The Collection Management Project

UNIVERSITY OF HAWAII AT MANOA
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Dr. Andrew B. Wertheimer

Alice Augusta Ball School for Girls
Library Collection Development Proposal
Invention, Ingenuity, and Sustainability through Technology

By

Tina Arakawa

OUR SCHOOL

While much progress has been made in recent years to advance the status of women in the sciences, research conducted by organizations like the National Science Foundation and American Association of University Women still shows that "when it comes to math, science, and technology, virtually all girls are 'at risk.'"[1] It is the mission of the Alice Augusta Ball School for Girls to help reverse this pattern.

Ball is a small, all-girls public charter school located in Kapolei, Hawaii. Funded by the state and local donors, Ball offers lower-income families who cannot afford to send their daughters to private schools, with an alternative, high quality K-12 education. Our institution is named in honor of a pioneering scholar and researcher from the University of Hawaii. Ms. Alice Augusta Ball, in 1915, became the first woman to earn a Master's degree from what was then the College of Hawaii. As the first African American chemistry instructor at the college, her efforts to isolate active agents in chaulmoogra oil lead to a breakthrough treatment for Hansen's Disease (leprosy).[2]

Ball School for Girls continues to follow in the tradition of Alice Augusta Ball by setting high standards for science education. Emphasis has traditionally been placed on the physical sciences (chemistry, earth sciences, physics) and computer and information technology. However, the school has recently recognized the need to expand its curriculum to include more opportunities for learning in the applied sciences (invention, engineering, research and development).

OUR CURRICULUM PLAN

On January 12, 2006 Governor Linda Lingle announced a new energy initiative for the state of Hawaii. The Hawaii Strategic Energy Plan proposes to reduce our islands' dependence on imported oil, and promote environmental accountability and economic security through the use of new technology.[3] *Renewable Energy Access*, an online renewable energy news source, lauded the plan in their article "Hawaii to Lead America into the Post-Oil Era," citing these as "innovations of national significance."[4]

As alternative energy research will be a major focus in Hawaii and elsewhere in years to come, Ball School would like to encourage our students to explore this topic in depth, and through the wider lens of invention and innovation. Our plan for the curriculum would follow recommendations made in "Invention: Enhancing Inventiveness for Quality of Life, Competitiveness, and Sustainability," the 2004 report of the Committee for Study of Invention, sponsored by the Lemelson-MIT Program and the National Science Foundation.

Selected Recommendations from the 2004 Report of the Committee for Study of Invention[5]
Recommendation 1. Leverage existing knowledge on how the inventive mind works on behalf of a more inventive society to address key challenges of today's world.
Emphasize adventure, excitement, and mystery as much as the analytical and technical side of invention. Inventive thinking as displayed by the finest inventors is not just an analytical, but also a passionate, undertaking.
Recommendation 2. Strengthen those aspects of the education process that enhance creativity in general, and technological inventiveness in particular.
Inventiveness should be made an explicit goal of education at all levels and be so stated in the U.S. National Standards for Education (K-12)….
Historical study of the social and political implications of inventions and new technologies should figure more prominently in curricula.
Recommendation 3. Initiate, strengthen, and expand initiatives to involve young people directly in the invention process.

Workshops should be instituted allowing teachers to learn by experience how to effectively lead a project-based classroom.
Recommendation 5. Seek ways to help create and enhance suitable environments that foster inventiveness which contributes to sustainable development.
More attention should be directed to investing in local invention and innovation, particularly that which helps create employment….
Recommendation 6. Undertake public outreach activities relating to invention and inventiveness.
The public should be better informed of the basic profile, characteristics, and roles of inventors, through books, television programs, etcetera that display and celebrate the inventive mind and the societal benefits that result. Specific examples could include educational television and radio special series on invention, source books on invention, historical vignettes, and other resources for teachers.

OUR LIBRARY COLLECTION DEVELOPMENT PROPOSAL

The Ball School Library Media Center has always taken great pride our collection's ability to enlighten and inspire our students while supporting the school curriculum. Unfortunately, we found our collection was unable to meet the goals of our proposed applied science units. Our library had a number of the standard biographies on notable inventors (all male) and a few general resources on invention and renewable energy. With the Kashu Foundation's generous support we were able to supplement these books with additional materials focusing on women and children inventors; inventions in the contexts of history and technology; and the creative process that fuels invention. While we recognized that a great deal of information on alternative energy is available online at no charge, we were also able to invest in a few resources that cover this topic in greater depth or in ways that are especially relevant to student learning.

These resources span a wide range of interest levels as we have selected a few fairly advanced items for teacher reference in addition to K-12 resources. They also come in a variety of formats, including book, periodical, audio-visual, and electronic resources. Great care was taken in selecting resources. We consulted recommended book lists generated by organizations such as the National Science Teachers Association (NSTA);[6] the subject bibliography *Discoveries and Inventions in Literature for Youth: A Guide and Resource Book* by Joy L. Lowe and Kathryn I. Matthew;[7] and critical reviews from respected review sources. An annotated list of materials can be found below.

REVIEW SOURCES

AP: Appraisal: Science Books for Young People
BL: Booklist
HB: Horn Book Magazine
HBG: Horn Book Guide
LMC: Library Media Connection
CH: Choice
KR: Kirkus Reviews
LT: Library Talk
PW: Publishers Weekly
PWA: Publishers Weekly Annex
RT: Reading Teacher
SLJ: School Library Journal
SB&F: Science Books & Films
STBN: SciTech Book News
VL: Video Librarian
VOYA: Voices of Youth Advocates

pa=paper back hc=hard cover hc-lb=hard cover, library binding

ALTERNATIVE ENERGY RESOURCES

Books 1-3*

Solar Power by Christine Petersen. Danbury, CT: Children's Press, 2004. 48pp. ISBN 0-516-21941-3 [hc-lb]. $25.00 ($10.46 from Follett, listed on Titlewave). Index, Illus. (col.)

Water Power by Christine Petersen. Danbury, CT: Children's Press, 2004. 48pp. ISBN 0-516-21942-1 [hc-lb]. $25.00 ($10.46 from Follett, listed on Titlewave). Index, Illus. (col.)

Wind Power by Christine Petersen. Danbury, CT: Children's Press, 2004. 48pp. ISBN 0- 0-516-21943-X [hc-lb]. $25.00 ($10.46 from Follett, listed on Titlewave). Index, Illus. (col.)

Reviews

Marylin Lisowski, rev. of *Solar Power*, *Water Power*, *Wind Power*, SB&F 40 (2004): 226.
Stephanie Zvirin, rev. of *Solar Power*, *Wind Power*, BL 100 (2004). Accessed from EBSCOhost database 16 Apr. 2006.

Awards & Recognition

SB&F Best Books for Children 2004 for 620: Engineering

Comments & Overview

Gr. 3-5. These three titles are part of the *True Book—Environment & Conservation* series. All three came highly recommended in the review by *Science Books & Films*, and were later included on *SB&F*'s list of Best Books for Children for 2004. The books explain how we currently generate power using the sun, wind, or water, and provide a historical overview of how earlier people used these resources. They also discuss the benefits and concerns regarding the use of these energy sources. In all three books the color photographs are stunning and the text is large and easy to read. The author includes a glossary and refers children to additional sources of information.

Book 4*

Geothermal Power by Josepha Sherman. Mankato, MN: Capstone Press, 2004. 32pp. ISBN 0-7368-2471-5 (hc). $16.95 ($14.69 from Borders, listed on Amazon.com). Index, Illus. (col.)

Reviews

Laura Williamson Doyle, SB&F 40 (2004): 170.

