

ALL IN

ONE



INTERACTIVE
SCIENCE
NOTEBOOK



THE
SCIENCE
PENGUIN

INTRODUCTION

Thank you for your interest in the All in One Interactive Science Notebook. There are **over 200** engaging activities included in this pack. Fold-ups, sorts, and other printable activities are included to help students process new information.

Student communication, Teacher Input, and Student Output are essential parts of a great notebook lesson. This resource makes planning effective lessons a breeze.

An individual license for one teacher is \$43.50. Each additional teacher license is \$29.00.



SETTING UP YOUR NOTEBOOK

- 16 pages of practical tips and photos
- About the Author
- Vocabulary Folder
- Glossary
- Rubric
- Big Money Words
- Output Ideas
- Cover Page
- Student Glossary

INTRODUCTION

About this Resource

I love providing professional development to teachers about Interactive Science Notebooks (ISNs). However, I can't go everywhere and work with every teacher. I created this resource to help teachers understand my approach to using science notebooks. You get a taste of my workshop just by reading this book!

In this resource, I will explain how I integrate scientific communication, feedback, and best practices in mini-lessons. I will also share tricks for managing your students, time, materials, and quality. Finally, I will share printable resources you can use with your students.

Enjoy!
Ariane Huddleston
The Science Penguin

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INSTRUCTION

Output

TEACHING SCIENCE NOTEBOOK OUTPUT IDEAS

1. Start with sentence stems. Model how to complete a sentence stem, then give few options for them to complete.
2. Teach students how to do a "quick write" discussing the lab activity. Personal experience connections are also great to teach at first.
3. Teach students how to draw detailed, labeled diagrams.
4. Teach students how to use concept maps. You may want to give them some terms to connect in their concept maps.
5. Move on to other output ideas, allowing your students to choose which one works best for them!

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INSTRUCTION

Input and Output Photos

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MANAGEMENT

Managing Students

Each team (table group) has a set of jobs. This keeps our class focused on the task.

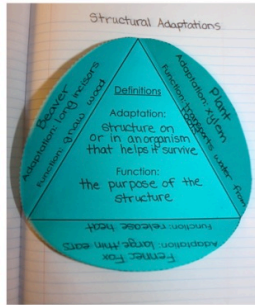
Facilitator <ul style="list-style-type: none">helps to decide who will do each part of the activitymakes sure group is quietkeeps track of time	Materials Manager <ul style="list-style-type: none">sets up materials before beginning the activitymakes sure all materials are cleaned up
Technician <ul style="list-style-type: none">measures accuratelymakes sure everyone is recording data, diagrams and observations	Participant <ul style="list-style-type: none">encourages othershelps complete the assigned task
Director <ul style="list-style-type: none">makes directions clear for the groupkeeps group on task and following directions	

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PHOTOS, STRUCTURING MINI-LESSONS, MANAGEMENT, AND PRINTABLES

LIFE SCIENCE

ADAPTATIONS AND FUNCTIONS

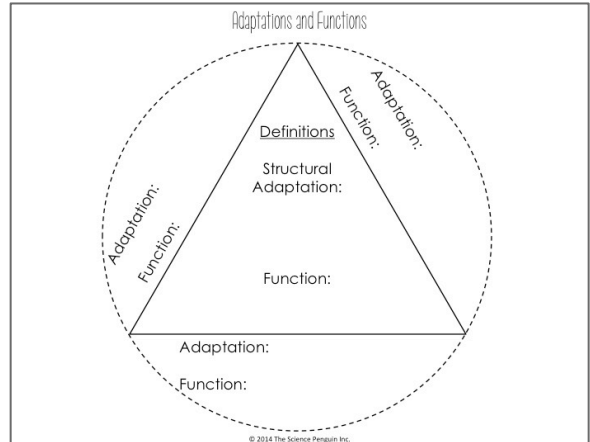


Have students cut out the fold-ups and set up their notebooks. Write the definition for "structural adaptation" and "function". Then choose 3 animals to describe adaptations of.

Reflection: Choose an animal or plant. Identify two structural adaptations and the functions of each.

