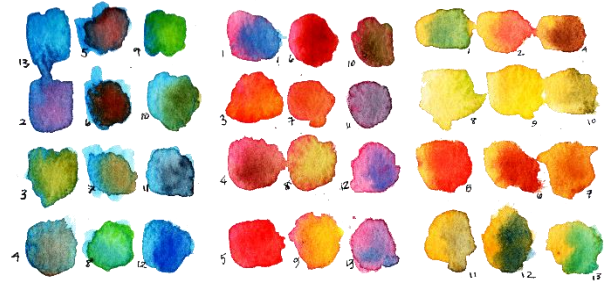


Sketching for Scientists Tool Kit

These are some central tools that can help you feel you know “where to start” when doing observational sketching.



- Contrast – black/shadows = strong visual interest
- Color
 - 1 "spot" color
 - 2 colors (complimentary or contrasting)
 - Monochrome (ex: several kinds of blues)
- Composition & design
 - Rule of thirds
 - Diagonals & curves
 - Leading lines
 - Negative space
- Contour drawing
- Diagram drawing (full field journal entries)
- Making your own fonts (elaborate your own handwriting)
- Measuring with a pencil
- Plexi-glass/transparency film (get started; add details freehand; use as a coloring sheet or worksheet)
- Rubbing
- Shapes & mark-making (use shapes as frames)
- Tracing (get started; add details freehand; use as a coloring sheet or worksheet)

RECONSIDER CREATIVITY

"If you think you can't draw, think again. You are no more a born artist than a chef or mechanic" (Laws 2015). We can as easily add that one is no more born a scientist. All of these professions train in core and complex skills, building up capacity and expertise as they practice. Drawing and related visualization skills can also be developed, and whole bodies of research today indicate that such skill development can and should be built into scientific education and communication (Loehle 1990, Andreasen and Ramchandran 2012, Merkle 2018, Merkle et al. 2019).

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- Laws, J.M. 2015 *The Laws Guide to Drawing Birds*. Berkeley, CA: Heyday Books.
- Loehle, C. 1990. A Guide to Increased Creativity in Research: Inspiration or Perspiration? *BioScience* 40(2): 123–129
- Merkle, B.G. 2018. Perspective: Drawn to Science. *Outlook: Science and Technology Education*. *Nature* 562: S8–S9.
- Merkle, B.G., B. Barber, and M. Carling. 2019. Drawn to natural history: Enhancing field courses with drawing and field journal instruction. *Natural Sciences Education* 49(1): e20019.

DRAWING TIPS & SCIART ADVICE:

- Sketching Tips blog series: bit.ly/CommNaturalSketchingTips
- Suggestions for Integrating Drawing into University-Level Courses: bit.ly/2PwZ7hF
- Sketching and Field Journal Basics pocket guide: bit.ly/CommNaturalPocketGuide
- Tips for Ethical and Legal Use of Images for Science Communication: bit.ly/2wyheMf