

Name:

Date:

Per:

Table:

Photo	Description/Observations
	9.1 AA battery voltage 02/24
	9.1 Voltage with motor 02/24
	9.2 Labmade battery 02/25
	9.2 Lamp with blue wires 02/25
	9.2 Lamp with black base 02/25

Blue Wire Lamp Voltage Graph 2/25

Lab made battery with motor 2/25

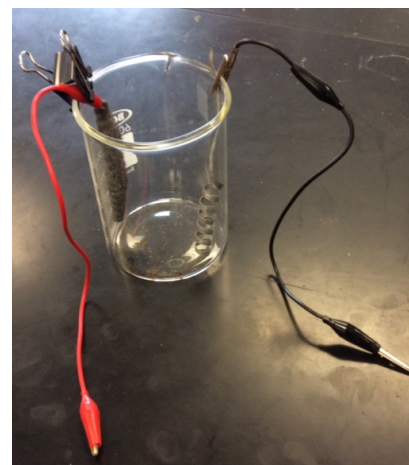
Take a photo of your tub so you know what it should look like when you clean up.

9.1 – How can we move energy? SN p104 & 105 Procedures – Circuits with a AA battery

1. Put battery in battery holder. Make sure you match the + and – ends of the battery to the + and – ends of the battery holder.
2. Connect the LabQuest voltage clips to the ends of the battery holder wires. Match the colors.
3. Turn on the LabQuest and connect the voltage wire. Take a photo of the circuit that includes the battery, wires, & Labquest readout (red bar with large font numbers, not the graph). Insert photo into table above. *Tip – the voltage should be 1.3 – 1.7 V. Check your connections if it is not.*
4. Connect the leads (alligator clips) from the motor to the battery wire. You do not need to disconnect anything to do this.
5. Use the Labquest to measure the voltage. Take a photo of the circuit that includes the Labquest readout, battery, and motor. Insert photo into table above.
6. Carefully touch the motor and notice the sound it makes.
7. Disconnect the wires and remove the battery from the holder. Put back in beaker.
8. Neatly organized your tub.

9.2 SN p108 & 109 Procedures – Make a battery in a beaker

1. Collect a strip of magnesium from the tub on the front counter. Coil most of it around a pencil, leaving about 6 cm uncoiled. Remove the pencil.
2. Collect a piece of steel wool from the container on the front counter.
3. Mix 60g salt with about 400ml of warm, not hot, tap water. Use a stirring rod to carefully stir until the salt is completely dissolved. Remove stirring rod and place on desk.
4. Place red lead clip (not the motor one) on the steel wool. Clip the second lead to the Magnesium. See photo →
5. Place the steel wool and magnesium in the salt solution.
 - a. Make sure the leads (alligator clips) do not come in contact with the salt solution. Use a binder clip as shown to prevent this. →
 - b. Make sure the steel wool and magnesium do not touch each other.
6. Use the Labquest to measure the voltage of the battery. **Take a photo** of the setup that includes the Labquest readout (red bar with large font numbers, not the graph). Insert photo into table above. *Tip – the voltage should be 0.8 – 2.5 V Check your connections if it is not.*
7. Switch the Labquest to graph mode, select <rate> and make sure it will run for at least 120 seconds.
8. Start the graph and let it run for about 15 seconds, then start slowly raising and lowering the steel wool in the salt solution for about 30 seconds, stop, wait 10 seconds. **Take a photo** of the graph.
9. Connect the blue lamp wires to the leads coming from your battery.
10. The lamp should be lit. Try slowing raising and lowering the steel wool in the salt solution. Does the lamp brightness change? Record your observations in the table above.
11. **Take a photo** of your setup that includes the Labquest readout (not graph). Insert photo in table.
12. Repeat steps 6 – 9 but use the lamp with the black base.
13. Disconnect the lamp and connect the motor to the leads. You may have to give the motor's axle a slight twist to get it going or raise and lower the steel wool to increase voltage.



Clean-up

1. Rinse Magnesium 3X and place in container on front table.
2. Rinse Steel wool 3X and place in container on front table.
3. Pour salt water down the sink, rinse large beaker and leads 3X.
4. Return lights to front counter.
5. Neatly organize tub. Look at the photo you took before you started.
 - a. Smaller Beaker = both motor, 2 leads with alligator clips
 - b. Larger Beaker = upside down.
 - c. Round plastic tub - Labquest and voltage probes neatly arranged
6. Use a damp rag to wipe up any liquid on the table/counter where you were working. Rinse the rag and hang it on a faucet to dry.
7. Center your tub on your table and let me know when you are ready for me to check it.

Tub and Set-up Photos