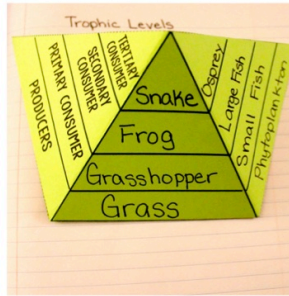


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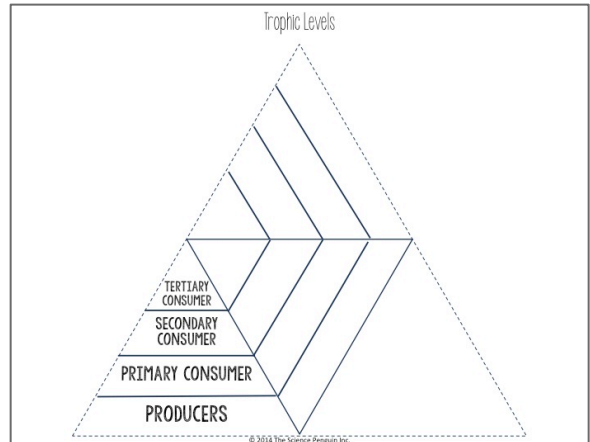
TROPHIC LEVELS



Have students cut out the fold-ups and set up their notebooks. Talk about the terms in each level. Make 2 food chains in the blank pyramids.

Reflection: Explain the relative populations of the organisms in each section of one of the pyramids you made.

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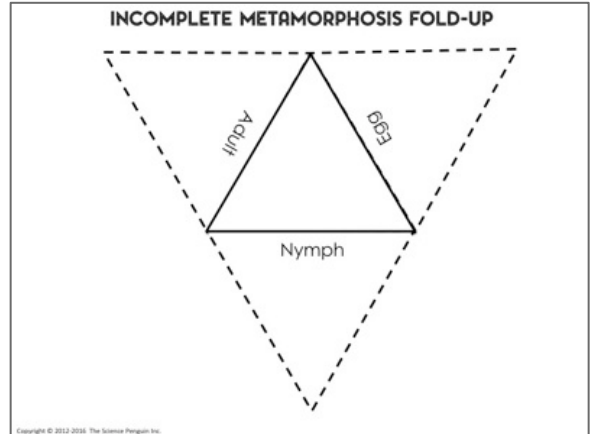
INCOMPLETE METAMORPHOSIS FOLD-UP



Have students draw pictures of an insect as it goes through incomplete metamorphosis on the outside. In the example, I used a grasshopper. On the inside, order the stages and describe them.

Recommended Reflection Prompt: What are the the defining characteristics of complete metamorphosis?

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SAMPLE PHOTOS, REFLECTION PROMPTS, AND STUDENT PRINTABLES

EARTH SCIENCE

Fossils



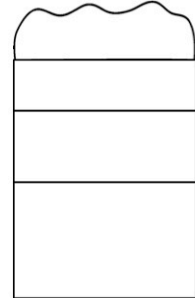
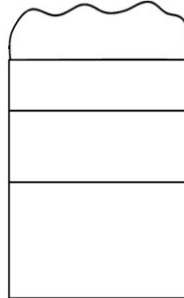
Have students cut out the rocks section and the 2 fossils. Then, they need to glue down the rock section and show the youngest to oldest arrow and which layer is the top and which is the bottom. I would have students choose which section to place the fossils, then glue them down. They would then need to identify which fossil is probably older based on where it was found and what changes the area may have gone through to have the the fossils arranged the way they are.

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Fossils

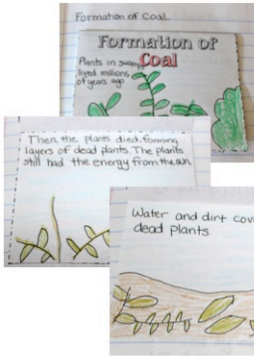


Fossils



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Formation of Coal



Have students cut out the fold-up, then have students write the 3-4 main steps for the formation of coal as a folded book.

Recommended Reflection Prompt:
Is it important to conserve coal? Why or why not?

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Formation of Coal

Cut flippable on dotted lines. Fold flippable on the solid line.

This section will be thrown away.

