Name _____ Date _____

# Properties of Atoms and the Periodic Table

## Section 1 Structure of the Atom CHAPTER 16 DRW

**Scan** *Section 1 and write down three things you might learn from this section.*

1. _____

2. _____

3. _____

**Review Vocabulary** **Define** element *to show its scientific meaning.*

*element* _____

**New Vocabulary** *Use your book or a dictionary to define the following terms.*

*atom* _____

*nucleus* _____

*proton* _____

*neutron* _____

*electron* _____

*quark* _____

*electron cloud* _____

**Academic Vocabulary** *Use a dictionary to define* neutral *as it might be used in this section.*

*neutral* _____

Name _____ Date _____

## Section 1 Structure of the Atom (continued)

**Main Idea** | **Details**

### Scientific Shorthand

*I found this information on page* _____.

**Identify** *some of the elements and their symbols by filling in the table. Reference a periodic table to help you.*

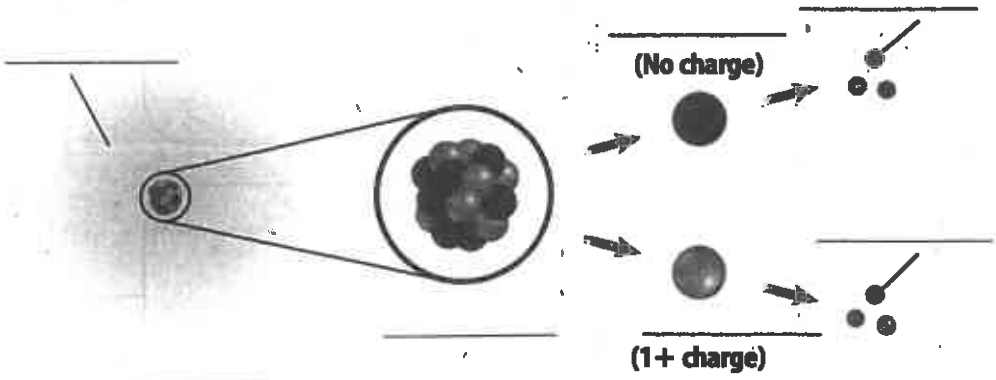
| Symbol | Name |
|---|---|
| Pt | |
| | tungsten |
| Rn | |
| | iodine |
| B | |
| | lithium |
| Cu | |
| | cesium |
| Ni | |
| | lead |
| Es | |
| | helium |

### Subatomic Particles

*I found this information on page* _____.

**Complete** *the diagram showing how the parts of an atom are related.*

atom proton nucleus
electron cloud neutron quark



Name _____ Date _____

## Section 1 Structure of the Atom (continued)

**Main Idea** — **Details**

*I found this information on page _____.*

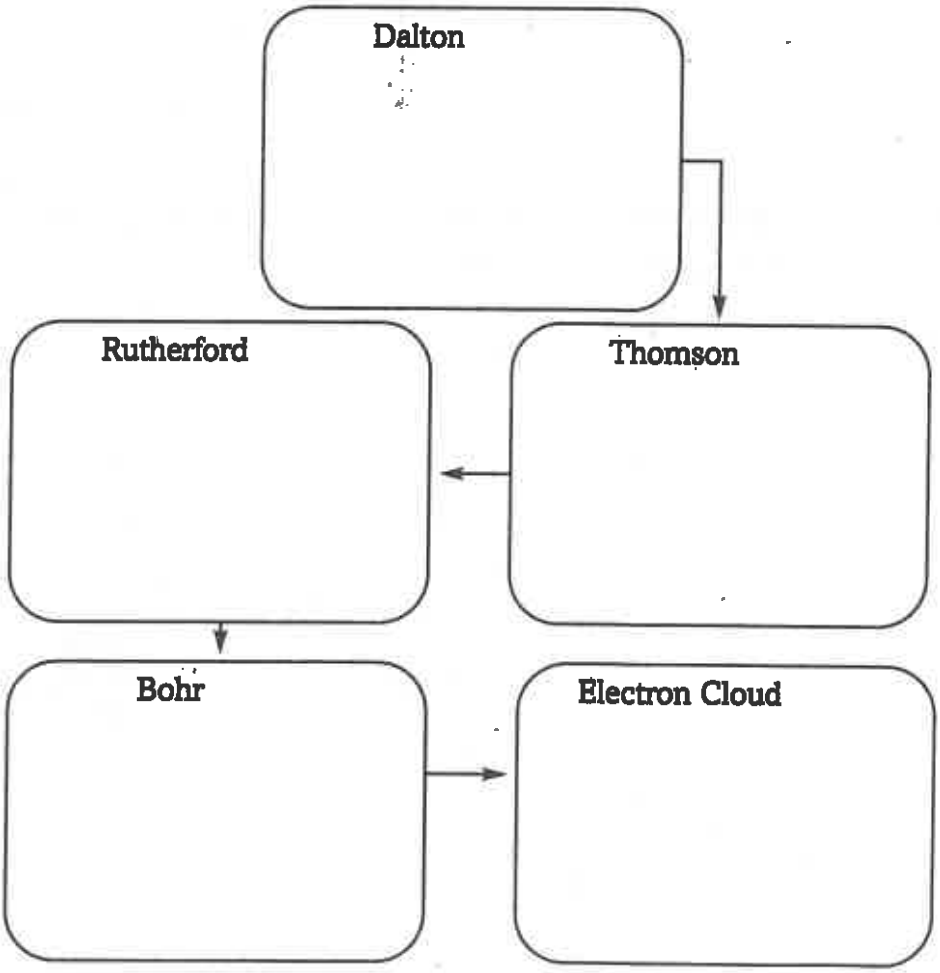
**Summarize** *key ideas about* **quarks.**

