

Ecosystem Health & Biodiversity Data Investigation 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 questions
about **Ecosystem
Health and
Biodiversity.**

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

HABITAT LOSS AND LAND USE

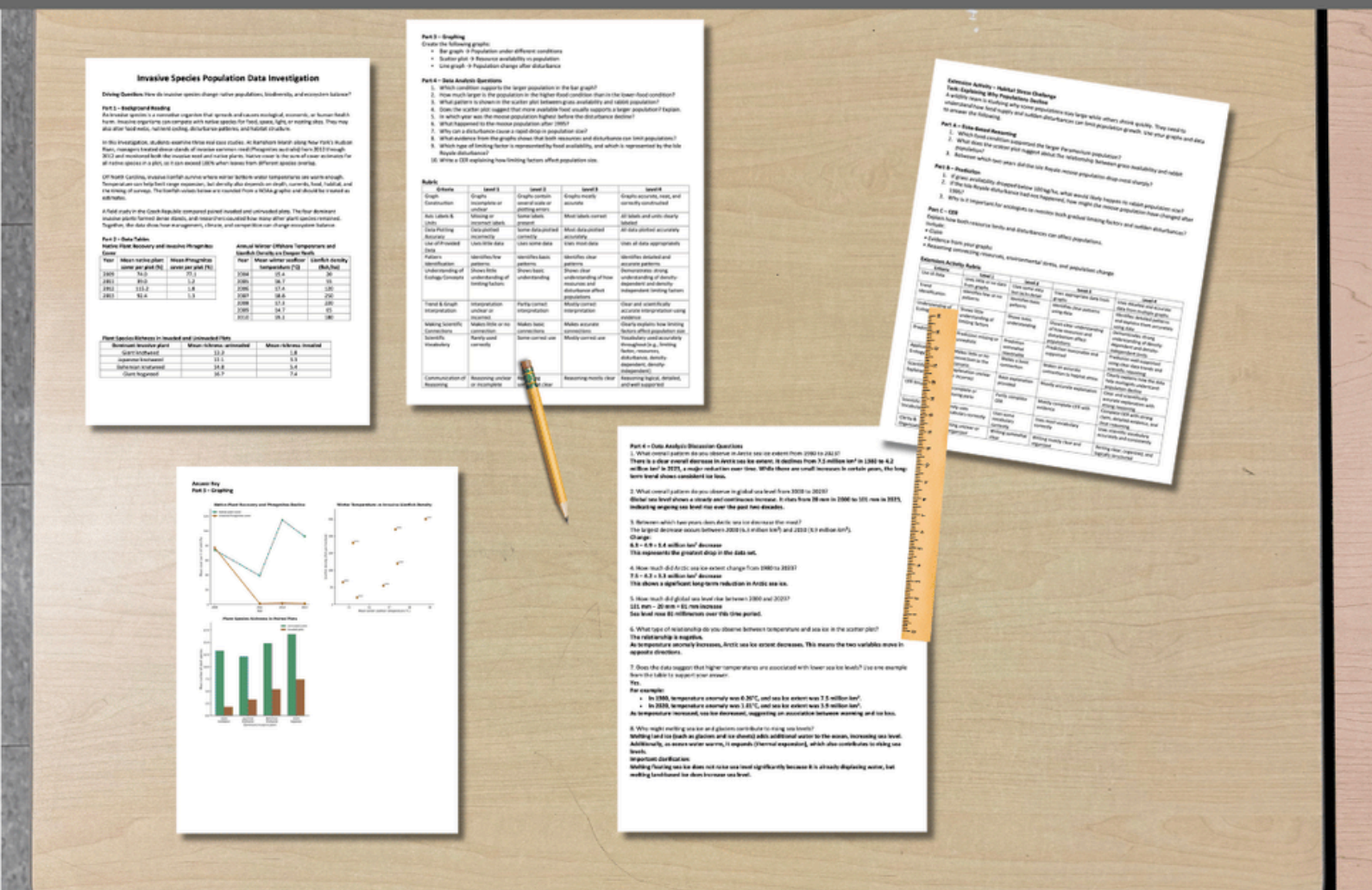


- Background Reading
- Data Tables
- Students Create Different Graph Types
- Extension Activity
- Full Marking Rubric

NO PREP or Materials

What Will Your Students Learn?