4

FORMATION OF COAL

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WIND, WATER, WAVES, ICE

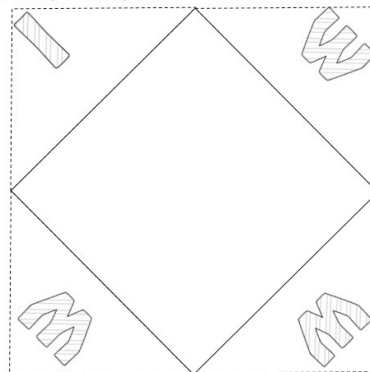


Have students cut out the fold-up and label the outside Water, Wind, Waves, and Ice. On the inside, have them explain how these four things contribute to weathering and erosion and draw a picture for each.

Recommended Reflection Prompt: How can ice break down landforms and build up new landforms?

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WIND, WATER, WAVES, ICE



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SAMPLE PHOTOS, REFLECTION PROMPTS, AND STUDENT PRINTABLES

SPACE SCIENCE

SUN, MOON, AND EARTH FACTS

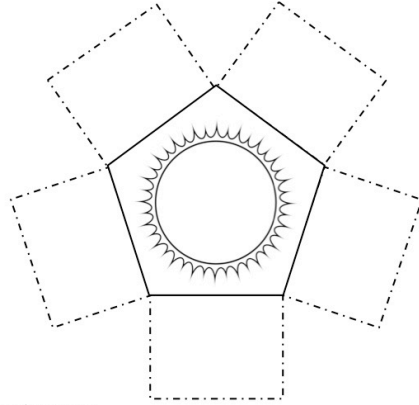


Cut out the fold-up. For each fold-up, write 5 important facts.

Recommended Reflection Prompt: Draw a Venn Diagram to compare two of the bodies in space.

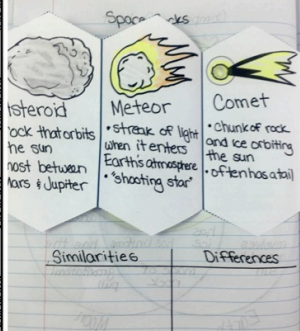
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SUN FACTS



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METEORS, COMETS, AND ASTEROIDS



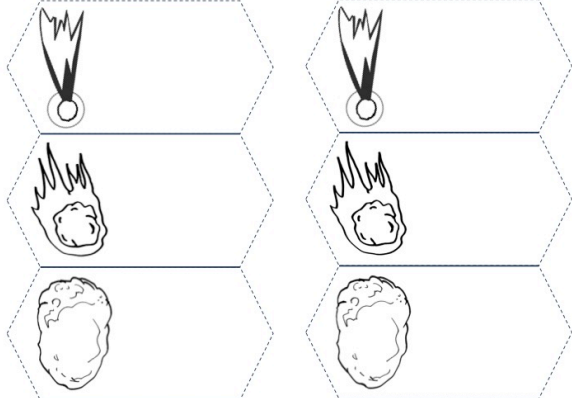
Have students cut out the fold-ups and set up their notebooks. Define each term.

Reflection: Make a triple Venn diagram comparing and contrasting asteroids, meteors, and comets.

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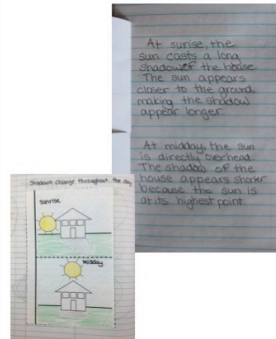
METEORS, COMETS, AND ASTEROIDS

METEORS, COMETS, AND ASTEROIDS



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SHADOWS



Cut out the fold-up. Draw the shadow of the house on each cover. Inside, name the time of day and describe why the shadow appears that way.

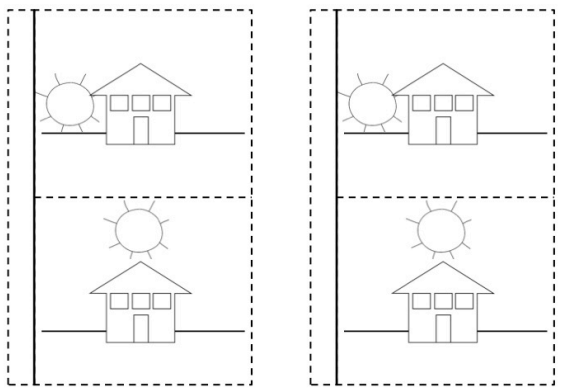
Recommended Reflection Prompt: Predict what the shadow will look like at sunset.

