropriate props such as leaves and branches.
4. If there are no supporting (non-speaking) actors then illustrations may be desired representing other species of animals portrayed in the book to create the scenes.
5. Actors will need to learn their lines and practice delivery.
6. Eventually the play should be rehearsed with a director, within the set design, and using props.
7. Finally, the play can be performed to an audience.



Subject Area:

Dramatic Arts, Visual Arts

Duration:

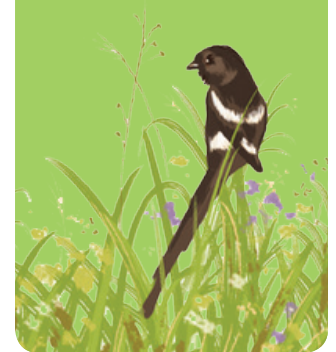
1 Hour

Setting:

Classroom

Skills:

Performance,
Visual Arts



ACTIVITY #7: MAKE A GIRAFFE FOR YOUR CLASS

Summary:

This activity is a great way to summarize and celebrate all that has been learned about giraffes. It can be used in the set design for the play by making several giraffes to hang in the background, and/or as a classroom decoration that documents the participants' learning experience. If there is more than one group of participants, such as in a school or level-wide experience, comparisons can be made among the various giraffes to emphasize the uniqueness of each giraffe just as in nature.

Objective:

Participants will be able to illustrate the unique quality of giraffe coat patterns by collectively contributing individually made spots (or handprints) to a giraffe silhouette, thereby creating a mural of a unique giraffe.

Materials:

6-foot roll of paper with giraffe silhouette
Crayons or colored pencils
Optional: non-toxic paint

Procedure:

1. (To be done in advance) Place a 6-foot long paper from a roll on the ground or a long table and draw the silhouette of a giraffe.
2. Have each participant draw and color a spot inside the giraffe, until the giraffe is filled up with its own unique pattern!
3. Alternatively, use color-safe, non-toxic paint and have each child put their own handprint as a spot inside the giraffe, or have each child trace their own handprint with a pen/pencil. With the alternative, there could be a discussion of how each participant's hand print is actually a unique spot contributing to the uniqueness of the giraffe that is created.

Subject Area:

Visual Arts, Science

Duration:

1 Hour

Setting:

Classroom

Skills:

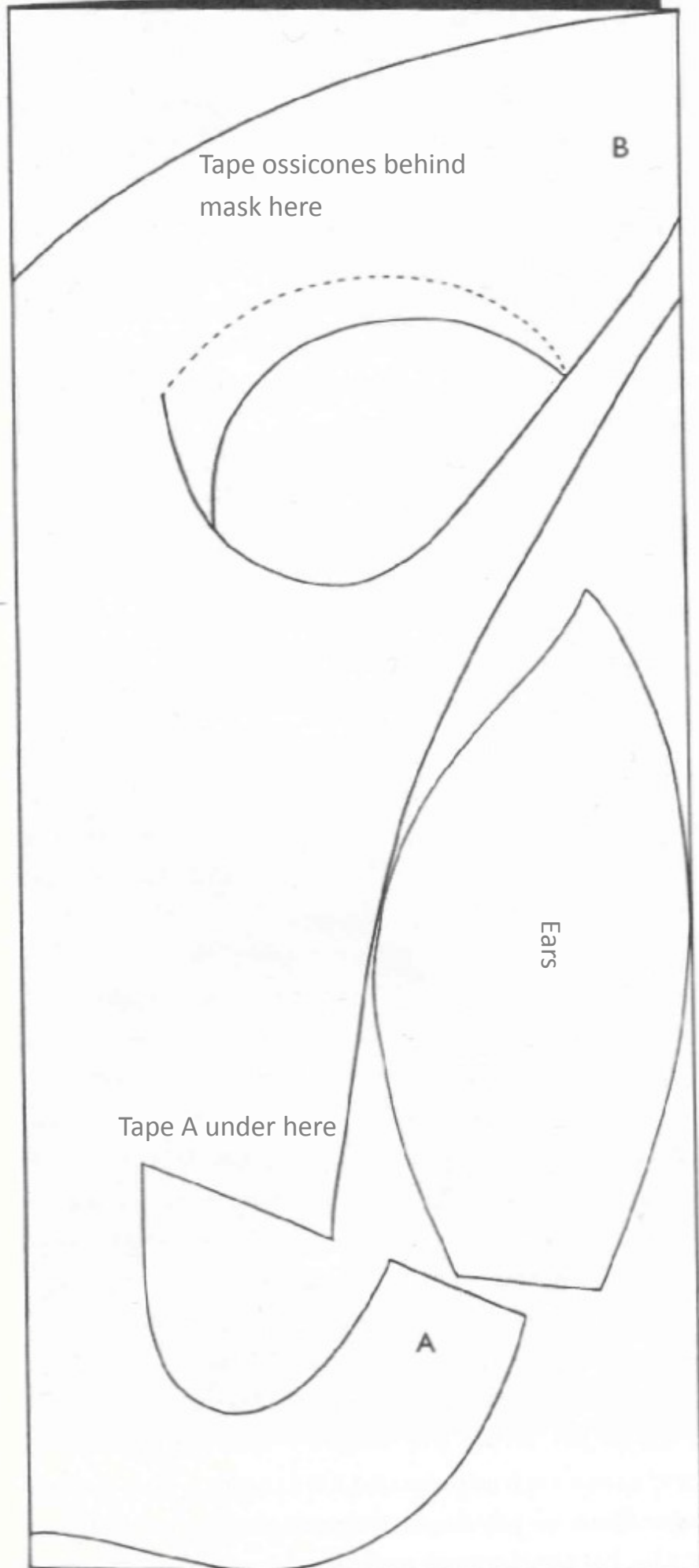
Drawing/Illustration,
Observation, Analysis



