

## Bonobo Habitat in Central Texas: Day 1 of 3

*STEAM Unit by Matthew Hernandez*

Topic: Creating an animal habitat

Grade: 2<sup>nd</sup> Grade (17 students)

Time: 60 minutes

Guiding Question: What does a bonobo need to survive?

TEKS:

### Science

**2.3A** identify and explain a problem in his/her own words and propose a task and solution for the problem such as lack of water in a habitat;

**2.3C** identify what a scientist is and explore what different scientists do.

**2.9A/B (A)** identify the basic needs of plants and animals; **(B)** identify factors in the environment, including temperature and precipitation, that affect growth and behavior such as migration, hibernation, and dormancy of living things; and

**2.2D** record and organize data using pictures, numbers, and words;

### Art

**2.2B** Creative expression. The student communicates ideas through original artworks using a variety of media with appropriate skills. The student expresses thoughts and ideas creatively while challenging the imagination, fostering reflective thinking, and developing disciplined effort and progressive problem solving skills. The student is expected to: create compositions using the elements of art and principles of design; and

EDP Connections:

- Defining the Process (Ask)
- Doing Background Research/Specify Requirements (Ask)
- Brainstorm Solutions (imagine/Plan)

Materials:

- Prop or costume piece that helps teacher become the ecologist character
- Dry-erase/chalk board with dry erase markers or chalk
- Blank pieces of butcher paper (enough for each student)
- Markers
- Chromebooks

Plan:

**Engage (17 minutes)**

- [5 minutes] **Welcome** students to a three-day unit where we are going to be using drama!
  - Drama requires body, voice, and imagination. Practice/identify these skills in their seats by asking them to point to these things or use them by wiggling their bodies, projecting with their voice and imagining a big cupcake in front of them.
- [7 minutes] **People Shelter Storm** - Instruct students to quietly stand and move their desks away from the center of the room.
  - In order to play this activity, you must be in a group of three, so invite students to get into groups of three where 2 of them are making a roof with their arms over the third student's head. The two people on the outside are the shelter, the person on the inside is the people. When the teacher calls "People", all the people must find another shelter. When the teacher calls "Shelter", all the shelter students must make a new shelter over one of the people, this may mean that students pair up with a different person in making their shelter and this is ok.
  - After playing a few rounds with only the "People" and "Shelter" commands, the teacher may add in "Storm" where every student must find a new three-person grouping. This means that students who were "people" may now become "shelters" and vice versa.
- [5 minutes] **Teacher-in-Role** - Ask the students to bring their desks back into their original place and find their seats as quickly as possible. Explain to the students that we are going to use drama to imagine that the teacher is going to become another character on the count of three. Ask the students to count with you as you put on a hat or vest, at the end of which, the teacher becomes Eduardo, an Ecologist. (This name can be changed based on gender, nationality, culture, etc. to best fit the teacher who is going into role)
  - After switching into role as Eduardo, engaging questions may include: Does anybody know what an ecologist does? What is ecology?
  - Ecology is the branch of science that studies the relationship of organisms with each other and their physical surroundings.
  - Eduardo asks the students for help because he has a big problem on his hands. Deforestation is a big problem in the Congo Rainforest because trees are being chopped down and it is leaving animals without homes. One animal in particular, the bonobos are heavily affected by deforestation. Ask the students if they understand how a home can be taken and stripped away. (Hopefully to connect People, Shelter, Storm activity)
  - As an ecologist, Eduardo knows a lot about habitat and gives the students the following definitions...
    - Definitions include: habitat - where an organism lives; deforestation – the destroying of forests for various reasons; diet - what an organism eats and consumes; climate - the weather conditions in a given area; organism - a living being

**Explore (36 minutes)**

- [2 minutes] **Introduce** to the students that these Bonobos are being sent to us to live in Central Texas so we need to design a habitat for these creatures on a huge piece of flat land. In order to make this habitat exactly the way the Bonobos need, we must find out how bonobos live. Eduardo asks the students to help him in this. After they say yes, Eduardo must go off to continue working on his own.
- [15 minutes] **Research** using Chromebooks in the classroom, each table of students will be researching the following websites for a particular aspect of the bonobo's lives: climate, diet, and physical setting. Each table will be looking for only one of the particular aspects using these websites and then will write any facts they find on a piece of paper, which will be handed out after instruction is done. Ask for questions, clarification.
  - [http://www.softschools.com/facts/animals/bonobo\\_facts/265/](http://www.softschools.com/facts/animals/bonobo_facts/265/) (google: soft schools bonobo)
  - <https://a-z-animals.com/animals/bonobo/> (google: a-z animals bonobo)
  - <http://www.bonobo.org/bonobos/> (google: bonobo.org)
  - As the students are gathering facts, encourage and remind them to write facts down that they are finding because we will be sharing together.
- [12 minutes] **Fact Sharing** - Once students have gathered facts, teacher will call on students to share with the class. As students are sharing, teacher will categorize facts into weather/climate, diet, and physical setting on the board while writing them down.
- [7 minutes] **Sketches** - Once we have gathered research we are now going to independently create a bonobo habitat on their own piece of paper using pencils. Explain the artistic process of a sketch with erasable pencil as the first step in creating.
  - Paying attention to use of space on the page, make a quick sketch of how you would design a bonobo habitat for Central Texas. Explain the definition of "shape" in visual art as focusing on how wide and long something is. Refer the students to "composition" which reflects how you organize and place items in the sketch. Sidecoaching: Ask the students what the habitat might look like if you were flying over it in a helicopter. How far apart would things be? Ask how much space each element takes according to the shape of it. Show example sketch if needed.
  - Students use the information from research to incorporate elements into their own habitat.

