

Materials Science 142

Applications of Diffraction Techniques in Materials Science

Assigned: 4/12/06

Laboratory Exercises 2

Due: 4/19/06, 5pm

Plane Group Symmetry

Goal: Determine the symmetries present in a 2-dimensional pattern; identify an appropriate unit cell. Seven patterns are to be analyzed.

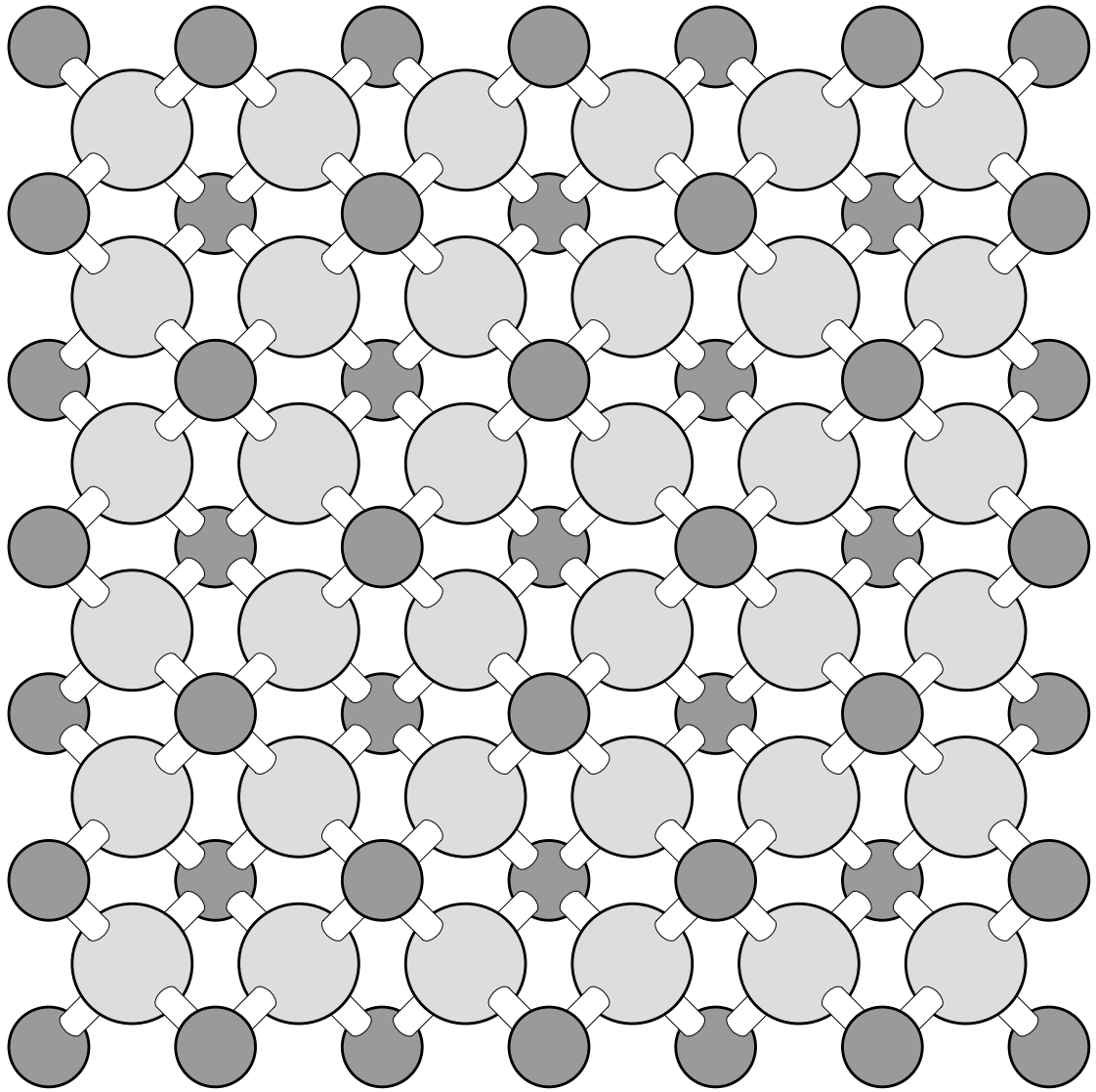
1. Identify rotation axes. Note these on your pattern using the appropriate symbol.
2. Identify mirror planes. Draw these as solid blue lines.
3. Identify glide planes. Draw these as dotted red lines.
4. Outline the unit cell in black. Indicate the number of lattice points per unit cell.