INVASIVE SPECIES

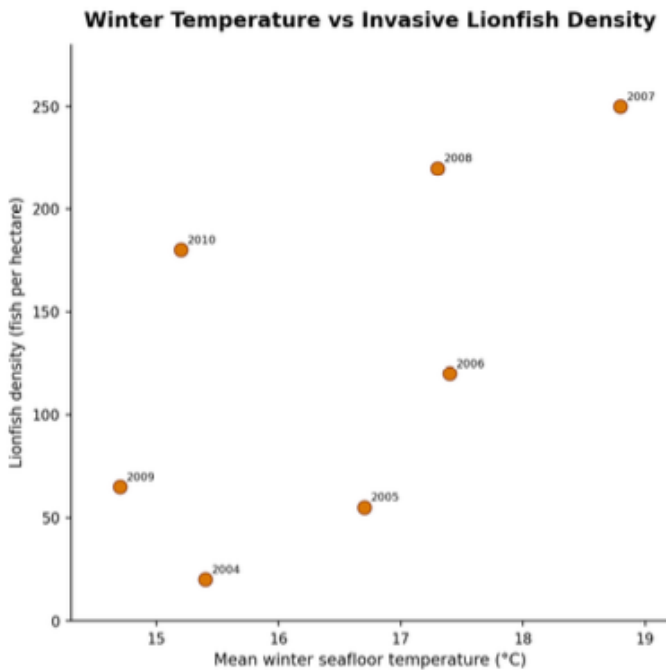
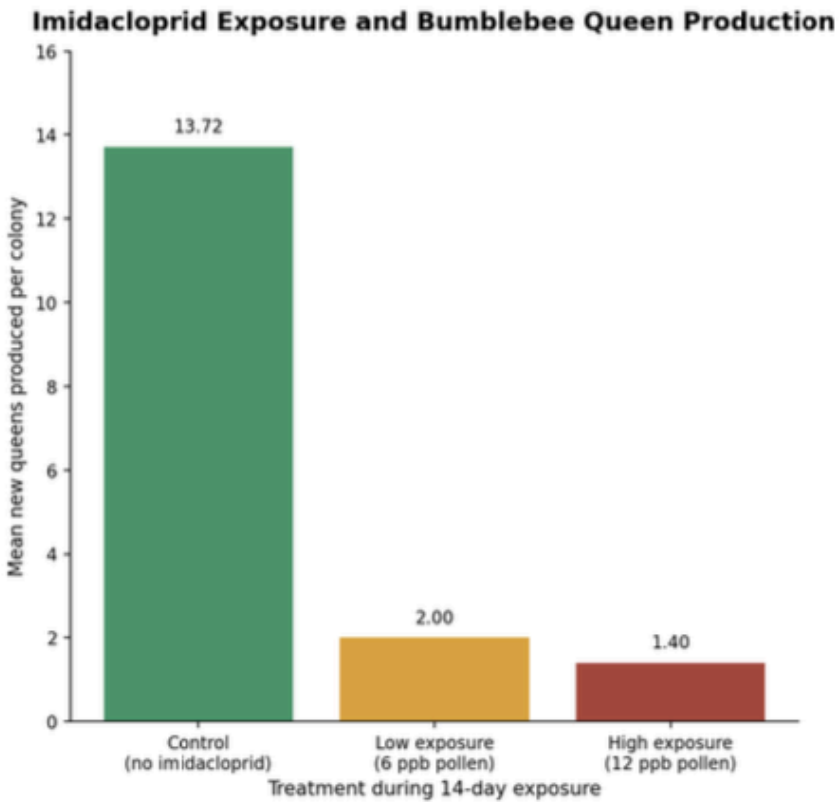
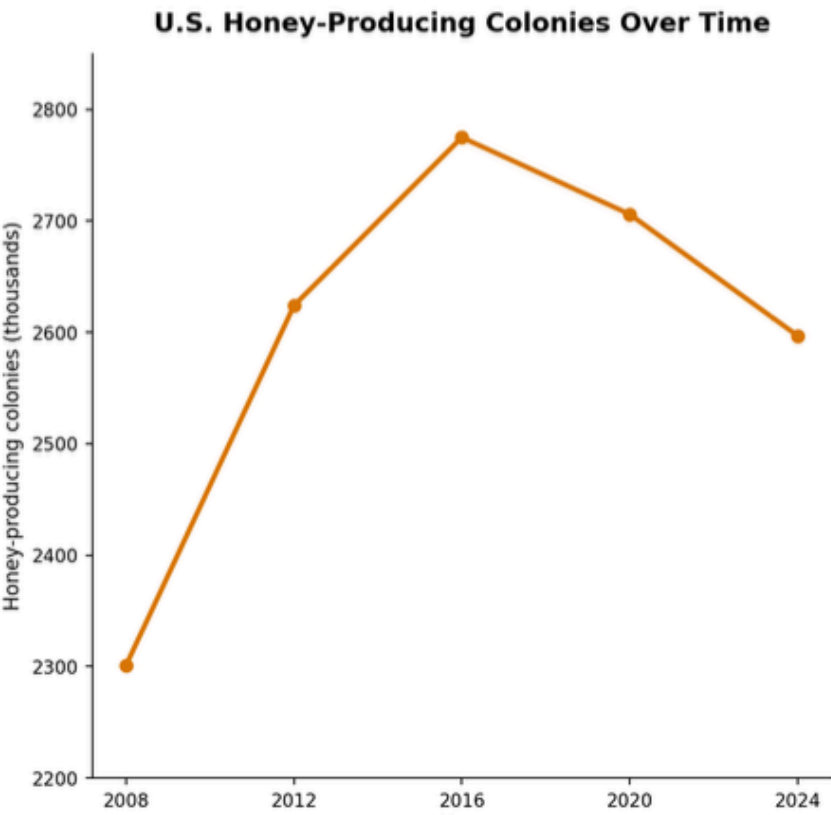


