DISCOVERING SCIENCE 9
TEACHER'S RESOURCE

FOLDABLES™

by

Dinah Zike

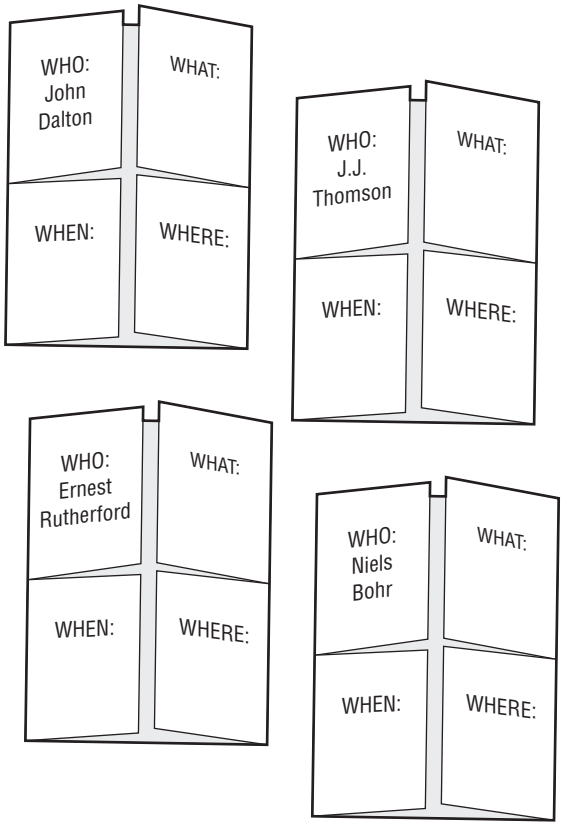
CHAPTER 1: ATOMIC THEORY EXPLAINS THE COMPOSITION AND BEHAVIOR OF MATTER.

Using the Foldables™ Feature:

Folded tables can be made quickly without rulers. To draw straight lines along the folds, have students open each fold to form a 45 degree angle and run their pencil or pen along the fold. After creating a folded table, students can record notes on the physical properties and the development of atomic molecules.

Other Foldables™ Ideas: 4-Door Foldable™

Make several four-door Foldables™ and use them to investigate the "Who, What, When, and Where" of some of the men and women throughout history who have contributed to the development of the atomic theory. Use a sheet of 11"x17" paper to make a shutterfold. Fold the shutterfold in half and cut along the inside fold lines to make four tabs. Label the tabs as illustrated. Record what you learn about John Dalton, J.J. Thomson, Ernest Rutherford, or Niels Bohr under the tabs. Under the "What" tab, include sketches of the model of the atom proposed by each scientist.



CHAPTER 2: ELEMENTS ARE THE BUILDING BLOCKS OF MATTER.

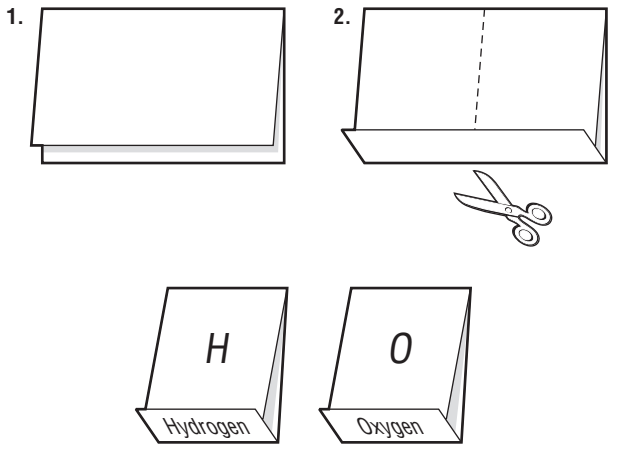
Using the Foldables™ Feature:

Concept maps can be used to show relationships between information. The Foldable™ concept map used with this chapter relates what students learn about elements to the organization of the periodic table.

