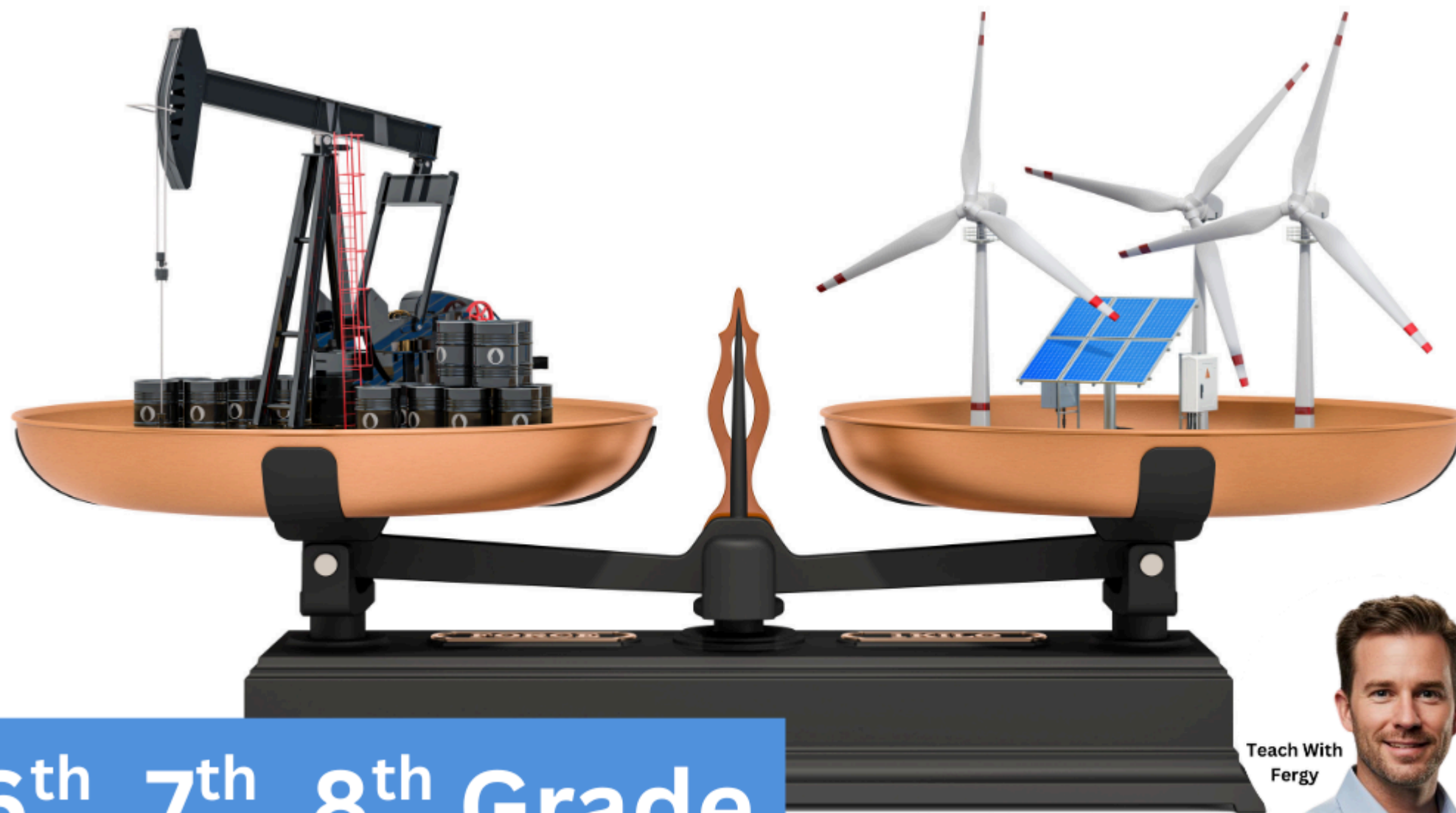


Energy and Resource Use Graphing Labs - Middle School

THREE Graphing Activities
about Energy Use and
Extraction

NO PREP - Just
download and Go!