Recommended Interactive Website: http://www.harcourtschool.com/activity/science_up_close/317/deploy/interface.html

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SHADOWS

SHADOWS

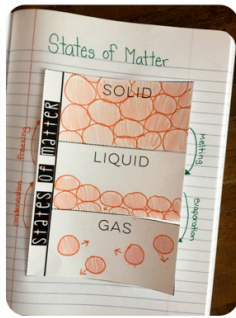


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SAMPLE PHOTOS, REFLECTION PROMPTS, AND STUDENT PRINTABLES

PHYSICAL SCIENCE

SOLID, LIQUID, AND GAS FOLD-UP

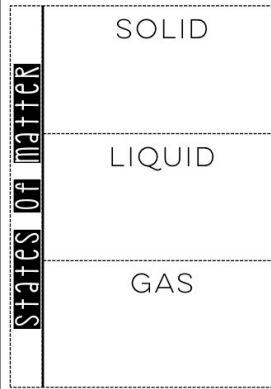


Students cut along the dotted lines and tape or glue underneath "States of Matter".

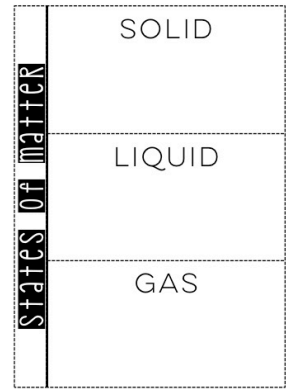
Discuss the shape, volume, and examples of each state of matter. Draw and write information on and beneath each flap.

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STATES OF MATTER FOLD-UP



STATES OF MATTER FOLD-UP

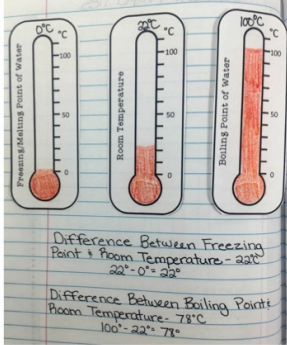


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TEMPERATURE IN CELSIUS

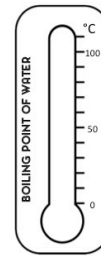
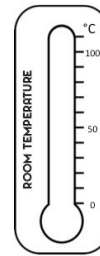
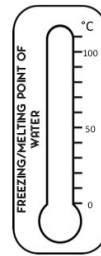
After completing a lab activity for melting/freezing point and boiling point, I recommend using this page. Students color in the correct temperatures, cut out the thermometers, and glue them in their science notebooks.

Recommended Reflection Prompt:
Explain why freezing point and melting point are both 0 degrees Celsius.



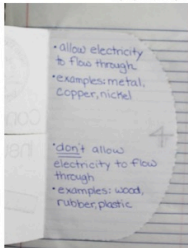
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TEMPERATURE IN CELSIUS NOTEBOOK ACTIVITY



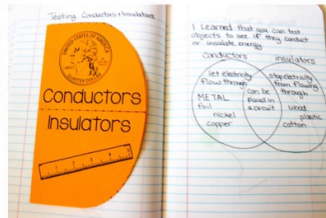
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CONDUCTORS AND INSULATORS



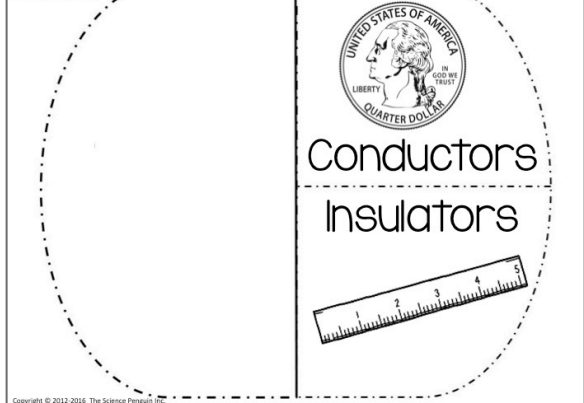
Cut out the fold-up. For each term, write a definition and give examples.

Recommended Reflection Prompt:
Draw a circuit with an insulator and draw a circuit with a conductor.



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CONDUCTORS AND INSULATORS



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SAMPLE PHOTOS, REFLECTION PROMPTS, AND STUDENT PRINTABLES

PROCESS SKILLS

Making Observations

I can make scientific, fact-based, specific observations.