Comments & Overview

Gr. 3-6. This is one of six books from Capstone's Fact Finders—Energy at Work series. While the five other titles from the series, reviewed individually by the same reviewer, were given a "questionable" ratings in SB&F, this book was not just "acceptable," but "recommended." The reviewer found the information presented to be factually sound and well chosen. (One of the other books in the series received a poor rating because it included information that was not immediately relevant. As the reviewer explains, "because the scope is so broad and the space so limited, the author's choices of concepts, facts, and images are critical.") As with Petersen's series, this book goes over the hows and whys of geothermal energy production, and also identifies potential drawbacks. What I found particularly useful was that the book goes a step further in explaining how turbines work by suggesting a very simple activity a child can do with a help of an adult to "make a turbine." As our school is located in Hawaii, it is a good idea to have a book that covers geothermal energy. While Hawaii is not mentioned directly in the text, there is a picture of Puu Oo Crater on the Big Island that kids may be happy to see included.

Book 5*

Environmental Experiments about Renewable Energy by Thomas R.Rybolt and Robert C. Mebane. Berkeley Heights, NJ: Enslow Publishers, Inc., 1994. 96pp. ISBN: 0-89490-579-1 (hc). $18.95. Index, Illus. (bw)

Reviews

Judy Fink, VOYA 18 (1995): 187.
HB 71 (1995). Accessed from Titlewave database 17 Apr. 2006.
Helen Rosenberg, SLJ 41 (1995). Accessed from EBSCOhost database 17 Apr. 2006.
Nicholas Smith-Sebasto, SB&F 31 (1995): 83. Starred review.

Comments & Overview

Gr. 4-9. This book contains 16 experiments that can help further our students' understanding of how the sun, wind, water, and plants can be used to make and save energy. "Simple yet thorough" is how *School Library Journal* describes the work. Each experiment begins with a question, which is followed by a set of procedures designed to answer that question. Most of materials necessary for these projects are inexpensive and readily available. The author includes safety tips and notes if adult supervision is needed. Each experiment is followed up by suggestions for related activities. It is not the most visually stunning work unfortunately, however, according to *VOYA*, it could come in handy for those last-minute science fair projects.

Book 6*

Essential Energy Series: Energy Alternatives by Robert Snedden. Oxford, UK: Heinemann Library, 2002. 48pp. ISBN: 1-57572-441-3 (hc). $31.43 ($21.95 from Follett, listed on Titlewave). Index, Bib., Illus. (col.)

Reviews

Cary Seidman, 4 June 2002. NSTA Recommends. Accessed from http://www2.nsta.org/recommends/product.asp?id=12775 18 Apr. 2006.

Comments & Overview

Gr. 5-8. Reviewer Cary Seidman sees this work as an important one because it meets the needs of middle school students for well written books on alternative energy. Students "often lack balanced, understandable sources for their discussions, and Energy Alternatives can fill this gap," she explains. In this work Snedden addresses the reasons for developing alternative energy; describes the current state of the technology; and explores the potential for development.

Book 7*

Solar Powered Racers: Racing with the Sun by Hector Ibarra. Tampa, FL: Showboard, Inc., 2001. 50pp. ISBN 1-891022-06-7 (unspecified binding). $14.95. Index.

Reviews

Lori Cirucci, 3 Jan. 2003 NSTA Recommends. Accessed from http://www2.nsta.org/recommends/product.asp?id=13344 16 Apr. 2006.

Comments & Overview

Gr. 5-9. This book teaches students how to build a miniature solar race car. It guides them through the process of "designing and building the chassis, wheels, the body of the car, the axles, transmission, motors, and the solar panel," and helps them see first-hand the practical application of math (speed rations, gear-to-wheel ratios) and science (Newton's laws, friction, resistance, force, and aerodynamics). This resource came highly recommended in a review by NSTA based on "its easy readability, accuracy, and presentation of topic."

Book 8

Energy for Keeps: An Illustrated Guide for Everyone Who Uses Electricity by Marilyn Nemzer, Deborah Page, Anna Carter, illustrated by Will Suckow. Tiburon, CA: Energy Education Group, 2005. 176pp. ISBN 0-9744765-2-8 (pa). $19.95 ($6.00 pdf download). Index, Illus. (bw)

Comments & Overview

Gr. 6-12. The Energy Education Group is a nonprofit organization that specializes in energy education with a focus on power generation. As they explain on their website, their goal is to

"help people understand where our electricity comes from and how energy choices affect our lives, our environment, and future generations." *Energy for Keeps* was sponsored in part by the California Energy Commission, and over 75 experts in engineering, electricity, and education were called upon for its development, writing and editing. While there are no formal reviews, the previous edition of this work was a winner of the 2004 Innovation Award from the Interstate Renewable Energy Council, and their website has logged glowing reader comments from such people as the State Librarian of California and the Education Programs Manager for the National Renewable Energy Laboratory. The Administrative and Projects Manager of the Natural Energy Laboratory—Hawaii Authority has commented there: "I am very impressed with the book and would love to see it included in Hawaii's curriculum as well.... It truly is a landmark publication." As this work appears to be updated periodically, I would opt to purchase a paperback copy as well as the PDF version, which could be made available for in-library use.

Books 9-14*

Fossil Fuels by Ian Graham. Austin, TX: Raintree Steck-Vaughn, 1999. 48pp. ISBN: 0-8172-5365-3 (hc). $25.69. ($21.96 from Follett, listed on Titlewave). Index, Bib., Illus. (col.)

Geothermal Energy and Bio-Energy by Ian Graham. Austin, TX: Raintree Steck-Vaughn, 1999. 48pp. ISBN: 0-8172-5367-X (hc). $25.69. ($21.96 from Follett, listed on Titlewave). Index, Bib., Illus. (col.)

Nuclear Power by Ian Graham. Austin, TX: Raintree Steck-Vaughn, 1999. 48pp. ISBN: 0-8172-5363-2 (hc). $25.69. Index, Illus. (col.) ($21.96 from Follett, listed on Titlewave). Index, Bib., Illus. (col.)

Solar Power by Ian Graham. Austin, TX: Raintree Steck-Vaughn, 1999. 48pp. ISBN: 0-8172-5362-9 (hc). $25.69. Index, Illus. (col.) ($21.96 from Follett, listed on Titlewave). Index, Bib., Illus. (col.)

Water Power by Ian Graham. Austin, TX: Raintree Steck-Vaughn, 1999. 48pp. ISBN: 0-8172-5363-7 (hc). $25.69. Index, Illus. (col.) ($21.96 from Follett, listed on Titlewave). Index, Bib., Illus. (col.)

Wind Power by Ian Graham. Austin, TX: Raintree Steck-Vaughn, 1999. 48pp. ISBN: 0-8172-5364-5 (hc). $25.69. Index, Illus. (col.) ($21.96 from Follett, listed on Titlewave). Index, Bib., Illus. (col.)

Reviews

Harry LeVine III, rev. of *Energy Forever?* Series, AP 32 (1999): 55.
Linda Devore, rev. of *Energy Forever?* Series, AP 32 (1999): 55.
Susan Black, rev. of *Energy Forever?* Series, BR 18 (1999). Accessed from Titlewave 19 Apr. 2006.
Wilton T. Adams, rev. of *Energy Forever?* Series, SB&F 35 (1999): 210-211. Starred review.

Comments & Overview

Gr. 6-12. When *Appraisal*'s reviewer Harry LeVine sat down to the first book in the *Energy Forever?* Series, he "braced [himself] for yet another business vs. environment depiction of the industry." To his pleasant surprise, he found this series to be much more than the standard fare. The focus of these books is global, rather than national. They address the nature and physical behavior, history, acquisition, application, and potential future use of these varied energy sources. Moreover, they present these issues from a global, rather than national, perspective. There is a lot to look at, with photographs, charts, graphs, and diagrams.