6th, 7th, 8th Grade

**Students use Real
World Data to
create different
graphs and answer
Energy Use-related
questions**

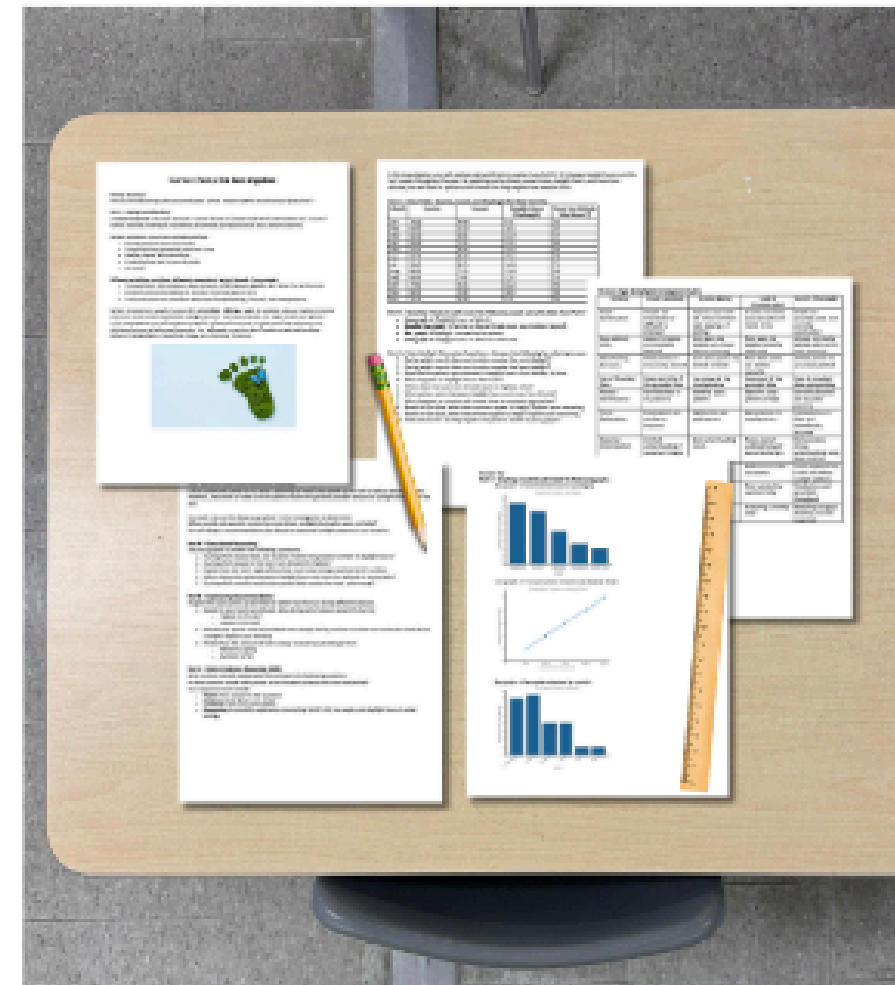
**SCROLL
to take a look inside!**



