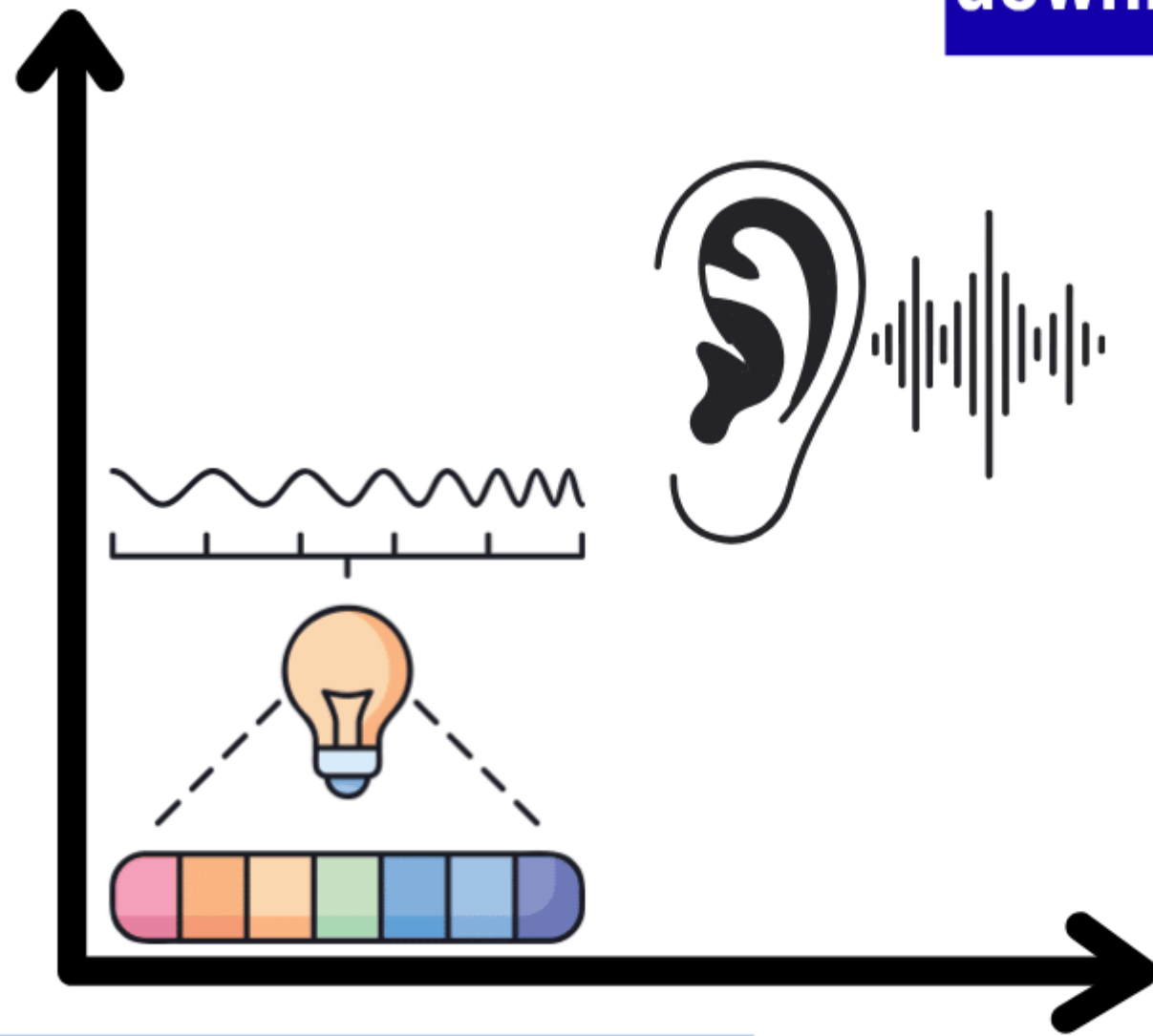


Waves and Energy Data Investigations

Middle School

THREE Graphing Activities

NO PREP - Just download and Go!