Other Foldables™ Ideas: Matchbook Foldable™

Fold a sheet of paper as illustrated in steps 1 and 2. Fold the tab formed over the short side of the paper to make a "matchbook" Foldable™. Cut the matchbook Foldable™ in half as illustrated. Make and use numerous matchbook Foldables™ to record information on different elements and to make a giant periodic table of elements.

Use a marker and boldly write the symbol for the element featured in the middle of the Foldable™. Write the name of the element small under the symbol. Record the element's atomic number along the top of the Foldable™ and the atomic mass along the bottom. Under the tab, record the history of the discovery of the element, properties of the element, ways in which the element is used today, and other important information. Elements can be sorted and displayed in groups of metals, non-metals, and metalloids, or Foldables™ can be made to represent all elements and a giant period table can be formed. Colored paper can be used for the metalloids and non-metals to help differentiate between the groups.



CHAPTER 3: ELEMENTS COMBINE TO FORM COMPOUNDS.

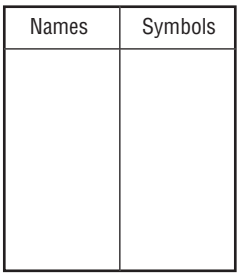
Using the Foldables™ Feature:

Multi-tabbed Foldables™ can be used for vocabulary terms, lists of important concepts, steps or sequences, and more. The Foldable™ used with this chapter incorporates Venn diagrams into the vocabulary and concepts introduced in the chapter to encourage students to look for similarities and differences.

Other Foldables™ Ideas: Foldable™ Chart

Make Foldable™ charts to record any of the following:

– Names and symbols of non-metal ions
– Compounds, elements forming the compounds, and formulas
– formula, name of ionic compound
– ions, formulas of the compounds formed
– polyatomic ion, name, number of each kind of atom, total number of atoms, and the electric charge on the ion CrO_4^{2-}



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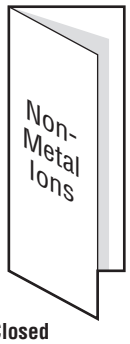


Closed

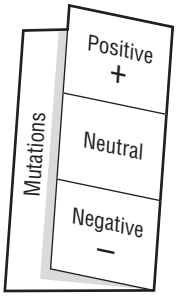
CHAPTER 4: THE NUCLEUS CONTROLS THE FUNCTIONS OF LIFE.

Using the Foldables™ Feature:

The front of a shutterfold can be used for comparing and contrasting two things, while the inside can be used to collect notes, terms, definitions, diagrams, and more.

Other Foldables™ Ideas: 3-tab Foldable™

Ask students to create a 3-tab Foldable™ with the individual tabs labeled Positive Mutation, Negative Mutation, and Neutral Mutation. Beneath the tabs, have students define, give examples, and compare and contrast the three types of gene mutation.



CHAPTER 5: MITOSIS IS THE BASIS OF ASEXUAL REPRODUCTION.

Using the Foldables™ Feature:

Students enjoy the unusual shape of this Foldable™, and the cave-like area where they take notes. To store the pyramid flat, make a crease along one side of the pyramid, fold it inward, and the pyramid will store flat. This pyramid is perfect for illustrating cycles that occur in threes, or other information that is always in threes. For example, this pyramid could be used for the water cycle--evaporation, condensation, precipitation; states of matter--solid, liquid, gas; or three types of galaxies—irregular, spiral, elliptical.

Other Foldables™ Ideas: Layered Foldable™

Use three sheets of paper to make a layered Foldable™ and label it as follows:

Types of Asexual Reproduction
Binary fission
Budding
Fragmentation
Vegetative Reproduction
Spore Formation

Define, describe, list examples, and record advantages and disadvantages of each method of reproduction beneath the appropriate tabs.

Types of Asexual Reproduction
Binary Fission
Budding
Fragmentation
Vegetative Reproduction
Spore Formation

CHAPTER 6: MEIOSIS IS THE BASIS OF SEXUAL REPRODUCTION.