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

CARBON FOOTPRINT INVESTIGATION

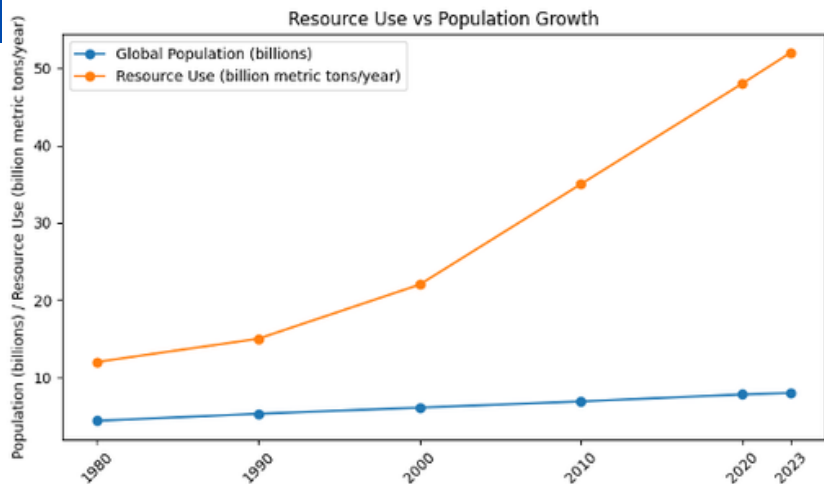
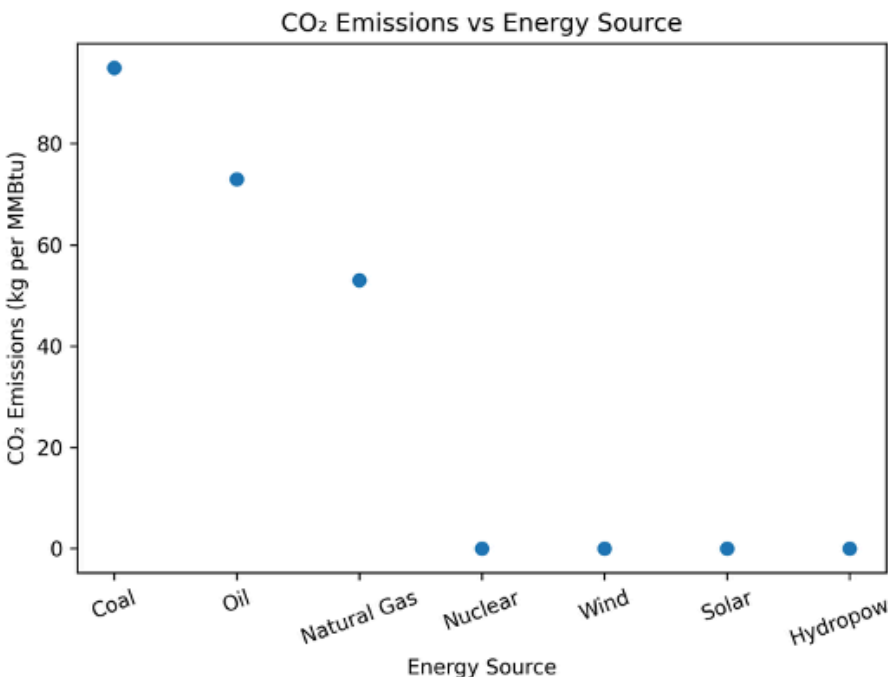
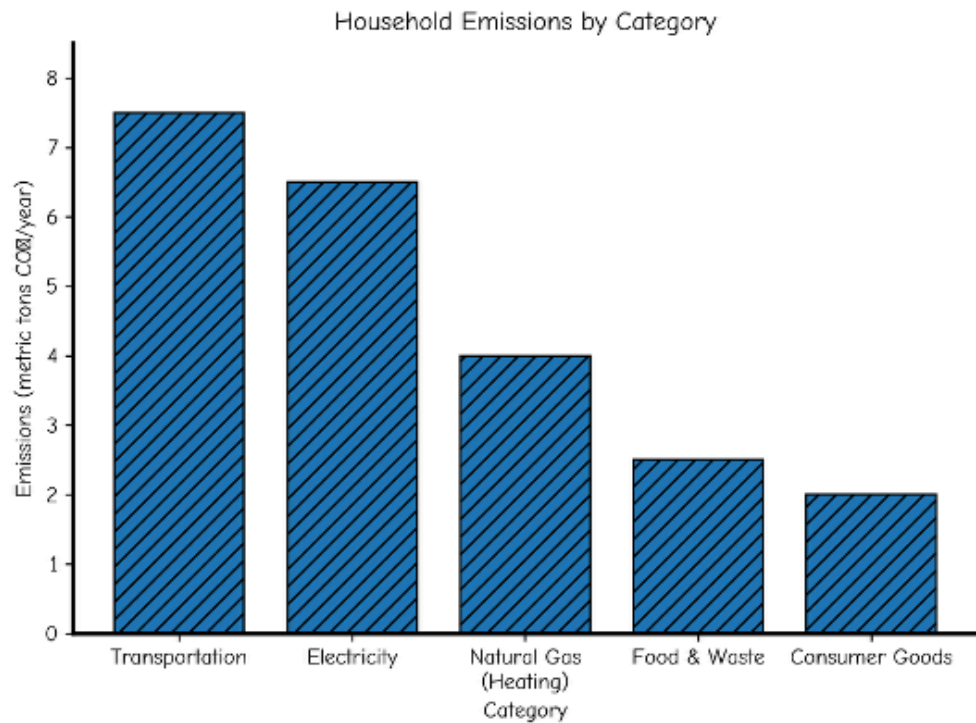