6th, 7th, 8th Grade



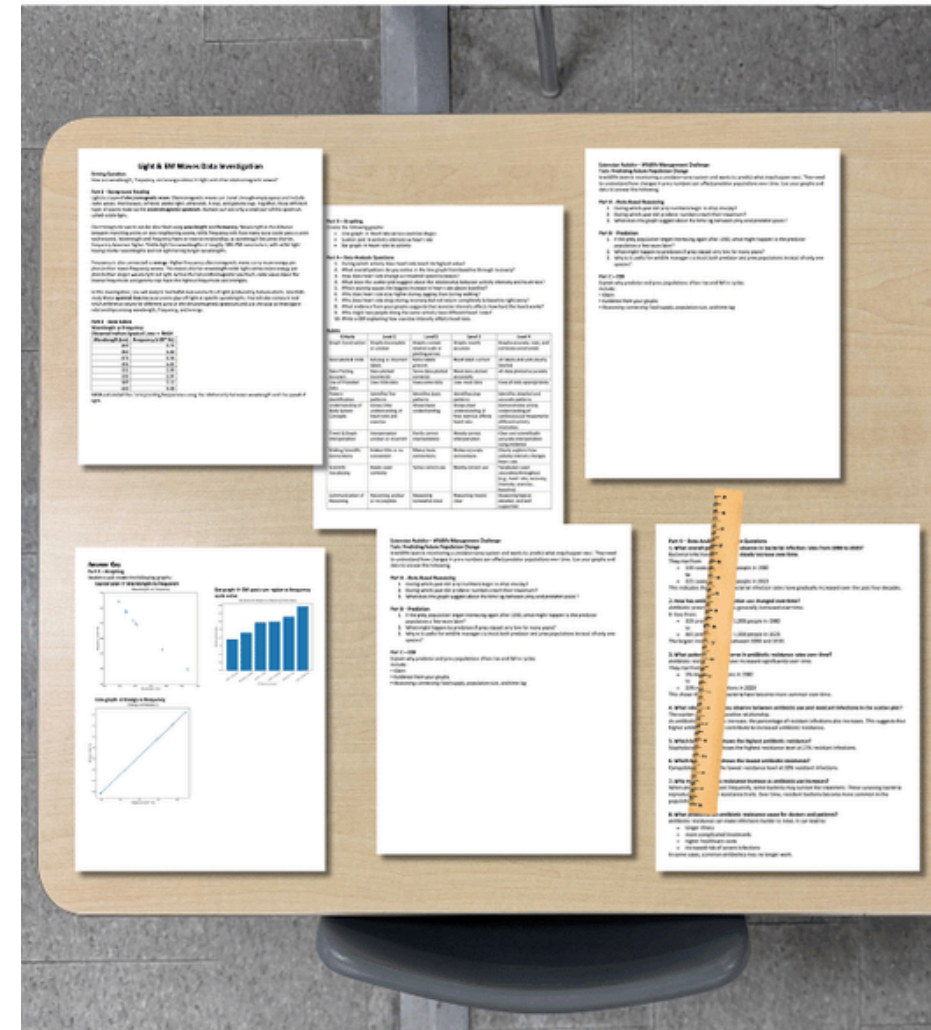
Students use Real World Data to create different graphs and answer **Waves and Energy questions including EM and Sound Waves.**

