



Drawing on Science

Observational Drawing as a Science Tool in the Early Childhood Classroom

Why use observational drawing in science with young children?

- Observational drawing grounds young children, whose thoughts are often full of imagination and fantasy, in reality (Fox, 2010)
- Drawing takes observation beyond simple sensory perception and allows children to organize knowledge and understanding (Fox, 2010)
- Learning to draw with accuracy helps children to filter speculations and false theories out from what was actually observed in the subject or process (Fox & Lee, 2013)
- Children develop new theories as they draw and observe (Ainsworth, Prain, & Tytler, 2011)
- Children retain more of what they learn in an observation when they draw vs. when they do not (Fox & Lee, 2013)
- Teachers may assess what children have learned by what they are paying attention to in their drawings

Resources:

Ainsworth, S., Prain, V., & Tytler, R. (2011). Drawing to Learn in Science. *Science*, 333 (6046). Retrieved from <http://cognitron.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. doi: [10.4236/ce.2013.47A1002](https://doi.org/10.4236/ce.2013.47A1002)

Lesson Planning in the Context of the Project Approach: Helping Children Sketch and Draw from Observation. (n.d.). Retrieved from <http://illinoispip.org/lesson-planning/drawing.html>

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Process:

1. Teacher leads guided observation of the object of study in a whole group or small group, discussing attributes and what children already know or think they know about this type of thing. The teacher may record students' ideas. Teachers may model an observational drawing.
2. Children complete drawings. Teacher may sketch alongside children.
3. Teacher records students' ideas, questions, and theories.
4. Follow-up research and teaching (on both science and drawing skills) occur.

Note: When the actual object is not available for viewing, time spent drawing a model or photograph or illustration can be helpful also.

Ideas for using drawing activities in science:

- Record observations about the weather
- Record observations about how shadows change
- Record growth of plants and observe and record parts of plants
- Notice and record unique qualities of animals (including insects, birds, fish)
- Notice and record changes during an animal's life cycle
- Record outcomes during exploration and inquiry process (e.g., drawing boats and whether they sink or float in a test)
- Observe and record how simple machines work

At Mustard Seed School, Young Children Regularly Draw:

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| • seeds, leaves, flowers | • worms | • bicycles |
| • plants that the children help to grow | • class pets: fish, turtle | • vehicles |
| • gourds | • leaves | • architectural structures |
| • insects: ladybugs, bees | • flowers | • birds |
| • feathers, bird nests | • plant root systems | • bones, eyes, bodies |
| | • inside simple machines | • playground structures |

Questions to Prompt Thinking and Drawing:

With which part will you start?

What are you noticing? How can you show that?

What else do you see?

Let's look again.

Tell me about this part.

What do you know about this?

How many eyes/legs/wheels/gears/fins/wings does it have?

What other parts can you show? What will you draw next?

What does that really look like?

What shape do you see? What are the lines like?

Let's try a new draft. It might be good to start again.

