



Monkeying Around: Exploring the Fascinating Social Hierarchy and Behaviors of Primates

Lesson Plan for Grades: 5th Grade Science
Length of Lesson: 1 Hour 30 Minutes
Authored by: UT Environmental Science Institute
Date created: 2/14/2023
Subject area/course: <ul style="list-style-type: none">• Elementary Level Science• Biology
Materials: <ul style="list-style-type: none">• Amazing Amazonian Monkey's Talk• Device to perform research on → Chromebooks, Desktop, iPads, etc.• <i>Engagement:</i> Monkey Call Video for Engagement (Time Stamps Included in Sources and Resources)• <i>Exploration:</i> Poster Board or Construction Paper, monkey behavior handouts, markers, crayons, and pencils• Handouts to be used as a research aid for posters
TEKS/SEs: §112.6. Science, Grade 5 (3) Scientific observations, inferences, hypotheses, and theories. Students are expected to know that: <ul style="list-style-type: none">• observations are the active acquisition of either qualitative or quantitative information from a primary source through the senses;• inferences are conclusions reached based on observations or reasoning supported by relevant evidence; (13) Organisms and environments. The student knows that organisms undergo similar life processes and have structures and behaviors that help them survive in their environments. The student is expected to <ul style="list-style-type: none">• analyze the structures and functions of different species to identify how organisms survive in the same environment;
Lesson objective(s): <ul style="list-style-type: none">• By the end of this lesson, students will be able to identify and describe the social behaviors of monkeys, including their communication methods, social hierarchies, and group dynamics. Additionally, students will understand why these monkeys establish these social behaviors and the benefits they provide in their ecosystem, such as increased protection, resource sharing, and reproductive success.• Students will be able to develop and write hypotheses regarding the social behaviors of monkeys, incorporating observations of their communication methods, social hierarchies, and group dynamics. Students will also be able to explain their hypotheses and provide evidence to support their reasoning in their group posters.



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Differentiation strategies to meet diverse learner needs

- **Visual aids**: Some students may benefit from seeing visual aids such as diagrams or pictures to help them understand the social behaviors of wooly and spider monkeys. Including visual aids in the lesson can help these students better comprehend the material.
- **Collaborative learning**: For students who learn best through collaboration and discussion, incorporating group activities or discussions can be helpful. These activities can allow students to share ideas and perspectives and learn from one another.
- **Flexible assessment options**: Students with different learning needs may perform better on different types of assessments. Providing a range of assessment options, such as written tests, verbal presentations, or visual projects, can help ensure that all students are able to demonstrate their understanding of the material.
- **Vocabulary support**: Some students may struggle with the technical vocabulary used in the lesson. Providing vocabulary support such as a glossary of terms or definitions can help these students better understand the material.
- **Adjusted pacing**: Some students may need more time to process information or complete activities. Adjusting the pacing of the lesson to allow for more time or breaking it into smaller segments can help these students keep up with the material.

ELL students and students with learning disabilities:

- **Simplified language**: For ELL students or students with language-based disabilities, using simplified language or modifying vocabulary can help them understand the content better. Using visual aids or real-life examples can also be helpful.
- **Multimodal instruction**: For students with disabilities or ELL students, providing instruction in a variety of formats can help them understand the material better. This could include using videos, images, hands-on activities, or other modes of instruction.
- **Pre-teaching key vocabulary**: For ELL students, providing a list of key vocabulary words in advance and reviewing them before the lesson can help them understand the content better. This can be done through activities such as vocabulary games or picture books.
- **Assistive technology**: For students with disabilities, assistive technology such as text-to-speech software or alternative keyboards can help them participate in the lesson more fully.
- **Cooperative learning**: For ELL students or students with disabilities, working in small groups or with a partner can be helpful. This allows them to receive support from their peers and can also help them develop social skills.

ENGAGEMENT (5 minutes)

- The teacher will start the lesson by showing the “Monkey Call Video”, a video from Dr. Fiore’s talk that has a focus on monkey communication methods. The video will include audio of the monkeys making different calls and sounds. The teacher will ask the students to make observations about the monkeys’ noises and how that might play a role in how they communicate with each other. Start the video at 3:49 and end it at 4:08, the link to the video is provided in the resource section.
- Have students discuss their observations with their neighbor/partner and write down any inferences they can make based on what they heard.



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- As a class, students will share their observations and inferences, have each pair present their hypotheses/inferences to the class. The teacher will then introduce the topic of today's lesson, which is the behavior of monkeys in their colonies and hierarchies.
- The teacher can begin by defining key terms related to monkey behavior and hierarchies and then provide examples of these behaviors and hierarchies in the wild. The teacher can also explain why understanding monkey behavior and hierarchies are important and how it can inform our understanding of primate evolution and behavior.

Transition to Exploration: "Great job, 5th graders! You've done a great job at analyzing monkey communication. Now, let's look at how these smart creatures behave and organize themselves within their colonies. In groups, you will create posters illustrating how they behave in their colonies, and we will uncover the secrets to their success in thriving in their environment. Are you ready to unlock your inner creativity and dive deep into the exciting world of monkey behavior? Let's explore together and see what fascinating discoveries we can make!"