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

LIGHT & EM WAVES

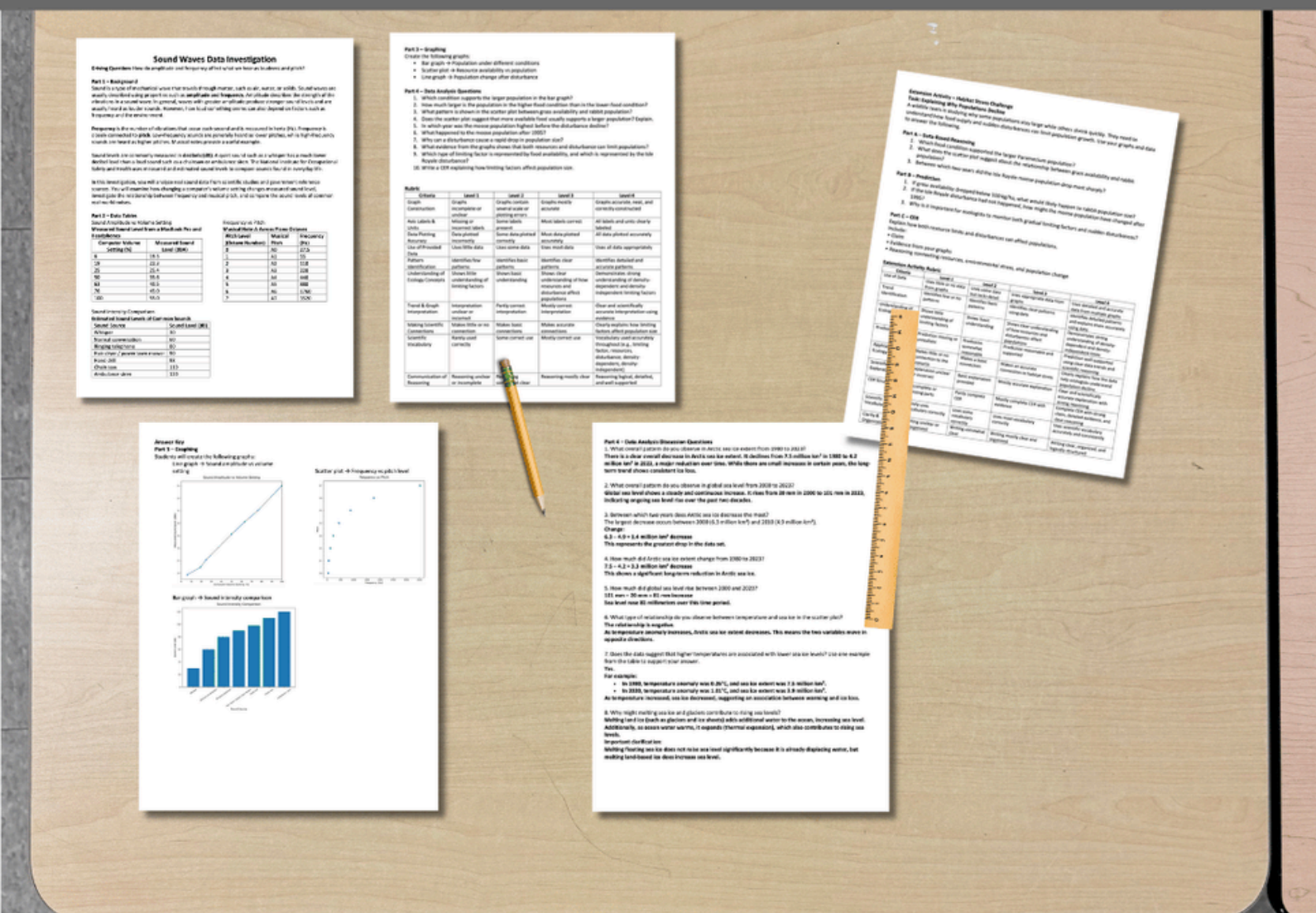


- Background Reading
- Data Tables
- Students Create Different Graph Types
- Extension Activity
- Full Marking Rubric

NO PREP or Materials

What Will Your Students Learn?

