Miller & Levine 2010

How is the Macaw book different from the Dragonfly?

Biology is a fast-moving science, and a successful textbook requires constant revision. Since the first introduction of the "Dragonfly" book in 2002, Joe Levine and I have revised and updated the book on an almost yearly basis. The most recent edition bears a 2008 copyright, and contains significant updates and improvements over the original version. As we prepared that update, however, we also decided that it would be the last one for the Dragonfly. It was time to rethink our approach to biology, and to combine new scientific developments with new instructional techniques. As a result, Joe Levine and I have spent the last 18 months working on an entirely new program, and we are delighted with the result. Our editors gave us a blank sheet of paper to work with, and we took the opportunity to rethink everything. The result is our new "Macaw" book. It's a completely new text, offering students unprecedented opportunities to take an active role in the process of exploration, experimentation, and learning.

What hasn't changed?

• **Writing Style**: Teachers familiar with the Dragonfly book will recognize the personal touch that has always marked our textbooks. We engage students with a conversational narrative style that draws our student readers into the process of discovery.

• **Table of Contents**: Based on strongly positive teacher reaction to the Dragonfly book, we made very few changes to the order of presentation. We still lead with ecology in the second unit of the book, then move into cell structure, genetics, and molecular biology. Our evolution unit then follows, leading into a tour of the diversity of life. Human physiology forms the final unit of the text, just as it did in the Dragonfly book.

• **Attention to Standards**: Our new book was prepared with careful attention to the National Science Education Standards, and to the standards of individual states. State-customized versions of the book will highlight specific state standards, just as with the Dragonfly program.

• **Art Linked to Narrative**: As we did with the Dragonfly book, Joe and I worked directly on the art program as we wrote each chapter. This means that our illustrations aren't decorative "add ons." They work directly with the text to enhance student understanding.

• **Author Involvement**: Joe Levine and I wrote each and every chapter of the Macaw book, just as we did with the Dragonfly. We're always available to teachers and students to answer questions, and we freely share our email addresses and even our phone numbers. We speak regularly at CAST and other state science meetings, and will continue to do this to support the new Macaw program.

What's New?

• **Fewer Chapters**: We've made important decisions on content that reflect changes in the science of biology as well as changes in biology education. We've saved space by combining several chapters in surveys of living organisms and human physiology. As a result, the Macaw book contains just 35 chapters. However, we've actually expanded our coverage of molecular biology, human genomics, ecology, and evolution. These changes enable the Macaw book to provide more depth in the most dynamic and important areas of current biology.

• **Chapter Mysteries**: Each chapter begins with a "Mystery" that is followed throughout the pages of that chapter. By taking a CSI-like approach to biology, we've used these Mysteries to weave a strand of inquiry through every topic in the curriculum. We think you'll immediately see the value of this new approach, and so will your students.

• **New Science**: There's plenty of "new" biology in the Macaw book. We've worked very hard to put the latest scientific breakthroughs into the textbook, and to frame them in terms that your students will understand and appreciate. Turn the pages of the Macaw book and you'll see groundbreaking descriptions of stem cell research, RNA Interference technology, the "bar-coding" of living organisms, monitoring ecology from space, and much, much more.

• **Biological Classification**: More than a decade ago, biologists moved away from traditional Linnaean classification to a cladistic system that reflects our growing understanding of evolutionary relationships between organisms. We've retained references to traditional classification in the Macaw book, but we've also introduced the new system to complement it. Each major group of organisms is presented in the context of evolutionary cladistics, giving students a much clearer view of our new understanding of classification.

• **Diversity of Life Handbook**: One of the Macaw program's highlights is the incredible Diversity of Life Handbook at the end of our book. No other text has anything like this wonderful visual guide to the diversity of life — nor have any other authors in the high school market attempted to integrate modern phylogenetic classification with a diversity guide like this. It has the look and feel of a "coffee-table" book that your students will enjoy leafing through.

• **The Digital Path**: Apart from improvements in the text itself, the most striking element of the Macaw program is an innovative Digital Path to biology. The on-line companion to the book not only presents the text and its illustrations in a digital format, but provides an entirely new approach to learning. Students can explore topics in depth, review material, and work with simulations of biological processes. The digital path includes biology-oriented games, note-taking, self-assessment, and real-world inquiry. For teachers, the Digital Path includes lesson-planning, an on-line teachers edition, editable worksheets, and an extensive media gallery. All of this can be accessed through the Macaw book's own website at **Biology.com**.

• **Differentiated Instruction**: Just like the Dragonfly book, our new text provides resources appropriate for students at all levels, including English language learners, advanced students, and mainstream students. For students whose reading level falls short of grade level, we've worked with learning specialists to produce a "Foundations" textbook specially tailored to their needs. The Foundations textbook opens biology up for students who would struggle with a traditional textbook — by covering the same biological principles in a way that makes for easier reading and more complete comprehension.

Finally, and most importantly, I hope you will take the opportunity to contact me directly if you have any questions about our textbook or our program. Joe Levine and I have always taken our writing personally — which means that we are always available to you and your colleagues, as well as your students, to assist you in the classroom and lab. I'd be delighted to exchange emails, talk with you directly over the phone, or even set up a conference call to help you understand what's new and different about our program. Please don't hesitate to contact me directly at any time — and thanks for the wonderful work you are doing for your students.

Sincerely,

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