

## GENERAL SCIENCE

# How to Be a Space-Age Santa

A well-chosen Christmas gift can make an immeasurable difference in a child's life, beginning lifelong understanding and enjoyment of science.

See Front Cover

By SHIRLEY MOORE

SANTA WILL have to be "in orbit" this year if he is going to stuff the stockings of space-age children.

Most of the parents, relatives and family friends who are filling in as Santa's purchasing agents are well aware that science has become exceedingly important to the younger generation. Today's children are surprisingly knowledgeable about the latest electronic marvel, moonshot, or chance of stumbling upon the secret cross-over between life and non-life.

Naturally, then, most of them want to begin right now to fiddle around with the unfinished pieces of scientific discovery. Imaginatively chosen Christmas gifts will give many a child and young person his first exhilarating chance to do so.

Data accumulated by SCIENCE SERVICE show that such gifts are quite likely to result in the sprouting of thousands of brand new scientists under the nation's Christmas trees this year.

Somewhere a six-year-old will unwrap a toy gyroscope that may start him on the long and fairly mysterious process of becoming the director of an inertial navigation instrumentation laboratory. The photograph on the cover of this week's SCIENCE NEWS LETTER shows some of the pleasure two children are receiving from their scientific gifts. A 16-year-old girl sitting on the floor among crumpled tissue and ribbon will open the new set of books that will fire her determination to explore the fascinating realm of mathematics.

SCIENCE SERVICE studies of highly promising student-scientists have turned up impressive evidence that careers in science may begin very early in a person's life and

that a great many of them are started by just the right book or piece of equipment at the time when a youngster is most receptive to its particular delights.

The talented students discovered in the Science Talent Search for the Westinghouse Science Scholarships and Awards and in the National Science Fair, both activities of the national science youth program administered by SCIENCE SERVICE, are especially good examples of what may happen when children are given guided freedom to question, explore and discover answers for themselves.

The parents of the top 40 winners in this year's Science Talent Search have reported to SCIENCE SERVICE the toys, books and equipment they believe to have been most important in stimulating the development of their sons' and daughters' interest and unusual ability in science. There are useful suggestions here for parents, relatives and friends who would like to choose a rewarding Christmas gift for a favorite youngster:

From two or three years old on—jigsaw  
(Continued on page 328)



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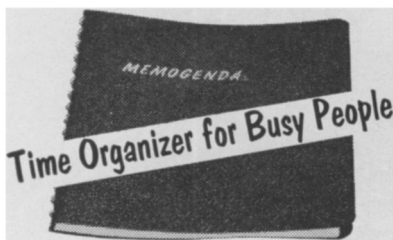
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# Space-Age Santa

(Continued from page 326)

puzzles. From two and three to about eight—tinker toys and similar materials.

From nine to 12—chemistry sets. At 10 and 11—microscopes and microscope accessories and materials.

Other suggestions—planetarium, radio kit, optical kit, atomic energy laboratory kit, steam engine and models of planes.

From six years old on—encyclopedias. From about second grade on—books on specific fields such as birds, insects, stars, geology, mathematics, archaeology and chemistry. Science fiction for older children.

High school—well-known science magazines such as SCIENCE NEWS LETTER, *Scientific American*, *Science Digest*, *National Geographic*, *Popular Science*, *Natural History*, and the journals published in specialized science disciplines.

Hundreds of ideas for unusual and appropriate gifts can be discovered in Science Clubs of America's files of interesting materials and stimulating information for young scientists. "Shopping" through these files turns up such items as these (catalogs or descriptive literature available from the organizations listed):

FOR THE YOUNGEST: Nature games with birds, butterflies, trees, shells, etc., \$1.35 a game; a wall chart of the solar system and moons, 50¢. (Naturegraph Co., San Martin, Calif.)

Nature charts of seeds, leaves, twigs, tracks, amphibians, etc., 25¢ each; bulletins on forecasting the weather, nature photography, life in a pond, 15¢ each. (National Audubon Society, 1130 Fifth Ave., New York 28, N. Y.)

Miniature "farm" to plant, water, cultivate, Grow-a-Farm, \$3. (In stores, Grow-a-Farm made by Herne Co.)

