Mineral Identification Step-by-Step

Step 1: Color (Dark or Light?)
Color is the least reliable property of a sample, but it can still be helpful in determining if a sample may be a mafic or felsic mineral. As such, it's a clue, but only a clue!

Step 2: Luster
Is it metallic or nonmetallic? If nonmetallic, is it vitreous (glassy)? Silky? Pearly? Dull-earthy? Something else? Compare the sample to the photos in the lab manual or in the online supplement.

Step 3: Streak
What color streak does the sample leave behind? Remember, streak color is diagnositic; it does not vary from sample to sample, regardless of the sample's appearance.

Step 4: Hardness
Do a scratch test to determine where the sample falls on Mohs Scale of Hardness. This will be a range rather than a precise number.

Step 5: Crystal Form
If the sample is clearly a crystal or contains a crystal, its form is a strong clue. Is it cubic? Hexagonal? Tetrahedral? Dodecahedral? Or? Caution: don't confuse crystal form with cleavage!

Step 6: Cleavage
Sometimes cleavage is easy to see; other times, the sample may be too worn down for cleavage to be clearly evident. Also, cleavage may not be evident on every surface of the sample. Look for nicks that might reveal cleavage. Also, look for signs that the sample fractured rather than cleaved.

Step 7: Specific Gravity
Get an approximation with a heft test. The specific gravity of most minerals is 2-3. If your sample is significantly heavier or lighter than the "average" sample, that fact can lead you to an identification.

Step 8: Miscellaneous Tests
If acid makes it fizz, it's some form of calcite. If it's salty, it's halite. If it's magnetic, it's magnetite. If it smells like rotten eggs, it contains sulfur. If it smells musty, it's kaolinite.

Step 9: Make Your Identification
List the properties noted in Steps 1-8 and compare them to the properties of minerals in the Mineral Identification Chart in your lab manual.