EXPLORATION (40 minutes): Monkey Colony Poster

- Creating a monkey colony: Students will work in small groups to create a visual representation of a monkey colony, and describe how their colony functions.
- Split your class into 5 groups of 4, and assign each group a topic and assign each student in the group a role:

Topic

- 1) Matrilineal
- 2) Patrilineal
- 3) Communication
- 4) Social Hierarchy
- 5) Territory

- Each group will be denoted Group 1, Group 2, Group 3, Group 4, and Group 5, along with their corresponding term. Instructions for each group are provided in the handout section

Roles (if you have more than 4 in a group, you can have 2 students share the same role)

- 1) **Researcher**: This student will be responsible for researching the definition of their assigned topic. Students assigned the researcher role may use their devices to conduct research on their group's assigned term.
- 2) **Questioner**: This student will be responsible for generating questions about their monkey colony and their social structures. They will work with the group to brainstorm and refine questions to guide their research and exploration by using the handouts as a study tool.
- 3) **Artist**: This student will be responsible for creating visual representations of the monkeys and their social structures. They may draw or create cutouts of the monkeys, and work with the group to design the overall layout of the poster.
- 4) **Presenter**: This student will be responsible for presenting the group's findings and poster to the class. They will work with the group to organize the information and present it in an engaging and informative way.
 - The teacher should write down these roles on the board along with their responsibilities, or project them onto the board.



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- When the groups have been assigned their topic and their roles, The teacher will then hand out each group's instructions for their poster, figures 1, 2, 3, 4, and 5 from Dr. Fiore's talk, and the poster checklist to each group.
- The students may use all the figures to help with their poster, but their instructions guide them towards the figures that will help them the most.

Transition to Explanation: “Get ready to see the incredible creativity and knowledge that your classmates have brought to the table! Each group has been hard at work exploring a unique aspect of monkey behavior and social order, and now they will be presenting their findings to the class. Through their presentations, we will gain a deeper understanding of how these intelligent animals live and work together to thrive in their ecosystem. Let's give our classmates our full attention and learn from their posters!”

EXPLANATION (10-20 minutes) Presentation

- Students will present their posters to the class, explaining their colony and how it relates to their assigned term of monkey behavior.
- Have the group assigned **Social Hierarchy** present last, as this will allow the students to build connections between their assigned terms and the broader concept of social hierarchy within monkey colonies.
- By presenting Social Hierarchy last, students can see how all the different aspects of monkey behavior and social hierarchy are interdependent and contribute to their colony's overall survival in their ecosystem.
- Once students have a better understanding of each aspect, they can more easily make connections and see how they fit together. The teacher should provide additional information and context related to the concepts presented in each group's poster. Ask follow-up questions to help students make *connections* and clarify any misunderstandings.

Example Questions:

- How does the behavior exhibited by monkeys in a colony contribute to the survival of the group as a whole?
- Can you think of any examples of how a monkey's position in the social hierarchy affects its behavior and interactions with other monkeys?
- How might the environment or ecosystem in which a monkey colony exists impact their behavior and social hierarchy?
- Additionally, the teacher could encourage students to ask questions about other groups posters and share their observations and experiences to further deepen their understanding of monkey behavior and social hierarchy.

Transition to Elaboration: “Alright, now that we've seen all the posters, let's take a few minutes to discuss how we can apply this knowledge to our own lives. In your small groups, I want you to discuss some potential applications of what you've learned about monkey behavior. How can you use this knowledge to understand or improve social dynamics in your own life? Remember to think about things like communication, social hierarchy, and other aspects of monkey behavior we've talked about. You can also draw on your own experiences or observations. Think about a time when you saw social hierarchy at play, or when you communicated non-verbally with someone. Take about 15 minutes to discuss and then write down your reflections on a piece of paper. After that, we'll come back together and share some of our ideas. If you have any questions or need clarification, feel free



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to ask me or your classmates for help. Please make sure to submit your reflections to me once the bell rings.”

ELABORATION (15 minutes)

- After the presentations, students will engage in a collaborative discussion on how the knowledge gained from each group's poster on monkey behavior can be applied to various situations in their daily lives. In small groups, they will discuss potential applications and write down their reflections. For example, they may examine how observing social hierarchies in a school setting can help them better understand their social groups.
- The teacher may then guide the class in exploring how this knowledge can be used to explain human social behavior throughout history **if time permits**. They will examine how observing animal behavior and social structures can provide insight into the development of human societies. For example, the teacher might explain how studies of chimpanzee societies have revealed that they also exhibit complex social structures and cooperation, including the formation of alliances and the use of tools. This has led some researchers to speculate that these traits may have also played a role in the development of early human societies.

EVALUATION (throughout the entire lesson)

- The teacher will evaluate the posters and presentations based on how well they demonstrate an understanding of the assigned aspect of monkey social behavior and hierarchy. There is an example rubric attached to this lesson plan.
- Once the group discussion and reflection writing is complete, students will submit their reflections for evaluation. These reflections should demonstrate an understanding of how the knowledge gained from their monkey colony can be applied to different situations in their daily lives, such as in school. The teacher will evaluate these reflections based on their level of insight, clarity of thought, and demonstration of critical thinking skills.