Book 15*

Energy by Jane Shaw and Manuel Nikel-Zueger. San Diego, CA: Greenhaven Press, 2004. 112pp. ISBN 0-7377-1268-6 (hc). $29.95 ($23.96 from Follett, listed on Titlewave). Index, Bib., Illus.

Reviews

David A. Barry, SB&F 40 (2004): 162. Starred review.

Comments & Overview

Gr. 9-12. This book, which was published by Greenhaven Press, part of Thomson-Gale, attempts to present a balanced overview of the question of energy production. At issue are "energy supplies, energy development on public lands, the environmental dangers of energy sources…, government influence on energy use, and concerns for the future." One of the authors, Jane Shaw, is a former associate economics editor at *Business Week* who now works at the Property and Environment Research Center (PERC), an environmental education think tank. It is not surprising then that this work does well in bringing together the areas of science, politics, and economics. While SB&F reviewer David Barry acknowledged that that "some of the information has a limited shelf life," he recommends this work for its treatment of current events. Some of our high school students may very well remember the massive 2003 east coast power outage, and may also find the discussion of John Kerry's and George W. Bush's energy platforms from the 2004 election highly relevant as we get closer to the 2008 elections.

Book 16

What Energy Sources Should be Pursued? San Diego, CA: Greenhaven Press, 2005. 112pp. ISBN 0-7377-2757-8 (hc). $28.70 ($22.96 from Follett, listed on Titlewave). Index, Bib.

Comments & Overview

Gr. 9-12. This work comes from Greenhaven's *At Issues* anthology series. It is essentially a compendium of essays written by experts who hold different viewpoints on the issue of how we should go about meeting our energy needs. This series is designed to encourage debate on controversial subjects. According to Greenhaven's website part of the strength of these books are their "extensive bibliographies and annotated lists of relevant organizations," which "offer a

gateway to further research." This will hopefully be a good cross-curricular resource that will bridge our science, social studies, and English curriculums.

INVENTION RESOURCES

Book 17*

Here's What You Do When You Can't Find Your Shoe: Ingenious Inventions for Pesky Problems by Andrea Perry, illustrated by Alan Snow. New York: Antheneum, 2003. 40pp. ISBN: 0-689-83067-X (hc). $16.95 ($11.02 from Borders, listed on Amazon.com). Illus. (col.)

Reviews

HBG (Fall 2003). Accessed from Titlewave database 16 Apr. 2006.
Kathleen Odean, BL 99 (2003). Accessed from EBSCOhost database 16 Apr. 2006.
KR 70 (2002). Accessed from EBSCOhost database 16 Apr. 2006.
Sheilah Kosco, SLJ 49 (2003). Accessed from EBSCOhost database 16 Apr. 2006.
PW 249 (2002). Accessed from EBSCOhost database 16 Apr. 2006.

Comments & Overview

Gr. K-3. Ideally, even amongst our youngest students we would want to nurture a basic understanding of invention and inventing. This book of poetry just might come in handy in this respect. In this volume readers will hear of wacky inventions that were dreamed up for the purpose of solving some (more or less) real problems. The story behind these entirely fanciful inventions is worked into a clever, catchy verse, which *School Library Journal* notes, is "reminiscent of Shel Silverstein's work." It is very attractively illustrated with colorful pen and ink drawings. When used in the classroom in a lesson that asks, "What would you create to solve this problem?" this book will hopefully help inspire our students to have fun with the idea of creative problem solving.

Book 18*

Girls Think of Everything: Stories of Ingenious Inventions by Women by Catherine Thimmesh, illustrated by Melissa Sweet. New York: Houghton Mifflin, 2000. 64pp. ISBN: 0-618-19563-7 (hc-lb). $15.25 ($10.46 from Follett, listed on Titlewave). Index, Bib., Illus. (col.)

Reviews

BL 96 (2000). Accessed from Titlewave database 16 Apr. 2006.
Joyce Yen, VOYA 23 (2000): 209-210.
Diane Pozar, LT 13 (2000). Accessed from EBSCOhost database 16 Apr. 2006.
PW 249 (2002). Accessed from EBSCOhost database 16 Apr. 2006.
Carol Fazioli, SLJ 46 (2000). Accessed from EBSCOhost database 16 Apr. 2006.

Comments & Overview

Gr. 3-6. "Women largely have been ignored or passed over in conversations about inventors. With this title, the author attempts to fill in the gaps," explains the reviewer from *VOYA*. This work includes 12 in-depth stories about women inventors. On the front and back covers, the author provides a list of over a hundred female inventors that lived between the years of 3000 BC (an Empress in China invented silk) to 1995. The real selling point however, is the fact that the author, in writing this book, was able to interview some of the inventors. Some of the graphic are also quite interesting as they were created as a collage of different media. Overall, this is a good read for girls who might want to follow in these women's footsteps.

Book 19*

Technology Book for Girls and Other Advanced Beings by Trudee Romanek, illustrated by Pat Cupples. 56pp. Tonawanda, NY: Kids Can Press, 2001. ISBN: 1-55074-619-7 (hc-lb). $17.60 ($11.96 from Follett Titlewave). Index, Illus. (col.)

Reviews

Anna Hartle, BR 20 (2001). Accessed from EBSCOhost database 16 Apr. 2006. Starred review.
HBG (Fall 2001). Accessed from Titlewave database 16 Apr. 2006.
Susan Shaver, SLJ 47 (2001). Accessed from EBSCOhost database 16 Apr. 2006.

Awards & Recognition

NSTA Outstanding Science Trade Books for Children for 2002: Integrated Science
Parents' Choice Award Winner, 2001

Comments & Overview

Gr. 3-7. This book focuses on some modern technologies that have become ingrained in the American way life. The book uses the narrative framework of a middle-school-aged girl who is doing research for a science fair project. As explained the review by *Book Report* "Gina does a great job of demonstrating how information can be researched from a variety of valid sources." The language used to explain the technology is accessible, but does not patronize readers. The book also profiles modern day women who work in the sciences and offers some suggestions for science fair projects.

Book 20*

Toys! Amazing Stories behind Some Great Inventions by Don Wulffson, illustrated by Laurie Keller. New York: Henry Holt, 2000. 137pp. ISBN 0-8050-6196-7 (hc). $16.95 ($15.26 from Follet, listed on Titlewave). Bib., Illus. (bw)

Reviews

Carolyn Phelan, BL 96 (2000). Accessed from Titlewave database 19 Apr. 2006.
Charlotte Decker, LT 14 (2001). Accessed from Titlewave database 19 Apr. 2006.
HBG (Spring 2001). Accessed from Titlewave database 19 Apr. 2006.

KR 68 (2000). Accessed from Titlewave database 19 Apr. 2006.
Pam Carlson, VOYA 23 (2000): 210
Victoria Kidd, SLJ 46 (2000). Accessed from Titlewave database 19 Apr. 2006.

Comments & Overview

Gr. 3-7. This book will probably see its fair share of use. It is a slim book, with large text. Moreover, it is all about toys. Wulffson profiles some of Americas classic play things, a.k.a. inventions. These include Legos, the whoopee cushion, and Silly Putty. Through his writing we get a glimpse into the secret life of toys. Play-doh, for instance, was originally designed to clean wallpaper. The Slinky was developed by an engineer who was trying to create a stabilizing device for Navy navigational equipment. (It didn't work.) This is a fun read, useful in showing that not all inventions turn out the way their creators intended them to. It also encourages kids to make the most of every opportunity. When life gives you potatoes, make Mr. Potato Head.