| Theories about Quarks | Finding Quarks |
|---|---|
| **Detecting Quarks** | **Sixth Quark** |

### Models—Tools for Scientists

*I found this information on page _____.*

***Create** a time line of the changes that have occurred in modeling the atomic structure since the 1800s. Sketch and label each model.*



Name _____ Date _____

# Properties of Atoms and the Periodic Table

## Section 2 Masses of Atoms

**Preview** *Section 2 of your book, using the checklist below.*

- Read all section titles.
- Read all boldfaced words.
- Read all charts and graphs.
- Look at all the pictures and read their captions.
- Think about what you already know about masses of atoms.

***Write three facts you learned.***

1. _____
2. _____
3. _____

**Review Vocabulary** **Define** mass *to show its scientific meaning.*

*mass* _____

**New Vocabulary** *Use your book or dictionary to define the following key terms.*

*atomic number* _____

*mass number* _____

*isotope* _____

*average atomic mass* _____

**Academic Vocabulary** *Use a dictionary to find the scientific meaning of* define.

*define* _____

Name _____ Date _____

## Section 2 Masses of Atoms (continued)

**Main Idea** | **Details**

**Atomic Mass**

*I found this information on page* _____.

**Organize** *the information on* atomic mass *to complete the outline.*

**Atomic Mass**

**A.** Nucleus of atom

**1.** _____

_____

**2.** _____

_____

**3.** _____

_____

**B.** Atomic mass unit

**1.** _____

**2.** _____

**3.** _____

**C.** Protons

**1.** _____

**2.** _____

**3.** _____

_____

**4.** _____

_____

**D.** Mass number

**1.** _____

_____

**2.** _____

_____

Name _____ Date _____

## Section 2 Masses of Atoms (continued)

**Main Idea**

**Isotopes**

*I found this information on page _____.*

**Details**

**Model** ***carbon-12 and carbon-14 by sketching each atom.***

- Remember that carbon's atomic number is 6.
- Label each atom's protons, neutrons, and electrons.
- Show the charges of the particles.

**Carbon-12**

**Carbon-14**

**Analyze** ***how you would determine which isotope of an element is the most abundant if you know the element's average atomic mass.***

_____

_____

_____

_____

**CONNECT IT** **While exploring on your grandfather's farm, you come across what appears to be ancient Native American artifacts, arrowheads, and tools. Explain how you could find out the age of these pieces and if they are, in fact, an archeological find.**

_____

_____

Name _____ Date _____

# Properties of Atoms and the Periodic Table

## Section 3 The Periodic Table

**Skim** *Section 3 and write three questions based on your brief preview.*

1. _____

2. _____

3. _____

**Review Vocabulary** **Define** chemical property *to show its scientific meaning.*

*chemical property* _____

**New Vocabulary** *Use your book or a dictionary to define the following terms.*

*periodic table* _____

*period* _____

*group* _____

*electron dot diagram* _____

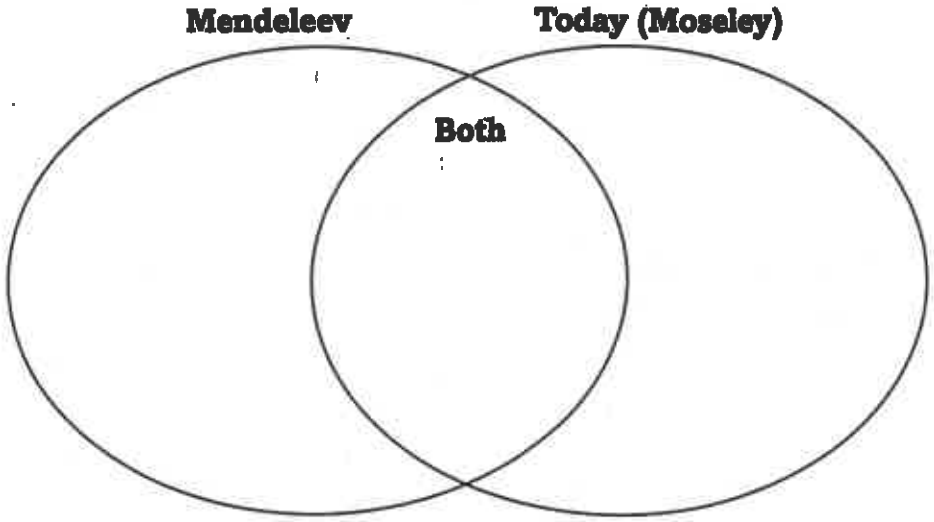
**Academic Vocabulary** *Use a dictionary to define* similar *to show its scientific meaning.*