SOURCES AND RESOURCES

- **Monkey Call Video** (From Dr. Fiore's Talk): **3:49-4:08**
<https://www.youtube.com/live/TmtmBTArYi4?feature=share>
- Dr. Anthony Fiore's Hot Science at Home #1.7, “**Amazing Amazonian Monkeys**”,
www.esi.utexas.edu/talk/amazing-amazonian-monkeys/ or <https://youtu.be/TmtmBTArYi4>.



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Exploration Handout: Poster Research Instructions

POSTER INSTRUCTIONS

GROUP #: 1

TOPIC: MATRILINEAL

STEP 1: OBSERVATIONS

YOUR GROUP WILL MAKE A POSTER ABOUT A MONKEY COLONY WITH A MATRILINEAL STRUCTURE. YOU WILL WORK TOGETHER TO CREATE A MONKEY COLONY WITH A MASCOT MONKEY OF YOUR CHOICE. LOOK AT FIGURE 1, HOW DOES THE FEMALE MONKEY, ANA MOVE AROUND HER TERRITORY? IN FIGURE 4, IN FIGURE 4, ARE THE FEMALE MONKEYS RELATED TO EACH OTHER? HOW MANY OF THEM ARE CONNECTED? THE QUESTIONER SHOULD FORM QUESTIONS AND WRITE DOWN WHAT THEY NOTICE IN THESE FIGURES.

STEP 2: HYPOTHESIS

AFTER YOU OBSERVE AND RESEARCH, MAKE A GUESS, CALLED A HYPOTHESIS, ABOUT HOW THE MATRILINEAL STRUCTURE IN YOUR COLONY HELPS THE FEMALES BEHAVE AND SURVIVE. THE RESEARCHER CAN USE ONLINE OR OTHER RESOURCES AVAILABLE TO YOU TO HELP YOU. THEN USE YOUR RESEARCH TO MAKE A POSTER THAT TELLS US ABOUT YOUR COLONY'S MATRILINEAL LINE. INCLUDE YOUR HYPOTHESIS AT THE TOP OF YOUR POSTER.



STEP 3: GUIDING QUESTIONS

YOUR POSTER SHOULD DEFINE WHAT "MATRILINEAL" MEANS AND SHOW HOW IT WORKS IN YOUR COLONY. TO DO THIS, ASK YOURSELF:

- "HOW DOES YOUR COLONY SHOW MATRILINEAL BEHAVIOR? ARE SOME FEMALE MONKEYS MORE POWERFUL OR IMPORTANT THAN OTHERS? ARE THESE FEMALE MONKEYS RELATED TO EACH OTHER?"
- "HOW CAN LEARNING ABOUT MATRILINEAL STRUCTURES IN YOUR COLONY HELP US UNDERSTAND HOW OTHER MONKEYS BEHAVE AND LIVE IN GROUPS?"

FORM ANSWERS TO THESE QUESTIONS AND INCLUDE THEM IN YOUR POSTER.

STEP 4: FINALIZE POSTER

BE SURE TO WORK TOGETHER WITH YOUR GROUP, SHARE YOUR IDEAS, AND USE EVIDENCE TO SUPPORT YOUR POINTS. YOUR POSTER SHOULD BE EASY TO UNDERSTAND, INTERESTING, AND COLORFUL. WHEN YOU'RE READY, YOU WILL PRESENT YOUR POSTER TO THE CLASS AND EXPLAIN WHAT YOU LEARNED ABOUT YOUR COLONY.



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POSTER INSTRUCTIONS

GROUP #: 2

TOPIC: PATRILINEAL

STEP 1: OBSERVATIONS

YOUR GROUP WILL BE MAKING A POSTER ABOUT A MONKEY COLONY THAT HAS A PATRILINEAL STRUCTURE. YOU WILL WORK TOGETHER TO CREATE A MONKEY COLONY WITH A MASCOT MONKEY OF YOUR CHOICE. LOOK AT FIGURE 2, HOW DOES THE MALE MONKEY, POTO, MOVE AROUND HIS TERRITORY? IN FIGURE 4, ARE THE MALE MONKEYS RELATED TO EACH OTHER? HOW MANY OF THE MALES ARE CONNECTED? THE QUESTIONER SHOULD FORM ADDITIONAL QUESTIONS AND MAKE NOTES ON WHAT THEY NOTICE IN THESE FIGURES.

STEP 2: HYPOTHESIS

AFTER YOU OBSERVE AND RESEARCH, MAKE A GUESS, CALLED A HYPOTHESIS, ABOUT HOW THE PATRILINEAL STRUCTURE IN YOUR COLONY HELPS THE MALES BEHAVE AND SURVIVE. THE RESEARCHER CAN USE ONLINE OR OTHER RESOURCES AVAILABLE TO YOU TO HELP YOU. THEN USE YOUR RESEARCH TO MAKE A POSTER THAT TELLS US ABOUT YOUR COLONY'S PATRILINEAL LINE. INCLUDE YOUR HYPOTHESIS AT THE TOP OF YOUR POSTER.