### **Reflect (7 minutes)**

- [6 minutes] Reflection questions in discussion format with the students. Ask the students to turn their sketches over or pick them up so that they will not be tempted in trying to work on them.
  - What is contained in a habitat? What are important elements in an animal's environment?
  - How are those elements being incorporated into our new habitat? (Importance of design)
  - Why is it important that we create these habitats? What obstacles or challenges do

you think we will come across along the way?

- [1 minute] Thank the students for their awesome work in class today and tell them to keep their sketches and research notes for our next class together.

Appendix:

The bonobo habitat sketch assignment may be completed for homework or be revisited sometime before the next day in the unit.

## Bonobo Habitat in Central Texas: Day 2 of 3

STEAM Unit by Matthew Hernandez

Topic: Creating an animal habitat

Grade: 2<sup>nd</sup> grade

Time: 60 minutes

Guiding Questions: How can we use our bodies to better understand the most important elements necessary for a Bonobo habitat? How can using props and costumes help us more accurately represent the Bonobo habitat?

TEKS:

### Science

**2.9A** identify the basic needs of plants and animals;

**2.9B** identify factors in the environment, including temperature and precipitation, that affect growth and behavior such as migration, hibernation, and dormancy of living things; and

### Theatre

**2.3A** Creative expression: production. The student applies design, directing, and theatre production concepts and skills. The student is expected to: select aspects of the environment such as location, climate, or time for use in dramatic play;

EDP Connections:

- Choose the Best Solution (Imagine)
- Do Development Work (Plan)
- Build a Prototype (Create)

Materials:

- Finished plans from the students
- Large open space of the room

Plan:

### **Engage (5 minutes)**

- **Recall** - Teacher will ask to see the student's finished plans of their bonobo habitat. After which the teacher will ask the students to identify the three aspects they think are the best for the bonobos in their new habitat.
  - Once identified, the teacher will ask the students if anyone would like to share with the class what these three things are in their plan.

### **Explore (48 minutes)**

- [5 minutes] **Teacher-in-Role** - Teacher will ask students to help him become Eduardo again by counting to three. The teacher, now as Eduardo, will introduce an email that he got from the bonobo specialists in the Congo who are sending them to us. In this email, they explained that the bonobos need a certain number of different things in order to thrive in their environment.
  - For every 2 bonobos, we need 1 tree
  - For every 5 bonobos, we need 1 water source
  - For every 4 bonobos, we need 1 food source
  - For every 3 bonobos, we need 1 play item/toy
  - After reading this email, Eduardo must leave to continue working alone on other aspects of the habitat.
- [18 minutes] **Math instruction/bonobo embodiment** - Teacher will ask 10 students to volunteer to be our bonobos in order to figure out how many of each element we need. Those 10 students will be manipulated by the rest of the students in order to group them. The rest of the students will take notes in order to figure out how many of each element we need.
  - For example, to figure out how many trees we need, we will ask the 10 students to get into groups of 2, then count how many groupings we have to determine how many trees we need.
  - Encourage the students that volunteered to be acting as our bonobos to really get into character. Based on our research, how do they walk, how do they interact with each other, how do they climb a tree, what do they sound like, etc.
- [25 minutes] **This Setting Needs** - Teacher will tell the students that we are going to now do drama all together which requires us to respect personal space and be in control of our bodies as best as possible. We also need a large open space to play so we will all push our desks back to the wall. Then our bodies will outline the space, just like in our sketches, of the space we have to work with.
  - At this point teacher will ask particular students to walk over into the open space of the room and begin to create a living tableaux. Students will use their body to make one “aspect” of the habitat, whether it is a tree, water source, food source, or toy.
  - Ask the students to remember the numbers of each aspect we need and then as you invite one student at a time to enter the tableaux, ask them what this setting really needs. Does it need another tree? Another water source? etc.
  - Students who have not yet entered the living tableaux can add sounds to the setting in a living soundscape. Encourage them to use their voice, body, and imagination.
  - Sidecoaching: Are you still or do you move? Do you make sound? What parts of your body can you use to make this come alive?

***Reflect (7 minutes)***

- Ask the students to get their desks back into their regular table settings.
- Reflection questions include...

