

Short Writing Assignment for Feb. 3: Procedure

A procedure is a set of instructions for computing a function or property. Here are some partially worked out examples.

**The following description is deliberately incomplete. In particular, the procedure for area should specify how to choose the rectangle in step 1, how the scale is used in step 2, and how partial crystals are treated in step 3. The procedure for ‘diameter’ or (1/AGI) should describe how any particular ‘random’ lines were chosen. ‘I just drew four lines haphazardly ’ or ‘I took the lines on the handpoint’ is a perfectly fine justification for this essay. Note that most of you were computing AGI not average diameter so your procedure will *not* be identical to mine.**

Consider a micrograph of a cross-section of a metal. The micrograph has a ‘scale’ attached to it.

To compute the average area of a crystal of this metal:

1. Choose a rectangle on the micrograph.
2. Determine the actual dimensions of the rectangle using the scale.
3. Count the number of crystals in the rectangle.
4. Divide the area in step 2 by the number of crystals in step 3.

To compute the average diameter of a crystal of this metal:

1. Choose randomly a number of lines on the micrograph. (They may have many different directions and lengths.)
2. Determine the actual length of the lines using the scale.
3. Count the number of crystals which intersect each line and divide it into the length of the line.
4. Average the numbers in step 3.

Due Feb 3: Write a 1-2 page procedure for computing one of average area or average grain intercept (or their inverses). Bring to class next week any tools -calculator or ruler needed to perform your procedure as your classmates will try to do so. (I expect a revised version of this will appear in your essay.)