STEP 3: GUIDING QUESTIONS

YOUR POSTER SHOULD DEFINE WHAT "PATRILINEAL" MEANS AND SHOW HOW IT WORKS IN YOUR COLONY. TO DO THIS, ASK YOURSELF:

- "HOW DOES OUR COLONY SHOW PATRILINEAL BEHAVIOR? ARE SOME MALE MONKEYS MORE POWERFUL OR IMPORTANT THAN OTHERS? ARE THESE MALE MONKEYS RELATED TO EACH OTHER?"
- "HOW CAN LEARNING ABOUT PATRILINEAL STRUCTURES IN OUR COLONY HELP US UNDERSTAND HOW OTHER MONKEYS BEHAVE AND LIVE IN GROUPS?"

FORM ANSWERS TO THESE QUESTIONS AND INCLUDE THEM IN YOUR POSTER.

STEP 4: FINALIZE POSTER

BE SURE TO WORK TOGETHER WITH YOUR GROUP, SHARE YOUR IDEAS, AND USE EVIDENCE TO SUPPORT YOUR POINTS. YOUR POSTER SHOULD BE EASY TO UNDERSTAND, INTERESTING, AND COLORFUL. WHEN YOU'RE READY, YOU WILL PRESENT YOUR POSTER TO THE CLASS AND EXPLAIN WHAT YOU LEARNED ABOUT YOUR COLONY.



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POSTER INSTRUCTIONS

GROUP #: 3

TOPIC: COMMUNICATION

STEP 1: OBSERVATIONS

YOUR GROUP WILL BE MAKING A POSTER ABOUT HOW MONKEYS COMMUNICATE WITH EACH OTHER. YOU WILL WORK TOGETHER TO CREATE A MONKEY COLONY WITH A MASCOT MONKEY OF YOUR CHOICE. LOOK AT FIGURE 5, WHAT ARE THE DIFFERENT WAYS MONKEYS COMMUNICATE WITH EACH OTHER? CAN YOU SPOT ANY PATTERNS OR BEHAVIORS IN HOW THEY COMMUNICATE WITH EACH OTHER? THE QUESTIONER SHOULD MAKE NOTES ON WHAT THEY NOTICE IN THESE FIGURES, AS WELL AS FORM ANSWERS TO THESE QUESTIONS.

STEP 2: HYPOTHESIS

AFTER YOU HAVE FINISHED OBSERVING AND RESEARCHING, CREATE A GUESS CALLED A HYPOTHESIS ABOUT WHY COMMUNICATION IS IMPORTANT IN MONKEY COLONIES. THE RESEARCHER CAN USE ONLINE RESOURCES TO SUPPORT YOUR HYPOTHESIS. THEN MAKE YOUR POSTER SHOWING HOW MONKEYS USE DIFFERENT WAYS TO COMMUNICATE WITH EACH OTHER. INCLUDE YOUR HYPOTHESIS AT THE TOP OF YOUR POSTER.

STEP 3: GUIDING QUESTIONS

YOUR POSTER SHOULD DEFINE COMMUNICATION AND SHOW HOW COMMUNICATION IS RELATED TO THE SOCIAL STRUCTURE AND BEHAVIORS IN A MONKEY COLONY. THINK ABOUT HOW DIFFERENT MODES OF COMMUNICATION HELP MONKEYS TO INTERACT AND LIVE IN GROUPS. TO DO THIS, ASK YOURSELF:

- "HOW MIGHT THESE MODES OF COMMUNICATION BE HELPFUL FOR MONKEYS TO SURVIVE?"
- "HOW DOES COMMUNICATION HELP MONKEYS TO INTERACT WITH EACH OTHER AND SURVIVE IN THEIR ECOSYSTEM?" TO HELP GUIDE YOUR THINKING.

FORM ANSWERS TO THESE QUESTIONS AND INCLUDE THEM IN YOUR POSTER.

STEP 4: FINALIZE POSTER

BE SURE TO WORK TOGETHER WITH YOUR GROUP, SHARE YOUR IDEAS, AND USE EVIDENCE TO SUPPORT YOUR POINTS. YOUR POSTER SHOULD BE EASY TO UNDERSTAND, INTERESTING, AND COLORFUL. WHEN YOU'RE READY, YOU WILL PRESENT YOUR POSTER TO THE CLASS AND EXPLAIN WHAT YOU LEARNED ABOUT YOUR COLONY.





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POSTER INSTRUCTIONS

GROUP #: 4

TOPIC: TERRITORY

STEP 1: OBSERVATIONS

YOUR GROUP WILL BE CREATING A POSTER ON HOW MONKEYS ESTABLISH THEIR TERRITORY. YOU WILL WORK TOGETHER TO CREATE A MONKEY COLONY WITH A MONKEY LEADER AND EXPLORE THE METHODS BY WHICH MONKEYS ESTABLISH AND MAINTAIN SOCIAL HIERARCHY. TO AID IN YOUR RESEARCH, YOU SHOULD EXAMINE THE LOCATIONS OF BOTH MALE AND FEMALE MONKEYS IN A COLONY USING FIGURE 1 AND FIGURE 2. YOU SHOULD ALSO LOOK AT FIGURE 5, DO THE WAY MONKEYS COMMUNICATE HELPS THEM ESTABLISH THEIR TERRITORY? THE QUESTIONER SHOULD FORM QUESTIONS AND MAKE NOTES ON WHAT THEY NOTICE IN THESE FIGURES.

