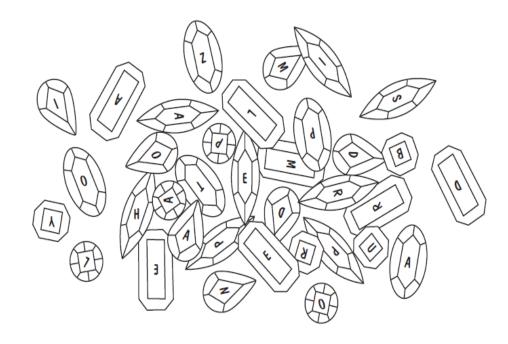
Name:	Class	Date:

How awesome is that? You mastered the standards for natural resources and minerals. Now for a little enrichment to work your brain and earn some extra credit!

### Task 1: Gem search

The names of six common gemstones are scrambled in the gems below. All of the letters spelling a particular gemstone can be found on gems of the same cut. Unscramble the letters on the similar gems and write the names on the lines below.



· <del></del>	۷,
J	4
j.	6.

### USE THE MOHS SCALE BELOW to answer the questions on the next page:

1.	Talc

6. Feldspar

2. Gypsum

7. Quartz

3. Calcite

8. Topaz

4. Fluorite

9. Corundum

5. Apatite

10. Diamond

### Mohs Knows

3. Each of the ten numbers on the Mohs' scale has a characteristic mineral associated with it. Likewise, the names of the minerals can be used to represent the numbers. In this puzzle, you use these numbers to do simple math problems and find the mineral names. In the example below, you must find a seven-letter mineral whose rating on the Mohs' scale, when added to the rating of a four-letter mineral, yields the rating of an eight-letter mineral. The only possible combination is the one shown. For each of the "equations," find the names of the minerals from the Mohs' scale that make the statement correct, and enter these names (one letter per blank) on the lines provided.

Example:	<u> </u>	(3)	+ -	(1)	=	(4) T	
a		_ +				_ = 17	
<b>b.</b> 11 –			=				
c						_ =	
d			×				
				=	30		
e		_ ÷				_ =	
<b>f.</b> 24 ÷				=			
				_			
							10

6E5B: Minerals Contribute to Roo	k
Earth and Space	е

V	+
Y	%
	•

On any or a second	Date	0
Name:	Date:	Group:

## **MATH CONNECTIONS**

Rocks are classified based on their formation processes and their mineral compositions. Most rocks contain some minerals. Nine families of rocks are classified by the minerals found in them. The table below shows some of those rock families, the minerals found in them, and the mineral's chemical makeup.

#### **Rock Families and Minerals**

Rock Family	Minerals	Chemical Makeup
	Gold	100% Gold
	Silver	100% Silver
Elements	Copper	100% Copper
	Carbon	100% Carbon
	Sulfur	100% Sulfur
	Cinnabar	86% Mercury 14% Sulfur
Sulfides	Galena	86% Lead 14% Sulfur
	Pyrite	47% Iron 53 % Sulfur
Ualidaa	Fluorite	51% Calcium 49% Fluorine
Halides	Halite	40% Sodium 60% Chlorine
	Corundum	53% Aluminum 47% Oxygen
Oxides	Cuprite	90% Copper 10% Oxygen
	Hematite	70% Iron 30% Oxygen

Use the table to answer the questions below:

- 1. What element do the minerals found in sulfide rocks have in common?
- Sketch three pie charts to represent the chemical makeup of the minerals that comprise the sulfide family.

Cinnabar

□ Iron□ Sulfur

$\bigcup$	☐ Mercury ☐ Sulfur
	Galena □ Lead □ Sulfur
	Dyrite

- 3. What do rocks in the oxide group have in common?
- 4. If a rock in the oxide family was found to contain 260 grams of cuprite in it, what percent of the cuprite would be copper?

\_\_\_\_\_percent

# **MATH CONNECTIONS**

Rock Families and Minerals

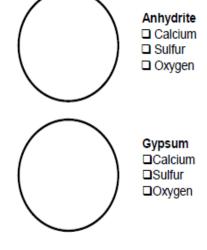
Rock Family	Minerals	Chemical Makeup
	Calcite	40% Calcium 12% Carbon 48% Oxygen
Carbonates	Dolomite	22% Calcium 13% Magnesium 13% Carbon 52% Oxygen
	Malachite	57% Copper 1% Hydrogen 6% Carbon 36% Oxygen
	Anhydrite	29% Calcium 24% Sulfur 47% Oxygen
Sulfates	Gypsum	23% Calcium 2% Hydrogen 19% Sulfur 56% Oxygen
Phosphates	Apatite	40% Calcium 18% Phosphorus 38% Oxygen 4% Fluorine
	Beryl	5% Beryllium 10% Aluminum 31% Silicon 53% Oxygen
Silicates (SiO <sub>2</sub> )	Muscovite	10% Potassium 20.5% Aluminum 21% Silicon 0.5% Hydrogen 47% Oxygen 1% Fluorine
	Orthoclas e	14% Potassium 10% Aluminum 30% Silicon 46% Oxygen
	Quartz	47% Silicon 53% Oxygen
Organics	Amber	11% Hydrogen 80% Carbon 9% Oxygen

0.	minerals in the carbonate family have in their chemical makeup?

5. Which two elements do all of the

Earth and Space

Create two pie charts to represent the chemical makeup of the minerals found in rocks in the sulfate family.



If a rock in the silicate family was found
to contain 150 grams of quartz in it, what
percent of the quartz would be silicon?

	per	cer

