

is accompanied by “more ideas” designed to spark creativity and exploration. Caroline Price’s vigorous and inviting line drawings complement the clear directions. Some projects require supervision, such as papermaking and tie-dyeing, while others develop useful skills. The new crafts popular with the preteen set are here: macramé bracelets, rolled paper beads, and dreamcatchers. Old favourites include Jacob’s ladders, hobby horses, and button buddies.

Both of these books feature materials readily available around the house. Comparing the instructions, I felt that some projects in *The Jumbo Book of Crafts* had been more thoroughly tested. For example, its cardboard loom is easier for smaller hands to manage than *Pioneer Crafts’* styrofoam tray loom. In general, Sadler focuses on having fun making things, whereas Greenwood focuses on acquiring useful skills in an historical context.

For any creative child and for anyone who works with children, *The Jumbo Book of Crafts* is an invaluable resource guaranteed to banish the “nothing-to-do” blues. For those who seek a specific heritage link with an emphasis on responsibility and resourcefulness, *Pioneer Crafts* is a good choice.

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### Science for the Young: Experiments in Light, Sound, Illusion and Reflection

*Funhouse Mirrors: The Science and Illusion of Reflection.* Dan Witkovski. Illus. Christopher Bailey Foote. Random House, 1995. Unpag. \$19 cloth. ISBN 0-679-87229-9. See *Hear, Playing with Light and Sound.* Milan Tytla. Illus. Chum McLeod. Annick, 1994. 112 pp. \$9.95 paper. ISBN 1-55037-988-7.

A sturdy, colourful book about reflection, *Funhouse Mirrors* is literally an “eyes on” experience for readers of four and up (no limit given). It is published under the imprint of Abracadazzle and subtitled “the science ...” although there is very little of the latter here (despite the involvement of Martin Gardner) but much of the former (and at \$19 Canadian, it is expensive fun). It would have been easy to simply illustrate the formation of images by plane and curved mirrors — that is basically what the book is about — however the diagrams, showing only concave mirror image formation, present only half the story. In 28 pages a surprising number of reflective phenomena can be easily evoked with observer involvement using the foil mirror provided (replaceable by a piece of aluminum foil, by the way). Most of the demonstrations are successful, and some are clever, whilst the cover has an eye-catching 24-mirror display. Inside, simple plane and curved surface reflections progress to anamorphic art and a hologram. However, the demonstrations are a little uneven in quality. Nevertheless, the book is fun and stimulating, and might also be found so by the companion reader who will be needed to help the four- to six-year-olds looking at this book.

There is ever a problem in simplifying science, more so for the young — a task attempted here for “seeing” and “hearing” using, laudably enough, demonstration and experiment in a do-it-yourself format. *See Hear* is literally an eye- or ear-on approach. The author is a practising vision scientist who has written two previous books on vision directed at the young reader/experimenter and who has wisely consulted an impressive list of consultants, including some respected workers in vision science. With such preparation *See Hear* ought to provide for success. Ten chapters for hearing and twelve for vision, briefly cover basic stimuli and form and function of ears and eyes. Demonstrations and experiments cover the Doppler effect; harmonics; thunder and humming; colour mixing and vision; visual acuity; stereopsis (including the obligatory autostereogram); the freezing of perceived movement, and much more.

A book cannot appeal to all, and unfortunately *See Hear* tries, with the predictable result of appearing uncertain of its readership. Simplistic treatments of sound, light, ears and eyes sit uneasily beside demonstrations and experiments requiring more conceptual thought. The impression given is of a hastily-written book and one questions how much of the book’s practical aspects had been vetted by youngsters (one is acknowledged — a grade eleven student who surely must have found the text at times tiresome). If the readership is broad, the slice of society it is aimed at is narrow. Access to a piano is needed — “find a piano,” “not electronic” — and parents tolerant of a possibly destroyed alarm clock — whirled on a rope for the Doppler demonstration. Adults would be needed in at least a third of the demonstrations/experiments given here.