STEP 2: HYPOTHESIS

AFTER YOU OBSERVE AND RESEARCH, MAKE A GUESS, CALLED A HYPOTHESIS, ABOUT HOW TERRITORY IS RELATED TO THE BEHAVIORS AND INTERACTIONS IN YOUR MONKEY COLONY. THE RESEARCHER CAN USE ONLINE RESOURCES TO HELP SUPPORT YOUR HYPOTHESIS. CONSIDER THE WAYS IN WHICH TERRITORY AFFECTS THE DAILY LIVES OF YOUR MONKEY COLONY AND HOW IT HELPS THEM TO SURVIVE AND THRIVE IN THEIR GROUPS. INCLUDE YOUR HYPOTHESIS AT THE TOP OF YOUR POSTER.

STEP 3: GUIDING QUESTIONS

YOUR POSTER SHOULD DEFINE WHAT TERRITORY MEANS AND ILLUSTRATE HOW YOUR COLONY'S TERRITORY IS RELATED TO THE BEHAVIORS AND INTERACTIONS IN YOUR MONKEY COLONY. CONSIDER THE WAYS IN WHICH TERRITORY AFFECTS THE DAILY LIVES OF YOUR MONKEY, AND THINK ABOUT HOW IT HELPS THEM TO SURVIVE AND THRIVE IN THEIR GROUPS. TO DO THIS, ASK YOURSELF QUESTIONS SUCH AS:

- "HOW DOES HAVING A DEFINED TERRITORY IMPACT THE ACCESS TO FOOD AND RESOURCES?", "WHAT ARE THE BENEFITS AND DRAWBACKS OF DEFENDING A TERRITORY?",
- "HOW MIGHT THE WAY MONKEYS COMMUNICATE SIGNIFY THAT THIS IS THEIR TERRITORY?"

FORM ANSWERS TO THESE QUESTIONS AND INCLUDE THEM IN YOUR POSTER.

STEP 4: FINALIZE POSTER

BE SURE TO WORK TOGETHER WITH YOUR GROUP, SHARE YOUR IDEAS, AND USE EVIDENCE TO SUPPORT YOUR POINTS. YOUR POSTER SHOULD BE EASY TO UNDERSTAND, INTERESTING, AND COLORFUL. WHEN YOU'RE READY, YOU WILL PRESENT YOUR POSTER TO THE CLASS AND EXPLAIN WHAT YOU LEARNED ABOUT YOUR COLONY.





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POSTER INSTRUCTIONS

GROUP #: 5

TOPIC: SOCIAL HIERARCHY

STEP 1: OBSERVATIONS

YOUR GROUP WILL BE CREATING A POSTER ON THE SOCIAL HIERARCHIES IN YOUR OWN MONKEY COLONY. YOU WILL WORK TOGETHER TO CREATE A MONKEY COLONY WITH A MASCOT MONKEY OF YOUR CHOICE AND EXPLORE THE METHODS BY WHICH MONKEYS ESTABLISH AND MAINTAIN SOCIAL HIERARCHIES. TO AID IN YOUR RESEARCH, EXAMINE THE SOCIAL STRUCTURES OF BOTH MALES AND FEMALES IN A MONKEY COLONY IN FIGURE 4 AND FIGURE 3. ADDITIONALLY, YOU SHOULD OBSERVE HOW MONKEYS COMMUNICATE WITHIN THEIR COLONY USING FIGURE 5. THE QUESTIONER SHOULD FORM QUESTIONS AND MAKE NOTES ON WHAT THEY NOTICE IN THESE FIGURES.

STEP 2: HYPOTHESIS

AFTER YOU OBSERVE AND RESEARCH, MAKE A GUESS, CALLED A HYPOTHESIS, ABOUT THE FACTORS THAT INFLUENCE SOCIAL HIERARCHY IN YOUR MONKEY COLONY. THE RESEARCHER CAN USE ONLINE RESOURCES TO SUPPORT YOUR HYPOTHESIS. THEN, CREATE YOUR POSTER SHOWING HOW MONKEYS ESTABLISH AND MAINTAIN SOCIAL HIERARCHIES IN YOUR COLONY. INCLUDE YOUR HYPOTHESIS AT THE TOP OF YOUR POSTER.

STEP 3: GUIDING QUESTIONS

YOUR POSTER SHOULD DEFINE WHAT SOCIAL HIERARCHY MEANS AND ILLUSTRATE HOW SOCIAL HIERARCHY IS RELATED TO THE BEHAVIORS AND INTERACTIONS IN YOUR MONKEY COLONY. CONSIDER THE WAYS IN WHICH SOCIAL HIERARCHY AFFECTS THE DAILY LIVES OF YOUR MONKEY, AND THINK ABOUT HOW IT HELPS THEM TO SURVIVE AND THRIVE IN THEIR GROUPS. TO DO THIS, ASK YOURSELF QUESTIONS SUCH AS:

- "HOW DOES SOCIAL HIERARCHY IMPACT ACCESS TO FOOD AND RESOURCES?"
- "WHAT ARE THE BENEFITS AND DRAWBACKS OF BEING HIGH OR LOW IN THE SOCIAL HIERARCHY?"