Students Use Their Graphs to Answer Questions and Draw a Conclusion

- ✓ Ecosystem health and biodiversity
- ✓ Population changes and ecosystem balance
- ✓ Habitat loss and fragmentation
- ✓ Global forest-area changes and developed-land expansion
- ✓ Habitat area, quality, and connectivity
- ✓ Bird species richness in fragmented forests
- ✓ Invasive-species population changes
- ✓ Temperature and invasive lionfish density
- ✓ Plant diversity in invaded and uninvaded habitats
- ✓ Managed honey-producing colony trends
- ✓ Pesticide exposure and bumblebee reproduction
- ✓ Wild bee diversity and apple fruit set
- ✓ Pollination as an ecosystem service
- ✓ Biodiversity monitoring and conservation planning

- **Three ecosystem health and biodiversity graphing investigations that use real-world data for students to graph, analyze, and connect population changes to ecosystem balance**
- **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



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

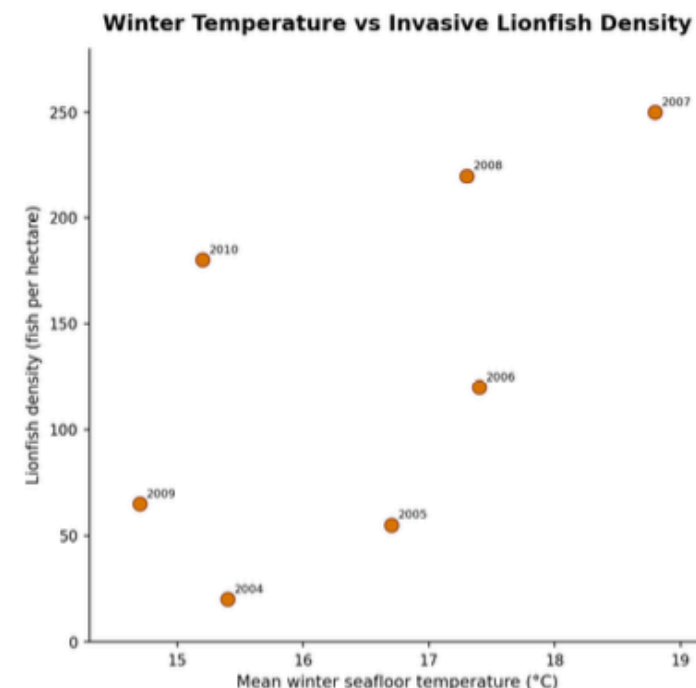
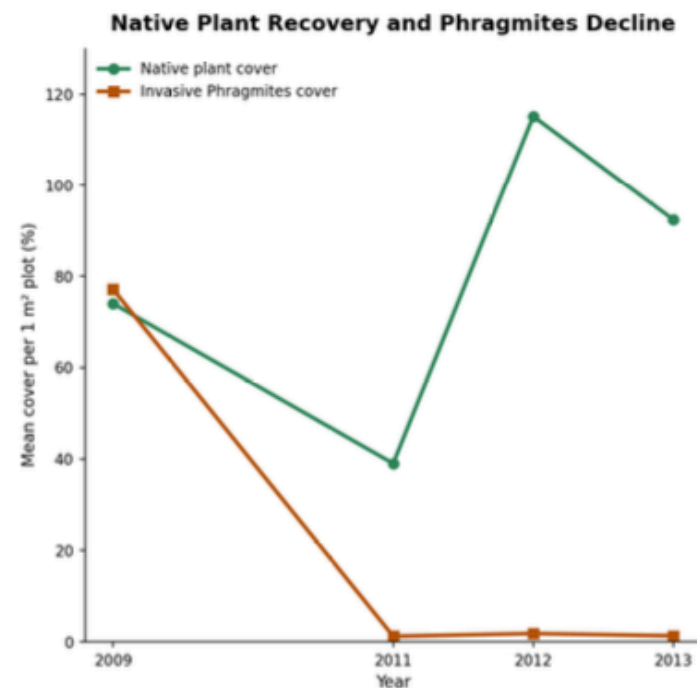
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Skills Your Students Will Develop