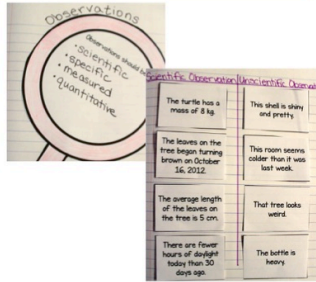
SUGGESTED USE

Cut out the magnifying glass cutout and glue it in your notebook.

Discuss and record the characteristics of a scientific observation.

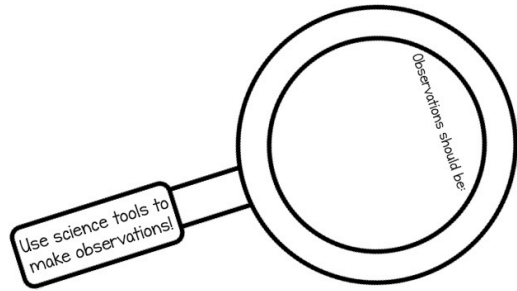
Draw a T-Chart with the columns "Scientific Observation" and "Unscientific Observation". Sort the statements.

Hand out a rock or another object to each student. Have rulers, balances, hand lenses, and other tools available. Have students write 3 scientific observations about the rock or object.



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Making Observations Cutout



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Bar Graphs

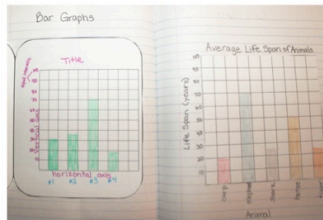
I can create a bar graph in order to compare numbers.

SUGGESTED USE

Cut out the fold-up and glue it in your notebook. On the front, write "Bar Graphs."

Go over the information on the left side of the fold-up. On the graph on the right, label the horizontal axis and vertical axis, include a title, write the numbers in equal intervals. Draw bars for made up data.

Cut out the bar graph cutout. Use the data table included to create a bar graph.

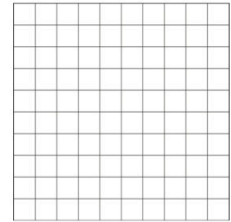


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Bar Graphs Fold-Up

Bar graphs help us compare numbers.

- Remember to:
- Label the horizontal axis.
 - Label the vertical axis.
 - Number the lines in equal intervals.
 - Include a title.



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Writing a Hypothesis

I can write a hypothesis.

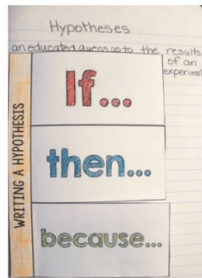
SUGGESTED USE

Cut out the fold-up and glue the left side down.

Discuss what a hypothesis is. Write down the class's definition in your notebook.

Use a testable question students write from the previous lesson, make one up, or use the one provided. In the fold-up, write a "If...then...because..." statement to form a hypothesis.

"Does changing the temperature of the water affect whether an egg will sink or float?"



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Hypothesis Fold-Up

If...

then...

because...

WRITING A HYPOTHESIS

Hypothesis Fold-Up

If...

then...

because...

WRITING A HYPOTHESIS

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SAMPLE PHOTOS, REFLECTION PROMPTS, AND STUDENT PRINTABLES

LIFE SCIENCE TOPICS

ecosystems

life cycles

food chains

inherited traits

learned behaviors

instincts

human body systems

structural adaptations

plant reproduction

photosynthesis

carbon dioxide-oxygen cycle

vertebrates and invertebrates

symbiosis

cells

metamorphosis



EARTH AND SPACE SCIENCE TOPICS

weather
climate
natural resources
fossil fuels
alternative energy
water cycle
carbon cycle
weathering
erosion
landforms
mountains
rocks
soil
clouds
lunar cycle
seasons
planets
Sun-Earth-Moon system
shadows
tides



PHYSICAL SCIENCE TOPICS

scientific method
engineering process
models
conservation
testable questions
writing a hypothesis
variables
observations
repeated trials
collecting accurate data
mean
percent
maps
line graphs
bar graphs
SI units
inference
contribution of scientists



PROCESS SKILLS

TOPICS

properties of matter

volume

mass

density

states of matter

constant properties of water

atoms

mixtures and solutions

elements

force

speed

potential and kinetic energy

forms of energy

sound

light

reflection and refraction

physical and chemical changes

electricity

