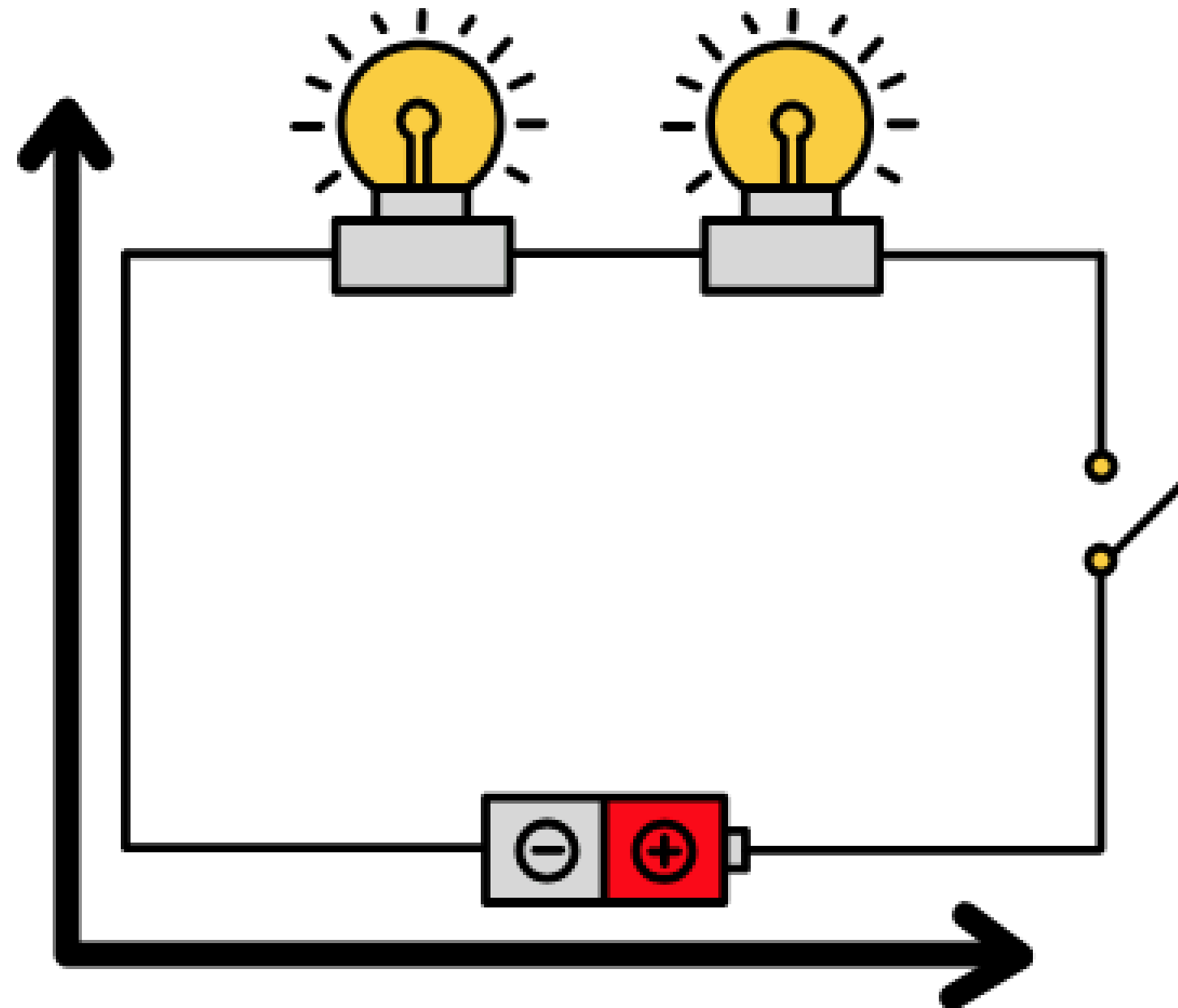


Electric Circuits Graphing Bundle - Ohm's Law, Power & Energy Use - HIGH SCHOOL

THREE Graphing Activities

NO PREP - Just
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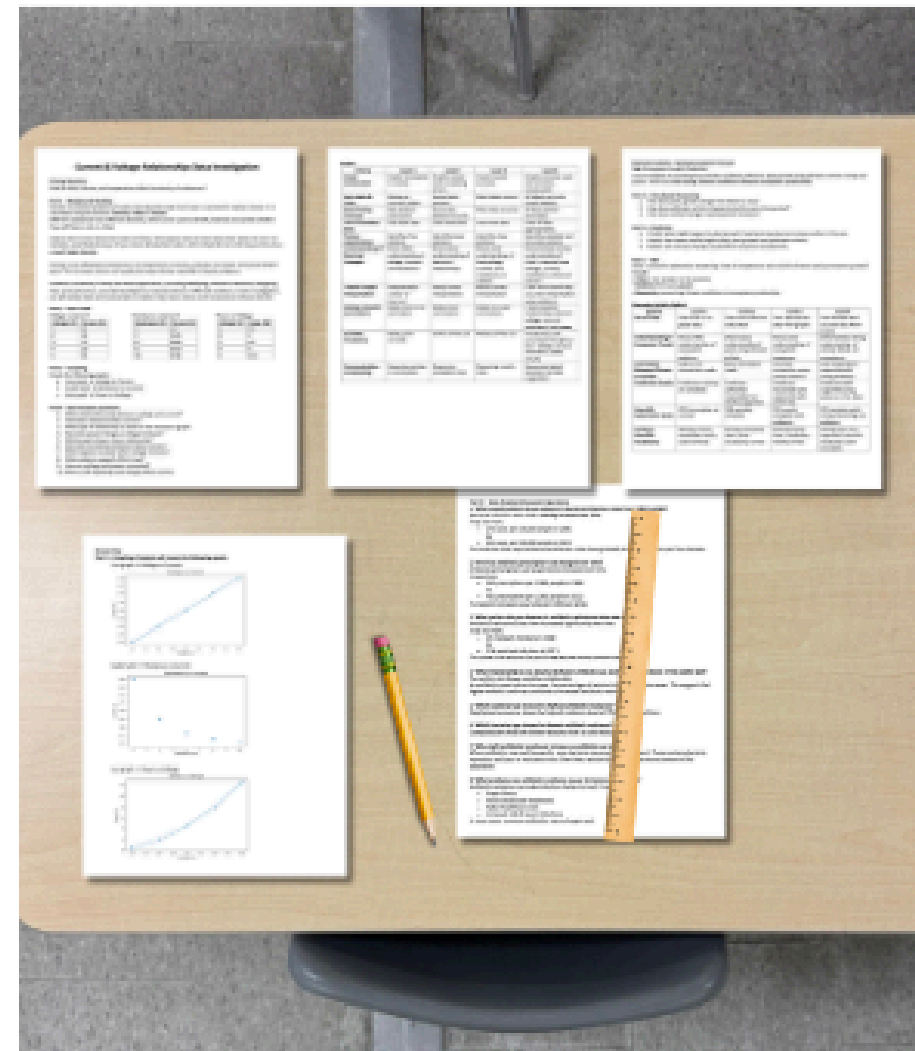
Students use Real World Data to create different graphs and answer **Electricity & Circuits** questions.

SCROLL
to take a look inside!

HOW THESE ACTIVITIES HELP YOU

- **Saves Prep Time** - Everything is pre-made, ready to go, and fully editable.
- **Provides Built-In Assessments** - The rubric let you quickly check for understanding.
- **Encourages evidence-based reasoning** by having students use graphs to explain how and why trends and changes occur