Book 21* OP

Nature Got There First: Inventions Inspired by Nature by Phil Gates. New York: Kingfisher, 1995. 80pp. ISBN: 1-85697-587-8 (hc). $2.95 (Used, like-new, from Alibris). Index, Illus. (col.)

Reviews

BL 92 (1995). Accessed from Titlewave 18 Apr. 2006.
HBG (Spring 1996) Accessed from Titlewave 18 Apr. 2006.
Kathleen McCabe, SLJ 42 1996. Accessed in Global Books in Print 18 Apr. 2006

Comments & Overview

Gr. 4-6. This book ties man-made technology to its equivalent in nature. For instance, airplanes and squid both move by means of jet propulsion; trains and centipedes can move around corners because of their jointed sections; and chloroplast and solar cells both capture and convert light energy. It is jam packed with information, a lot of it that really makes you think. The illustrations also make this book fun to browse.

Book 22*

Brainstorm! The Stories of Twenty American Kid Inventors by Tom Tucker, illustrated by Richard Loehle. New York: Farrar, Straus and Giroux, 1995. 144pp. ISBN: 0-374-40928-5 (hc-lb). $16.00 ($10.96 from Follett, listed on Titlewave). Index, Bib., Illus. (bw)

Reviews

DJF, HB 72 (1996). Accessed from Global Books in Print database 18 Apr. 2006.
Kay Heller, VOYA 18 (1996): 402.
Margaret M. Hagel, SLJ 41 (1995). Accessed from Global Books in Print database 18 Apr. 2006.
Mary Harris Veeder, BL 91 (1995). Accessed from Global Books in Print database 18 Apr. 2006.

Comments & Overview

Gr. 4-9. The book profiles twenty child innovators. Stories range from the 1710s to the 1990s, and include the accounts of two young inventors who in later years became luminaries, Benjamin Franklin and Thomas Edison. As noted in the review by *Booklist*, students might be interested to find that "a few of the kids profiled were considered 'vexatious dullards' before they met with success." This is always encouraging. With black and white drawings and photographs, it is not perhaps as visually appealing as other works out there, however the stories do go into greater detail, and would be useful in writing reports.

Book 23*

Eureka! Great Inventions and How They Happened by Richard Platt. New York: Kingfisher, 2003. 96pp. ISBN: 0-7534-5580-3 (hc). $18.95 ($12.32 from Borders, listed on Amazon.com). Index, Illus.

Reviews

HBG (Spring 2004). Accessed from Titlewave database Apr. 16, 2006.
Kathy Piehl, SLJ 50 (2004). Accessed from EBSCOhost database 16 Apr. 2006.
Linda Kay Rebstock, LMC 22 (2004). Accessed from EBSCOhost database 16 Apr. 2006.
Sidney Rosen, SB&F 40 (2004): 30. Starred review.

Comments & Overview

Grades 4-9. This work explores the stories behind dozens of well chosen inventions relating to life and health, transportation, electricity, and other technologies. Coverage ranges from the pendulum and stump-jump plow to the Internet and DNA fingerprint testing. As explained in the foreword, which was written by the joint Director General of Cancer Research in the UK, "all the discoveries and inventions… have one thing in common: individuals who… were able to see what everybody else had seen but think what nobody else had thought." The book also points to the fact that in some cases inventions came about as a result of serendipity, while in other cases it took years of dedicated work. The eye-catching graphics on the cover and throughout the book also deserve mention.

Book 24*

What a Great Idea! Inventions That Changed the World by Stephen Tomecek, illustrated by Dan Stuckenschneider. New York: Scholastic Nonfiction, 2003. 112p. ISBN: 0-590-68144-3 (hc). $18.95 ($12.89 from Borders, listed on Amazon.com). Index, Bib., Illus. (col.)

Reviews

David Lininger, LMC 22 (2003). Accessed from Titlewave database Apr. 16, 2006.
Ed Sullivan, BL 99 (2003). Accessed from EBSCOhost database 16 Apr. 2006.
HBG (Fall 2003). Accessed from Titlewave database 16 Apr. 2006.
Kathy Piehl, SLJ 49 (2003). Accessed from EBSCOhost database 16 Apr. 2006. Starred review.
Marilyn Brien, VOYA 26 (2003): 248

RT 57 (2004). Accessed from EBSCOhost database 16 Apr. 2006.
SLJ 50 (2004). Accessed from EBSCOhost database 16 Apr. 2006.

Comments & Overview

Gr. 4-9. What differentiates this work from Platt's *Eureka!* is that *What a Great Idea!* puts more emphasis on the historical context of invention. The book is divided into five general time periods, with the inventions in each period working both to define the era and connecting to the next. This book received a starred review in *School Library Journal* and was given the highest possible quality rating by *VOYA* (5Q: Hard to imagine it being better written). *VOYA* also gave it an uncharacteristically high rating for popularity (4P: Broad general or genre YA appeal), suggesting that with its enticing illustrations even non-science oriented students wouldn't mind browsing through this book.

Book 25*

Amazing Leonardo da Vinci Inventions You Can Build Yourself by Maxine Anderson. White River Junction, VT: Nomad Press, 2006. 144pp. ISBN: 0-9749344-2-9 (pa). $14.95 ($10.17 from Borders, listed on Amazon.com). Index, Illus.

Reviews

Delia Carruthers, SLJ 52 (2006). Accessed from EBSCOhost database 17 Apr. 2006.
PW 253 (2006). Accessed from EBSCOhost database 17 Apr. 2006.

Comments & Overview

Gr. 5-8. While our library may own a book or two on Leonardo da Vinci, we do not have one like this. This is a hands-on history book. Through it our students will learn how Leonardo kept record of his imaginative engineering works in his sketchbooks. Children will also learn that most of Leonardo's inventions were never made in his lifetime. He did create on occasion small-scale models, and this is something they can do, too. Using items they have around the house or in school, and with the help of detailed instructions, diagrams, and templates, students will be able to recreate some his works. In addition to explaining the inspiration for Leonard's ideas, the book also provides biographical information on the famed artist/inventor and some background on the Renaissance.

Book 26*

Build a Better Mousetrap: Make Classic Inventions, Discover Your Problem-Solving Genius, and Take the Inventor's Challenge by Ruth Kassinger. NY: John Wiley and Sons, Inc., 2002. 112pp. ISBN 0-471-39538-2 (pa). $14.95 ($9.72 from Borders, listed on Amazon.com). Index, Illus. (bw)

Reviews

Ann Rubino, 8 Feb. 2003. NSTA Recommends. Accessed from http://www2.nsta.org/recommends/product.asp?id=13705 17 Apr. 2006.

Comments & Overview

Gr. 5-8. Like *Amazing Leonardo da Vinci*, *Build a Better Mousetrap* is a book of hands-on history. It brings together science and social studies, and apparently delves fairly deeply into both subject areas. The author provides a description of the scientific principles behind an invention along with a historical analysis. In each section students are given instructions on how create a variety of devices, or reasonable replicas thereof, using readily available materials. Phenakistoscopes, hovercrafts, suspension bridges, stethoscopes, and solar water heaters are just a few of the inventions students can investigate and recreate. In each area of this book students are further encouraged to try their hand at creating an alternative to the traditional solution. For instance, a device that will hold lenses in front of your eyes, that doesn't look like your average pair of spectacles.

Book 27*

Cool Stuff and How It Works by Chris Woodford, Ben Morgan, Clint Witchalls, Luke Collins, and James Flint, illustrated by Kevin Jones. NY: Dorling Kindersley Publishing, Inc., 2005. 256pp. ISBN: 0-7566-1465-1 (hc). $24.99 ($15.74 from Borders, listed on Amazon.com). Index, Illus. (col.)

