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Design and operation of an inexpensive far-field laser scanning microscope suitable for use in an undergraduate laboratory course ARTHUR PALLONE, Northern Kentucky University, ERIC HAWK, None — Scanning microscope applications span the science disciplines yet their costs limit their use at educational institutions. The basic concepts of scanning microscopy are simple. The microscope probe - whether it produces a photon, electron or ion beam - moves relative to the surface of the sample object. The beam interacts with the sample to produce a detected signal that depends on the desired property to be measured at the probe location on the sample. The microscope transforms the signal for output in a form desired by the user. Undergraduate students can easily construct a far-field laser scanning microscope that illustrates each of these principles from parts available at local electronics and hardware stores and use the microscope to explore properties of devices such as light dependent resistors and biological samples such as leaves. Students can record, analyze and interpret results using a computer and free software.

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