- Background Reading
- Energy Use Data Tables
- Students Create Different Graph Types
- Extension Activity
- Full Marking Rubric

NO PREP or Materials

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

What You Get



Part 2 – Data Table

A. Global Mineral Extraction Over Time

Year	Mineral Extraction (billion metric tons/year)
1980	12
1990	15
2000	22
2010	35
2020	48
2023	52

B. Resource Use vs Population Growth

Year	Global Population (billions)	Resource Use (billion metric tons/year)
1980	4.4	12
1990	5.3	15
2000	6.1	22
2010	6.9	35
2020	7.8	48
2023	8.0	52

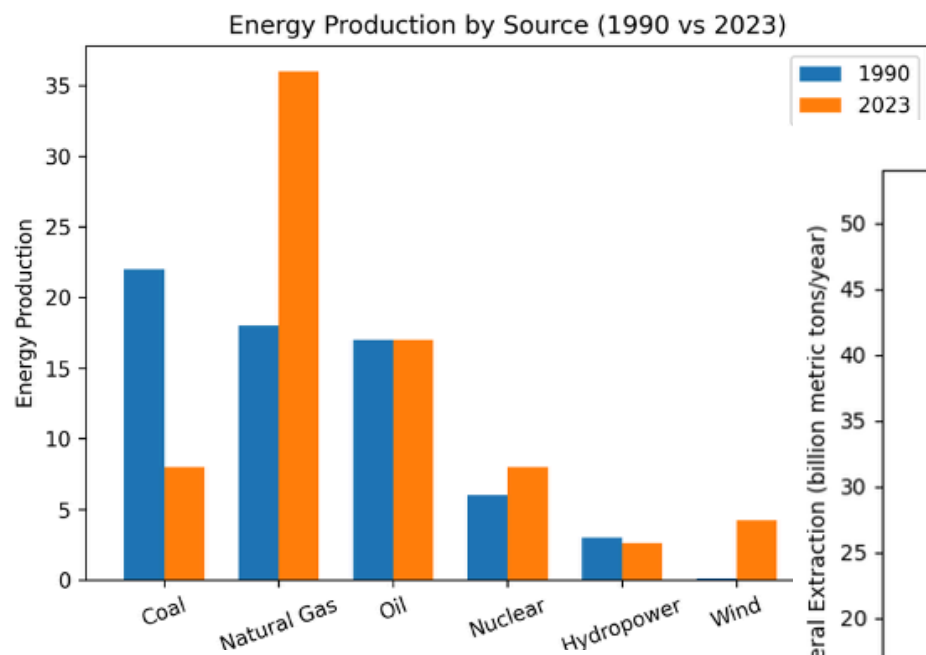
C. Land Disturbance vs Mining Output

Mining Output (billion metric tons/year)	Land Disturbed (km ² /year)
12	120
15	160

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?