OHM'S LAW, CIRCUIT RELATIONSHIPS & ELECTRICAL POWER DATA

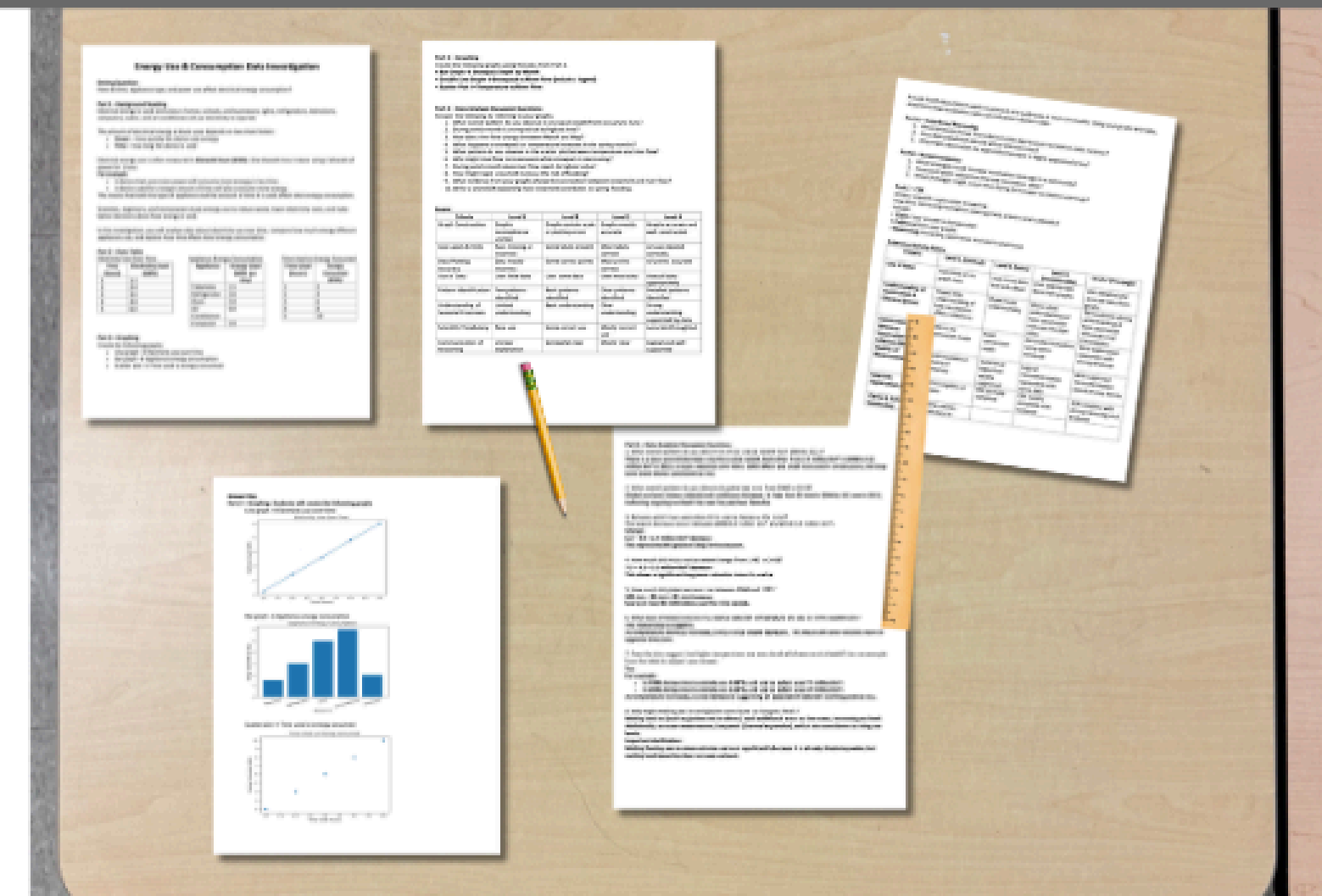


- Background Reading
- Data Tables
- Students Create Different Graph Types
- Extension Activity
- Full Marking Rubric

NO PREP or Materials

What Will Your Students Learn?

ELECTRICAL ENERGY CONSUMPTION & EFFICIENCY DATA INVESTIGATION



Students Use Their Graphs to Answer Questions and Draw a Conclusion

- ✓ Voltage, current, resistance, and power relationships
- ✓ How changes in voltage affect current
- ✓ How changes in resistance affect current
- ✓ How power changes as voltage and current change
- ✓ Series vs parallel circuits
- ✓ Brightness differences in series and parallel circuits
- ✓ How total resistance changes with the number of bulbs
- ✓ Voltage distribution in parallel circuits
- ✓ Electricity use over time
- ✓ Appliance energy consumption
- ✓ How time used affects energy consumed
- ✓ Real-world applications of electricity and circuit analysis