Reviews

David Siegfried, BL 102 (2005). Accessed from Titlewave database 17 Apr. 2006.
HBG (Spring 2006). Accessed from Titlewave database 16 Apr. 2006.

Comments & Overview

Gr. 5-8. This work attempts to explore some of the more significant and cutting-edge technologies that have made their way into popular culture. The author is a former information designer for IBM, who has edited and written a number of books in the area of science and technology, including the *E.Science Encyclopedia* and the *Eyewitness Encyclopedia of Science*. While reviewers may find the graphic layout a little over the top—X rays, scanning electron micrographs, and infrared thermograms are used to show common inventions in a new light—there is general agreement that this book "will rate high on the 'cool' factor" (Siegfried) among its teen audience.

Book 28*

Eureka! Poems about Inventors by Joyce Sidman, illustrated by K. Bennett Chavez. Minneapolis, MN: Millbrook Press, Inc., 2002. 48pp. ISBN: 0-7613-1665-5 (hc). $24.90 ($18.95 from Follett, listed on Titlewave). Illus. (col.)

Reviews

HBG (Spring 2003). Accessed from Global Books in Print database 17 Apr. 2006.
Susan Oliver, SLJ 49 (2003). Accessed from Global Books in Print database 17 Apr. 2006.
John Peters, BL 98 (2002). Accessed from Global Books in Print database 17 Apr. 2006.

Awards & Recognition
VOYA Nonfiction Honor List 2002

Comments & Overview
Gr. 5-8. This book is proof that one's investigation into invention and technology can be directed into other creative outlets. This is a book of poetry, or as *VOYA* describes it, a "poetic chronology" of invention. Through the use of free verse Sidman helps bring to life the inventors of numerous technological advancements. Some of the discoveries described are revolutionary—a prehistoric woman fashions the first bowl out of clay—while others are a little more playful—"I'm just like everyone else, / Except I always liked throwing rocks," says Walter Morrison, inventor of the Frisbee. Regardless, reviewers agree that this is a beautiful piece of work that could also serve as "a great starting or finishing point" (Oliver) for a student research project.

Book 29*

American Women Inventors by Carole Ann Camp. Berkeley Heights, NJ: Enslow Publishers, Inc., 2004. 104pp. ISBN 0-7660-1913-6 (hc). $26.60 ($19.95 from Follett, listed on Titlewave). Index, Bib., Illus. (bw)

Reviews
BL 100 (2004). Accessed from Global Books in Titlewave database 17 Apr. 2006.
Dona Helmer, SB&F 40 (2004): 126. Starred review.
HB (Fall 2004). Accessed from Global Books in Titlewave database 17 Apr. 2006.
NSTA Selection Panel, 15 Feb 2005. NSTA Recommends. Accessed from http://www2.nsta.org/recommends/product.asp?id=14697 17 Apr. 2006.

Awards & Recognitionn
NSTA Outstanding Science Trade Books for Children: Biography

Comments & Overview
Gr. 5-12. This book, highlighting the work of women inventors, was recognized as an Outstanding Science and Trade Book in the area of biography by NSTA. The research that went into the book is well documented with full chapter notes, and deemed accurate by reviewers. According to the *Horn Book* review, "Camp nicely explains some complex science and technology." Ten women in particular are profiled to some degree of depth (five to seven pages each). These women came for very different backgrounds, and yet each had to overcome hardship in her attempt to find a "better way" to do things.

Book 30*

Black Stars: African American Women Scientists & Inventors by Otha Richard Sullivan. NY: John Wiley & Sons, Inc., 2002. 160pp. ISBN: 0-471-38707-X (hc). $24.95 ($15.72 from Borders, listed on Amazon.com). Index, Bib., Illus.

Reviews

Maren Ostergard, SLJ 48 (2002). Accessed from EBSCOhost database 17 Apr. 2006.
Margaret Pope, 16 July 2002. NSTA Recommends. Accessed from http://www2.nsta.org/recommends/product.asp?id=13264 17 Apr. 2006.
Sharon W. Leafe, BR 21 (2002). Accessed from EBSCOhost database 17 Apr. 2006.
STBN 26 (2002). Accessed from Global Books in Print database 17 Apr. 2006.

Comments & Overview

Gr. 5-12. In her review Prof. Margaret Pope noted that "to inspire enthusiasm for science as a career, students must be provided not only with facts but also role models." Here we have some excellent role models for all of our girls. This volume of the *Black Stars* series profiles the lives of 25 African American scientists and inventors. These stories go as far back as the 1880s when Ellen Elgin invented the clothes-wringer. While the text is substantial, the occasional photograph also works nicely to tell the story. In general, the layout is clean, smart and visually attractive.

Book 31*

Kids Inventing! A Handbook for Young Inventors by Susan Casey. NY: John Wiley & Sons, Inc., 2005. 144pp. ISBN: 0-471-66086-8 (pa). $14.95 ($9.72 from Borders, listed on Amazon.com). Index, Bib., Illus. (bw)

Reviews

Teri Cosentino, 28 Feb. 2006. NSTA Recommends. Accessed from http://www2.nsta.org/recommends/product.asp?id=16091 18 Apr. 2006

Comments & Overview

Gr. 5-12. "Inventions solve problems in daily life, and this nifty book solves the problems of how to go about inventing" explains reviewer Cosentino. In addition to profiling modern-day child inventors aged 5 to 17 and their award-winning inventions, this book offers suggestions for how a reader might become one herself. It recognizes the value of observation and research, and recommends working with mentors, journaling and creating models. It even goes as far as to discuss the process of designing a trademark, manufacturing, and selling your product, once you get a patent, that is. This will be an excellent resource for our own budding inventors.

Book 32

Rube Goldberg: Inventions by Maynard Frank Wolfe. New York: Simon & Schuster, 2000. 192pp. ISBN: 0-684-86724-9 (hc). $25.00 ($15.75 from Borders, listed on Amazon.com). Bib., Illus. (bw)

Comments & Overview

Gr. 5-12. This book is an exploration of invention in art. Rube Goldberg was a renowned cartoonist whose drawings of "intricate and whimsical machines" earned him his own entry in *Webster's New World Dictionary*: "Rube Goldgerg… adjective… Designing any very complicated invention, machine, scheme, etc. laboriously contrived to perform a seemingly simple operation." His work also prompted the establishment of the National Rube Goldberg Machine Contest in which "hundreds of engineering students from American universities and colleges… compete to build and run Rube Goldberg Invention Machines." According to the first chapter of the book, the Rube Goldberg invention contest is a phenomenon that has also taken hold in high schools, middle schools, and even elementary schools. This book includes a biographical sketch of the cartoonist and reproductions of some of his popular works. We hope that in addition to serving, perhaps, as inspiration for our own Rube Goldberg invention contest, that this work will also be picked up as leisure reading by students with a burgeoning interest in invention, or who are less technologically inclined, but more interested in graphic arts.

Book 33* (OP)

The Cutting Edge: An Encyclopedia of Advanced Technologies by William Allstetter, Joseph A. Jr. Angelo, and Trevor Day. Oxford, UK: Oxford University Press, 2000. 368pp. ISBN: 0-19-512899-0 (hc). $9.95 (New from Wood's Books, listed on Alibris). Index, Bib., Illus. (bw)

Reviews

BL 96 (2000). Accessed from Titlewave database 17 Apr. 2006.
K. Manuel, CH 38 (2000). Accessed from Titlewave database 17 Apr. 2006.
Paul G. Haschak, LJ 125 (2000). Accessed from Titlewave database 17 Apr. 2006.

