MINERAL IDENTIFICATION

The Crystal Classes

Just as plane patterns can be described in terms of five unit cells, three dimensional patterns can be thought of as belonging to one of six classes. Just as there are two kinds of rectangular plane patterns, there are several types of three-dimensional pattern for each of the six crystal classes.

<table>
<thead>
<tr>
<th>Crystal Class</th>
<th>Description</th>
<th>Examples</th>
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| **Cubic (Isometric)** | ISOMETRIC or CUBIC  
All edges equal, all angles 90 degrees  
Halite, Fluorite, Pyrite  
Galena, Garnet, Magnetite  
Gold, Copper, Diamond |
| **Tetragonal** | TETRAGONAL  
Two edges equal, all angles 90 degrees. Square cross-section but different third dimension.  
Zircon  
Chalcopyrite |
| **Orthorhombic** | ORTHORHOMBIC  
No edges equal, all angles 90 degrees. Like the shape of a cereal carton.  
Olivine, Andalusite, Sillimanite  
Some Amphiboles and Pyroxenes  
Topaz, Sulfur |
| **Monoclinic** | MONOCLINIC  
No edges equal, two angles 90 degrees. The shape obtained by knocking the ends out of a carton and skewing it.  
Some Amphiboles and Pyroxenes  
Micas  
Gypsum, Epidote  
Sugar also belongs to this crystal class. |
### Triclinic

- **TRICLINIC**
- No edges equal, no angles 90 degrees
- Most Feldspars
- Kyanite
- Clay Minerals

What if you have one 90 degree angle, or two equal edges? It turns out that these contribute no extra symmetry and the crystal is still triclinic.

### Hexagonal

- **HEXAGONAL**
- Angles of 60, 90, and 120 degrees.
- Ice (snowflakes)
- Quartz, Beryl
- Corundum, Hematite
- Calcite, Dolomite

From [http://www.uwgb.edu/dutchs/EarthSC202Notes/minerals.htm](http://www.uwgb.edu/dutchs/EarthSC202Notes/minerals.htm)