- ✓ Helps students build graphing and data analysis skills using real-world energy and resource data
- ✓ Supports NGSS Science & Engineering Practices through analyzing patterns and relationships in energy production, carbon emissions, and mining trends
- ✓ Connects environmental science concepts (like renewable vs nonrenewable energy, carbon footprints, and resource depletion) to real-world data
- ✓ Encourages evidence-based reasoning by having students use graphs to explain how human energy choices impact emissions and sustainability



Part 2 – Data Table

United States Energy Production by Source

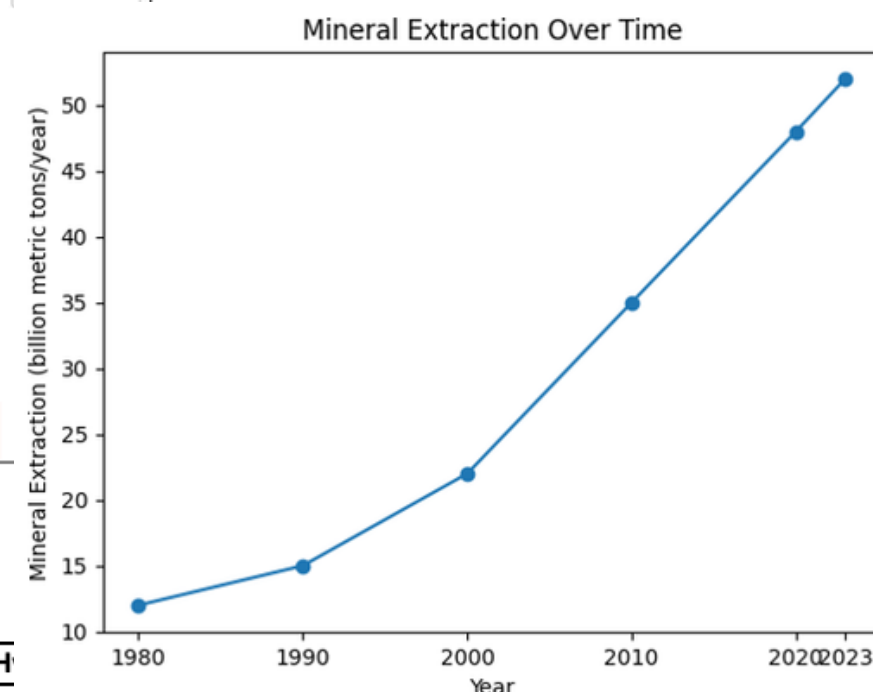
Year	Coal	Natural Gas	Oil	Nuclear	Hydropower	Wind	Solar
1990	22	18	17	6	3	0	0
2000	23	19	19	8	2.8	0.3	0.02
2010	21	24	18	8	2.5	1.0	0.1
2020	10	34	17	8	2.7	3.5	1.5
2023	8	36	17	8	2.6	4.2	2.2

Data obtained from U.S. Energy Information Administration — EIA

Carbon Emissions by Energy Source

Energy Source	CO ₂ Emissions (kg per MMBtu)
Coal	95
Oil	73
Natural Gas	53
Nuclear	0
Wind	0
Solar	0
Hydropower	0

Values from EPA emission data



Your Activities

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



MINING & RESOURCE DEPLETION INVESTIGATION

Students Create Different Types of Graphs Based on Real World Energy Data

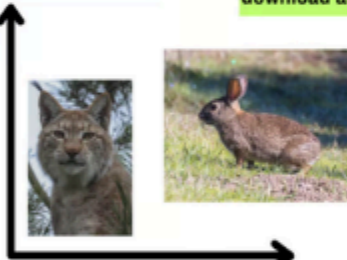
Middle School Science Graphing & Data Analysis Bundle

Get all my Graphing and Data Analysis Activities at a **HUGE** discount. Additionally, you'll get access to all additional activities I create in the future.

Population Ecology Data Graphing Bundle Middle School

THREE Graphing Activities

NO PREP - Just download and Go!



6th, 7th, 8th Grade

Human Body Systems Graphing Bundle Middle School

THREE Graphing Activities

NO PREP - Just download and Go!



6th, 7th, 8th Grade

Force & Motion Graphing Bundle - Middle School

THREE Graphing Activities

NO PREP - Just download and Go!