Details:

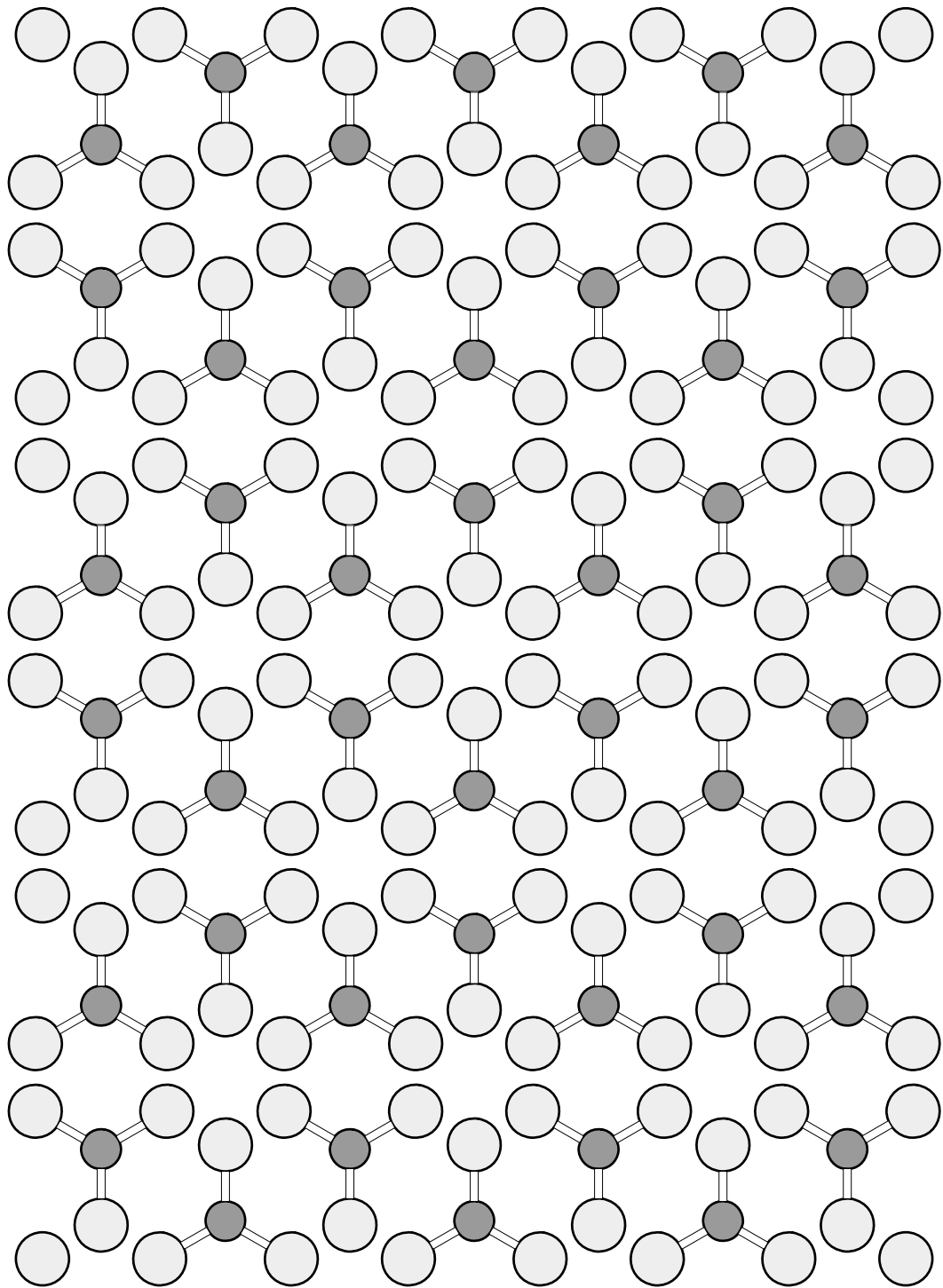
Make sure your patterns are relatively neat and legible. The seven patterns are appended.

