

Ores to Minerals

Lesson 4 Mineral Structures

STUDENT WORKSHEET

Name: _____

Date: _____ Class: _____

Instructions

1. Fill out the chart giving the relationships between the lengths and angles for each shape in Table 1 below. Add the information about the axes and the definition. You can find this information in the slides for the lesson.
2. Cut out the crystal system shapes along the solid lines found on the "Crystal System Cut-Outs and Their Labels" sheet.
3. For each shape, pre-fold along all the dotted fold lines and firmly press over the fold lines.
4. Put a dot of glue on the tab to attach two sides and create an edge for the crystal shape. You don't need a lot of glue. Press and hold the tab for at least 30 seconds to be sure it sticks. Alternatively, you may use tape.
5. Cut out the seven labels on the "Crystal System Cut-Outs and Their Labels" sheet.
 - f. Cubic
 - g. Tetragonal
 - h. Orthorhombic
 - i. Hexagonal
 - j. Rhombohedral
 - k. Monoclinic
 - l. Triclinic
6. Once all seven shapes are glued, arrange the shapes so that they are resting on their correct label, and have your teacher check your work.

Shape	a, b, c	α, β, γ	Figure	Axes & Definitions	Example (Optional)
Cubic					
Tetragonal					
Orthorhombic					
Hexagonal					
Rhombohedral					
Monoclinic					
Triclinic					

Conclusion Questions

How are minerals useful for people?
 Are all crystals minerals? Why or why not?
 Are all minerals crystals? Why or why not?
 What is the difference between a unit cell, a crystal lattice, and a crystal system?
 Which crystal systems involve all 90-degree angles?
 Which crystal systems involve axes or lengths that are all equal?
 Which crystal systems involve axes that are all unequal lengths?