SOUND WAVES

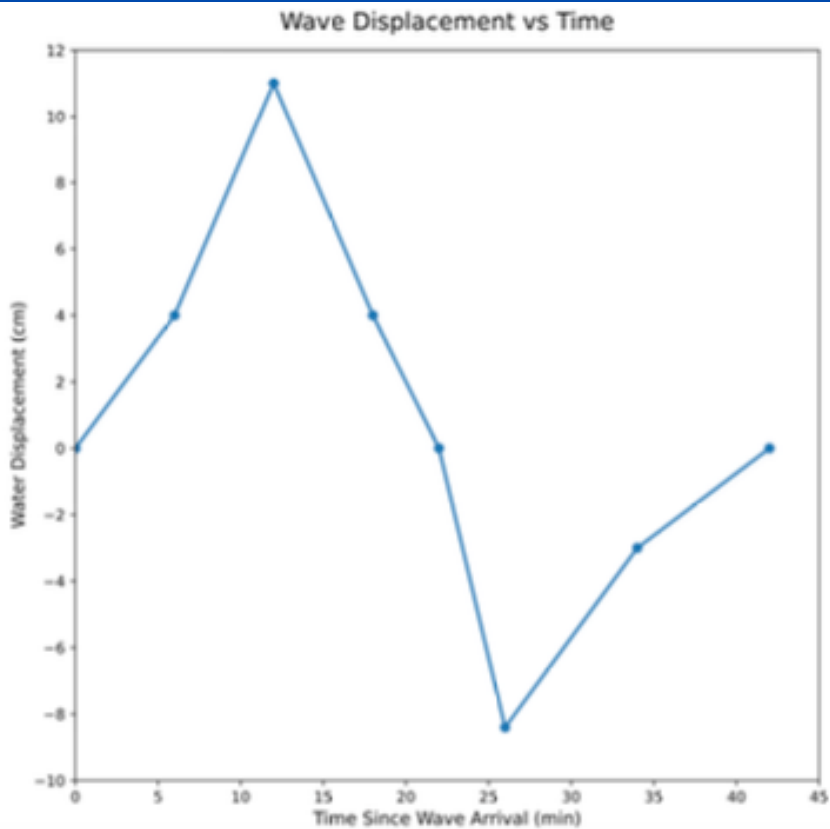
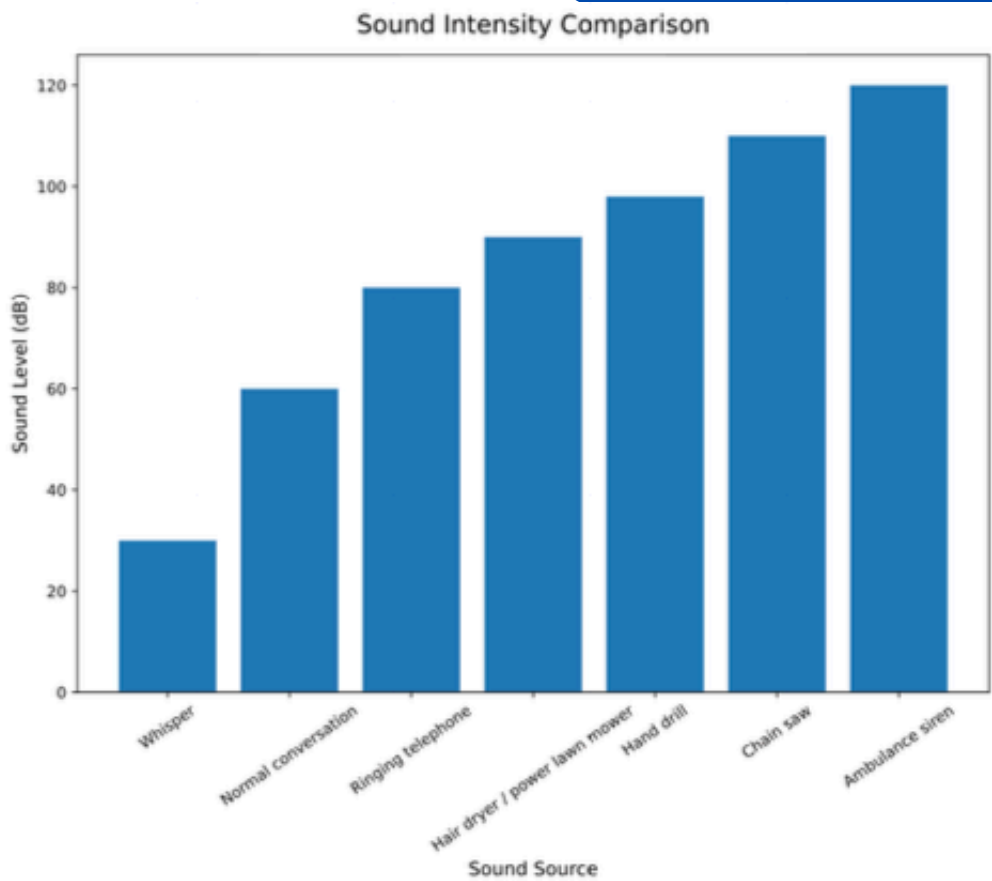


Students Use Their Graphs to Answer Questions and Draw a Conclusion

- ✓ Wave displacement over time
- ✓ Frequency and wavelength relationships
- ✓ Wave speed and wavelength
- ✓ Amplitude and sound volume
- ✓ Frequency and pitch
- ✓ Sound intensity comparisons
- ✓ Properties of sound waves
- ✓ Wavelength and frequency of light
- ✓ The electromagnetic spectrum
- ✓ Energy and frequency relationships
- ✓ How wave properties affect energy transfer
- ✓ Real-world applications of mechanical, sound, and electromagnetic waves