Awards & Recognition

New York Public Library Best of Reference, 2000

Comments & Overview

Gr. 9-12. Six years after publication, this technology reference book may not seem "cutting edge" amongst the academic community. However, it will very likely suit our library's needs. This resource, published by Oxford University Press received positive reviews, and was even named New York Public Library Best of Reference for 2000. The one common reservation reviewers seemed to have was that in terms of content it was better geared for high school, as opposed to academic libraries. The book consists of "102 signed, alphabetically arranged articles" that "describe in very basic, nontechnical language how the technology works, how it was developed, the issues and debate it generates, and its capabilities and potential uses" (Haschak). Examples include alternative automotive and airplane fuel technology. While it is currently out of print in the United States, it is still readily available in the UK and Canada, and apparently still on the shelves and in reference collections of a number of American universities.

Book 34*

Patents: Ingenious Inventions: How They Work and How They Came to Be (or *Patents: Bubblewrap, Bottlecaps, Barbed Wire, and Other Ingenious Inventions*) by Ben Ikenson. 288pp. New York: Black Dog & Leventhal Publishers, Inc., 2004. ISBN: 1-57912-367-8 (hc). $19.95 ($13.57 from Borders, listed on Amazon.com). Index, Bib., Illus.

Reviews

Lyn Nutwell, SLJ 50 (2004). Accessed from EBSCOhost database 16 Apr. 2006.
McCoy, C.S., CH 42 (2004): 515
Sylvia W. McGrath, SB&F 41 (2005): 116. Starred review.

Awards & Recognition

SB&F Best Popular Science Books of 2005 for 600: Technology

Comments & Overview

Gr. 9-12. This book, which was "highly recommended" in *Choice*, easily falls into the *School Library Journal* category of "Adult Books for High School Students." With its bubble wrap cover, there is very little doubt this will be a big hit with our young adult readers. The hundred some odd inventions investigated by Ikenson each receive the same treatment, beginning with the patent name, patent number, date of the patent, and the name of the inventor. This is followed, according to the review in *Choice*, with "a brief description of what the invention does, background information on how it came about, a concise explanation of how it works, and an excerpt from the inventor's writing that allows readers insight into the invention process." The last section of the book provides a general overview of the three types of patents, explains the difference between patents and trademarks, and shows how to one might go about getting a patent. Aspiring inventors are also directed to other useful resources. While it is strong enough in human-interest appeal to be considered "pleasure reading," SLJ makes note that "there is sufficient authoritative detail to begin a report on an invention."

Book 35*

Patently Female: From AZT to TV Dinners: Stories of Women Inventors and their Breakthrough Ideas by Ethlie Ann Vare and Greg Ptacek. New York: John Wiley and Sons, Inc., 2002. 240pp. ISBN: 0-471-02334-5 (hc). $24.95 ($21.20 from Follet, listed on Titlewave). Index, Illus.

Reviews

Donna Seaman, BL 98 (2001). Accessed from Global Books in Print database 18 Apr. 2006.
PW 248 (2001). Accessed from Global Books in Print database 18 Apr. 2006.

Comments & Overview

This is the follow-up work by Vare and Ptacek of their bestselling *Mothers of Invention*. It is perhaps even more optimistic than their first book as it "records some improvement in the recognition of women innovators" (Booklist, 2001).Women have long been forgotten, if not

altogether ignored, in the area of invention; they were not eligible to receive patents. Therefore, our students will probably be surprised to learn that inventions long attributed to men, like the cotton gin, automatic sewing machine, even the Brooklyn Bridge may have originally been the brainchild of women. Here stories of the development of the first computer language, AZT, the Mars rover appear along side lighter tales of Jell-O, fabric softener, and disposable phones. According to Publishers Weekly, "the book's lighthearted, colloquial style makes it ideal for classrooms."

Book 36*

Scientific American Inventions and Discoveries: All the Milestones in Ingenuity from the Discovery of Fire to the Invention of the Microwave Oven by Rodney Carlisle. NY: John Wiley & Sons, Inc., 2004. 512pp. ISBN: 0-471-24410-4 (hc). $40.00 ($25.20 from Borders, listed on Amazon.com). Index, Illus.

Reviews

Dennis W. Cheek, SB&F 40 (2004): 262. Starred review.
Gilbert Taylor, BL 100 (2004). Accessed from Titlewave database 17 Apr. 2006.
PWA (2004). Accessed from Titlewave database 17 Apr. 2006.
STBN 28 (2004). Accessed from Titlewave database 17 Apr. 2006.

Comments & Overview

Gr. 9-12. Rodney Carlisle is a professor emeritus at Rutgers and "an authority on the history of technology" (PWA). As with the book *What a Great Idea!* this work is organized in into different historical periods. These are: the ancient world through classical antiquity, the Middle Ages through 1599, the age of scientific revolution (1600 to 1790), the Industrial Revolution (1791 to 1890), the electrical age (1891 to 1934), and the atomic and electronic age (1935 to the 21st century). The book features a total of 418 inventions and 100 discoveries from around the world. At over 500 pages it is a pretty substantial reference tool.

Book 37*

Women Invent! Two Centuries of Discoveries that have Shaped Our World by Susan Casey. Chicago: Chicago Review Press, 1997. 142pp. ISBN: 1-55652-317-3 (pa). $14.95 ($10.17 from Borders, listed on Amazon.com). Index, Bib., Illus. (bw)

Reviews

PW 244 (1997): 63

Comments & Overview

Gr. 9-12. This is another work that celebrates the ingenuity of women. There are apparently more than enough examples of women's contributions in the areas of invention and discovery that an examination of the index of this book and Vare and Ptacek's *Patently Female* reveals very little

overlap. Here students will read stories like that of Maria Telkes. In 1925 she emigrated from Hungary to America, where she joined MIT Solar Energy Research project and helped design a system for a solar heating home. Laurie DiStefano in 1989, in her senior year of high school invented the automobile "turn signal turner offer" as part of a class assignment. She received either a B- or C for the project, but ended up getting a patent. Her advice to future inventors: "Not everybody might fall in love with your idea, but I think it's important to have confidence in yourself and to pursue what you want to do." Our girls are sure to find the work inspiring.

Book 38*

Inventeering: A Problem-Solving Approach to Teaching Technology by Bob Corney and Norm Dale. Toronto, Ontario: Trifolium Books, Inc., 2001. 133pp. ISBN: 1-55244-014-1 (pa). $24.95 ($21.20 from Follett, listed on Titlewave). Bib., Illus.

Reviews

Mary Walker, 4 June 2001. NSTA Recommends. Accessed from http://www2.nsta.org/recommends/product.asp?id=12351 18 Apr. 2006.

Comments & Overview

Prof. This book is for teachers with classes grades 1 to 8. It is designed to help our teachers along as they integrate student invention into our science curriculum. The book offers suggestions on tools and techniques for hands-on building, and provides solutions to design problems using simple materials. It also addresses some very important issues related to an invention/engineering curriculum. These include: organization, discipline, safety, curriculum ties, and assessment.

Book 39*

The Inventive Thinking Curriculum Project by Marion Canedo. Collingdale, PA: DIANE Publishing Company, 1994. 68pp. ISBN: 0-7881-0647-3 (pa). $25.00 ($20.00 from Borders, listed on Amazon.com). Illus.

Comments & Overview

Prof. This teacher's resource was developed as part of an outreach program by the United States Patent and Trademark Office. It was one of a handful of resources listed in the National Inventors Hall of Fame's school curriculum resource guide. It encourages analytical thinking and creative problem solving, and discusses the various steps involved in creating an invention. The booklet contains award certificates, an inventor's log, informational handouts on historic patents, and a letter to parents, which we may photocopy and distribute.

