

## TEACHER RESOURCE PAGE

### Lesson Plan

#### Section: Counting Atoms

#### Pacing

<b>Regular Schedule</b>	<b>with lab(s):</b> NA	<b>without lab(s):</b> 2 days
<b>Block Schedule</b>	<b>with lab(s):</b> NA	<b>without lab(s):</b> 1 day

#### Objectives

1. Compare the quantities and units for atomic mass with those for molar mass.
2. Define mole, and explain why this unit is used to count atoms.
3. Calculate either mass with molar mass or number with Avogadro's number given an amount in moles.

#### National Science Education Standards Covered

##### UNIFYING CONCEPTS AND PROCESSES

UCP 1 Systems, order, and organization

UCP 2 Evidence, models, and explanation

UCP 5 Form and function

#### Block 6 45 minutes

##### FOCUS 5 minutes

- \_ **Bellringer**, ATE (GENERAL). This activity has students write out the number of copper atoms calculated in regular notation, using all the zeroes needed as placeholders rather than in scientific notation.

##### MOTIVATE 10 minutes

- \_ **Discussion**, ATE (GENERAL). This activity uses the mass of a copper atom to walk students through the rationale and value of atomic mass units.

TEACH 30 minutes

- \_ **Group Activity**, ATE (BASIC). This activity has students observe a one-mole quantity of several substances and classify them as either an element or a compound.
- \_ **Skills Toolkit: Determining the Mass from the Amount in Moles**, SE (GENERAL). Use this feature to walk students through the steps of calculating the mass of a substance using the amount of moles of a substance.
- \_ **Transparency, Determining the Mass by Using the Amount in Moles of a Substance (GENERAL)**. This transparency master illustrates how to calculate the mass of a substance using the amount of moles of a substance. (Skills Toolkit 1)
- \_ **Reading Skill Builder**, ATE (BASIC). Have pairs of students read Section 4 and create a flowchart that describes how to solve two mole problems.

HOMEWORK

- \_ **Teaching Tip**, ATE (GENERAL). To help students understand the value of Avogadro's number, have students calculate how many dollars each person in the world would get if a mole of dollars were evenly distributed among Earth's population.
- \_ **Section Review**, SE (GENERAL). Assign items 1–5.

OTHER RESOURCES

- \_ **Group Activity**, ATE (GENERAL). This activity has small groups of students devise an experiment to determine the number of beans in a package. Students are to apply the relationship between mass and moles.
- \_ **go.hrw.com**
- \_ **www.scilinks.org**

## TEACHER RESOURCE PAGE

### Lesson Plan *continued*

#### KEY

SE = Student Edition

ATE = Annotated Teacher Edition

### Block 7 45 minutes

TEACH 35 minutes

- \_ **Sample Problem D: Converting from Amount in Moles to Mass, SE (GENERAL).** This problem demonstrates how to convert from an amount in moles to mass.
- \_ **Skills Toolkit: Determining the Number of Atoms from the Amount in Moles, SE (GENERAL).** Use this feature to walk students through the steps of calculating the number of atoms by using the amount of moles of a substance.
- \_ **Sample Problem E: Converting from Amount in Moles to Number of Atoms, SE (GENERAL).** This problem demonstrates how to convert from moles to the number of atoms.

CLOSE 10 minutes

- \_ **Reteaching, ATE (BASIC).** Students create and solve their own problems based on Sample Problems D and E.
- \_ **Quiz, ATE (GENERAL).** This assignment has students answer questions about the concepts in this lesson. Questions 4–6 are problems similar to Sample Problems D and E.
- \_ **Assessment Worksheet: Section Quiz (GENERAL)**

#### HOMEWORK

- \_ **Skills Worksheet: Concept Review (GENERAL)**
- \_ **Practice Sample Problems D: Converting from Amount in Moles to Mass, SE (GENERAL).** Assign items 1–4.

- \_ **Homework, ATE (GENERAL).** This assignment gives students additional practice converting from moles to mass. (Sample Problem D).
- \_ **Practice Sample Problems E: Converting from Amount in Moles to Number of Atoms, SE (GENERAL).** Assign items 1–3.
- \_ **Homework, ATE (GENERAL).** This assignment gives students additional practice converting from moles to number of atoms. (Sample Problem E).
- \_ **Section Review, SE (GENERAL).** Assign items 6–13.

#### OTHER RESOURCES

- \_ **go.hrw.com**
- \_ **www.scilinks.org**

#### END OF CHAPTER REVIEW AND ASSESSMENT RESOURCES

- \_ **Mixed Review, SE (GENERAL).**
- \_ **Alternative Assessment, SE (GENERAL).**
- \_ **Technology and Learning, SE (GENERAL).**
- \_ **Standardized Test Prep, SE (GENERAL).**
- \_ **Assessment Worksheet: Chapter Test (GENERAL)**
- \_ **Test Item Listing for ExamView® Test Generator**