- ✓ Helps students build graphing and data-analysis skills using real-world ecological data
- ✓ Supports NGSS Science & Engineering Practices through analyzing patterns and relationships in habitat loss and land use, invasive species, and pollinator change & crop production
- ✓ Connects life science concepts like habitat loss, invasive species, population change, biodiversity, ecosystem services, and ecosystem balance to real-world data analysis
- ✓ Encourages evidence-based reasoning by having students use graphs to explain how land-use changes, environmental conditions, invasive species, pesticide exposure, and pollinator diversity affect ecosystem health and stability



Native Plant Recovery and Invasive Phragmites Cover

Year	Mean native plant cover per plot (%)	Mean Phragmites cover per plot (%)
2009	74.0	77.1
2011	39.0	1.2
2012	115.2	1.8
2013	92.4	1.3

Annual Winter Offshore Temperature and Lionfish Density on Deeper Reefs

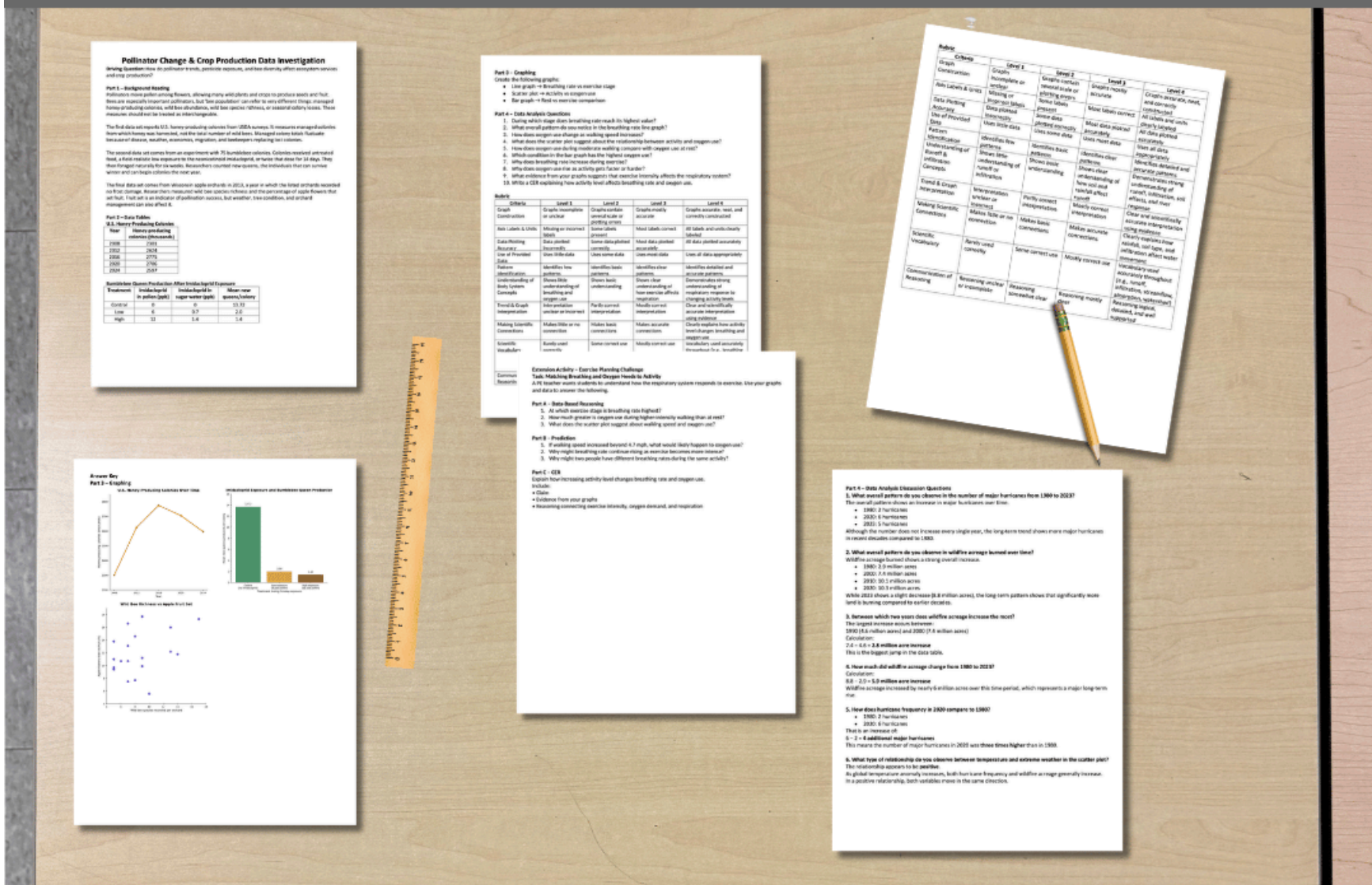
Year	Mean winter seafloor temperature (°C)	Lionfish density (fish/ha)
2004	15.4	20
2005	16.7	55
2006	17.4	120
2007	18.8	250
2008	17.3	220
2009	14.7	65
2010	15.2	180

Your Activities

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



POLLINATOR CHANGE AND CROP PRODUCTION



Students Create Different Types of Graphs Based on Real World Data