Book 40*

Take a Technowalk to Learn About Mechanisms and Energy by Peter Williams and Saryl Jacobson. Toronto,Ontario: Trifolium Books, Inc., 2000. 92pp. ISBN: 1-55244-004-4 (pa). $19.95 ($16.10 from Follett, listed on Titlewave).

Reviews

Mary Walker, 15 May 2001. NSTA Recommends. Accessed from http://www2.nsta.org/recommends/product.asp?id=12350 18 Apr. 2006.

Comments & Overview

Prof. This is another useful resource for K-8 instruction. It provides a plan for a number of 10 mini-field trips that focus on machines (broadly defined in terms of "planes, levers, wheels and axles, gears and pulleys") and energy ("human, air and water, elastic and spring, electric, solar, and chemical energy systems"). The technowalks, which are laid out in great detail, are offered as an introduction to classroom instruction and in-class extension activities, also described in the book. These can be cross-curricular. Students first-hand observations of inclined planes can be used to reinforce a history lesson that discusses the building of the Great Pyramids, for instance. NSTA reviewer Mary Walker describes this book as a "well designed tool" that employs sound instructional strategies. She also recognizes it as one of a very few curricular programs that support National Science Education Standards in the area of technology.

PERIODICALS, AUDIO-VISUAL MATERIALS, AND ELECTRONIC RESOURCES

Periodical 1

American Heritage of Invention & Technology. New York: American Heritage, 1985-. ISSN: 8756-7296. $15.00.

Comments & Overview:
Gr. 5-12. *Invention & Technology* is the only magazine dedicated to the history of American inventiveness. The magazine presents articles on "history-making successes and wild failures of the geniuses and eccentrics whose innovations have changed our world." It is issued four times a year.

Periodical 2

Make: Technology on Your Time. Sebastopol, CA: O'Reilly Media, 2005-. ISSN: 1556-2336. $34.95.

Comments & Overview

Gr. 9-12. On *Make's* website Steve Riggio, CEO of Barnes & Noble is quoted: "[*Make* is] one of the most innovative magazines I've seen in a long time." *Make* is the first magazine devoted entirely to DIY technology projects, or "Geek DIY" as Steven Levy of *Newsweek* calls it. It is issued four times a year and provides step-by-step directions for a variety of inexpensive and inspired do-at-home projects. Recent projects have involved building an inexpensive wind powered generator; doing your own hard-cover book binding; and making soda-bottle rockets. *Make* describes itself as "a hybrid magazine/book (known as a mook in Japan)" and has a strong zine feel to it. It's "the kind of magazine that would impress MacGyver," says Marcus Chan of the *San Francisco Chronicle*. We are pretty confident that our students will find it highly interesting.

Audio-Visual 1*

Inventors of the World: A History of Invention. 1 videocassette (23 min.) Wynnewood, PA: Schlessinger Media, 2002. $39.95.

Reviews

Linda Skeele, rev. of *Inventors of the World* series, SLJ 48 (2002). Accessed from EBSCOhost database 19 Apr. 2006.

Comments & Overview

Gr. 4-8. This second video from the *Inventors of the World* series defines an inventor as someone who is "looking for a solution to a problem that will make daily life easier for a specific group of people." The video begins with a short interview with Helen Free, who helped develop a dip-and-read test that made it easier for people with diabetes to check their blood sugar. This is followed by the story of a child inventor and his invention the Pace Mate. Using an elastic band Brandon modified a medical bracelet, so his mother, who wears a pacemaker, would have an easier time sending EKG signals over the phone to the hospital. I was able to preview the video online and agree with the reviewer that this is a high quality production.

Audio-Visual 2*

Inventors of the World: Inventing in Today's World. 1 videocassette (23 min.) Wynnewood, PA: Schlessinger Media, 2002. $39.95.

Reviews

Linda Skeele, rev. of *Inventors of the World* series, SLJ 48 (2002). Accessed from EBSCOhost database 19 Apr. 2006.

Comments & Overview

Gr. 4-8. This video series received a glowing review from *School Library Journal*. The reviewer felt it was particularly well researched and described as the "best of education and entertainment

in a technically flawless presentation." *A History of Invention* is one title in the 12 video series *Inventors of the World*. It covers inventions as that pertain to communication, transportation, agriculture and medicine, and highlights the idea that many inventions are actually improvements to existing technology.

Audio-Visual 3*

Kirk Bergstrom. *Power Shift: Energy + Sustainability*, 1 videocassette (26 min.) San Francisco: WorldLink Media, 2003. $89.95 ($259.00 for 4 video WorldLink Media package, listed on the Video Project).

Reviews

P. Hall, VL 19 (2004). Accessed from EBSCOhost 19 Apr. 2006.
Phyllis Levy Mandell, SLJ 51 (2005). Accessed from EBSCOhost 19 Apr. 2006.

Awards & Recognition

CINE Golden Eagle
Two Gold Medals, Omni Awards

Comments & Overview

Gr. 7-12. This film, hosted by actress Cameron Diaz, has been aired nationally on PBS. It provides, what is described as by *SLJ*, "an inspiring and thought-provoking look at the future of our planet." Real teens give their take on issues related to sustainability, as do renewable energy advocate Randy Udall, and eco-friendly architect William McDonough. Solar energy, fuel cells, geothermal, and wind power are featured as viable solutions to end our dependence on fossil fuels. Reviewers also commented on the beautiful cinema-photography

Audio-Visual 4*

Geoff Holland. *Hydrogen: The Safe & Clean Fuel*. 1 videocassette (27 min.)
San Francisco: WorldLink Media, 2002. $120.00 ($259.00 for 4 video WorldLink Media package, listed on the Video Project).

Reviews

Janet Musil, SLJ 51 (2005). Accessed from EBSCOhost 19 Apr. 2006.

Comments & Overview:

Gr. 9-12. This video is hosted by Alexandra Paul from Baywatch and Melrose Place. Described by *SLJ* as "a timely mixture of zeal and hope," it argues for the use of hydrogen as a mainstream energy. The video highlights hydrogen powered cars, and encourages the U.S. to begin fuel station infrastructure changes similar to those that are occurring in Japan and Canada. According to the *SLJ* reviewer, "despite being funded by a non-profit organization, this video seems fairly persuasive in its efforts to promote this choice of fuel." There is evidenced bias, however,

teachers can take steps to make sure both sides of the argument are addressed in the classroom. The video comes with a 47-page study guide.

Audio-Visual 5*

Geoff Holland. *Renewable Power: The Earth's Clean Energy Destiny*, 1 videocassette (28 min.) San Francisco: WorldLink Media, 1999. $79.95 ($259.00 for 4 video WorldLink Media package, listed on the Video Project).

Reviews

Chris Hebblethwaite, Educational Media Reviews Online. Accessed from http://libweb.lib.buffalo.edu/emro/emroDetail.asp?Number=439 Apr. 19 2006.

Awards & Recognition

Gold Apple Award, National Educational Media Network
CINE Golden Eagle Award

Comments & Overview

Gr. 9-12. This is the third of four videos in the WorldLink Media video package. It came "highly recommended" by SUNY librarian Chris Hebblethwaite. According to Hebblethwaite, "computer generated graphics along with clear and concise explanations give the viewer a good explanation of the renewable technologies." The featured technology included solar photovoltaics, wind turbines, biomass converters, hydroelectric dams, and hydrogen fuel cells. Author Addison Bain (*What Really Happened to the Hindenburg?*) is called upon to address some of the concerns regarding the volatility of hydrogen. The video also discusses the need for developing low cost storage systems for energy generated by wind and sun.