Homework Problems:

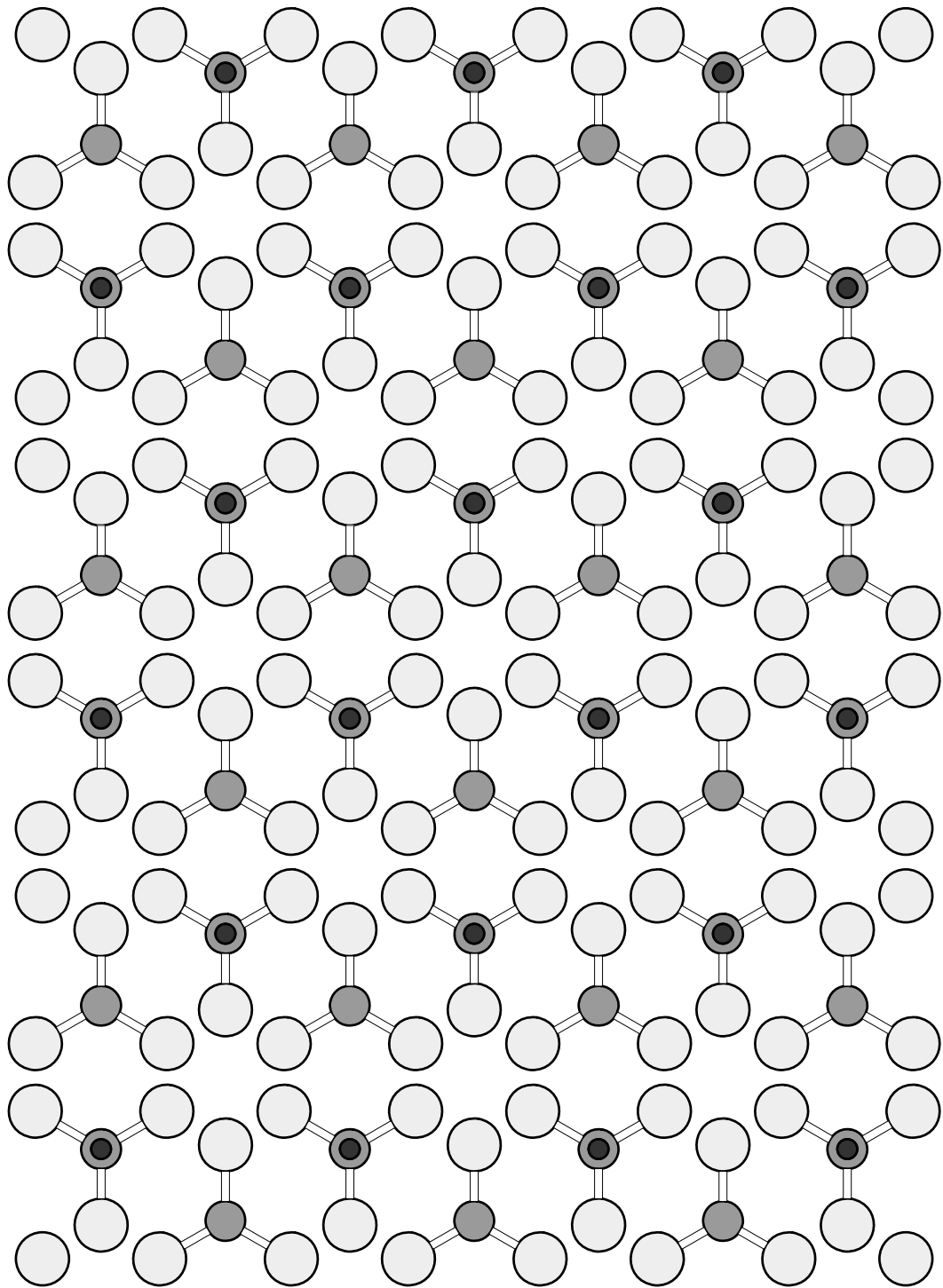
Chapter 1: #11, #14.