- Three waves and energy 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



Musical Note A Across Piano Octaves

Pitch Level (Octave Number)	Musical Pitch	Frequency (Hz)
0	A0	27.5
1	A1	55
2	A2	110
3	A3	220
4	A4	440
5	A5	880
6	A6	1760
7	A7	3520

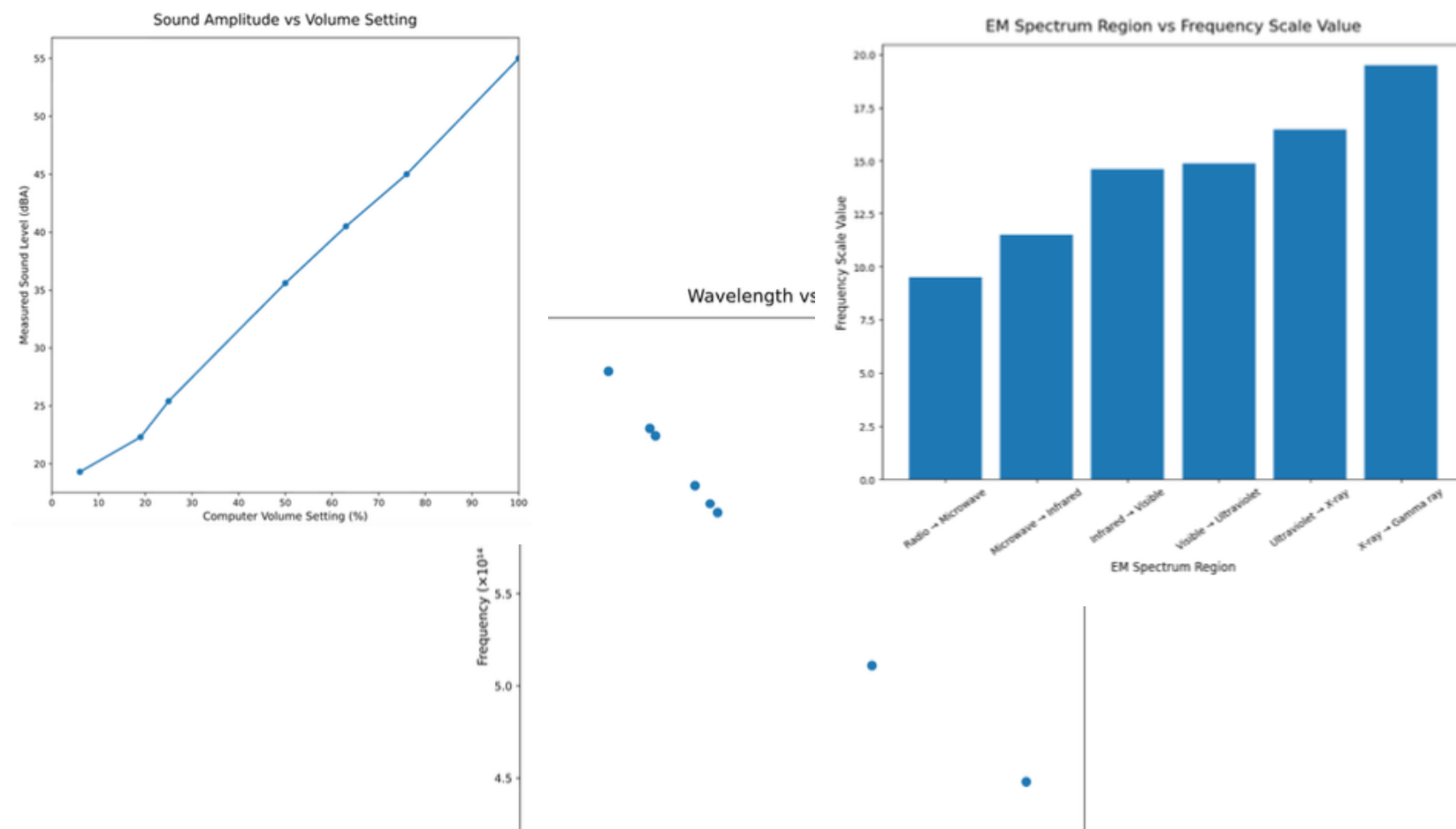
Rubric				
Criteria	Level 1 (Limited)	Level 2 (Some)	Level 3 (Considerable)	Level 4 (Thorough)
Graph Construction	Graphs incomplete or unclear	Graphs contain scale errors	Graphs mostly accurate	Graphs accurate and well-constructed
Axis Labels & Units	Missing labels	Some labels	Most labels correct	All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