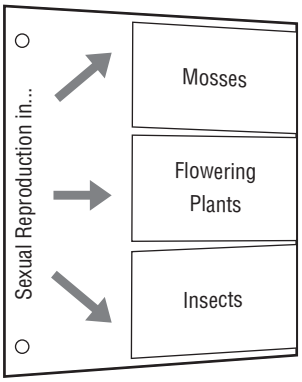
Using the Foldables™ Feature:

Use Venn diagrams to compare two things and to determine what they have in common as illustrated by the example with this chapter. Venn diagrams can also be used to show how something can have combined characteristics, for example, if students wrote "herbivore" on the left tab, "carnivore" on the far right tab, they would write "omnivore" in the middle and discuss how omnivores eat both meat and plant matter.

As you read this chapter, use the Venn diagram Foldable™ to explain Mitosis and Meiosis and to determine what they have in common. Have students use the three folded sections on the back of the Foldable™ to describe how organisms adapt to a changing environment, how a zygote forms and develops, and how stem cells might effect embryonic development.

Other Foldables™ Ideas: 4-tab Concept Map

Fold a sheet of paper in half lengthwise, making the back edge about 3 cm longer than the front edge. Fold into fourths, then unfold and cut the top layer creating four tabs. Label the Foldable as shown. Use the Foldable™ to organize and record information on sexual reproduction in different organisms.



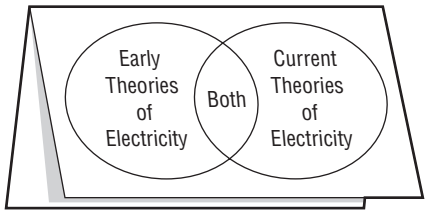
CHAPTER 7: STATIC CHARGE IS PRODUCED BY ELECTRON TRANSFER.

Using the Foldables™ Feature:

Use this four-door Foldable™ to collect information on four concepts, define four key terms, or sequence four cyclical steps or stages. As you read the chapter, take notes under the appropriate tabs to demonstrate what you have learned about static electricity.

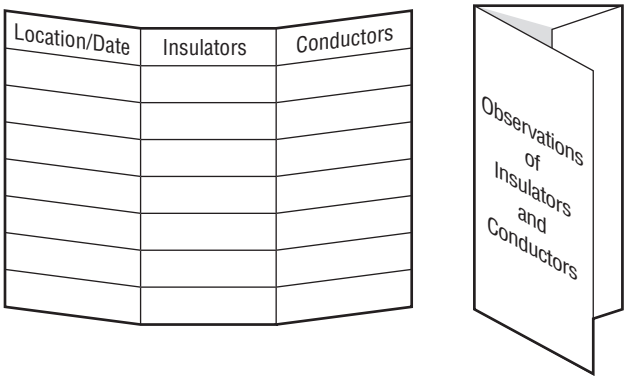
Other Foldables™ Ideas: 3-tab Venn diagram

Fold a sheet of paper lengthwise and then fold it into thirds along the opposite axis. Unfold and draw two overlapping ovals which intersect in the center section. Cut the top layer along the fold lines to create three tabs. Label the Foldable™ as shown and record information beneath the tabs comparing early theories of electricity with current theories of electricity, and showing what they both have in common.



Other Foldables™ Ideas (Alternate): Trifold

Fold a sheet of paper into thirds lengthwise and then fold into eights along the opposite axis. After unfolding, use a pen or pencil to mark the crease lines. This will create three columns and eight rows. Label the top three columns Location/Date, Insulators, and Conductors. Ask students to record observations of insulators and conductors they experience in their daily surroundings.



