

Origami's "Not to be Missed" List

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This is not necessarily a list of beginners' origami books for the mathematics classroom, but it does show the variety and scope of the field of paper folding. While some books have been around for years, some are relatively new. Nonetheless, each has become a classic and worth adding to any mathematics collection.

Beech, Rick. *The Origami Handbook*. New York: Hermes House, 2002. ISBN1-84309-212-3.

One of the best all-around books on origami and origami projects. One of the best things about this book is that there are color pictures depicting all the folding processes. The "Yami Fireworks" model can be found here. Look for this book in the bargain/remaindered section of bookstores.

Biddle, Steve and Megumi. *Essential Origami: How to Build Dozens of Models from Just 10 Easy Bases* (ISBN0312-05716-4) and *The New Origami* (ISBN0-312-08037-9).

Very comprehensive and easy to use books – for the beginner to the expert. Included are a number of models which are dynamic in nature.

Brill, David. *Brilliant Origami*. New York: Japan Publications, 1996. ISBN0-87040-896-8.

"Brill" is not only the author's last name but is also a play on words on the British slang for "brilliant" or "cool"! These designs, while not Origami 101, are amazing and Brill's knowledge of polyhedral folds and his original geometric models are certainly show-stoppers. Included is a section on polyhedra which includes the double stellated cuboctahedron in its rotating cube form.

Franco, Betsy. *Unfolding Mathematics with Unit Origami*. Berkeley: Key Curriculum Press, 1999. ISBN1-55953-275-0.

Perhaps the first book to explore the relationship between modular origami and geometry as it pertains to the classroom. It is accompanied by a poster showing various models generated by the "star" module.

Fuse, Tomoko (In Japanese: 布施 知子). *Unit Origami*. New York: Japan Publications, 1990. ISBN0-87040-852-6.

The most comprehensive book on the subject by the "Goddess of Unit Origami." This is an English translation/compilation of several of her Japanese books. It's a little confusing in parts with back and forth page references but it remains an industry staple. There are many of her books now in translation including those on origami boxes and floral origami globes (decorative polyhedra).

Hilton, Peter, and Jean Pedersen. *Build Your Own Polyhedra*. Menlo Park: Addison Wesley, 1988. ISBN0-201-22060-1.

The absolutely beautiful polyhedra in this book are created by repeated folded *strip* processes which were originated by Pedersen and first brought to light by a Scientific American article by Martin Gardner. The text is a valuable resource for polyhedra in general. Coming soon will be a gigantic coffee-table sized book containing all of the material which Hilton and Pedersen have ever penned on paper-folding and the number theoretic and algebraic properties displayed by it.

Hull, Thomas. *Project Origami: Activities for Exploring Mathematics*. Wellesley: A K Peters, 2006. ISBN1-56881-258-2.

Hull is an associate professor of mathematics at Merrimack College who has been investigating the relationships between mathematics and paper folding for many years. This book covers his personal study as well as those of others in the field of origami science in topics as varied as cubic equations, buckyballs, tori, matrices, Gaussian curvature, calculus, abstract algebra, discrete mathematics and topology.

Jackson, Paul. *Step-by-Step Origami*. New York: Smithmark, 1994. ISBN0-8317-6265-9.

Jackson is an extremely talented artist who not only is known for his origami books, but his books on all manner of paper crafts and design. Many of his books also deal with the fabrication of paper or the use of various types of papers for specific purposes. Among his many books is a very well-received volume on pop-up card design.

Kasahara, Kunihiko. *Origami Omnibus*. New York: Japan Publications, 1988. ISBN0-87040-699-4.

"The ultimate origami book" – in English, this tome contains 250 origami works, over 384 pages, 50 of which are dedicated to polyhedra constructed via unit origami. This book is currently available in a second revised edition released 10 years after the original printing.

Kasahara, Kunihiko and Toshie Takahama. *Origami for the Connoisseur*. New York: Japan Publications, 1987. ISBN0-87040-670-1.

The caveat on the cover states, "not for novices, this is a devotee's origami book, full of challenging forays into the realm of paper folding." One of the few books in English which not only covers complex unit origami and the Kawasaki "iso-area" folding method, but also includes the Haga single sheet polyhedra and a host of difficult models of origami animals.

Kenneway, Eric. *Complete Origami*. New York: St. Martin's Press, 1987. ISBN0-312-00898-8.

This is more like a handbook of origami from A to Z! There's a neat unit for the pentagonal dodecahedron under "M" for "modular origami." This book even contains directions for folding both the flat and ring flexagons.

Lang, Robert. *Origami Design Secrets: Mathematical Methods for an Ancient Art*. Natick: A K Peters, 2003. ISBN1-56881-194-2.

This is a very large format paperback by one of America's origami masters. It not only provides step-by-step instructions for 25 models, but also describes in detail the process of designing origami models from a mathematical-geometrical-empirical view.

Origami Basics. New York: Friends of the Origami Center of America, 1993.

This is truly a must-have reference for any folder. It is a comprehensive handbook of origami symbols and diagrams and provides directions on how to fold all of the standard origami bases (starting points). The sections on "Changing Paper Sizes and Shapes" and "Dividing a Square into Equal Parts" is exceptionally helpful and provides much potential for mathematical discussion in the classroom.

Shaffer, Jeremy. *Origami to Astonish and Amuse*. New York: St. Martin's Press, 2001.

Shaffer is truly an origami magician of incredible creativity and outstanding skill. You have to see this book to believe the awesome mind behind his famous models of the surfer and the wave, the working nail-clipper and the man swatter. It will inspire and amaze your students. (Shaffer also does much work for the Bay Area Rapid Folders, an organization of origami enthusiasts in the San Francisco Bay Area; www.barf.cc)

Tubis, Arnold and Crystal Mills. *Unfolding Mathematics with Origami Boxes*.

Emeryville: Key Curriculum Press, 2006. ISBN1-55953-839-2.

This book proceeds from the place where Betsy Franco's book left off, examining the geometry underlying origami boxes made through modular techniques. One of the features of this text is a very helpful bibliography of resources and references.