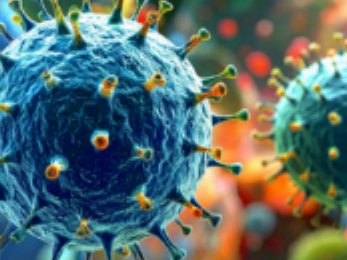


6th, 7th, 8th Grade

Disease Spread & Public Health Data Bundle Middle School

THREE Graphing Activities

NO PREP - Just download and Go!

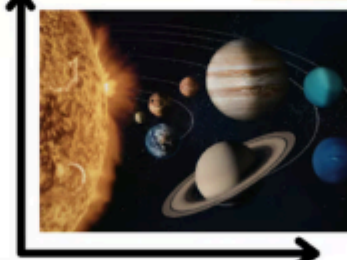


6th, 7th, 8th Grade

Space Data Investigation Bundle: Planet Motion, Moon Phases, and Stars - Middle School

THREE Graphing Activities

NO PREP - Just download and Go!

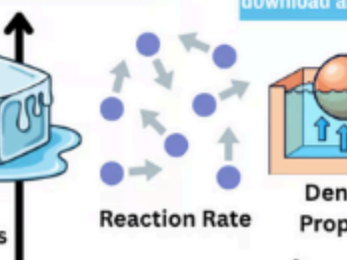


6th, 7th, 8th Grade

Matter & Chemical Change Data Graphing Bundle Middle School

THREE Graphing Activities

NO PREP - Just download and Go!

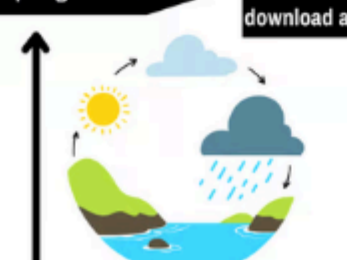


6th, 7th, 8th Grade

Water Cycle Data Graphing Bundle Middle School

THREE Graphing Activities

NO PREP - Just download and Go!



6th, 7th, 8th Grade

Energy Transfer & Heat Graphing Bundle Middle School

THREE Graphing Activities

NO PREP - Just download and Go!



6th, 7th, 8th Grade

Climate Change & Long Term Trends Graphing Bundle Middle School

THREE Graphing Activities about the Climate Change

NO PREP - Just download and Go!

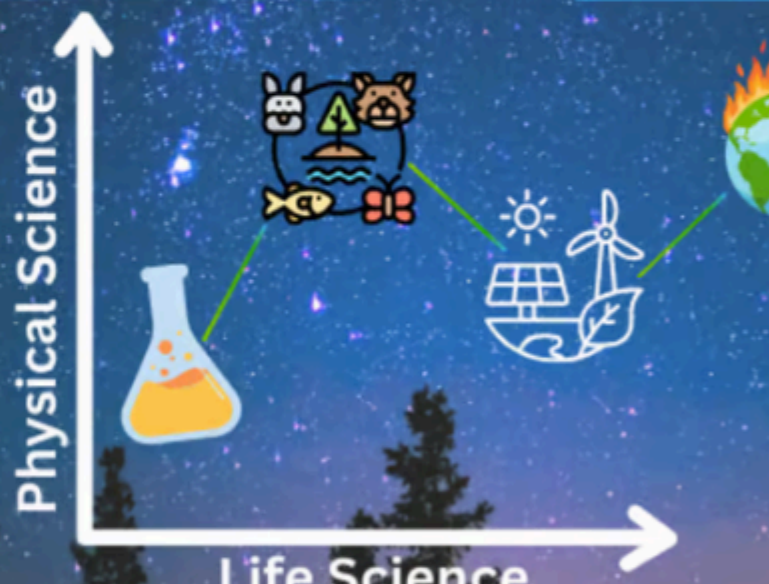


6th, 7th, 8th Grade

Middle School Science Graphing & Data Analysis Mega Bundle

Graphing Activities Across ALL TOPICS

NO PREP - Just download and Go!



Physical Science

Life Science

6th, 7th, 8th Grade

Teach With Fergy

Plus Many More!
Click Here

Thanks
**for your interest
in this resource!**

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



devon@teachwithfergy.com

TWF

Teach With Fergy

*Let's
Connect!*