Classroom Fit Guarantee

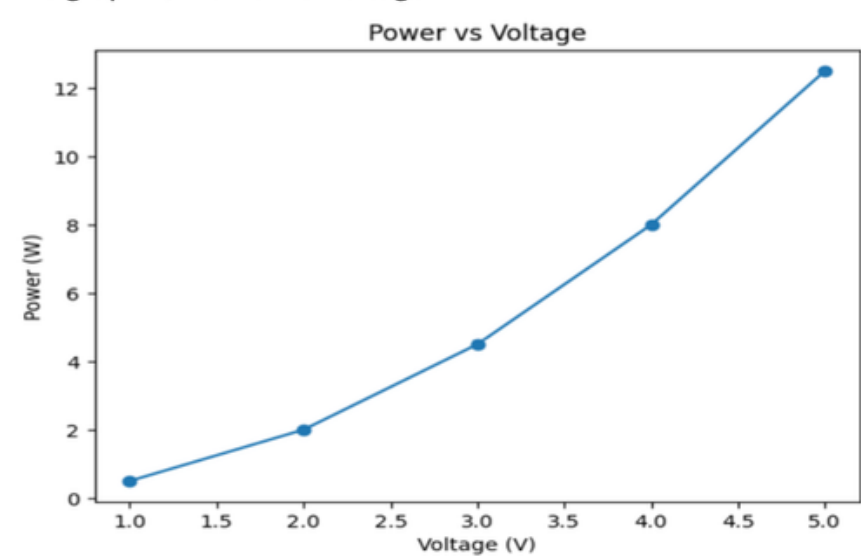
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- **Three electricity and circuits** graphing investigations that use real-world style data for students to graph and analyze
- **Multiple graphing tasks** (line graphs, bar graphs, and scatter plots) with data tables and analysis questions
- **Complete teacher supports** including answer keys, discussion questions, extension activities, and grading rubrics

What You Get

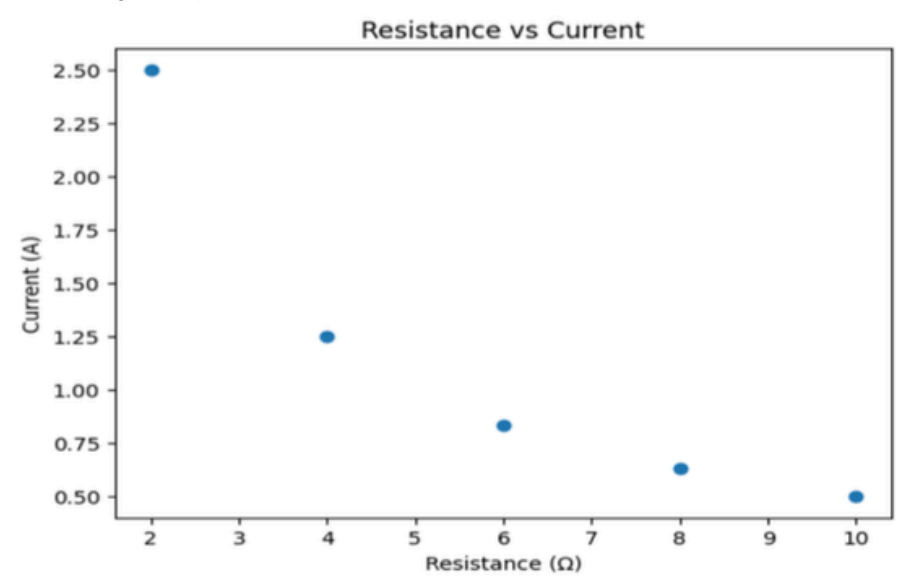
Line graph → Power vs Voltage



Voltage vs Current

Voltage (V)	Current (A)
1	0.5
2	1.0
3	1.5
4	2.0
5	2.5

Scatter plot → Resistance vs Current



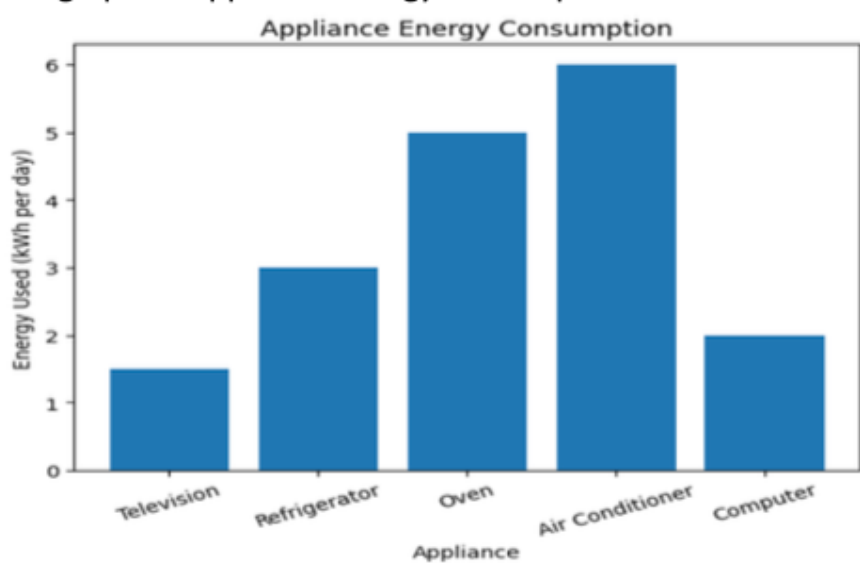
Resistance vs Current

Resistance (Ω)	Current (A)
2	2.5
4	1.25
6	0.83
8	0.63
10	0.5

Power vs Voltage

Voltage (V)	Power (W)
1	0.5
2	2
3	4.5
4	8
5	12.5

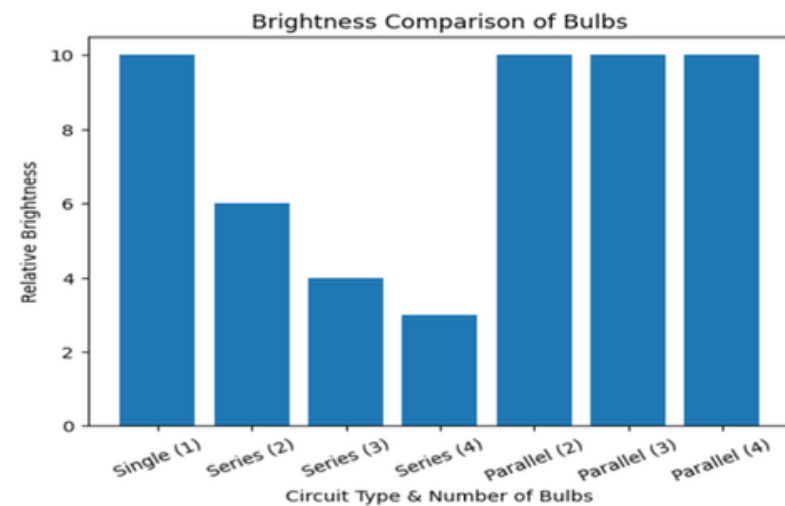
Bar graph → Appliance energy consumption



Rubric				
Criteria	Level 1 (Limited)	Level 2 (Some)	Level 3 (Considerable)	Level 4 (Thorough)
Graph Construction	Graphs incomplete or unclear	Graphs contain scale errors	Graphs mostly accurate	Graphs accurate and well-constructed
Axis Labels & Units	Missing labels	Some labels	Most labels correct	All labels and units correct
Data Plotting Accuracy	Data incorrect	Some correct	Most correct	All accurate
Use of Provided Data	Uses little data	Uses some data	Uses most data	Uses all data appropriately
Pattern Identification	Few patterns identified	Basic patterns	Clear patterns	Detailed accurate patterns
Resource Trend Understanding	Limited understanding	Basic understanding	Clear understanding of trends	Strong understanding using data evidence
Connection to Depletion	Weak connection	Basic connection	Accurate connection	Clear explanation of how trends relate to depletion
Scientific Vocabulary	Rare use	Some correct use	Mostly correct use	Accurate throughout
Communication of Reasoning	Unclear	Somewhat clear	Mostly clear	Logical and well supported

What Will Your Students Learn?

Bar graph → Brightness (bulbs comparison)



Part 2 – Data Table

Electricity Use Over Time

Time (hours)	Electricity Used (kWh)
1	1.2
2	2.4
3	3.6
4	4.8
5	6.0

Appliance Energy Consumption

Appliance	Energy Used (kWh per day)
Television	1.5
Refrigerator	3.0
Oven	5.0
Air Conditioner	6.0
Computer	2.0

Time Used vs Energy Consumed

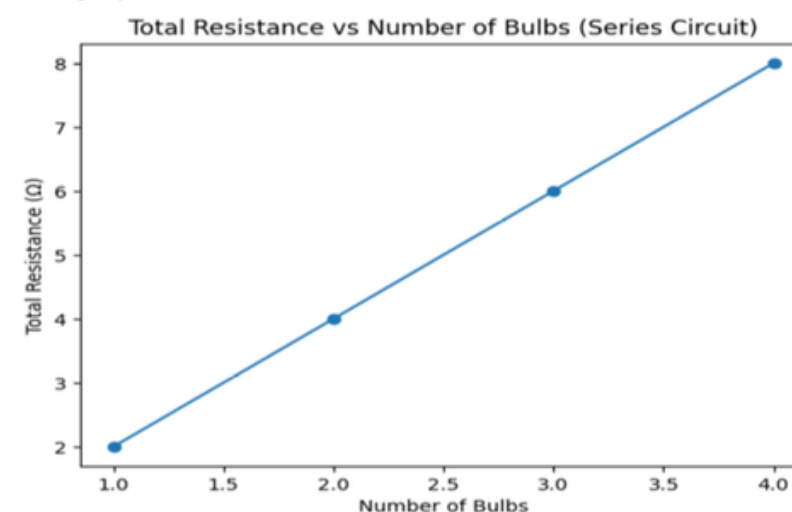
Time Used (hours)	Energy Consumed (kWh)
1	2
2	4
3	6
4	8
5	10

Part 3 – Graphing

Create the following graphs:

- Line graph → Electricity use over time
- Bar graph → Appliance energy consumption
- Scatter plot → Time used vs energy consumed

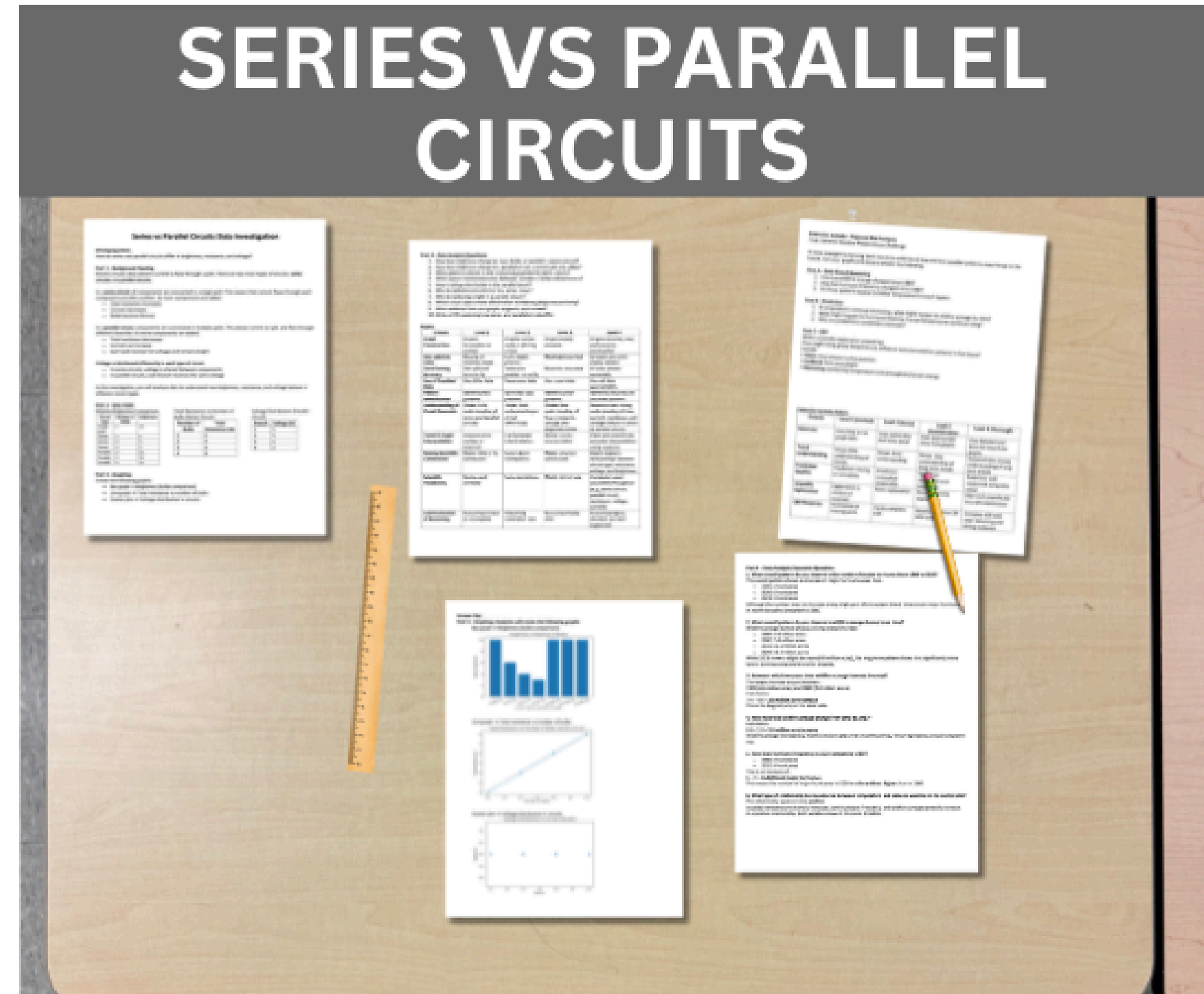
Line graph → Total resistance vs number of bulbs