Classroom Fit Guarantee

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Skills Your Students Will Develop



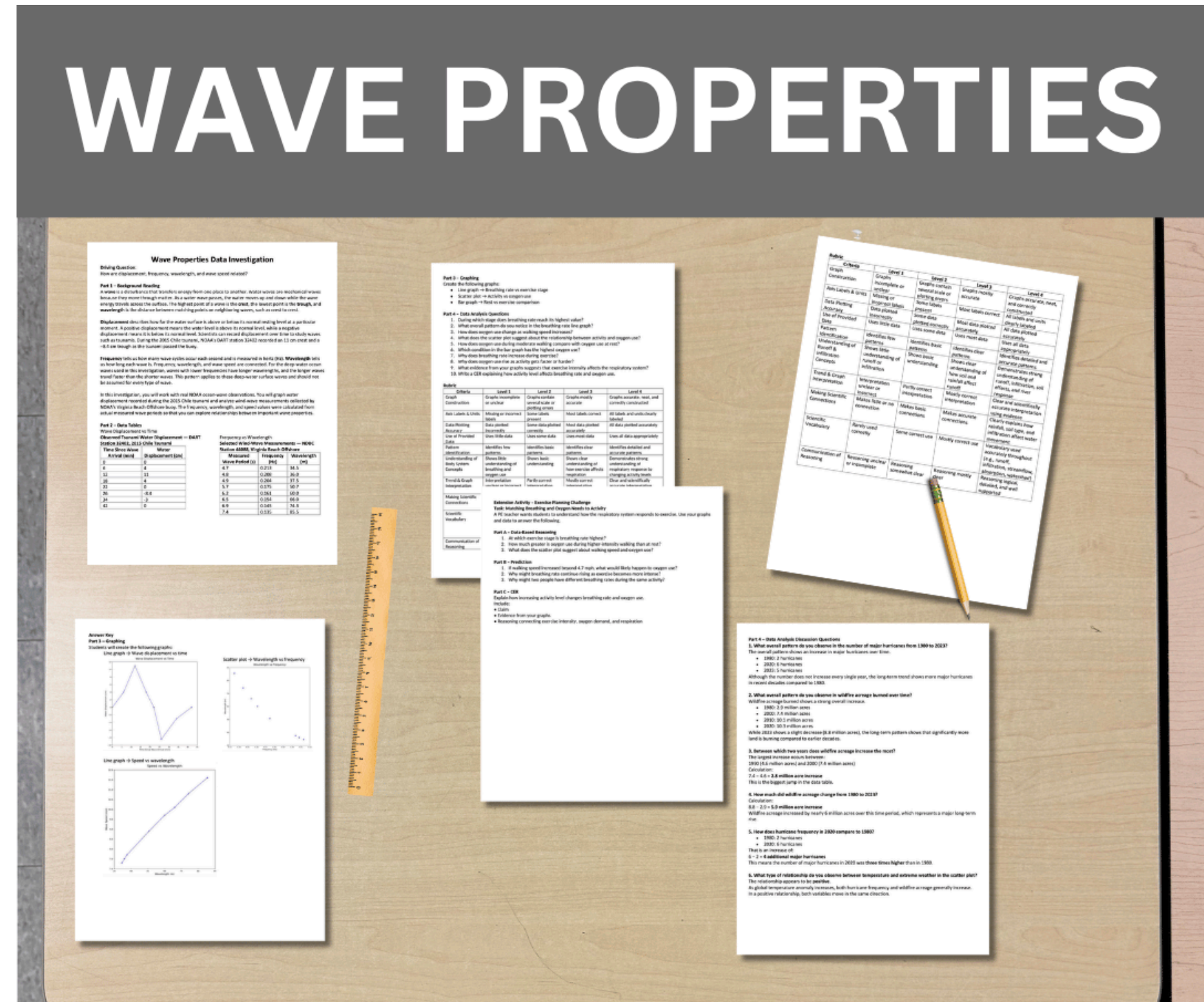
Estimated Sound Levels of Common Sounds

Sound Source	Sound Level (dB)
Whisper	30
Normal conversation	60
Ringing telephone	80
Hair dryer / power lawn mower	90
Hand drill	98
Chain saw	110
Ambulance siren	120