Coloring book of the Smithsonian Institution, 50¢; Adventures in Science at the Smithsonian, 25¢. (Smithsonian Institution, 10th and Independence Ave., S.W., Washington 25, D. C.)

Science toy collections, \$2 to \$3.50, include such items as a gyroscope, magnetic discs, jumping tops, periscope, kaleidoscope, puzzles, etc. (Science Materials Center, 59 Fourth Ave., New York 3, N. Y.)

D-Stix construction kits; 230, 370 or 452 pieces of colored wood sticks with rubber joints, at \$3, \$5 and \$7 postpaid. (Edmund Scientific Co., 101 E. Gloucester Pike, Barrington, N. J.)

Bird watcher kit, plastic bird house and feeding station to assemble, picture window in house. (In stores, made by Kap-Pak Products.)

The Visible Man, complete human anatomy, 3-dimensional, about \$5 in stores.

Flash cards for addition, subtraction, etc., fractions, number concepts, phonetics, vocabulary at various levels, \$1 up in stores. (Milton Bradley, also other companies.)

Ant Farm, for observation of ant life and habits, about \$3 in stores.

Chic-u-bator, \$5, or Chick-nik, \$4, for

observation of hatching process from egg to chicken, in stores.

Books on successfully raising small animals, such as *The Care of Turtles and Small Alligators*, 20¢ (N. Y. Zoological Society, Bronx Park, New York 60, N. Y.); *Keep Them Alive*, \$1 plus postage; free price list of pet reptiles and relevant publications. (Ross Allen's Reptile Institute, Silver Springs, Fla.)

Subscription to monthly Science Program consisting of package of paperback book on some field of modern science, color photographs for mounting, other special material, \$1 a month for as long as desired. (Science Program, Dept. 9-NR-0, Garden City, N. Y.)

Space kit, chart of solar system and infograph wheel which answers questions about planets, \$1; weather kit explaining weather terms, aids for weather prediction, color map, \$1. (In stores or from C. S. Hammond Co., 515 Valley St., Maplewood, N. J.)

Compressed air rocket launcher, \$5. (In stores, made by Knickerbocker.)

Cape Canaveral missile base with rockets, satellites, launching pads, recording of count-down sounds, booklet, \$8. (In stores, made by Marx.)

Westinghouse atomic power plant model, \$7; nuclear submarine that fires Polaris missiles, booklet, \$2; space station, \$5; B-52 carrying X-15 under wing to launch at designated altitude, \$2. (In stores, made by Revell.)

For expert advice on the best among the many attractive new science books for children: The Elementary School Science Library, annotated catalog of 160 books, 25¢, (American Association for the Advancement of Science, 1515 Massachusetts Ave., N.W., Washington 5, D. C.); *Growing Up With Science Books*, annotated list of 200, 10¢. (Library Journal, SCA, 62 W. 45th St., New York 36, N. Y.)

"Things of science" kits, such as optical illusion, lenses, paper making, cryptography, crystallization, atomic energy, etc. 75¢ each, yearly subscription for monthly units, \$5. (SCIENCE SERVICE, 1719 N Street, N.W., Washington 6, D. C.)

An excellent source of information about what teen-aged students want most is the "Wish Lists" made by the 320 finalists at the 10th National Science Fair. These Wishes indicated the materials and books they would choose as their Wish Awards if declared winners at the national event.

More than a third wanted electronic equipment such as oscilloscope, VTVM, VOM, and receiver and amplifier kits; tape recorders; Geiger counters; and radios. More than one-fourth of them wished for scientific books in their special fields, encyclopedias and dictionaries. More than 21% wanted microscopes, optical accessories and supplies, binoculars or telescopes. Another 18% listed laboratory supplies and accessories, 11% photographic equipment,

(Continued on page 332)

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# Space-Age Santa

(Continued from page 328)

9% slide rules, and so on. Other wishes described were magazine subscriptions, dissecting sets, scales and balances, typewriters, aquarium equipment, drafting sets, shop tools, animal cages and equipment, entomological equipment and supplies, incubators, and electronic brain computers.

