

Edison's Lab: Inventing the Light Bulb: Notebook Entry Assignment / Rubric

- Title: Edison's Lab: Inventing the Light Bulb
 - Learning target: Identify how resistance in wires can be used to generate light energy.
- Drawing with captions
 - Include information that describes the event (what happened) and the scientific explanation of resistance in wires Use colors to help clarify
- Summary paragraph(s)
 - This should be an overview of the data you collected while experimenting with different filaments. It should be an attempt to sort out the information so you can make a good recommendation to Mr. Edison of what the next step in your search for the ultimate light bulb should involve.
 - This is a very involved topic and you may want to break it into two or more paragraphs.
 - Convince Mr. Edison you know what you are talking about.

To create a 3 – proficient assignment it is necessary to gather appropriate background information from the text.

Refer to the following sections:

Changing Forms of Electricity 107

Resistance 203 -205

Types of Lights 394 – 396

Drawing / Captions

Include the following:

Each filament tested is clearly identified – type of metal, thickness (gauge), length.

Drawing shows all parts of the set up – black wire, red wire, power box, filament, tape

Labels identify all parts of the set up

The time each filament glow is identified for each power level

The intensity of light is recorded for each filament for each power level

Additional outcomes for each power level are identified – melting, smoking, sparks, etc.

Troubleshooting techniques are included

Specific details about how the length of the wire effects burn time (at the same power levels)

Specific details about how brightly longer wires burn compared to shorter wires (at the same power levels)

Specific details about how the thickness of the wire effects burn time (at the same power levels)

Specific details about how brightly thicker wires burn compared to thinner wires (at the same power levels)

Specific details describing how steel wool burns

	4	3	2	1
Drawing/Captions	10-12 expectations fulfilled	8-9 expectations fulfilled	6-7 expectations fulfilled	1-5 expectations fulfilled

Summary Paragraph(s)

Basic expectations:

1. *What part of your light bulb gave out light?*
2. *Is there evidence of any other form of energy besides light coming from the light bulb?*
3. *What type of metal is in the insulated wire? Why was this metal chosen to transfer the current from the power box to the filament?*
4. *What type of metal was used for the filament? Why were these metals chosen to be a filament?*
5. *How did the thickness and/or length of the nichrome wire affect the results of the investigation? Base your answer on specific observations.*

Advanced expectations:

Consider discussing topics related to factors (variables) that influence the flow of electricity. Create hypothetical situations that would guide Mr. Edison closer to finding meaningful options for filaments.

	4	3	2	1
Summary Paragraph(s)	7 of the 10 basics covered AND 3 advanced topics are discussed	7 total expectations are covered. At least 5 must be from the basic expectation list.	4-6 basic total expectations covered. At least 4 must be from the basic list	1-3 total expectations covered.