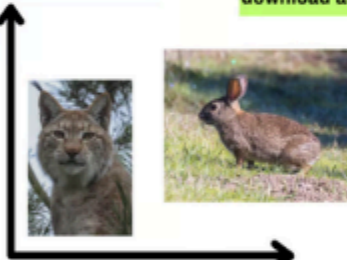
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Human Body Systems Graphing Bundle Middle School

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Force & Motion Graphing Bundle - Middle School

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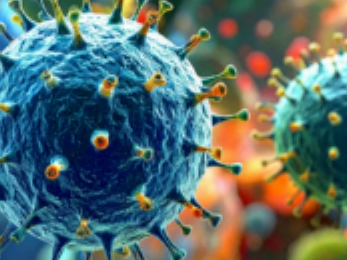


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Disease Spread & Public Health Data Bundle Middle School

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

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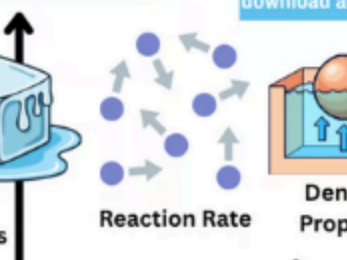


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Matter & Chemical Change Data Graphing Bundle Middle School

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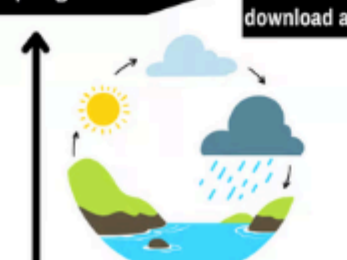


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Energy Transfer & Heat Graphing Bundle Middle School

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Climate Change & Long Term Trends Graphing Bundle Middle School

THREE Graphing Activities about the Climate Change

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Physical Science



Life Science

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you have any questions,
suggestions, or concerns,
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