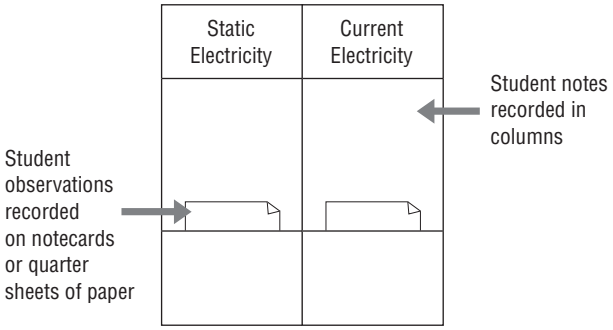
CHAPTER 8: OHM'S LAW DESCRIBES THE RELATIONSHIP OF CURRENT, VOLTAGE, AND RESISTANCE.

Using the Foldables™ Feature:

Bottom Tab Foldables™ can also be used for main ideas and supporting facts, sequencing information and listing and defining key terms. This Foldable provides enough space on each layer to record information and to create diagrams and sketches. As you read the chapter, summarize what you learn under the appropriate tabs.

Other Foldables™ Ideas: Pocket Chart w/ Observation Cards

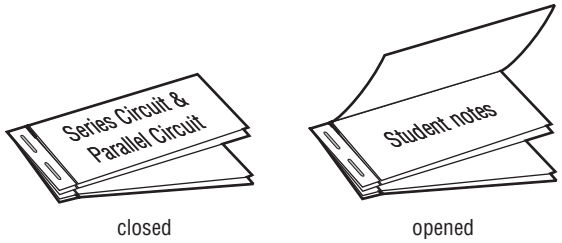
Holding a sheet of 11”x17” paper with the short edge to the bottom, fold the paper in half vertically. Unfold the paper and then fold the short horizontal edge upwards three inches. Glue the outer edges and the middle crease to create two pockets. Fold the top edge down one inch, unfold and mark with a pen or pencil along the horizontal and vertical creases to create a two column chart. Label one column “Static Electricity” and the other “Current Electricity.” Record information and notes on the two types of electricity in the appropriate column. Use 3”x5” notecards or quarter sheets of paper to record information about applications of each type of electricity that they encounter, including why that type of electricity is suitable for each application. Store cards in the appropriate pocket.



CHAPTER 9: CIRCUITS ARE DESIGNED TO CONTROL THE TRANSFER OF ELECTRICAL ENERGY.

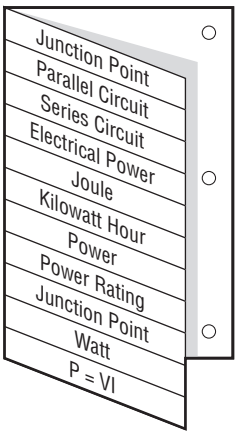
Using the Foldable™ Feature:

Flip Book Foldables™ are helpful self-check study guides when defining vocabulary terms and key concepts. For example, students can define the key terms and concepts needed to understand electrical energy under the appropriate tabs as they progress through the chapter and then use the Flip Book Foldables™ as the study guide later.



Other Foldables™ Ideas: 10-tab Vocabulary Foldable™

Fold a sheet of notebook paper in half vertically. On one side, cut every third line. This usually results in ten tabs. Label the front of the tabs with the following 9 terms: junction point, parallel circuit, series circuit, elec-trical power, joule, kilowatt hour, power, power rating, watt. The last tab could be used to record a term that students need to review or to explain the formula P=VI. Students provide definitions for the terms beneath the tabs.



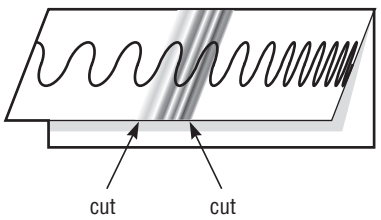
CHAPTER 10: WHAT WE KNOW ABOUT THE UNIVERSE HAS TAKEN US THOUSANDS OF YEARS TO LEARN.

Using the Foldables™ Feature:

Tab Foldables™ enable students to record information about many aspects of a topic, in this case the sequential contributions of astronomers. As students read the chapter, have them summarize what they learn about the contributions each astronomer made.