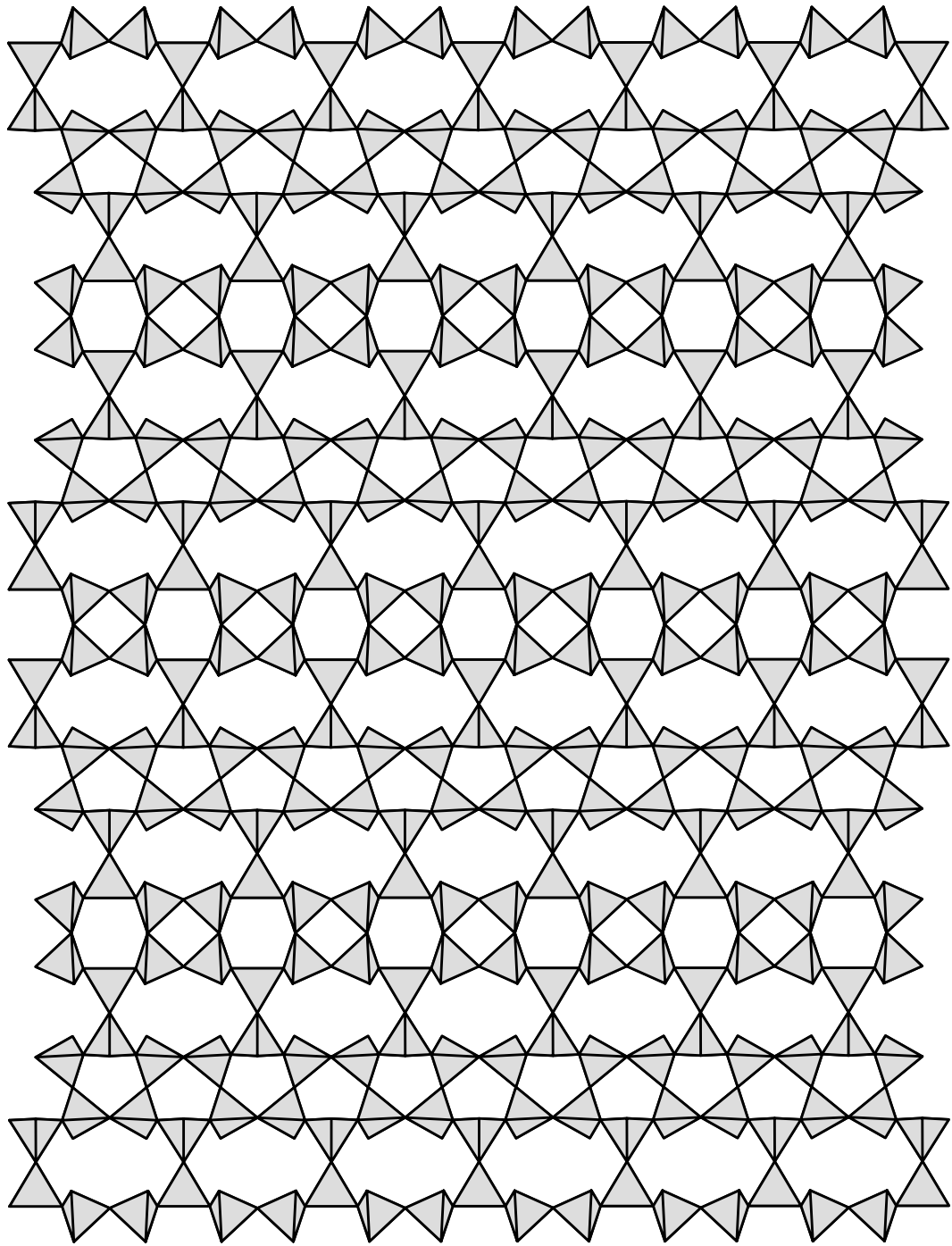
Pattern 1



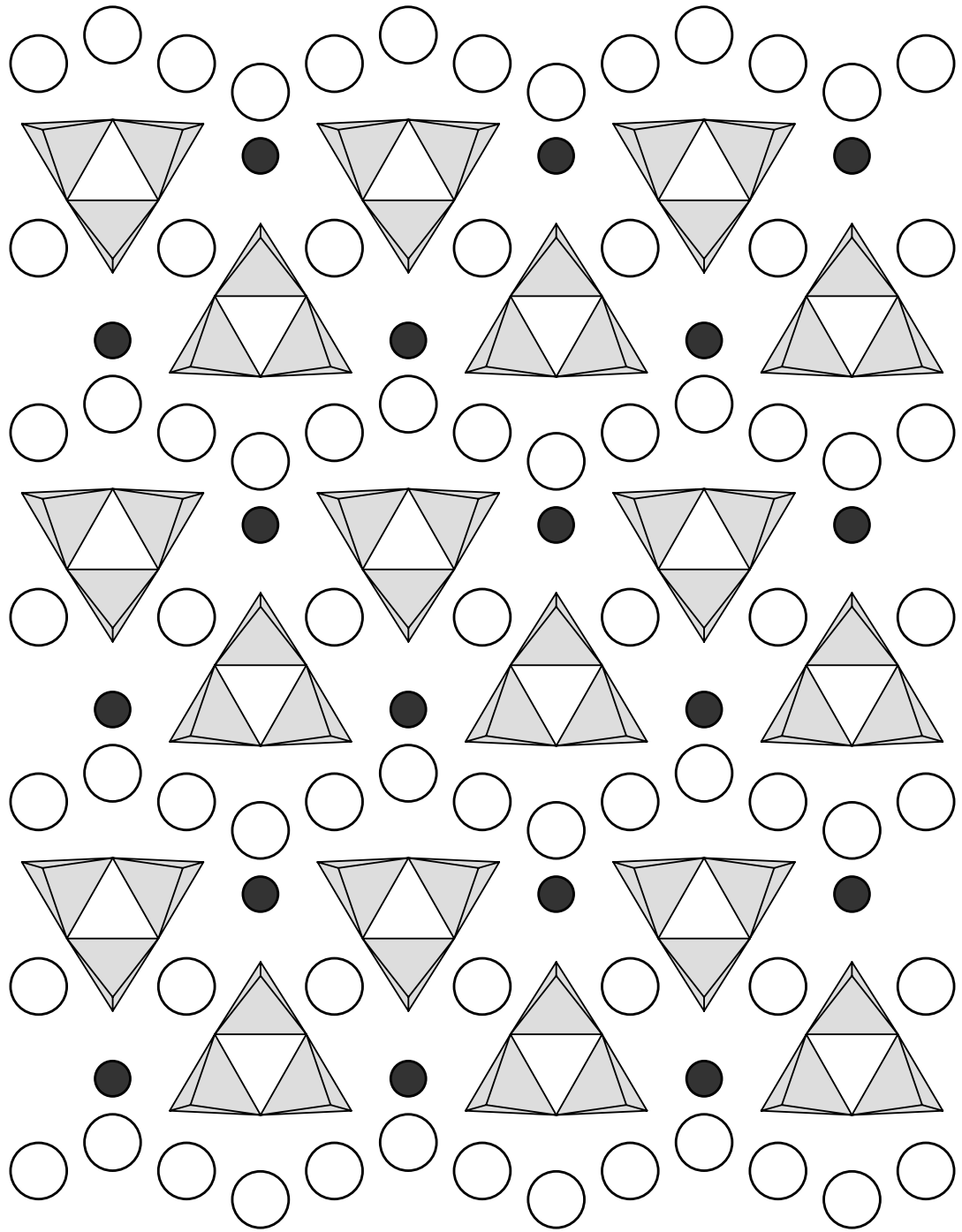