Audio-Visual 6*

Michelle Voss. *Velocity: Exploring Sustainability through Wind Power, Green Building & Hydrogen*. 1 videocassette 32 min. San Francisco: WorldLink Media, 2004. $110.00 ($259.00 for 4 video WorldLink Media package, listed on he Video Project).

Reviews

E. Gieschen, VL 19 (2004). Accessed from Video Librarian Plus database 19 Apr. 2006.
Joan Karasick, SLJ 51 (2005). Accessed from EBSCOhost database 19 Apr. 2006.

Awards & Recognition

Alternative Energy, EarthVision 2004, First Place

Comments & Overview

Gr. 10-12. In this video Host Michelle Voss presents compelling argument for why the U.S. should develop a sustainable-energy plan. She introduces concepts of "natural capitalism" and

"economic externality," which links "the health of the planet and its people to the profits businesses seek" (Gieschen); and tours lucrative businesses—a West Texas wind ranch and a beer brewery that uses alternative energy sources, among others—to show that business can thrive and be environmentally friendly. While Marshall Frech, Director of the Texas Environmental Center offers high praise stating, "*Velocity* is indispensable for educators who want to introduce concepts of sustainability and new ways of looking at the world," the *SLJ* reviewer noted "conservatives may take issue with comments about governments starting wars to assure continuing energy supplies."

Audio-Visual 7*

Ole Tangen, Jr. *Wind Over Water: The Debate over Wind Power*. San Francisco: The Video Project, 2004. 32 min. (DVD). $95.00.

Reviews

C. Block, 28 June 2005. Video Librarian. Accessed from Video Librarian Plus database 19 Apr. 2006. Starred review.

Phyllis Levy Mandell, SLJ 51 (2005). Accessed from EBSCOhost database 19 Apr. 2006.

Comments & Overview

Gr. 10-12. Tangen's documentary is described as "an informative look at a timely environmental topic" (Block). The video delves into the controversy surrounding the building of an off-shore wind farm in Nantucket Sound, five miles off the coast of Cape Cod, Massachusetts. The wind farm, which is expected to supply 75% the energy needs for the area's residents, would consist of 130 wind turbines. Concerns have arisen however, over the threat of noise pollution, potential harm to fish and wildlife, not to mention tourism, as the wind farm—spaced over 34 square miles—may severely impact the scenic views. Similar concerns, I believe, have been raised in Hawaii in regards to geothermal power. This video can be the start of a healthy debate on alternative energy.

Audio-Visual 8

Sheila Laffey. *Hawaii in Transition: Vision for a Sustainable Future*. Distributed by The Video Project, 1996. $79.95 (Free from Hawaii DOE Teleschool). 28 min.

Awards & Recognition

Winner, Earthvision '99 Environmental Film & Video Festival

Comments & Overview

Gr. 10-12. This video features, among other topics in the area of sustainability, Hawaii's use of photovoltaic and solar panels and the development of energy from biomass and wind. Representatives of eco-groups such as Rocky Mountain Institute, Context Institute: A Resource for Humane Sustainable Culture, and the Rainforest Action Network give it high praise.

Audio-Visual 9*

Center for Science Education. *Windmills: An Extended Investigation: a Video Case Study*, 4 videocassettes. Newton, MA: Education Development Center, Inc., 1999. ISBN: 0892922877 (pa). $149.95.

Reviews

Mark Levy, 24 March 2004. NSTA Recommends. Accessed from http://www2.nsta.org/recommends/product.asp?id=14361 19 Apr. 2006.

Comments & Overview

Prof. Collection. This package consists of a print *Facilitator's Guide*, a *User's Guide*, and 4 videotapes: *Open Exploration*, *Data Collection*, *Discussions and the Role of Questions in Inquiry*, and *Embedded Assessment*. The videos follow a fourth grade class as they construct and test a windmill through an 11-session month long unit.
This is an inquiry-based learning activity, and as explained in the NSTA review, by watching "as the video proceeds through this controlled science investigation, viewers can observe each aspect: modeling, questioning, discussion, facilitating, cooperative learning, conferencing, management, performance assessment, and evaluation."

Electronic Resource

ReFocus, edited by P. Spencer [electronic journal]. New York: Elsevier, 2000-. $343.00. ISSN: 1471-0846. <http://www.sciencedirect.com/science?_ob=JournalURL&_cdi=11464&_auth=y&_acct=C000050221&_version=1&_urlVersion=0&_userid=10&md5=aefff6198d158e52c42bec88a2221ba0>

Comments & Overview

Gr. 11-12, Prof. *ReFocus* is a journal written for renewable energy manufacturers, property developers, planners and architects, aid agencies, and more generally "anyone with an interest in using renewable energy." As a result, articles are up-to-date, in-depth, but in most cases, not so technical that our upper classman and faculty will not be able to make sense of the information. The journal covers at all areas of renewable energy: biomass and biogas, fuel cells, geothermal, hydroelectricity, photovoltaics, solar architecture, solar thermal and thermal power, technology transfer process, tidal and wave, and wind. The journal is provided through Science Direct, which allows access to articles online well before the print journal issue date; and offers password protected online access to for up to 5 users, including unlimited downloads and print-outs. Coverage of ReFocus begins February 28, 2001 with Vol. 2, Iss. 1.

BUDGET NARRATIVE

We initially anticipated purchasing 32 books, 2 periodicals, 10 audio-visual materials, and 1 electronic resource. Our cost estimate, as broken down in Table 1, amounted to $2,110.00.

TABLE 1. INITIAL ITEM AND COST ESTIMATES

Material Format	Average Cost Per Item	Number of Items	Total Cost
Books	$30.00	32	$960.00
Periodicals	$25.00	2	$50.00
A/V Materials	$65.00	10	$650.00
Electronic Resources	$450.00	1	$450.00
			$2,110.00

As we began selecting items, we realized the average cost of books was lower than estimated. With this in mind, we decided to purchase two multiple volume series, which increased our total number of books to 40. The total cost, based on list price, of the resources actually selected can be seen below in Table 2.

TABLE 2. ACTUAL ITEM AND COST ANALYSIS BASED ON LIST PRICE

Material Format	Average Cost Per Item	Number of Items	Total Cost
Books	$21.67	40	$866.61
Periodicals	$24.98	2	$49.95
A/V Materials	$89.41	9	$804.70
Electronic Resources	$343.00	1	$343.00
			$2,064.26

In terms of material acquisition, a handful of resources were available only through direct order from the publisher, producer, or the used book market. However, the

majority of materials, in terms of books at least, we would order from either Follett Library Resources or Borders.com. Both of these distributors offer discounts on many of their books, which we have calculated into the final cost. Also of note are discounts received on audio-visual materials. Videos, we found, were substantially higher in price than expected. We were fortunate enough, however to save over $140 by purchasing four videos as part of a package deal. A fifth video, priced at $79.95, we found was available at no charge from the Hawaii State Department of Education Teleschool Branch.

Therefore, the total and final cost of the resources, with applicable discounts applied came out to $1,624.28. A breakdown of costs can be seen below in Table 3.

TABLE 3. ACTUAL ITEM AND COST ANALYSIS WITH DISCOUNTS APPLIED

Material Format	Average Cost Per Item	Number of Items	Total Cost
Books	$16.19	40	$647.48
Periodicals	$24.98	2	$49.95
A/V Materials	$89.41	9	$583.85
Electronic Resources	$343.00	1	$343.00
			$1,624.28

Please note, shipping costs have not been factored into the final price.

CONCLUSION

These materials will be instrumental in building and supporting a curriculum that we believe will engage our students and help them better recognize the multidimensional—social, political, economic, and environmental—impact of technology in our society. We sincerely thank the Kashu Foundation for their generosity and their assistance in helping us achieve these goals.

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