Other Foldables™ Ideas: 3-tab Foldable™

Create a modified 3-tab Foldable™ to show the electromagnetic spectrum. Fold a sheet of paper in half lengthwise and draw the electromagnetic spectrum on the top tab and label before cutting. Color visible light in the center of the top tab. Record frequency and wavelength at the bottom of the tab. Create three tabs buy cutting to the left and right of the colored visible light. Beneath the tab, describe how the chart progresses from low to high energy, from left to right, and explain what this means in terms of energy.



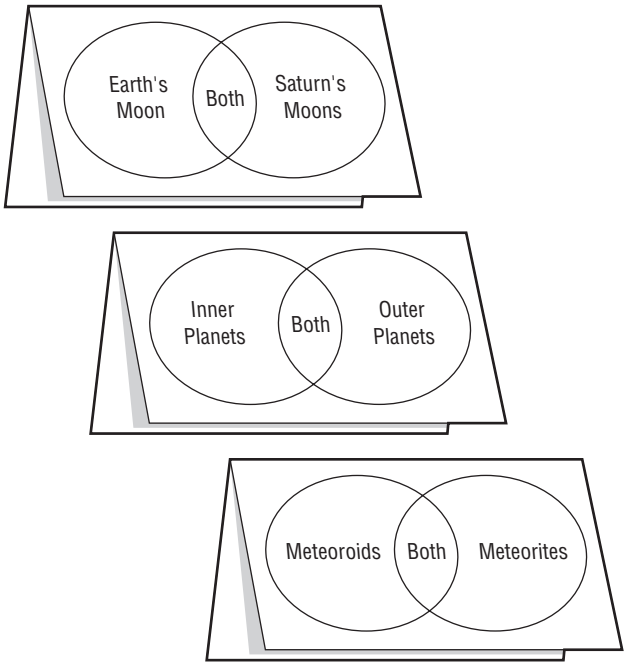
CHAPTER 11: WE CONTINUE TO LEARN A LOT ABOUT THE SOLAR SYSTEM BY USING SPACE EXPLORATION.

Using the Foldables™ Feature:

Students can use the pocket formed at the top of the Foldable™ to collect other notes and worksheets completed during the study of this chapter. Cut lined notebook paper into quarter sheet sections and use them instead of index cards. Quarter sheets or index cards can be used to take notes or define terms and stored in the top pocket. Use this Foldable™ to teach note-taking skills and to use it to organize main ideas, supporting facts, diagrams, self-questions, terms, and definitions encountered during the chapter study.

Other Foldables™ Ideas:

Create foldable Venn diagrams by folding a sheet of paper lengthwise and then folding it into thirds along the opposite axis. Unfold and draw two overlapping ovals which intersect in the center section. Cut the top layer along the fold lines to create three tabs. Use this Venn diagram to record information beneath the tabs comparing Earth's moon to the moon of another planet, inner and outer, or meteoroids and meteorites. Encourage students to gather additional information on the Internet.



CHAPTER 12: WE CAN USE SPACE EXPLORATION TO LEARN ABOUT STARS, NEBULAE, AND GALAXIES OUTSIDE OUR SOLAR SYSTEM.

Using the Foldables™ Feature:

Students can use the front of this foldable to create a table summarizing what they learn about the origin and composition of key components of the universe and the back to summarize what they learn about space technology, including risks and benefits.

Other Foldables™ Ideas: Folded Table

Fold a sheet of paper to create 5 rows and 4 columns. Use this Folded Table Foldable™ to record information about the mass, life cycle, and to provide examples of the following types of stars: low mass stars, intermediate mass stars, high mass stars, and black holes. Encourage students to use the Internet to gather information on specific examples of each.

Evolution of Stars	Mass	Life Cycle	Examples
Low Mass			
Intermediate Mass			
High Mass			
Black Holes			