Pattern 2



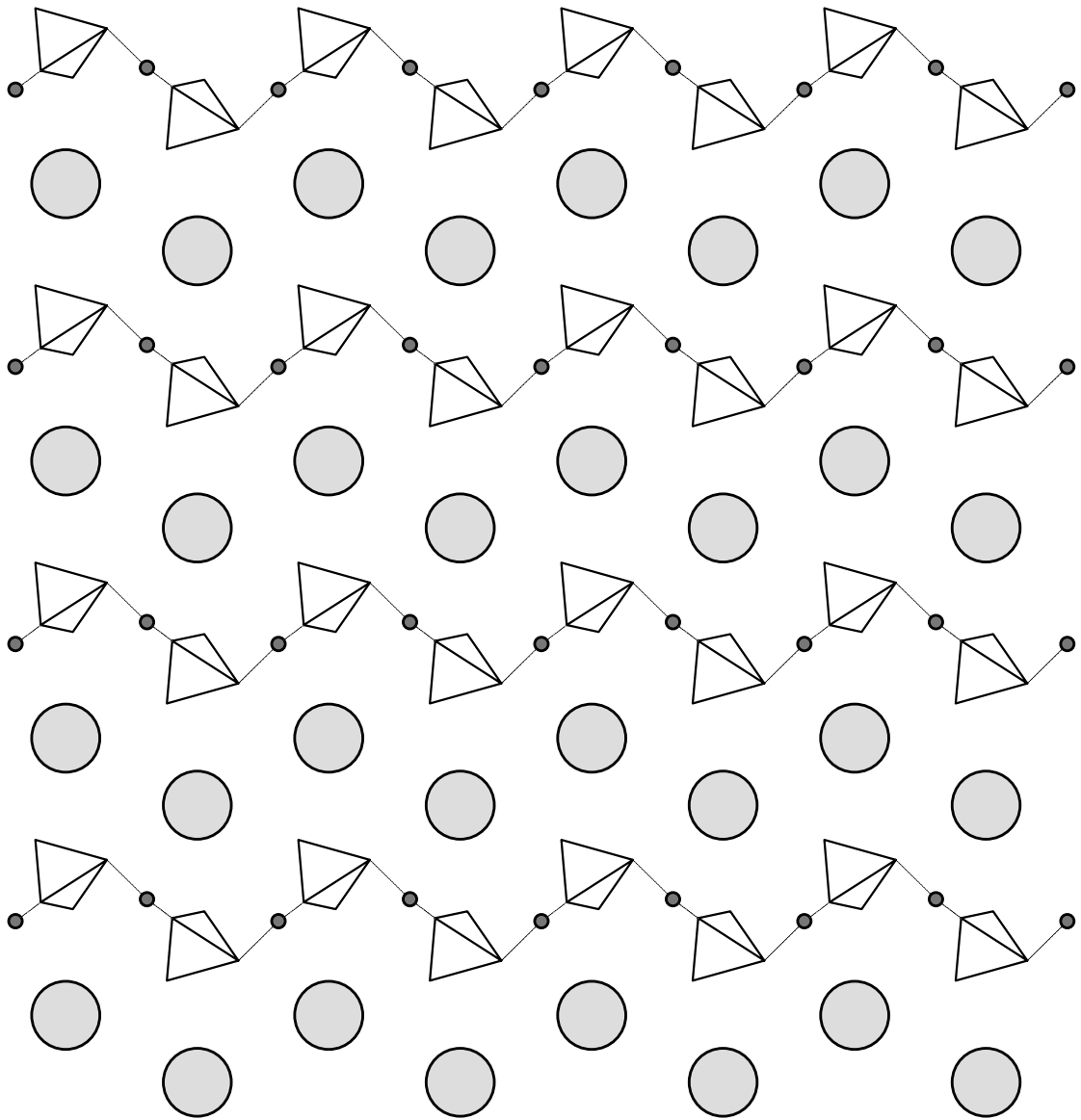
Pattern 3