- ✓ Helps students build graphing and data analysis skills using waves and energy data
- ✓ Supports NGSS Science & Engineering Practices through analyzing patterns and relationships in displacement, frequency, wavelength, wave speed, amplitude, pitch, sound intensity, and electromagnetic energy
- ✓ Connects physical science concepts like mechanical waves, sound waves, light, and the electromagnetic spectrum to real-world data analysis
- ✓ Encourages evidence-based reasoning by having students use graphs to explain how wave properties are related and how waves transfer energy

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

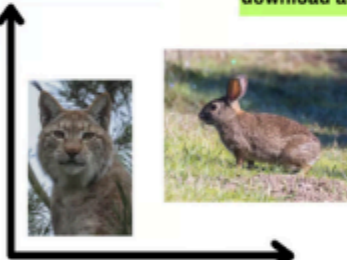
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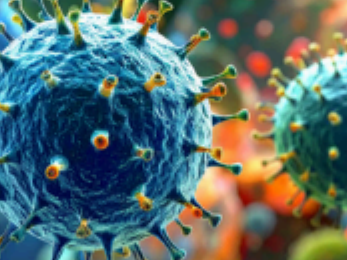


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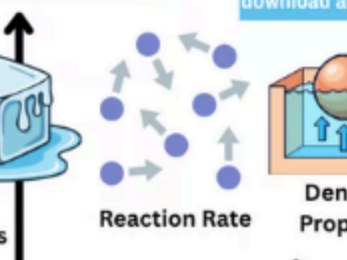


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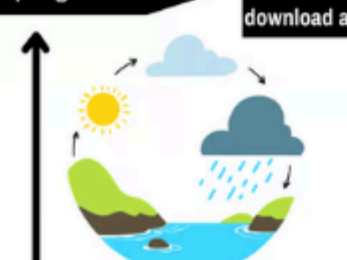


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Climate Change & Long Term Trends Graphing Bundle Middle School

THREE Graphing Activities about the Climate Change

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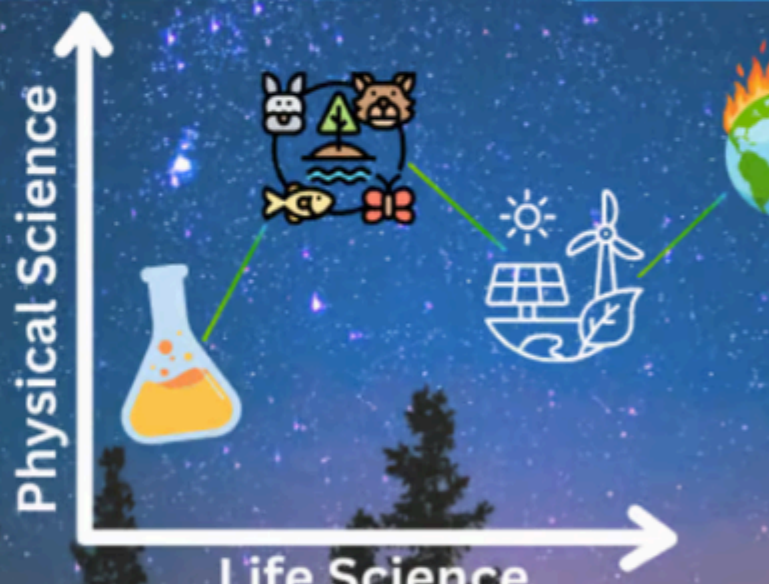


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Physical Science

Life Science

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**for your interest
in this resource!**

I am a real person and if
you have any questions,
suggestions, or concerns,
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devon@teachwithfergy.com

TWF

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Connect!*