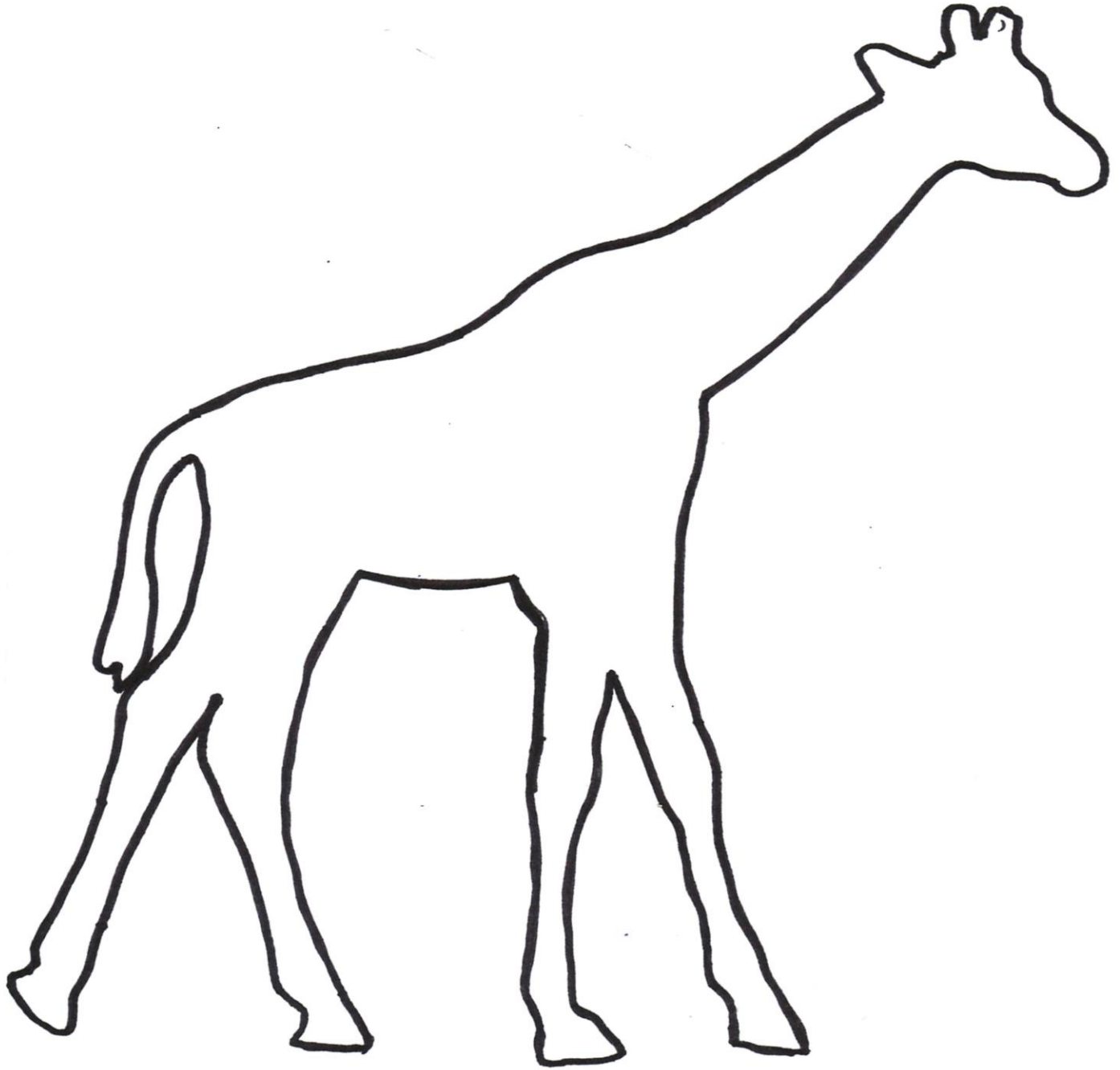
Appendix A Giraffe Mask



Fold 8.5 x 11
inch paper in
half

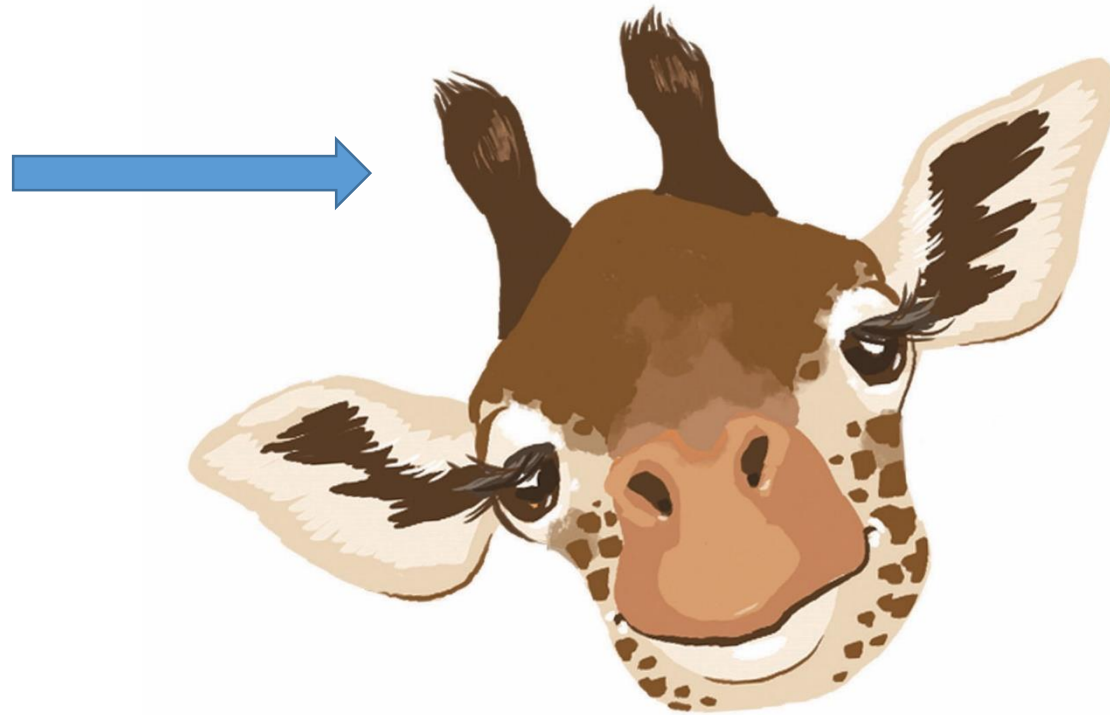


The Giraffe



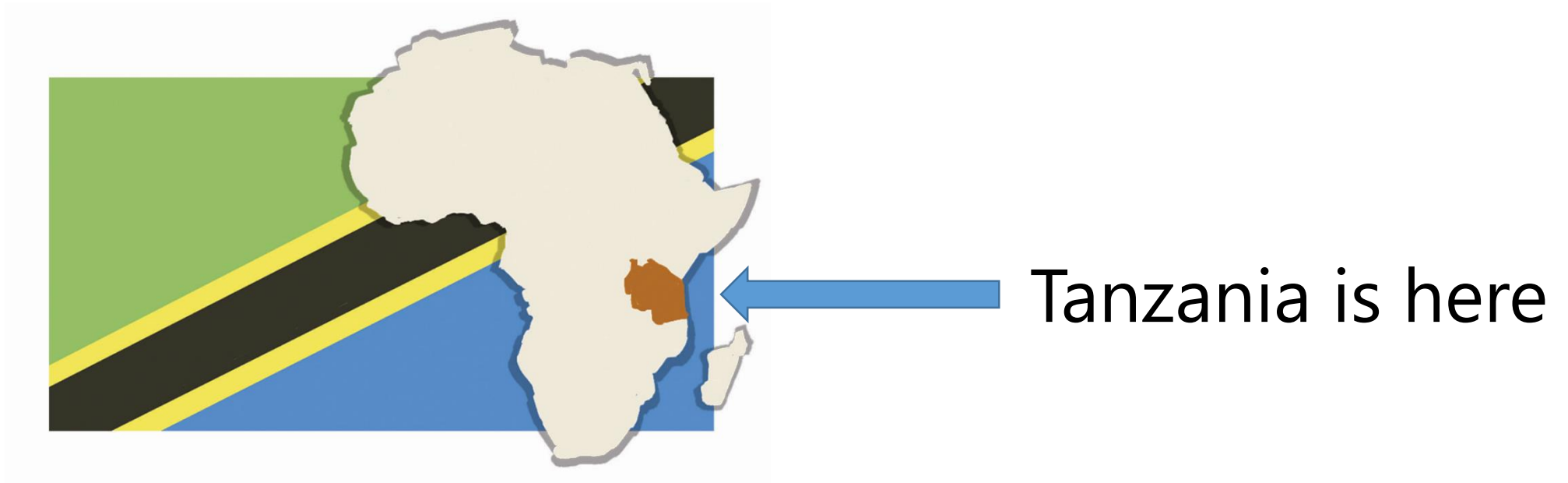
Question 1. Giraffe do not have horns; instead they have skin-covered bones attached to their skulls. What are these bones called?

Answer 1. Ossicones



Question 2. Wild giraffe are found only on which continent?

Answer 2. Africa



The giraffe is also the national animal of the country of Tanzania.

Question 3. What is the closest relative of a giraffe?

Hint: it begins with an "o" and has stripes on its legs.

Answer 3. Okapi



Question 4. Giraffe have the same number of bones in their necks as people. How many bones?

Answer 4. Seven



Question 5. What do giraffes eat? Why do they have a thick tongue and tough lips and saliva?

Answer 5. They mostly eat leaves of trees and shrubs (sometimes they eat flowers).




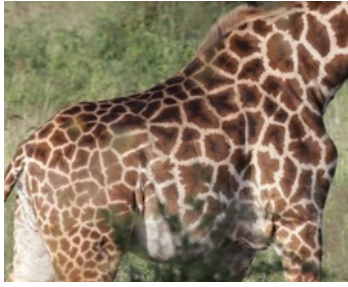








Their thick tongues, tough lips, and saliva help protect their mouths from the thorns that grow on the trees they eat.

Appendix D

What's In a Pattern?

Connect the giraffes on the left to the right whose patterns are the same.

A			1
B			2
C			3
D			4
E			5

Answers: A-2, B-4, C-5, D-1, E-3