**Atmosphere Measurements:**

**Clouds**

1. look at cloud chart (front and back)
2. Complete the cloud observation sheet starting at “1” through “8”.

**Air Temperature**

1. Hold alcohol-filled thermometer from top loop arms length for 1 minute
2. Read air temperature to the nearest .5 degrees C and record data
3. Wait 1 minute and re-read air temperature to nearest .5 degrees C and record data
4. Wait 1 minute and re-read air temperature to nearest .5 degrees C and record data
5. If all data points are within .5 decrees C, stop and record…if not, wait another 1 minute and read again until you have 3 continuous measurements within .5 degrees C.

**Pressure**

1. Take aneroid barometer out of the box and tap glass cover lightly
2. Read the barometer to the nearest millibar and record data

**Surface Temperature**

1. Identify a surface area that is the same (all grass or asphalt or soil, etc…)
2. Point IRT at 45 degree angle to the surface
3. Push trigger and record surface temperature
4. Repeat 8 more times for the same type of surface area and average data

**Relative Humidity**

1. Take Hygro-Thermometer out of package and let sit for 30 minutes
2. Turn on (back red button)
3. Record relative humidity in % and temperature in degrees C

**Precipitation**

1. Read the level of the water in your rain gauge; be sure your eyes are level with the water in the measuring tube. Read the level at the bottom of the meniscus.
2. Record the rainfall amount to the nearest one-tenth of a millimeter
3. Pour the water into the sampling jar and cover it the pH measurement.
4. Record the number of days rain has accumulated in the gauge. (The number of days since the rain gauge was last checked and emptied.)
5. Take pH paper and dip paper into jar of water and match color for pH.

**Biosphere Measurements:**

Use GLOBE Observer App for Tree Height and Land Classification

**Hydrosphere Measurements:**

**Transparency**

1. Retrieve water sample from creek using the bucket
2. Have your partner plug hold on the bottom of the transparency tube with a finger
3. Stand with your back to the sun so that the tube is shaded
4. Take sample water out of bucket and fill transparency tube to 100 cm mark
5. Have your partner slowly release water from the bottom of the tube while you look down into the tube. Focus on looking for the pattern at the bottom of the tube. Once you see it (even slightly) tell your partner to plug the release hole
6. Record the level in the tube (to the nearest .5 cm)
7. Repeat procedure 2 more times using water from the same bucket

**Temperature (time sensitive), Electrical Conductivity and pH**

1. Retrieve water sample from water body using a bucket
2. Immediately (for temperature) take small sample out and place probe in sample water.
3. Adjust Mode to take temperature and electrical conductivity and pH

**Nitrates, D.O. Alkalinity – Use LaMotte Test Kits**

1. Retrieve water sample from creek using the bucket
2. Take small sample out follow test kit directions

**Salinity**

1. Retrieve water sample from creek using the bucket and place 400 mL in graduated cylinder
2. Record Water Temperature
3. Gently put the hydrometer into the cylinder.
4. Wait for the hydrometer to stop bobbing. It should not touch the sides of the cylinder.
5. Read the hydrometer at the bottom of the meniscus. Read the specific gravity to three decimal places. Record the specific gravity on the data sheet.
6. Look up the specific gravity and water temperature on the Conversion Table to find the salinity of the water. Record the salinity.

**Pedosphere Measurements:**

**Soil Temperature**

1. Use a nail/hammer to make a 5 cm or 10 cm deep pilot hole for the thermometer. If the soil is extra firm and you have to use a hammer, make the hole 7 cm deep. Pull the nail out carefully, disturbing the soil as little as possible.
2. Insert the thermometer through the longer spacer so that 7 cm of the probe extends below the bottom of the guide. The dial should be against the top of the spacer.
3. Gently push the thermometer into the soil and read temperature after 1 minute.
4. Repeat. If the 2 readings are within 1.0 ̊ C of each other, record this value, if the 2 temperatures are not within 1.0 ̊ C, wait until you have 2 consecutive temperatures within 1.0 ̊ C.

**NPK and pH – Use LaMotte Test Kits**

1. Retrieve surface soil sample
2. Follow test kit directions