

Communicating Science through a Novel Type of Journal

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To the Editor:

We would like to bring to the attention of the *CBE—Life Sciences Education (LSE)* community an online journal, *Frontiers for Young Minds* (<http://kids.frontiersin.org>), which is designed to promote scientific communication with the general public, especially young people. Launched in 2013 by a group from University of California at Berkeley led by Dr. Robert T. Knight, *Frontiers for Young Minds* serves as an open-access resource that not only creates science literature for a younger audience but also brings kids into the review process. Specifically, scientists write kid-friendly versions of their articles, which are then reviewed by young people in the target age range for the pieces (ages 8–15). Authors “translate” the main ideas in the articles through the use of keywords as well as a glossary section to define any scientific nomenclature. *Frontiers for Young Minds* uses two article formats: 1) new discovery—to introduce a recent development in science by highlighting a previously published and peer-reviewed article; and 2) core concept—to provide a kid-friendly explanation of a fundamental scientific idea. A science mentor other than the authors guides the young reviewer through the review process. In an online discussion forum curated by the *Frontiers for Young Minds* editors, the authors and mentors discuss the comments from the young reviewers and work together to identify components of the articles that spark the curiosity of the kids and concepts that need further clarification. *Frontiers for Young Minds* publishes articles in a wide range of disciplines, including astronomy and space science, biodiversity, health, neuroscience, and earth and its resources. All articles include online profile links to all of the authors and the young reviewers. The submission process is free for the authors and follows an easy-to-navigate online platform to communicate with the editors, reviewers, and production staff.

We published a new discovery format article in *Frontiers for Young Minds* as part of a creative writing project in Juarez’s research lab. We wrote a piece on a *PLoS Genetics* article (Juarez *et al.*, 2011) on transcriptional responses to epidermal wounding in *Drosophila* (www.jove.com/video/50750/microinjection-wound-assay-vivo-localization-epidermal-wound-response). We also integrated content from an article published in *Journal of Visualized Experiments* (Juarez *et al.*, 2013) to provide a visual aid for understanding how we conducted our wound assays. We created artistic interpretations of results and figures to illustrate key points of the research. For example, we created an “ouch scale” to quantify the results and help the young readers interpret them. We also created an image to highlight a curious child with a magnifying glass, a fruit fly, and DNA (Figure 1), because we hoped it would help young readers see themselves contributing to the scientific endeavor. The feedback from our young reviewer helped us to clarify the overall message of the article, especially as it related to fundamental concepts of DNA and genetics. The young reviewer was intrigued by the idea of doing experiments with *Drosophila* and using the results to impact human health. The final product of this writing exercise is a *Frontiers for Young Minds* article (<http://kids.frontiersin.org/article/10.3389/frym.2016.00027>).

We invite *LSE* readers to share their biological research through *Frontiers for Young Minds* and to encourage their colleagues, including undergraduates, graduate students, postdoctoral associates, and other scientists, to do so. We found the process

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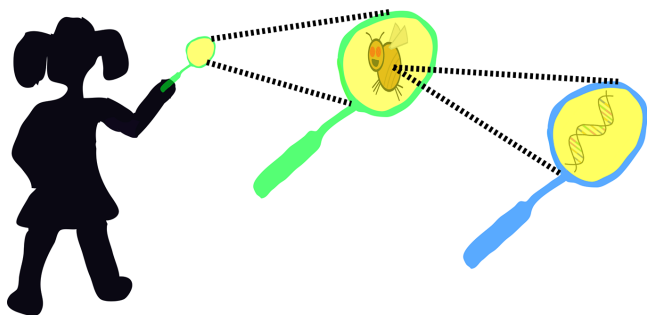


FIGURE 1. Lessons from the fruit fly. A creative drawing project to summarize the use of fruit flies as a model to study genetics. A young child has a magnifying glass to look at the fruit fly. A second magnifying glass looks inside the fruit fly to visualize the DNA.

of editing and creating science-related artwork quite useful for developing our own science communication skills, and it provided an entry point for a broader group of students to actively engage in science. We think *Frontiers for Young Minds* presents a unique opportunity to study how writing for public audiences influences scientists' model-based reasoning (Quillin and Thomas, 2015) and communication skills as well as young

readers' science literacy. We also think the journal provides a unique environment for exploring the integration of science and art as a tool for improving student learning and inclusion (Campbell *et al.*, 2014).

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