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**THE ART AND  
SCIENCE OF  
OBSERVATION**

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The GIFTED CHILD TODAY

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# IN THE CLASSROOM

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## The Art and Science of Observation

Observation is one of the most important tools or skills a scientist has at his or her disposal. The ability to recognize and recall details about objects helps a scientist figure out the answers to problems. Most people look at things, but never truly see or observe them. A dollar bill, for example, has several series of numbers and signatures on both sides. Can anyone, however, recite the location of each and every number; or recall every signature on that dollar bill? Some things we see often, but we never really take note of their details. You may look at them, but did you memorize every detail about them? This attention to observation gives scientists the clues that help with their experimentation.

Learning how to “look” is a skill that every scientist must learn. Sketching an object in detail is a tactile vehicle that will help develop and refine observational skills. In sketching, one must look at and examine an object, focusing upon all its intricate parts. One must also devise a way to put this three dimensional object you are looking at onto a flat two dimensional sheet of drawing paper. It does not really matter if you can draw well or not. Examining an object by turning it over or by just holding it helps the scientist obtain kinetic information about the object. The act of sketching an object sets up a three way connection between the eye, the brain, and the hand, while simultaneously linking vision and memory. This linkage is what makes merely seeing things and observing things different from each other in the scientific sense.

### Learning to Look for Detail

The brain has a perfect standardized form for every object it has ever seen stored in its memory. For example, when you want to draw a tree, the brain



will call up its ideal form for a tree. The brain will then compare your drawing to the image in your mind's eye. If your drawing deviates from the ideal form, signals will be sent telling you that you are not accurate in your detailing. This is the first hurdle you must overcome in your drawing task. By examining the form of the object such as a tree limb, you will find that there are many grooves, knots, and scars that you were unaware existed on something as simple as a tree limb. These details give the branch a real character that the standardized image stored in your memory can't match. Looking and examining is where all real observation begins. The next step is to draw what you really see, and not what the brain tells you to draw. Draw line for line, knot for knot, scratch for scratch. Some lines, knots, and scratches may be in front of each other. When one object is in front of another and partially blocks the view of things, we say it overlaps that object. This overlapping of one

detail behind or in front of another gives a drawing a sense of depth. Some lines and grooves change direction, such as a horizontal line becoming a vertical line in the corner of a box. We call these directional diversions plane changes. Overlaps and plane changes in a drawing make the view real to an observer. Another way to help fine-tune these observational skills is to try to gather a great deal of information about an object in a relatively short time span. The faster you draw, the greater your emphasis on the lines that give the form its character or life. Fifteen second drawings will help a student to gather and place a great deal of information on paper rapidly. Placement of objects in correct locations by means of comparison is also essential. Rapid drawings call for increased awareness, and unbelievable judgment calls. Remember: you can draw the most beautiful hand in the world, but if it does not connect to the rest of the body in the correct place, what have you really drawn? These rapid drawings will help a student to learn about placement on the page while helping them figure out a way to decide which things are most important so as to commit them to memory.

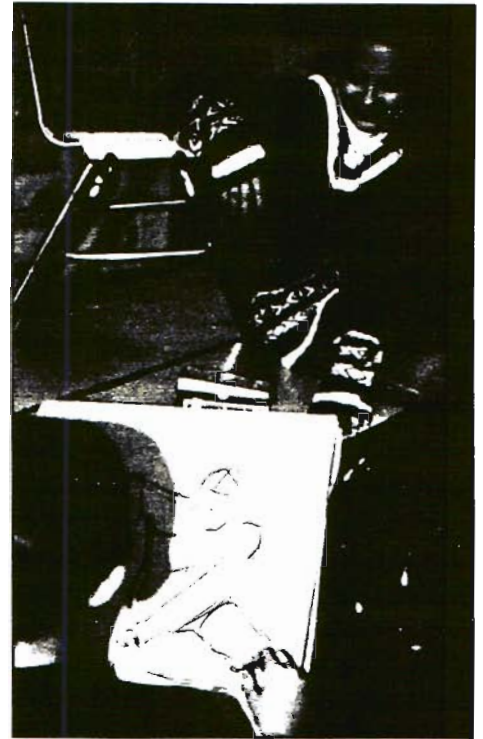
Eye-hand coordination is an essential skill for sketching. To coordinate eye-hand movement, have students draw pictures without looking at the drawings. Have students place a supported piece of paper on their legs and ask the students to sit so their legs are under the desk or table. Then ask them to follow the outline or contour of an object with their eyes. As their eyes move over an object, have the students follow the eye movement with their hand by drawing a line on the paper. If the students keep their pencils on the paper without lifting it up, it will be easier not to lose their place in the drawing.

Measuring, the way of placing objects in correct locations on the

paper, seems more difficult than it really is. For example, almost all doors are seven feet high. Since the doorknob is halfway between the floor and the top of the door, this places the doorknob at 3½ feet high. Comparing objects to things you know and sizes you already have stored in your memory will make measuring with your eye easier.

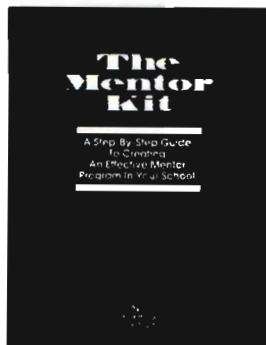
The art of looking, combined with the knowledge of overlaps, plane changes, visual measurement, and the ability to move the eye and hand as one unit will make children's drawings come together. Rapid drawing will improve their sense of important features and rapid memorization of clues about an object.

While all student drawings and sketches may not look like the works of Rembrandt or DaVinci, if we keep in mind that drawing is a way of seeing the world, then sketching will help a child see, observe and capture a piece of that world on paper for others to see.



Drawing then, is a learning process that uses the eye, the hand, and a pencil instead of a textbook. ☺

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