



BLACK AND WHITE

by
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Newspapers play an important role in this story/stories and provide a news media for many adults. Since they are readily available, they can be used in science classes before they are recycled.

The newsprint is small enough to allow a lower-case letter e to fit in and fill up the low power field (30X) of a microscope. Students can then be asked to draw the letter e as they see it, and explain how it is different from an e seen with the naked eye. An important lesson can be learned about the image that is seen under a microscope. When an object is magnified under a microscope, it is also reversed and inverted (backwards and upside-down).

MATERIALS: microscope, newspaper, slide, cover slip, dropper, scissors, paper, pencil, water

ACTIVITY: Cut out a lower case e and put on microscope slide. Add drop of water and cover slip and under the microscope. Draw a circle on your paper the size of the microscope field (the area you see under the microscope or the field of view) and draw the letter exactly it appears. What happened to the letter e? What happens to all objects that you see under the microscope?

SOURCE: a biology class when I was a student.

TEACHER NOTES: It is important for students to recognize that the tools that allow us to take a closer look at objects can have some limitations. If you are looking at a one-celled organism, it may not make too much difference that the microscope is both reversing and inverting the image that you see. This exercise shows the student that this phenomenon actually happens. Have them try it with other letters, too. It is a fun way for them to practice their skills of focusing and making slides.

STANDARDS:

BSL: 1.3, 1.4, 1.6, 1.8, 1.12, 3.1, 3.3, 6.2, 6.3, 11.3, 12.1, 12.3

NCTM: 4d

SCS: A1, B1, E2, H2, H5

Macaulay, David. Black and White. Houghton Mifflin Company, 1990, ISBN#0-395-52151-3.