



Introduction to Lab Science – Grades K-2

Nebraska Science Standards

2.1.1.a Ask questions that relate to a science topic

2.1.1.d Describe objects, organisms, or events using pictures, words, and numbers

2.1.1.e Collect and record observations

2.1.1.f Use drawings and words to describe and share observations with others

Objective: The goal of these activities is to familiarize the students with basic laboratory equipment, safety, and scientific terminology.

Materials (provided by CSM):

- Three (3) activity leaders from CSM
- Activity packet
- Goggles and gloves
- Crayons or colored pencils

Microscopes Activity

- Microscopes (3 or multiple sets of 3 depending on class size)
- A set of slides for each microscope: peacock feather, bumblebee leg, human blood

Temperature Activity

- Beakers: 500mL (3)
- Thermometers (3-6)
- Food coloring: red, green, and blue
- Paper towels

Weight Activity

- Scales
- Jellybeans
- Small paper cups

Materials (provided by the classroom):

- Water

Discussion: (Questions to ask the students)

- Why is it important to study science?
 - Technology

- Make advances in technology like computers, phones, Ipads, video game systems, etc.
 - Astronomy
 - Understand about the moon, planets, and stars
 - Medicine
 - To find cures for diseases, to make us feel better when we are sick
- What kind of jobs can scientists have?
 - Doctor or nurse
 - Astrologist
 - Archaeologist
 - Meteorologist

Handout the activity packet

- What does a scientist wear? (Page 1 of the packet)
 - Let them draw what scientists wear based on their discussion
 - Lab coats
 - Goggles
 - Gloves
 - Masks
- Ask the students to choose a job for their scientist
- What kind of tools does a scientist use? And what are they used for?
 - Microscopes: seeing really small things that we cannot see with just our eyes like cells and germs
 - Telescopes: seeing things that are far away like planets and stars
 - Thermometers: measuring the temperature
 - Scales: measuring the weight of something

Activity Description: Students will be given a worksheet to complete and by rotating between three stations: microscopes, measurements, and temperature. The microscope station allows students to observe samples of organisms using a compound light microscope. The measurements station will allow students to use a scale to learn basic skills of measuring mass. Finally, the temperature station provides an opportunity for students to use thermometers.

Volunteers will set up three stations so that the class will be split into three groups to rotate around.

STATION 1 – MICROSCOPES

You will need:

- Activity packet (PAGE 2)
- Goggles and gloves
- Crayons or colored pencils
- Microscopes (3 or multiple sets of 3 depending on class size)
- A set of slides for each microscope: peacock feather, bumblebee leg, human blood

Setup:

- Set up the three microscopes with each of the three slides. Make sure the slides are turned upside down so the students can't read the label. Demonstrate the correct way to use a microscope and monitor their use of the microscopes and the slides.
- Things to remember: Before allowing students to use the microscopes, remind them that they only need their eyes to look- they should not be touching the microscope at any point in the activity. Do not let them move the microscopes across the table.
- Have the students hypothesize what they are looking at under each microscope. They will know the options of peacock feathers, bumblebee legs, and human blood.
- A common question from students is, how do the "things" get inside the microscope? If this question is asked, explain to them that there are slides where the "things" were glued onto which help us to view something under the microscope. Remind them that microscopes are used to view really small objects. Scientists take small pieces from really big things and put them onto the slides. For example, to view the peacock feather, a scientist took a small piece of the feather from a big peacock. The little bumblebee leg came from a bigger bumblebee, and the small drop of human blood came from a human.

Procedure:

1. Have each student in this group take turns looking under each microscope.
2. Ask the students what they think they are looking at under each microscope. Ask them what their favorite image is.
3. Have them draw what they see, be generous and kind to their drawings, and have them match the images found on their worksheet.

STATION 2 – MEASUREMENTS

You will need:

- Activity packet (PAGE 3)
- Goggles and gloves
- Crayons or colored pencils
- Scales
- Jellybeans in a container
- Small paper cups

Set up:

This activity involves weighing jellybeans and making a chart. Leave the entire container of jellybeans out for the students to count out each of the appropriate samples. Explain how to use the scales and demonstrate how to use the cup to "tare" or "blank" or "zero" out the scale. Explain how this is important to get an accurate reading.

Procedure:

1. Allow the students to place 10 jellybeans into a cup that has been “tared” and record the weight on their worksheet.
2. Repeat this step with the 15 jellybeans and record the results.
3. Repeat this step again with the sample of 20 jellybeans and record the results.
4. Once they have gathered all their data, students will need to create a chart showing their results. EXPLAIN to them how to do this by filling in the number of grams for each sample.

STATION 3 – TEMPERATURE

You will need:

- Activity packet (PAGE 4)
- Goggles and gloves
- Crayons or colored pencils
- Beakers: 500mL (3)
- Thermometers (3-6)
- Food coloring: red, green, and blue
- Paper towels

Setup:

- Fill the three beakers with different temperatures of water: hot/warm, ice cold, and room temperature. Add food coloring to each beaker.
- Avoid coloring the hot/warm water red and the ice-cold water blue. Students should rely on the reading of the thermometer rather than the generalizations of red=hot and blue=cold.
- Set thermometers on the table with a paper towel, not in the beakers.

Procedure:

1. Let each student/group have their own thermometer for the activity- based on how many are in each group.
2. Have them put the thermometer in the first beaker and encourage them to notice the red line moving up or down.
3. Ask them to read the temperature of the water and record their results.
4. Repeat for the remaining beakers.
5. Once the procedure is finished, have the students place the thermometers on the paper towel to allow the thermometers to reset to room temperature.
6. Have the students finish the questions for temperature.