A sampling of hundreds of happy possibilities for about-to-be-scientists may suggest just the right choices for your own Christmas list:

For the young biologist: Biocraft accessory kit with fish, frog, crayfish, dissecting instruments, microtome, magnifying lens, \$8; Skil-Craft binocular microscope set, \$18; Aristo-Craft prepared slide sets of textile fibers, pollen, sea life, microorganisms, etc., \$1.50 to \$2.50; wood study kit with 54 specimens of U. S. woods and products, knife, hand lens, illustrated manual, \$10 postpaid from Timber Engineering Co., 1319 18th St., N.W., Washington 6, D. C.; subscription to Natural History Book Club, 63 Fourth Ave., New York 3, N. Y.; catalogs (free) and money to order what he or she chooses from such supply companies as N. Y. Scientific Supply Co., SCA, 28 W. 30th St., New York 1, N. Y.; Research Scientific Supplies, Inc., 69 W. 23rd St., New York 11, N. Y.; Slingerland-Comstock Co., Dept. SCA, Warren Rd., Ithaca, N. Y.

For the chemist: Graduated tubes, to 8ml., flat-bottomed, \$1.50 a doz., R. P. Cargille Laboratories, Inc., 117 Liberty St., New York 6, N. Y.; The Chemical Elements, up-to-date handbook, 55¢ postpaid from SCIENCE SERVICE, 1719 N St., N.W., Washington 6, D. C.; CHEMISTRY, magazine for chemistry students, teachers, \$4 a year, also from SCIENCE SERVICE.

For a Mathematical Christmas: Brainiac construction kit, \$18.95, from Science Materials Center, 59 Fourth Ave., New York 3, N. Y.; or Berkeley Enterprises, Inc., 815 Washington St., R205, Newtonville 60, Mass.; walnut abacus, \$4.95 from Edmund Scientific Co., 101 E. Gloucester Pike, Barrington, N. J.; subscription to the Duodecimal Bulletin, \$2 for 4 issues, Duodecimal

Society of America, Inc., 20 Carlton Pl., Staten Island 4, N. Y.

For the physicist: Atomotron electrostatic generator kit, \$14.95, Raymaster cloud chamber, \$16, from Atomic Laboratories, Inc., 3086 Claremont Ave., Berkeley 5, Calif.; radioactive isotope price list #14S (no AEC license required), free, and booklet of laboratory experiments with radioisotopes, 50¢, from Atomic Research Laboratory, 10717 Venice Blvd., Los Angeles 34, Calif.; information, prices on booklets and materials for making projectors, solar furnace, etc., from Scientific Laboratory Apparatus, 61 Reade St., New York 7, N. Y.; Fresnel lens for building solar furnace, \$6, replica grating on film for making spectrosopes, \$2, horse shoe magnets for galvanometer, ammeter, etc., \$8.50 each, from Edmund Scientific Co., 101 E. Gloucester Pike, Barrington, N. J.

For the rock hound: Bulletins on ultraviolet fluorescence, luminescence in gem science, 5¢ each, and booklet on rocks and minerals that fluoresce with mineral light, 25¢ from Ultra-Violet Products, Inc., San Gabriel, Calif.; catalogs, lists, information on supplies, minerals, equipment, etc., from Shipley's Mineral House, Gem Village, Bayfield, Colo.; The Prospectors Shop, 201 W. San Francisco St., Santa Fe, N. Mex.; Minerals Unlimited, 1724 University Ave., Berkeley, Calif.; Mueller's 1002 E. Camelback, Phoenix, Ariz.; Gems and Minerals Magazine, Box 687SC, Mentone, Calif.

Science in general: SCIENCE NEWS LETTER subscription, weekly, \$5.50 a year, from SCIENCE SERVICE, 1719 N St., N.W., Washington 6, D. C.; home laboratory kits, one a month for eight months, include equipment for experiments in sound, electricity, light, etc., \$29.60, from American Basic Science Club, Inc., Box 524, San Antonio, Texas; electric battery motor kit 35¢, horn kit 35¢, bell kit 35¢, small battery motors, 70¢ to \$5, from Polk's Model Craft-Hobbies, 314 Fifth Ave., New York, N. Y.

Science News Letter, November 14, 1959

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The increase in number of *psychiatrists* in the U. S. from 8,713 in 1956 to 10,562 in 1959 now provides an average of one psychiatrist for every 16,400 persons.

The demand for *cotton* in the U. S. is expected to be 55% to 60% greater in 1975 than it was in 1956, in spite of competition from synthetic fibers.