- What skill did we use when we were figuring out how much of each element we needed? How was that skill used?
- Why is it important that we have the correct number of things for our bonobos?
- Based on the information we have about the bonobos, how do we think they might act and play in the environment we are creating?

Appendix:

Embodiment and This Setting Needs may get unruly so be sure to enforce best behavior and set a goal of great behavior before the activity begins.

## Bonobo Habitat in Central Texas: Day 3 of 3

STEAM Unit by Matthew Hernandez

Topic: Creating an animal habitat

Grade: 2<sup>nd</sup> grade

Time: 60 minutes

Guiding Question: Does our habitat work for the bonobos?

TEKS:

### Science

**2.10A** observe, record, and compare how the physical characteristics and behaviors of animals help them meet their basic needs such as fins help fish move and balance in the water;

### Theatre

**2.3B** adapt the environment for dramatic play, using simple materials;

EDP Connections:

- Test and Redesign (Improve)

Materials:

- Notebook/scratch paper
- Pieces of butcher paper
- Pencils
- Colored pencils/markers

Plan:

### **Engage (10 minutes)**

- Teacher will review with the class about all of the information we have learned thus far. Questions may include...
  - What did we learn about the bonobos in our research on day 1?
  - What did we learn about the quantity of what they need in their habitat yesterday?
  - What did we learn about designing a habitat from the living image we made yesterday?

### **Explore (30 minutes)**

- [5 minutes] Once students have described all that we have done so far, the teacher will ask the students to help him become Eduardo again by counting down from 3 with him. As Eduardo, the teacher will tell the students of more news that he has learned from the Bonobo researchers in the Congo. We now need to build three different habitats because



they are sending us three groups of bonobos from different communities. So, we need to now create three different habitats. Each table will be tasked with designing a habitat for the different number of bonobos in each community.

- Table 1: 12 bonobos
- Table 2: 15 bonobos
- Table 3: 9 bonobos
- After delivering the news, Eduardo will leave to work on the logistics of the bonobos' travel plans.
- [5 minutes] **Individual Math-Work Time** - The teacher will hand out pieces of paper to the students for them to figure out how many of each resource they need. Each student will work individually, after which they will share out with their table with what answers they calculated. Maybe each student calculates one aspect (i.e. one student calculates how many trees we need, another calculates water sources, etc.)
  - Sidecoaching: How did we figure this out yesterday? How can you work with your table to figure this out?
- [5 minutes] **Sharing of Findings** - After each table is done, each table will share what they found to be the right number of resources for their habitat. The teacher may also ask a few reflection questions about working together...
  - What did you do to help your tablemates?
  - What did somebody else do to help the table figure out this problem?
- [5 minutes] **Blueprint Sketches Instruction**- After students have figured out the exact numbers of which resources they need, they will now be tasked to again design a habitat for their number of bonobos specifically. This time, though we are going to be drawing the habitat from a bird's-eye-view. Using an example, show the students which perspective you want them to draw from. Teacher may have a discussion about the word "perspective" and the ways they have used it in their own drawings before. Ask the students to also pay attention to "proportion" in their drawings. Teacher may have a conversation about this word as well and how important space is in creating a drawing in proportion.
- [7 minutes] **Blueprint Sketches Worktime** - Teacher passes out pieces of butcher paper for the students to draw their new sketches for their bonobo habitats. Each table should be working with the numbers they just calculated, but each student works individually to design their own version of the habitat.
  - Sidecoaching: What do you remember about working in the drama yesterday? What kind of space was between each resource? How did you decide where to place each resource?
  - Students may add color to their sketches if they would like using markers and colored pencils.
- [3 minutes] **Gallery Walk** - After students have finished their sketch, invite them to walk around their own table and look at their classmates' sketches.

**Reflect (20 minutes)**

- [3 minutes] **Reflect on Gallery Walk** - Ask the students to return to their seats and bring their attention to you. If some of the students are distracted by their sketches, ask them to turn it over or simply collect the sketches with the promise of returning them later. As the students just saw their peers' artwork ask them to reflect on that experience...
  - What did you see in others' sketches that you did not have?
  - How did you see your classmates doing things differently than you did?
- [12 minutes] **Reflect on Unit** - Now ask the students to think about the entire past few days...
  - What kind of habitat are we building for the bonobos? What is in it?
  - What differences did you notice in each other's drawings?
  - How in the world did we all make a habitat with drama?
  - Why is it important to create a habitat with these details for the bonobos?
  - What other kind of habitats do you know of in the world?
  - As the questions are being answered, Mr. Hernandez will identify the specific skills and concepts that the students used such as; working together, ecology, design, drama, etc.
- [5 minutes] **It Made Me Think...**- As the teacher is wrapping up his time with the students he will ask the students to think of one thing that they will remember from this experience of building a bonobo habitat. This can be a word, phrase, or short sentence. Students will share out what this thing is and then state "...it made me think."

Appendix: