

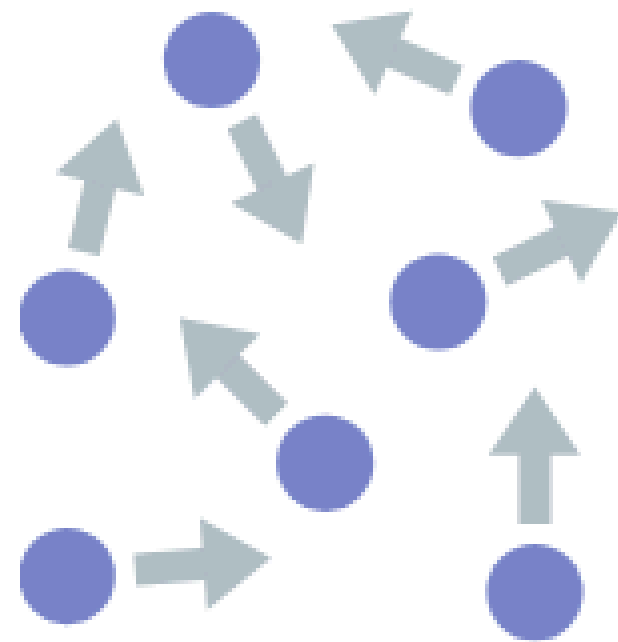
Matter & Chemical Change Data Graphing Bundle Middle School

THREE Graphing Activities

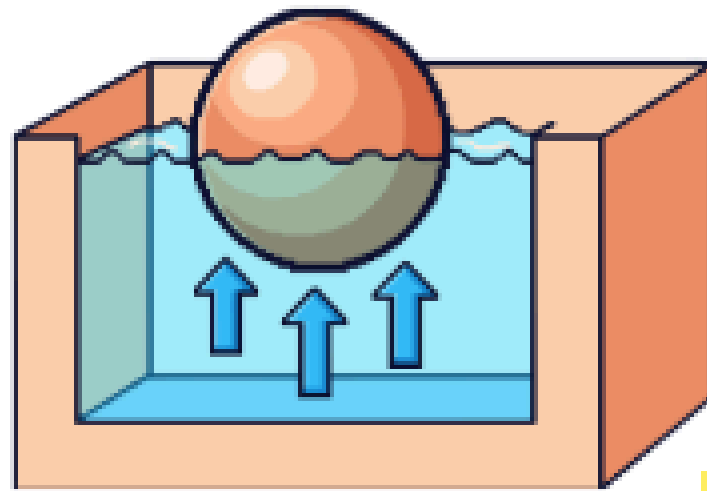
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Phase
Changes



Reaction Rate



Density &
Properties

6th, 7th, 8th Grade



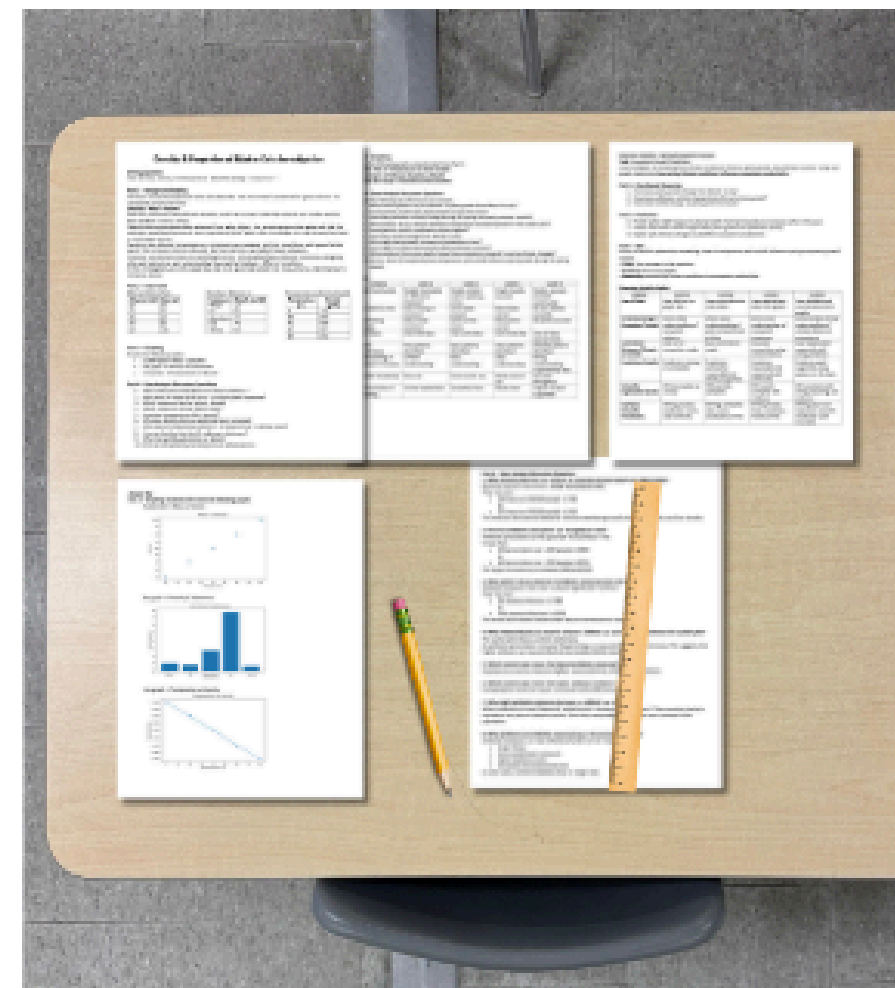
Students use Real
World Data to create
different graphs and
answer **Matter and
Chemical Change**
questions.

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

DENSITY & PROPERTIES OF MATTER INVESTIGATION

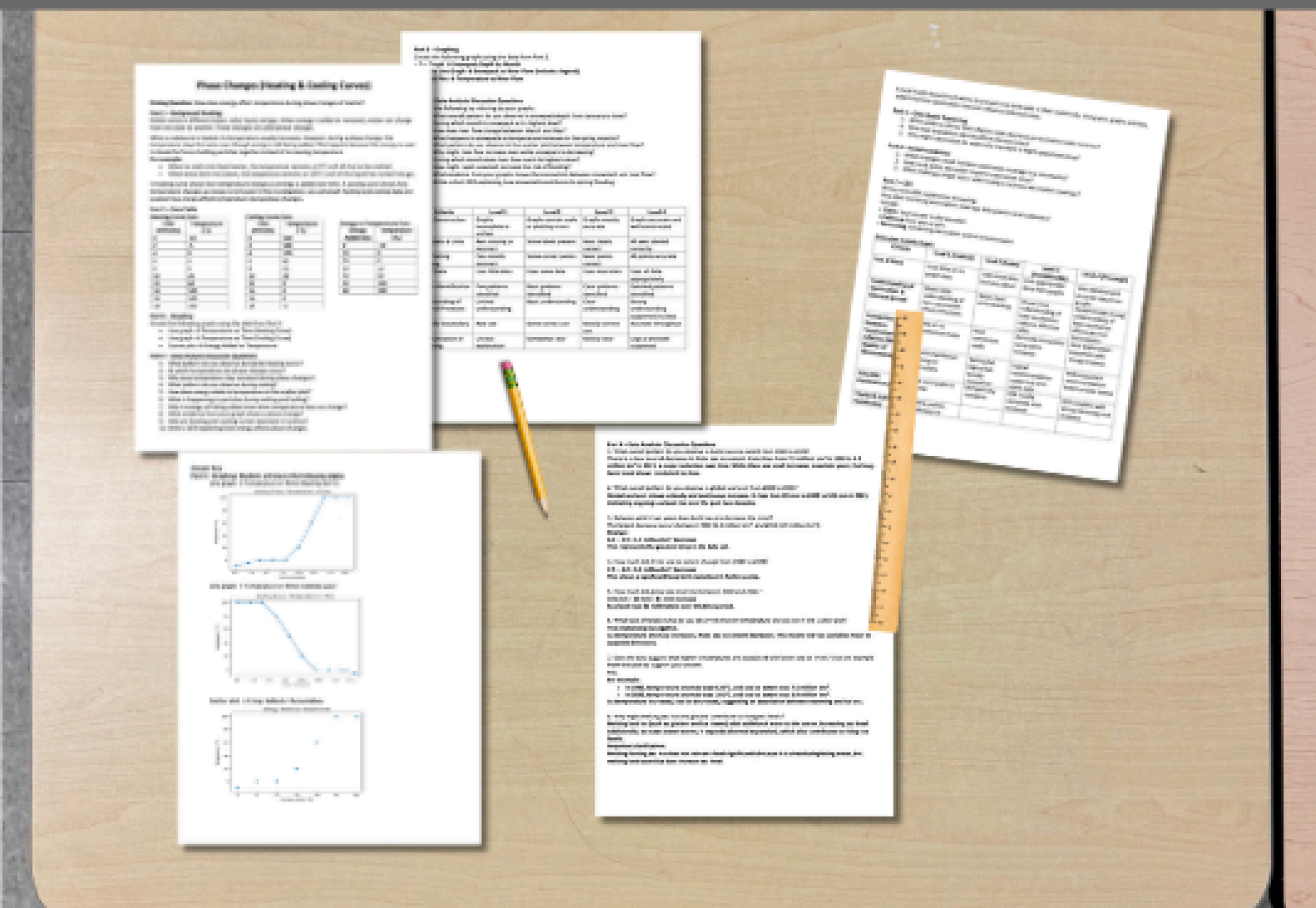


- Background Reading
- Data Tables
- Students Create Different Graph Types
- Extension Activity
- Full Marking Rubric

NO PREP or Materials

What Will Your Students Learn?

PHASE CHANGES (HEATING & COOLING CURVES) INVESTIGATION



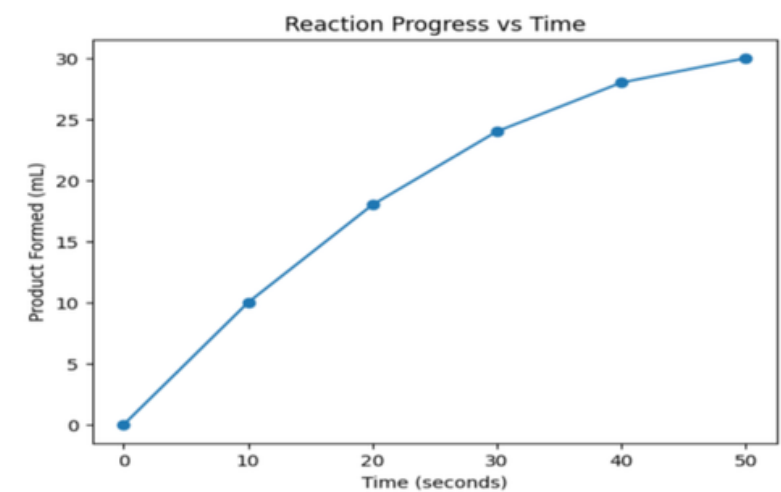
Students Use Their Graphs to Answer Questions and Draw a Conclusion

- ✓ Heating and cooling curves
- ✓ Phase changes (melting, boiling, freezing, condensation)
- ✓ Energy transfer during changes of state
- ✓ Reaction rates over time
- ✓ Effects of temperature on reaction speed
- ✓ Effects of concentration on reaction rate
- ✓ Particle motion and collision theory
- ✓ Density calculations (mass vs volume)
- ✓ Floating and sinking
- ✓ Temperature effects on density
- ✓ Identifying substances using density
- ✓ Real-world applications of matter and chemical change

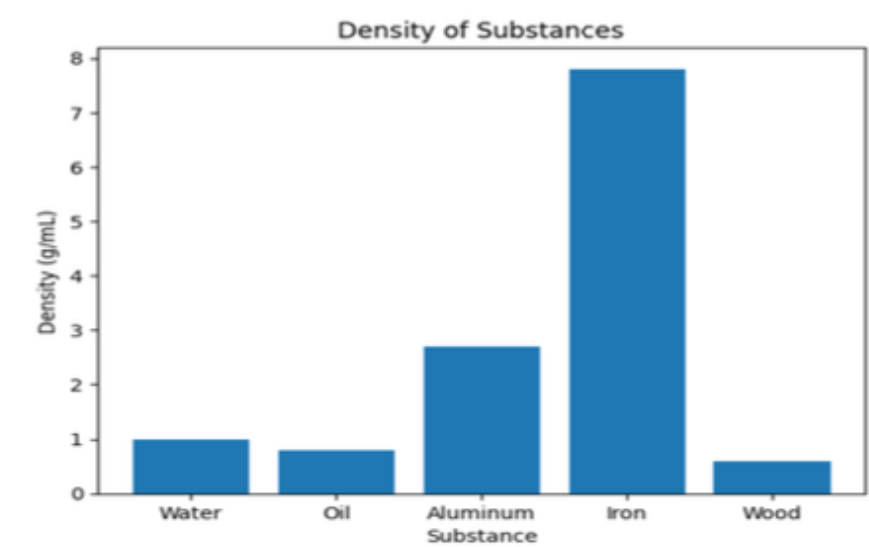
- **Three Chemistry and Physical Science investigations that use real-world data for students to graph and analyze**
- **Multiple graphing tasks (line graphs, bar graphs, and scatter plots) with data tables and analysis questions**
- **Complete teacher supports including answer keys, discussion questions,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

What You Get

Line graph → Reaction progress vs time



Bar graph → Density of Substances



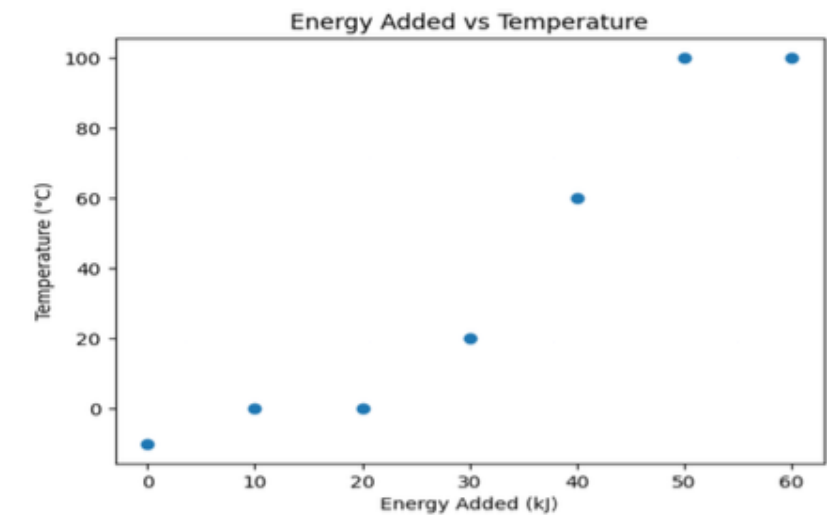
Part 2 – Data Table

Mass vs Volume Data	
Volume (mL)	Mass (g)
10	20
20	40
30	60
40	80
50	100

Density of Substances	
Substance	Density (g/mL)
Water	1.0
Oil	0.8
Aluminum	2.7
Iron	7.8
Wood	0.6

Temperature vs Density (Liquid)	
Temperature (°C)	Density (g/mL)
0	1.00
20	0.99
40	0.98
60	0.97
80	0.96

Scatter plot → Energy Added vs Temperature

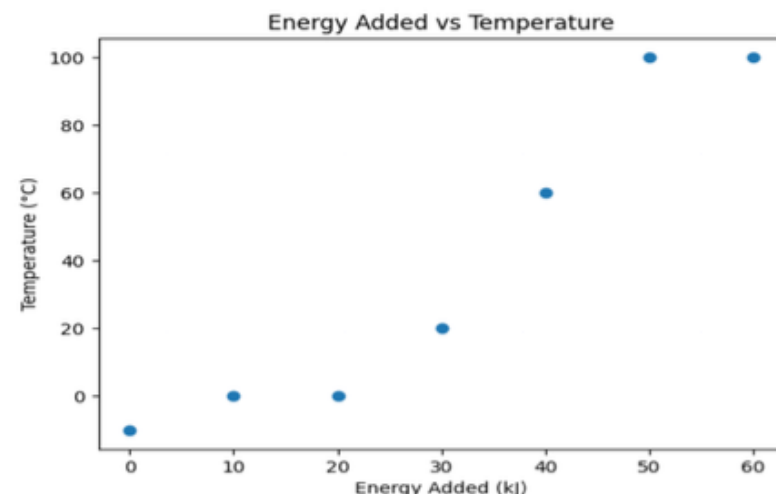


Rubric				
Criteria	Level 1 (Limited)	Level 2 (Some)	Level 3 (Considerable)	Level 4 (Thorough)
Graph Construction	Graphs incomplete or unclear	Graphs contain scale errors	Graphs mostly accurate	Graphs accurate and well-constructed
Axis Labels & Units	Missing labels	Some labels	Most labels correct	All 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?

- ✓ Heating and cooling curves
- ✓ Phase changes (melting, boiling, freezing, condensation)
- ✓ Energy transfer during changes of state
- ✓ Reaction rates over time
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- ✓ Effects of concentration on reaction rate
- ✓ Particle motion and collision theory
- ✓ Density calculations (mass vs volume)
- ✓ Floating and sinking
- ✓ Temperature effects on density
- ✓ Identifying substances using density
- ✓ Real-world applications of matter and chemical change

Scatter plot → Energy Added vs Temperature



Part 2 – Data Table

Reaction Progress Over Time

Time (seconds)	Product Formed (mL)
0	0
10	10
20	18
30	24
40	28
50	30

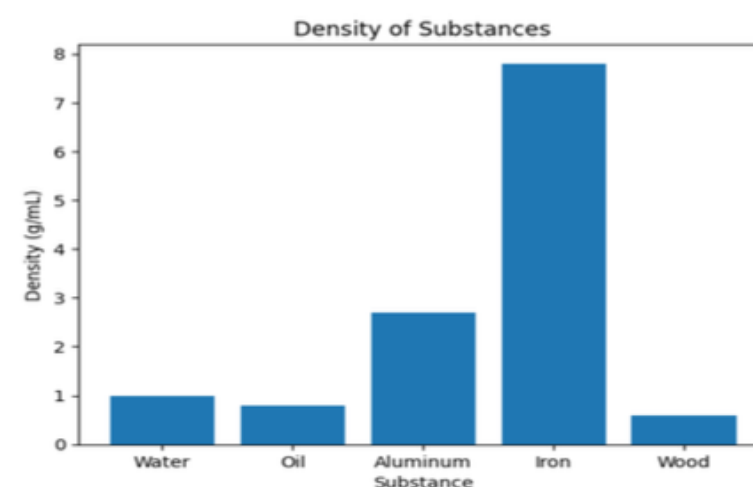
Temperature vs Reaction Rate

Temperature (°C)	Reaction Rate (mL/s)
10	0.5
20	1.0
30	1.8
40	2.5
50	3.2

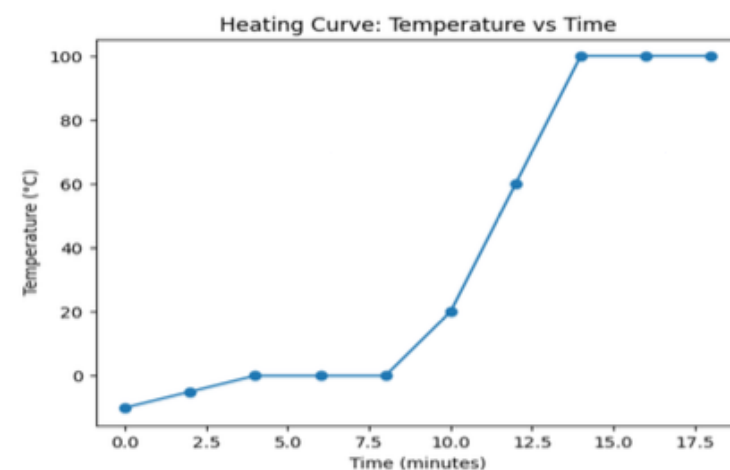
Concentration vs Reaction Rate

Concentration (mol/L)	Reaction Rate (mL/s)
0.5	0.6
1.0	1.2
1.5	1.9
2.0	2.6
2.5	3.1

Bar graph → Density of Substances

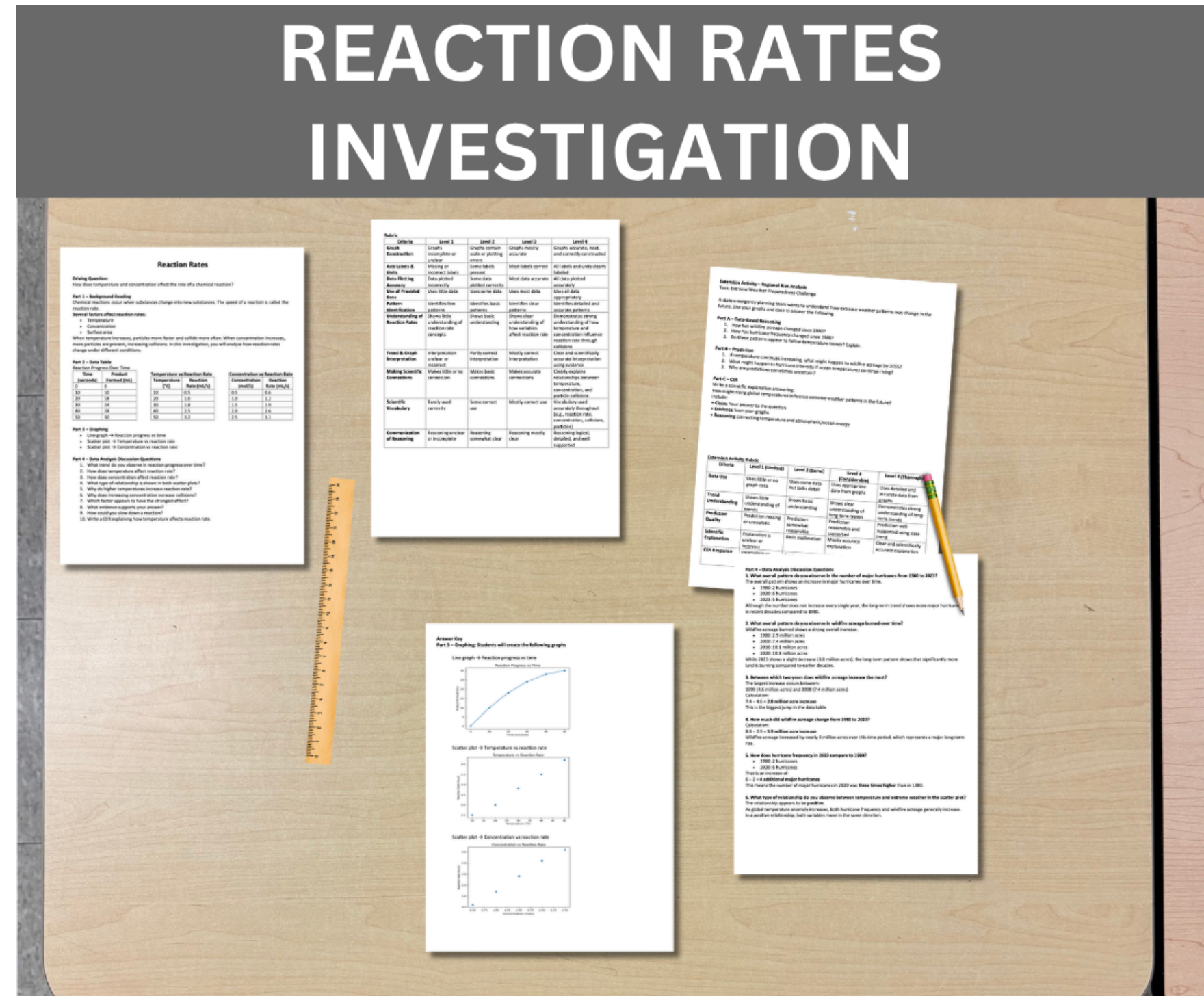


Line graph → Temperature vs Time (Heating Curve)



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

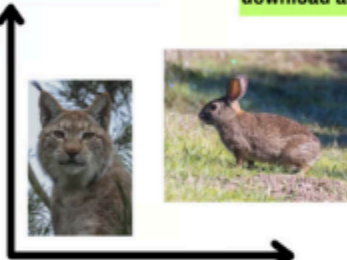
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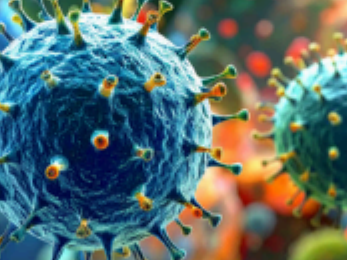


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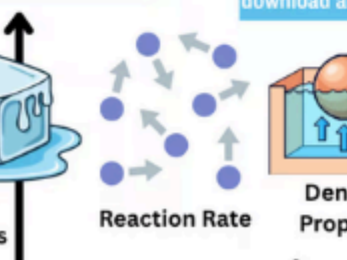


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Matter & Chemical Change Data Graphing Bundle Middle School

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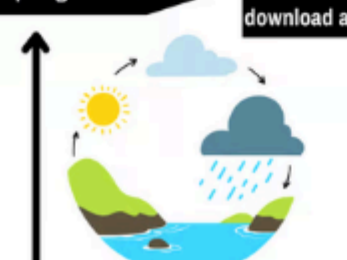


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**for your interest
in this resource!**

I am a real person and if
you have any questions,
suggestions, or concerns,
please reach out.



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TWF

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*Let's
Connect!*