FORM ANSWERS TO THESE QUESTIONS AND INCLUDE THEM IN YOUR POSTER.

STEP 4: FINALIZE POSTER

BE SURE TO WORK TOGETHER WITH YOUR GROUP, SHARE YOUR IDEAS, AND USE EVIDENCE TO SUPPORT YOUR POINTS. YOUR POSTER SHOULD BE EASY TO UNDERSTAND, INTERESTING, AND COLORFUL. WHEN YOU'RE READY, YOU WILL PRESENT YOUR POSTER TO THE CLASS AND EXPLAIN WHAT YOU LEARNED ABOUT YOUR COLONY.





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Exploration: Handouts for Poster Research

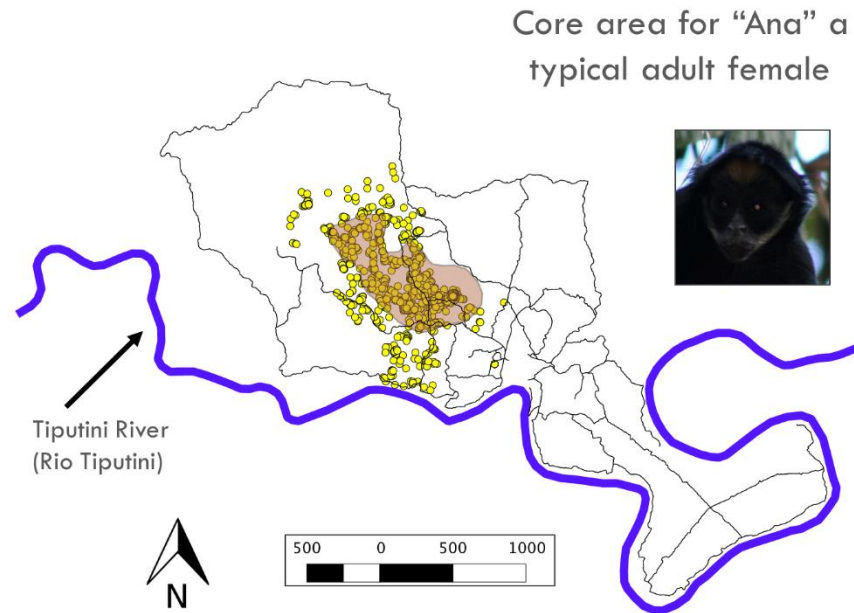


Figure 1

Image source: Dr. Anthony Fiore *Hot Science at Home* #1.7, "Amazing Amazonian Monkeys", 2021

Prompt: This handout displays a map of a female monkey, Ana, and her charted territory within her habitat. The map indicates the areas where Ana is most active and spends the majority of her time. The yellow dots on the map represent her movements, while the highlighted portion indicates the area where she is most frequently present.



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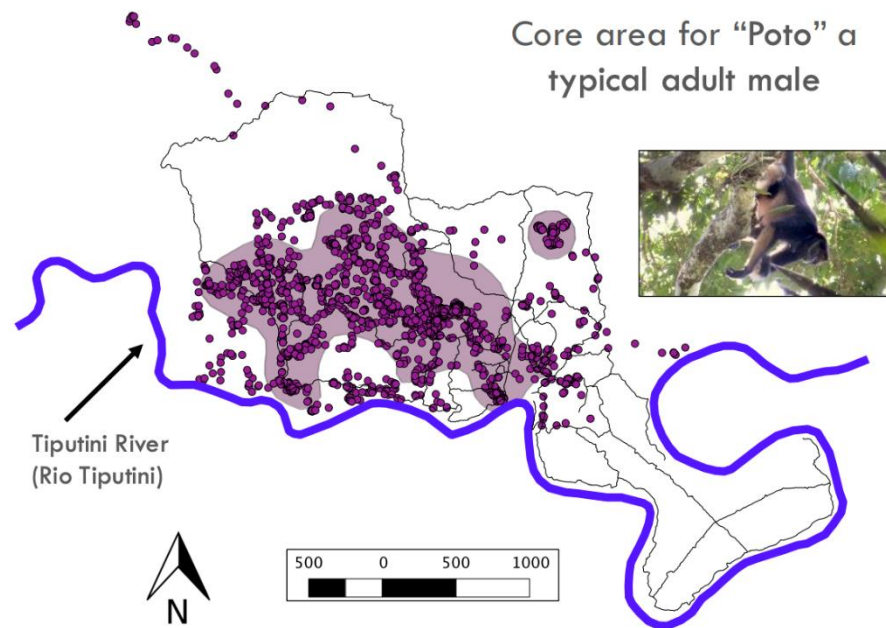


Figure 2

Image source: Dr. Anthony Fiore *Hot Science at Home* #1.7, "Amazing Amazonian Monkeys", 2021

Prompt: This handout displays a map of a male monkey, Poto, and his charted territory within his habitat. The map indicates the areas where the Poto is most active and spends the majority of his time. The purple dots on the map represent his movements, while the highlighted portion indicates the area where he is most frequently present.



