

Observational Drawing

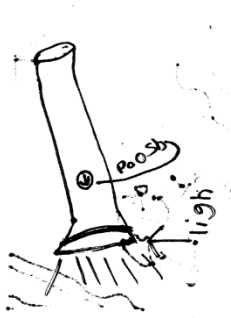
Observing and Reflecting Upon What One Sees

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PURPOSE OF OBSERVATIONAL DRAWING

Proficiency in science requires learners to develop many representational skills. Scientists do not use words only in their work. They also rely on diagrams, graphs, video, and photographs to make discoveries, explain findings, and communicate interest about phenomena. Scientists use drawings in notebooks to imagine new relations, test ideas, and elaborate knowledge through visual representations (Latour, B., 1999; Gilbert, J. K., 2005; Nersessian, N., 2008).

When teachers nurture observational drawings early by inviting young learners to observe seemingly ordinary common objects (pine cone, leaf, shell, stapler) as well as fascinating objects (butterfly wing, feather, working gears in a wind-up toy), with tools such as magnifiers, paper, and pens, young children begin recording what they observe. In doing so, they take some control of the experience by changing the situation to explore further (Howes, 2008). They have opportunities to see, relate the bits and pieces to what will become a larger whole, compare and remember details. "Children who learn very early to note details within their context and to think about these in the structuring of something much greater are beginning to practice vital habits of mind" (Heath & Wolf, 2004, p. 10).



Young children's thoughts are often full of imagination and fantasy. This is not a bad thing, but in STEM learning the focus is on capitalizing on children's interest about the real world, what is in it, and how it works. Observational drawing grounds young children in reality. It takes observation beyond simple sensory perception and allows children to organize knowledge and understanding (Fox, 2010). As children learn to draw with accuracy, they begin to filter out speculations and false theories to focus on what is actually observed in the subject or process. They begin to develop new theories that are more accurate (Ainsworth, Prain, & Tytler, 2011; Fox & Lee, 2013). Children retain more of what they learn in an observation when they draw vs when they do not (Fox & Lee 2013). Drawings can be used to represent data gathered during a study or an investigation. When young children are urged to "draw what you see" the drawing becomes an important tool for communication, understanding, and documentation; an especially useful tool for scientists who

are still figuring out speech to text and sound/symbol concepts (University of Illinois at Urbana-Champaign, 2019). Drawing skills do not need to be first taught as drawing and purposeful representation in drawing develop simultaneously. (Helm & Katz, 2016).

MATERIALS TO CONSIDER USING IN OBSERVATIONAL DRAWING

- Black fine-tip sharpie pens
- Small square pieces of drawing paper
- Mirrors to place under objects
- Lighting that enhances detail
- Objects to sketch
- Clipboard or other hard surface



GETTING STARTED WITH OBSERVATIONAL DRAWING

The Illinois Early Learning Project has long encouraged preschool teachers to introduce the idea of sketching and drawing from observation to their young learners. A sketch is defined as "a quick drawing that shows interesting features of something observed." Drawing is considered to be a more careful process that includes greater attention to detail. Examples of initial lessons can be found at <https://illinoisearlylearning.org/pa/project-planning/children-sketch/>. They recommend the following:

- Sketch and draw alongside children every day
- Begin by sketching objects that have interesting details, but not are very small, large, or complex
- Make sketching and drawing from observation an option during small group reading time. Create a space with drawing materials and objects related to what is being investigated for the children to examine, draw, and sketch
- Connect with literacy learning by encouraging them to sign their names
- View examples of how scientists label parts of a drawing, and encourage them to do the same
- Model use of vocabulary in your discussions with children (*observe, freehand, trace, locate, point of view, line, shape, space, texture, etc.*)

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ADULT SUPPORT IN OBSERVATIONAL DRAWING

Create a space in the classroom and in the schedule to encourage observational drawing. Small group reading is a good fit. Provide a small table with an object to draw in its center. Encourage children to first handle the object to notice textures, patterns, and other details before drawing. Hand magnifiers may inspire closer looks and finer detail. Children often use only a small corner of a large piece of paper. Providing small 3x3 or 4x4 pieces of paper may feel less daunting to young children, and will make it easier to display. Encourage children to use a date stamper to record the date of their drawing, and to draw the same item several times. The date stamper will enable the teacher to sequence the drawings and notice if the child is including more details in the drawing. Model sketching by talking about what you are doing as you sketch. This may be more uncomfortable for you than the young learners, as they often represent their ideas through drawing with greater ease than adults (Helm & Katz, 2016). Use a black fine-tip permanent marker, modeling for children that there is not the expectation of a perfect product, but that drawing is a process and an opportunity to learn. There is no need to erase or cross out, as drawing is meant to communicate what you see, and that you can draw the same thing several times.

- *I want to record what I see quickly so I'm going to do a sketch or a quick drawing.*
- *First I want to practice by drawing in the air. I'm going to start by looking at where the leg is attached to the body. I'm going to move my eye and hand up as I go up the first part of the leg, then almost straight down the second part, then a short flat part with a little hook. Now I'm ready to sketch on the paper.*
- *The legs of the grasshopper are interesting to me. I notice the grasshopper's back legs seem to have three parts. It almost looks like the letter "z". The part attached to the body is the thickest.*
- *The middle part of the leg looks like it has spikes on it. I wonder if I can feel them if I touch it gently.*
- *The short part of the leg is very small. It looks like it has hairs on it. I'm going to use the magnifier to help me see what is there.*
- *I wonder how it looks when I look down on it from above. I wonder if I will see anything different.*
- *Let me hold up my sketch alongside the grasshopper. What are some things you notice?*
- *Is there anything you see that is not in my drawing?*
- *Did I draw anything that isn't really there?*
- *I'm going to write my name and date-stamp it, so I can remember when I drew it. Tomorrow I may want to draw it again.*



RECOMMENDED RESOURCES/READING

- Ainsworth, S., Prain, V., & Tytler, R. (2011). *Drawing to Learn in Science*. *Science*, 333 (6046). Retrieved from <http://cognitrn.psych.indiana.edu/rgoldsto/courses/cogscilearning/ainsworthdrawinglearn.pdf>
- Fox, J. (2010). *The Role of Drawing in Kindergarteners' Science Observations*. *International Art in Early Childhood Research Journal*, 2(1). Retrieved from: http://artinearlychildhood.org/artec/images/article/ARTEC_2010_Research_Journal_1_Article_5.pdf
- Fox, J. & Lee, J. (2013). *When Children Draw vs When Children Don't: Exploring the Effects of Observational Drawing in Science*. *Creative Education*, 4.
- Heath, S. B., & Wolf, S. (2004). *Art is all about looking: Drawing and detail*. London: Creative Partnerships.
- Helm, J. H., & Katz, L. G. (2016). *Young investigators: The project approach in the early years*. New York, NY: Teachers College Press.
- Illinois Early Learning Project. (2019). *Helping Children Sketch and Draw from Observation*. (n.d.). Retrieved from <https://illinoisearlylearning.org/pa/project-planning/children-sketch/>
- Kantrowitz, A., Fava, M., & Brew, A. (2017). Drawing together research and pedagogy. *Art Education*, 70(3), 50-60.
- Katz, P. (2017). Introduction: Drawing and Science are Inseparable. In *Drawing for Science Education* (pp. 1-8). Sense Publishers, Rotterdam.