- ✓ Helps students build graphing and data analysis skills using electricity and circuit data
- ✓ Supports NGSS Science & Engineering Practices through analyzing patterns and relationships in voltage, current, resistance, power, brightness, and energy use
- ✓ Connects physical science concepts like electric circuits, energy transfer, resistance, and power to real-world data analysis
- ✓ Encourages evidence-based reasoning by having students use graphs to explain how changes in circuit conditions affect electrical behavior and energy consumption

Your Activities

- Include a background reading for student understanding
- **DIGITAL** and **PRINT** ready
- **FULLY EDITABLE**
- **Extension activities** for early finishers
- **Complete Answer Key**



Students Create Different Types of Graphs Based on Real World Data

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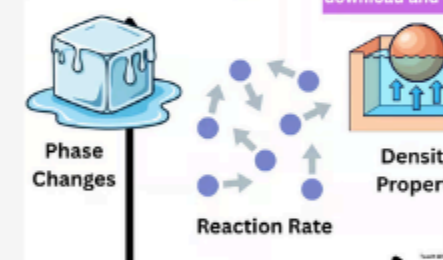
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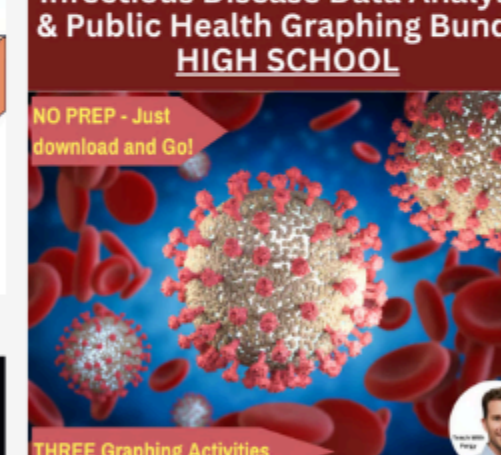
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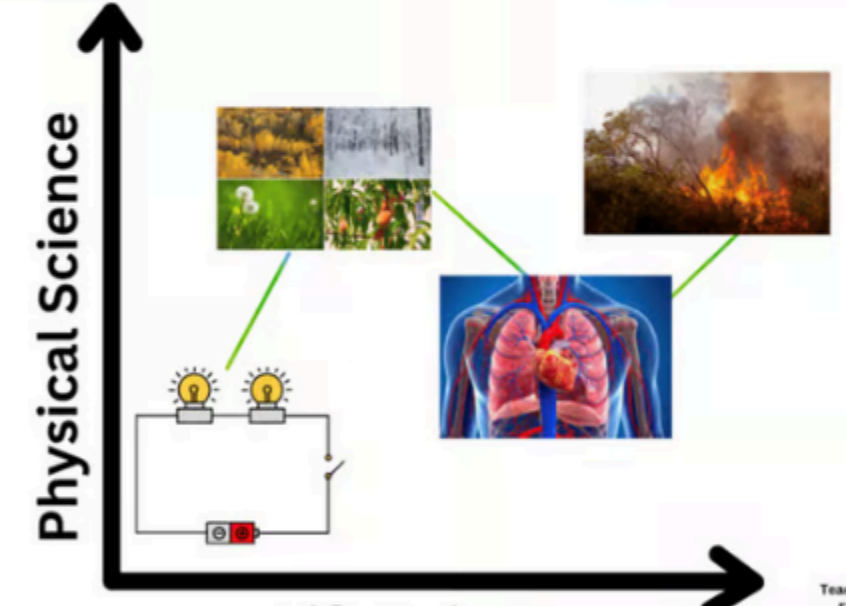
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you have any questions,
suggestions, or concerns,
please reach out.



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