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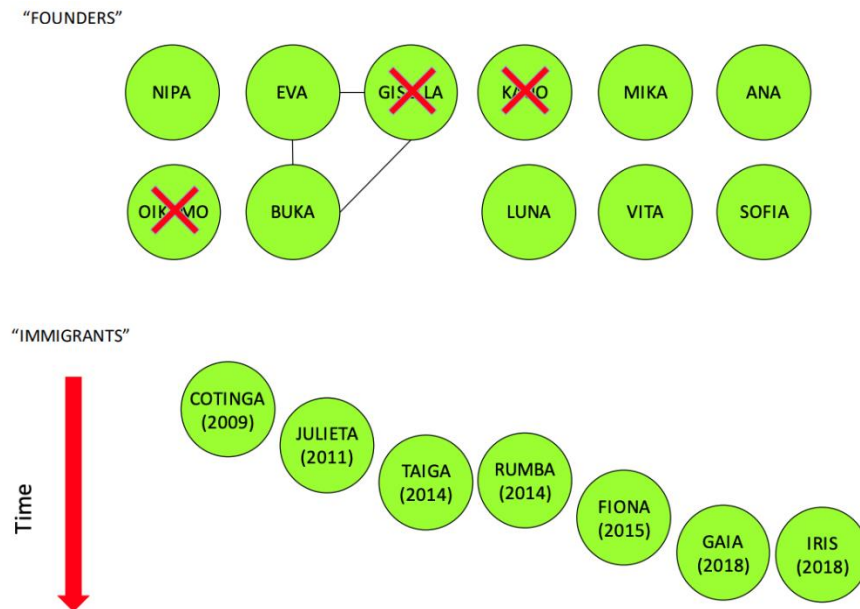


Figure 3

Image source: Dr. Anthony Fiore *Hot Science at Home* #1.7, "Amazing Amazonian Monkeys", 2021

Prompt: This handout displays a chart of a matrilineal line of monkeys, with an arrow labeled "Time" running down the center of the chart. The arrow represents the progression of time, with the top of the chart representing the founder of the community and the bottom representing the most recent generation of immigrants who have left their founder's colony. The chart is labeled with "Founder" at the top and "Immigrants" at the bottom, indicating the origin of the community and the introduction of new members over time. Some of the monkeys' names have X's, indicating that they have passed away. The chart features three arrows connecting one monkey to two others, showing the direct maternal relationship between them. Each subsequent generation is represented by a new row on the chart, illustrating how some female monkeys in the community are related to each other through their maternal lineage.



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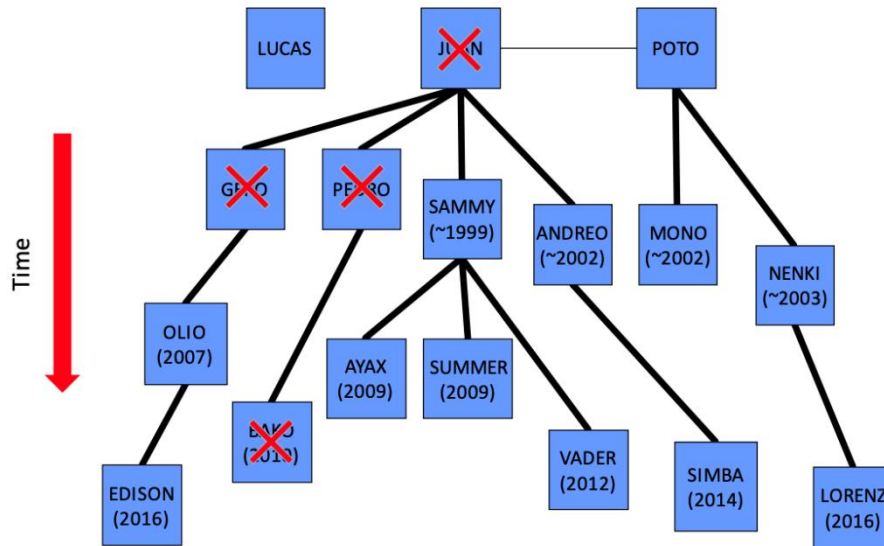


Figure 4

Image source: Dr. Anthony Fiore *Hot Science at Home* # 1.7, "Amazing Amazonian Monkeys", 2021

Prompt: This handout is a chart that depicts a patrilineal line of monkeys. The chart is centered around an arrow labeled "Time" that indicates the progression of time, with the earliest known ancestor at the top of the chart and the most recent generation at the bottom. The chart shows how male monkeys in the community are related to each other through their paternal lineage. The monkeys' names are connected by lines to depict the direct paternal relationship between them, with each subsequent generation represented by a new row on the chart.



