Student worksheet

3.2 The structure of an atom determines its properties

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Atomic structure

1 Complete the following table.

Sub-atomic particle	Mass	Charge	Location in an atom
Proton			
Neutron			
Electron			

2 What determines the atomic number of an atom?

3 Why is the atomic number used to order the elements on the periodic table?

4 What determines the relative atomic mass?

5 How are electrons arranged in an atom?

6 What is the outer-most electron shell called?

7 What determines the properties of elements?

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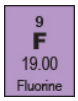
8 On the periodic table, what is a horizontal row called?

9 On the periodic table, what is a vertical column called?

10 For the element fluorine, explain how to use the information in periodic table to calculate



a the number of protons

b the number of neutrons

c the number of electrons

11 In the Bohr model of electron configuration, what is the maximum number of electrons that can be in the following shells? (Show a formula and calculations for each answer.)

a first shell

b second shell

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c third shell

d fourth shell

12 Draw the electron configuration for the following elements.

Nitrogen	Oxygen	Fluorine	Neon
Phosphorus	Silicon	Chlorine	Argon

13 Explain the trend in electron shell configuration

a across a period.

b down a group.

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Extend your understanding

14 Draw the proposed electron configurations for both of the following atoms using the given configurations.

Potassium: 19 electrons	2,8,8,1	2,8,9
Calcium: 20 electrons	2,8,10	2,8,8 2

15 Identify which of the electron configurations in the previous question are correct and explain your answer.

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16 Using the knowledge you have gained from this concept, draw the electron configurations of bromide and tin.

Bromine	Tin

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