**Activity 7: Moles and Avogadro’s Number**

***Learning Objectives***

*Conceptualize the mole unit*

*Convert between the units mole, particle (atom or molecule), and gram*

**Estimated Completion Time** 45 Minutes

**Instructor Information**

This activity assumes that students understand scientific notation.

**ANSWERS TO QUESTIONS**

1. 50 g

2. .3 kg or 300 g

3. 2 × 10-23 g

4. a. Students should recognize that the atomic mass of carbon is 12.01.

b. 16.00

c. 32.07

5. The weight is the sum of the atomic masses for the atoms.

6. a. 12 b. 24 c. 500 d. 6.20 × 1023

7. a. 6.20 × 1023 atoms b. 6.20 × 1023 molecules c. 6.20 × 1023 atoms

8. Items per mole or particles per mole

9. 1.81 × 1024 atoms

10. 1.81 × 1024 atoms

11. 36.0 g

12. 106 g

13. 54.1 g

14. 48.1 g

15. The mole is a counting unit for molecules. It relates the number of particles to the mass of the atoms.

**Activity 7: Skill Development**

1. a. 3.31 × 1023 atoms b. 1.04 moles c. 1.92 × 1023 CaCO3

2. a. 7.95 × 1023 atoms b. .232 moles c. 5.5 × 1023 NaCl

3. 1.2 × 1023 atoms of Au