



Summer Camp

Exploring Africa Day 5

4-8TH GRADE

WELCOME

(5 min)

Instructions: Welcome your students to camp. Say: "Today we get to play a fun game, make chia seed lemonade, and use microscopes!"



Remind students they have the opportunity to earn sand dollars when they complete a task, help another student, help set up or clean up, write in their journal, read a book, etc. Tally the amount of sand dollars that each student earned from helping and record it on the weekly pay role sheet.

GAME TIME

(25 min)

Materials:

- Basketball

STORYTELLING WITH A BALL

Objective: Students will create a story using the experiences they have had and the things they have learned during engineering month. As they go around the circle, they will add onto one another's contributions.

Instructions: This game would be best played outside. To begin the game, students gather around in a circle. One person will be selected to begin and they will be given the ball. The instructor will provide a guide to allow students to build from. They will provide a theme or setting for the story. The first person to go will begin by sharing the introduction to the story that they come up with. Once the student shares a few sentences, they will bounce or pass the ball to someone else in the circle. The next person will add on a few sentences by going off of what the first person shared. They then pass the ball to another person, and the story continues to build until everyone has had a turn to add on. If a student is having a hard time coming up with something, the instructor may encourage them by asking guiding questions such as, "what happened next?" or "what did you see or hear?"

EXPLORATION

(30 min)

Materials:

- Books
- Board or card games
- Art supplies for journals

GAMES, BOOKS, AND JOURNAL

Objective: Allow students time to connect with each other through a fun game or let them choose to read or draw/write in their journal. Place out all the fun art supplies for students to access while they decorate and record in their journal. Find a student that will let you highlight their journal page and show the class what they've done to help inspire the class with their good idea.

STEM CREATION CHIA SEED LEMONADE

(60 min)

We suggest taking this portion of the lab outside if possible, so you don't have to worry if a student spills lemonade.

Say: "We are going to experiment with making our own lemonade recipe. You get to experiment with lemon juice, water, and a magical ingredient to create your own lemonade. First we'll explore this magical ingredient."

Materials:

- Graduated cylinders with water, lemon juice (2-3 bottles), and sugar
- Chia seeds in test tubes
- Sugar
- Dixie cups (smaller cups work best)
- Optional: 10-15 lemons and a lemon juicer
- Pippi pipettes
- Petri dishes
- Scoopy spoons
- Microscopes

Instructions:

1. Allow students to explore the properties of chia seeds. Use the additional resources document to help direct their observations.
 2. On each table, set out cylinders of water, some pipettes, cups, scoopy spoons, and graduated cylinders of chia seeds.
 3. Students observe dry chia seeds first with the naked eye and then under the microscope making sure to keep them clean. They then place the seeds in their cup and drop in some water from Pippi pipette and observe what happens after a couple minutes. Have them record their findings on their journal sheets. Say: "Chia seeds are delicious and their jelly-like properties make them a fun thing to add to a drink. Let's try making some lemonade with them!" Have students put microscopes away before making lemonade.
 4. If you are using fresh juice from lemons, invite 10 or so volunteers to cut and juice the lemons, and unclog the strainers. You may need 10-15 lemons.
 5. Allow students to be creative with their recipes and add different amounts of each ingredient until they have the perfect blend!
 6. Enjoy! Students may make up to 2 cups of lemonade.
- Note:** During cleanup, do not wash any chia seeds down the sink.
7. Read the article with your students at the end of the lab.

STEM TIME

(120 min)

Materials:

- Tobey tweezers
- Meeka microscopes
- Petri dishes
- Tedros test tube
- Student lab sheets

MEET MEEKA THE MICROSCOPE

Say: "Today, are going outside to collect the coolest, weirdest, and most interesting thing we can find. Take your time and enjoy collecting a unique sample. You can use Tobey tweezers to collect the sample and place it in your Tedros test tube. Then, we will learn how to use Meeka microscope!"

Note: Encourage students to look for small, irregularly shaped leaves, seeds, or stems. They might have access to pond water, branches, dirt or grass. Let them be creative with their sample! It might be a coin or some pocket lint.

Instructions: Before administering this lab, spend some time discovering how to use the microscope on your own.

Some helpful points to watch out for are:

- The light must be turned on.
- Students will need help adjusting the width to their eyes.
- Make sure the 2X or 4X 'clicks' into place.
- It may take multiple tries to focus effectively. Use the knobs and go as far as you can go in one direction, then adjust gradually.

Note: It would be helpful for you to watch the class movie before starting.

1. Show the class movie (Meet Meeka microscope)
2. Let your students collect a sample.
3. Circulate around the classroom and help students 'click' and focus. If you see a student who is not fully engrossed, it may be because they are having trouble focusing the microscope. Many students may want to look at multiple things. Allow and encourage them to do so!
4. Students fill out the student sheet. Guide them to make their drawings as detailed and accurate as possible.
5. Have students circulate and comment on their peers' findings.
6. Celebrate and validate what your students find, and how their skills grow.
7. Regroup your students and ask them to share what they observed, as well as their diagrams. Remind them of the quote we began with. How did observing these things as microscopists make them feel? What skills might a good microscopist need?