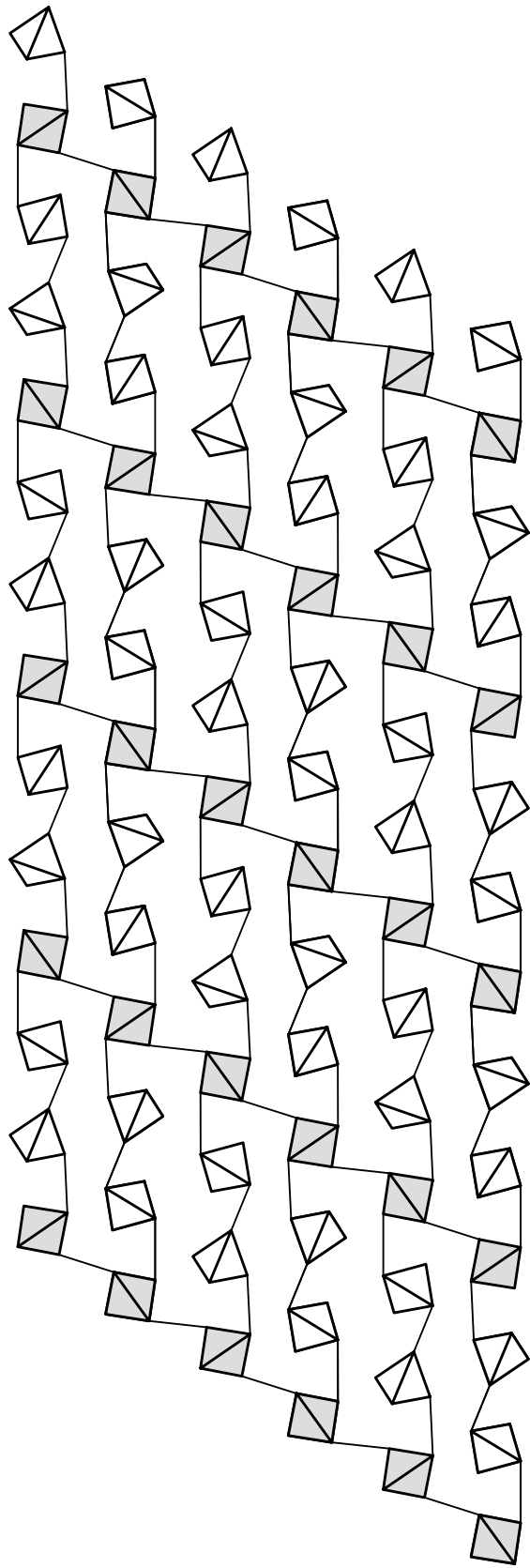
Pattern 4



Pattern 5



Pattern 6



Pattern 7