

Refer to the modern Periodic Table at the back of the book to answer questions 1 to 9.

- Where on the Periodic Table are the elements that form ions with a positive charge?
- Where are the metals?
- Where are the elements that form ions with a negative charge?
- Where are the non-metals?
- Where are the metalloids?
- What shape does the arrangement of the metalloids form in the Periodic Table?
- Starting from carbon, what happens to the ion charge as you move to the right?
- Starting from carbon, what happens to the ion charge as you move to the left?
- As you move to the right, and down, what happens to the atomic mass and the atomic number? Are there any exceptions to your answers?
- What is the relationship between the number of protons in the nucleus of an atom and the atomic number of the element?
- Describe how to determine the number of electrons in the atom of an element.
- Describe how to determine the number of electrons in the ion of an element.
- A certain element has 12 protons and 14 electrons.
 - Is the element an atom or an ion?
 - Which element is it?
 - What charge, if any, does it have?
- A certain element has 34 protons and 36 electrons.
 - Is the element an atom or an ion?
 - Which element is it?
 - What charge, if any, does it have?
- A certain element has 24 protons and a charge of 3+.
 - Is the element an atom or an ion?
 - How many electrons does the element have in this form?
 - Which element is it?
- Look at the Periodic Table entry for sulfur in Figure 4.

16	2.07
2-	
S	
sulfur	
32.07	

Figure 4

- What is the atomic number?
 - What is the atomic mass?
 - What is the ion charge?
 - How many electrons does the sulfur atom have?
 - How many electrons does the sulfur ion have?
- Look at the Periodic Table entry for calcium in Figure 5.

20	1.54
2+	
Ca	
calcium	
40.08	

Figure 5

- What is the atomic number?
 - What is the atomic mass?
 - What is the ion charge?
 - How many electrons does the calcium atom have?
 - How many electrons does the calcium ion have?
- Look up each of the following elements in the Periodic Table, list its atomic number and atomic mass, and state if it is a metal, non-metal, or metalloid.

(a) tellurium	(e) manganese
(b) osmium	(f) silicon
(c) arsenic	(g) phosphorous
(d) yttrium	