Some diagrams are useful, others ambiguous (an ear superimposed on a ruler illustrating the difficulty in attempting to measure the motion of the ear drum), whilst others are missing when needed (to illustrate and not merely describe how visual acuity is measured and what 20/200 vision means). Finally, some illustrations simply waste space (e.g. that of the sun and stars, placed on the same page as the visual acuity query mentioned earlier).

Ambiguities abound: (1) A strobe is not a camera flash but the regular series of flashes described earlier in the same paragraph; (2) “Staring” beyond the plane of the autostereogram is difficult, requiring as it does relaxing convergence of the eyes to a point twice the distance of the page viewed by the reader, whilst keeping a clear focus of the page itself. Why not put a thin pane of glass over the auto stereogram and view your reflection? — most shops employ this strategy; (3) No explanation is attempted for the reversal of depth experienced for elements in the illustrated figure when viewed with “crossed eyes” rather than employing “staring” beyond the page. (4) “Many” people are described as stereo-blind. Will a youngster or parents conclude this if depth is not realized from the stereo-pairs provided here? (5) The eye-brain system is correctly described. However, the ear-brain system has the auditory nerve intervening between the tympanic membrane and the ossicles. Cables, mini-cables, bundles and nerves, all containing the same tissue, appear confusingly within paragraphs of each other. “Stuff” is required for sound transmission — earlier it is described as air and water. “Goofy” labels for bodily bits are chastised — but why not use “developed” instead of “came up with”?

Overall, *See Hear* can be stimulating, informative and lead to some insight, but would be more useful combined with an informed older sibling or parent, and perhaps a visit to Toronto's science centre. If this review is ambivalent, it is because of the book's uncertain writing, doubts of its usefulness on its own, and its attempt at a jokey style which at least one reader found patronising. (Thanks are due to Albert Eatock — engineer/boat builder — Barbara Long — artist/wood weaver — Heather McLeay — mathematician and educationalist — Ali McLeay — aged fourteen — and Tom McLeay — aged thirteen — for their careful and thoughtful comments when assessing this book.)

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### Art Is So Much More than Drawing

*Animals.* ISBN 0-86505-851-2 cloth, ISBN 0-86505-861-X paper. *Landscapes.* ISBN 0-86505-853-9 cloth, ISBN 0-86505-863-6 paper. *Portraits.* ISBN 0-86505-850-4 cloth, ISBN 0-86505-860-1 paper. *Stories.* ISBN 0-86505-851-2 cloth, ISBN 0-86505-862-8 paper. Penny King and Clare Roundhill. Crabtree Publishing Company, 1996. 32 pp. \$21.95 cloth, \$10.95 paper.

My reaction to the books of the Artists' Workshop series is very positive. The cover designs are bright and appealing, each showing a variety of works related to the titles. Each book addresses a theme, and contains six units which draw upon the theme. Each unit begins with a work of art with a brief history of the artist, and the media and techniques used in the topic piece of work. There is a further brief commentary of each artist at the back of each book. I am very impressed with the range of works selected by the authors. They cover art history from the prehistoric paintings in the caves at Lascaux to twentieth century works by O'Keefe and Chagall, as well as works that come from other nations and historical civilizations around the world. Nor do they confine their choices to drawing and painting, what children traditionally think of when they hear the word "art." Rather these books address many other media including tapestries, mosaics, woodcuts and collage. Children who attempt these books, even if they do not try any of the suggested activities, will have their knowledge of art history and techniques expanded. The activities are beautifully illustrated with specially commissioned works by children, using the particular techniques highlighted in each unit. Including works by children is a good example for the reader, as they can see that these are "do-able" by children such as themselves.

I must caution, however, that these are not at an age seven to eight reading level as suggested by the publishers. While the language structure is simple, many of the concepts and necessary choice of adjectives are beyond the independent reading level of children at this age. Artistically inclined children