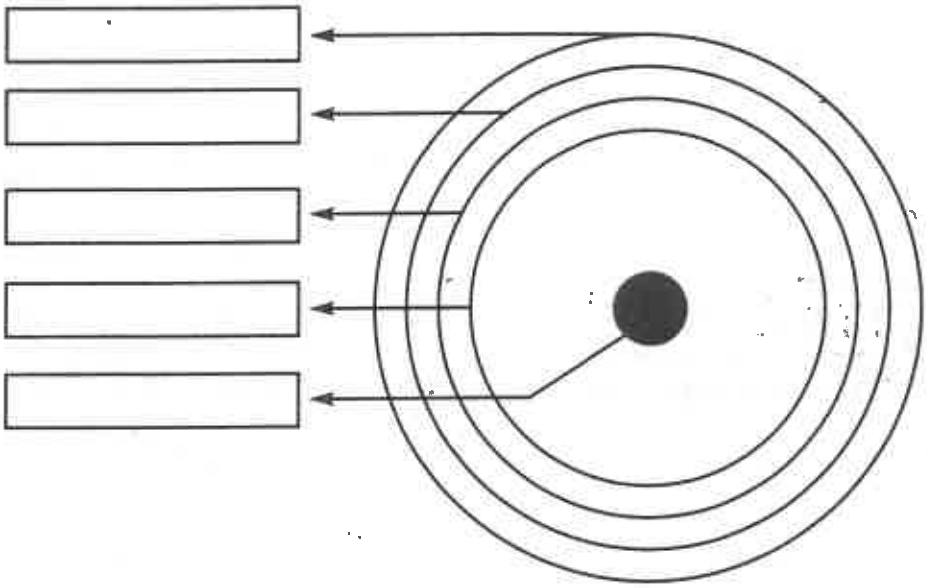
*similar* _____

Name _____ Date _____

## Section 3 The Periodic Table (continued)

| Main Idea | Details |
|---|---|
| **Organizing the Elements**<br>*I found this information on page _____.* | **Compare** *Mendeleev's early periodic table to that of today by completing the Venn diagram.* |
| **The Atom and the Periodic Table**<br>*I found this information on page _____.* | **Sequence** *the energy levels in the electron cloud diagram and write the maximum number of electrons that can be contained in each level.* |



Name _____ Date _____

## Section 3 The Periodic Table (continued)

**Main Idea** | **Details**

*I found this information on page _____.*

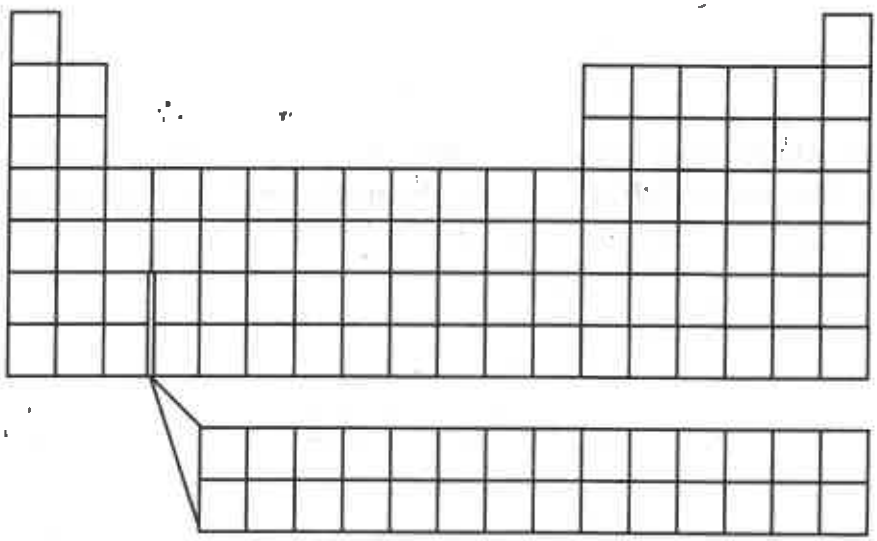
**Analyze** ***how*** **electron dot diagrams** ***show similarities between elements within a group.***

### Regions of the Periodic Table

*I found this information on page _____.*

**Classify** ***the regions of the periodic table as*** **metals, nonmetals,** ***or*** **metalloids.**

- Shade the regions on the blank periodic table.
- Label each region and write its characteristics.



### SYNTHESIZE IT

**Write a paragraph showing the relationship between chemistry and physics based on what you've learned from the periodic table.**