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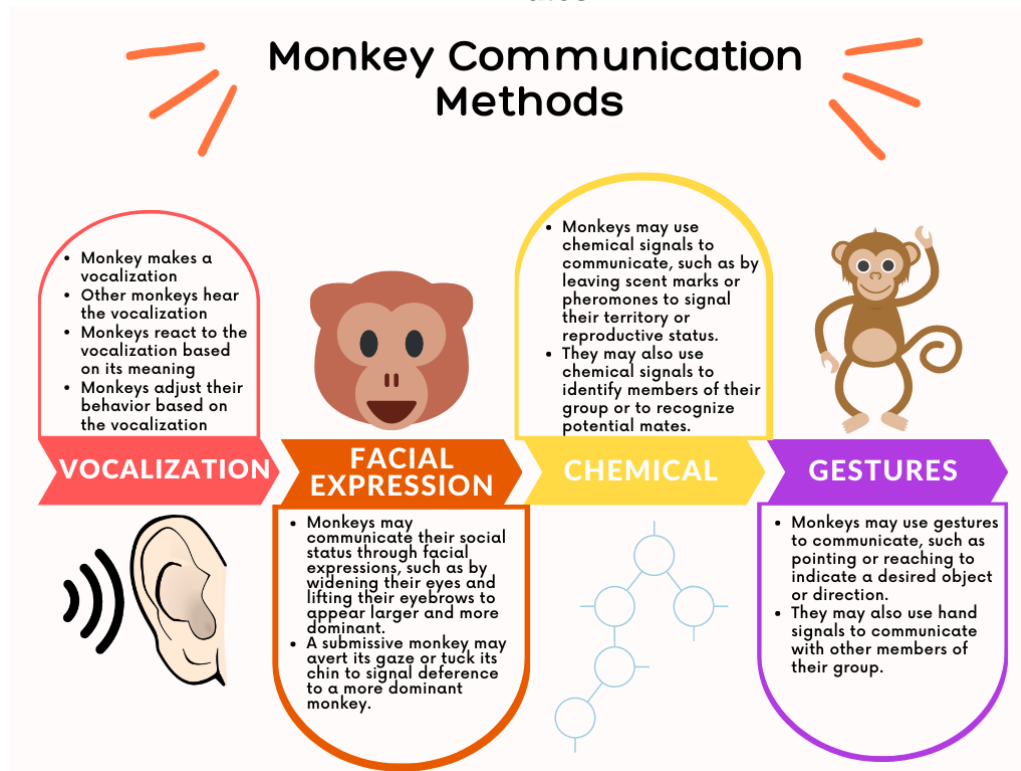


Figure 5

Image source: Authored by Amara Ego, UT Environmental Science Institute

Prompt: This handout is a flowchart that demonstrates the various ways monkeys communicate. It is divided into four main sections which include vocal communication, facial expressions, chemical communication, and gestures. For a better understanding of the different modes of communication used by monkeys, read the information provided within the flowchart.



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Exploration Handout: Poster Checklist

<u>Poster Checklist</u>

Did we pick a monkey to be the mascot of our group?	
Did we form a definition for our assigned topic?	
Did we use things we found, like pictures or facts, to help us explain our ideas?	
Did we put the answers to at least one of our questions on our poster so other people can learn from it?	
Did we form a hypothesis for our assigned topic? Did we use evidence to support our hypothesis?	
Did we include how our topic can help our monkeys survive in our colony?	
Is our poster easy to read, interesting, and colorful?	
Is the person who will talk about our poster ready to explain what we learned to the class?	



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Evaluation: Teacher's Rubric for Poster

<u>Criteria</u>	<u>4 (Excellent)</u>	<u>3 (Good)</u>	<u>2 (Fair)</u>	<u>1 (Poor)</u>
<u>Accuracy of Definition</u>	The poster accurately defines the assigned topic and provides clear and concise information.	The poster accurately defines the assigned topic but could provide more detail or clarity.	The poster somewhat accurately defines the assigned topic but lacks detail or clarity.	The poster does not accurately define the assigned topic.
<u>Explanation of Monkey Colony</u>	The poster provides a detailed and thorough explanation of how the assigned topic works in the monkey colony.	The poster provides a general explanation of how the assigned topic works in the monkey colony.	The poster provides a vague or incomplete explanation of how the assigned topic works in the monkey colony.	The poster does not explain how the assigned topic works in the monkey colony.
<u>Explanation of Survival Advantage</u>	The poster clearly explains how the assigned topic is advantageous to the monkey's survival in their ecosystem.	The poster somewhat explains how the assigned topic is advantageous to the monkey's survival in their ecosystem.	The poster vaguely explains how the assigned topic is advantageous to the monkey's survival in their ecosystem.	The poster does not explain how the assigned topic is advantageous to the monkey's survival in their ecosystem.
<u>Hypothesis</u>	The hypothesis makes a well-crafted and insightful guess about how their topic helps the colony or how it relates to the behavior and survival of the monkeys, and is supported by strong evidence and detailed explanation that demonstrates understanding of the concept.	The hypothesis makes a clear and specific guess about how their topic helps the colony or how it relates to the behavior and survival of their monkeys and is supported by evidence and explanation.	The hypothesis makes a guess about how their topic helps the colony or how it relates to the behavior and survival of their monkeys, but it is not well-supported or lacks detail and explanation.	The hypothesis is missing or unclear and does not make a guess about how their topic helps the colony or how it relates to the behavior and survival of their monkeys.
<u>Creativity</u>	The poster is visually appealing and demonstrates creativity in design and presentation.	The poster is visually appealing but could have been more creative in design and presentation.	The poster is somewhat visually appealing but lacks creativity in design and presentation.	The poster is not visually appealing and lacks creativity in design and presentation.