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ABSTRACT

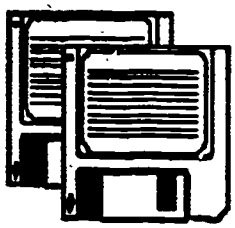
The December 1990 Media Evaluation Services list of computer courseware includes the following: (1) Group Grammar: grades 5-10 identify elements of grammar and mechanics; (2) Ready-Set-Read: Sequence: grades K-2 put pictures or sentences in order; (3) Write-On! Sarah, Plain and Tall: grades 4-7 develop reading, writing, and thinking skills through literature-based instruction; (4) in Common Arithmetic: grades 4-6 practice computation and thinking skills through games; (5) MECC Estimation Series: Estimation Quick Solve I: grades 5-8 practice estimation in a game show format; (6) What Shape Is That Color? grades 3-12 develop problem-solving and mathematical reasoning skills; (7) Your Personal Trainer for the SAT: grades 9-12 prepare for the Scholastic Aptitude Test; (8) Dinosaur Blend: grades 3-8 receive integrated mathematics learning through a multifaceted package; and (9) Science Inquiry Collection: Fossil Hunter: grades 4-6 apply organizational and analytical skills while exploring fossils. Each item is described fully with price and required equipment included. Strengths and weaknesses of each are also listed together with suggestions for classroom use. (DB)

ADVISORY LIST OF COMPUTER SOFTWARE

North Carolina State Department
of Public Instruction

Media Evaluation Services

December 1990



Advisory List of

Computer Courseware

Media Evaluation Services
Department of Public Instruction

December 1990
Raleigh, North Carolina

COMMUNICATION SKILLS

Title: GROUP GRAMMAR
Publisher: Tom Snyder Productions
90 Sherman Street
Cambridge, MA 02140
Copyright: 1990
Price: $79.95
Contents of package: 1 program disk, 1 backup disk, guide 64 p.
Systems (* indicates version previewed): Apple II family, MS-DOS*
Equipment required: microcomputer, 1 disk drive, monitor (CGA), printer (optional), blank disk
Grade level: 5-10
Goals: Communication Skills Grade 7 Grammar CG 1 and 3

With the three stories and accompanying games of GROUP GRAMMAR, students practice identifying elements of grammar and mechanics such as singular nouns, proper nouns, collective nouns, personal pronouns, articles, present tense verbs, adverbs, adjectives, prepositions, conjunctions, commas, question marks, direct objects, future tense verbs, subjects, indirect objects, and infinitives as well as first, second, and third person. Each story is presented in eight illustrated screens. Instructions on which elements to search for precede each story page (e.g., "Find phrases that have at least one present verb"). After students read the page of text, a game board appears (three rows across and three down) with that page of the story divided into nine phrases. Students have four moves (either vertical or horizontal) to identify phrases that contain the designated elements. Each correctly identified phrase is rewarded with a cheerful sound and percentage points. Students continue reading one screen then playing a game until they have completed all eight game screens, after which they see their score and a corresponding award (e.g., the copper comma award, the plastic preposition award, or the golden grammar award). Teachers can modify existing stories or create new ones as well as choose grammatical elements to be identified in each. They can also see lists of grammar elements used in a story and the number of occurrences of each. New stories can have up to eight screens of text, but no picture appears with them. Stories can be printed.

The guide contains an overview of the program, explanations of the three ways to play (in one large group, in two teams, or individually), learning objectives, and a list of grammatical and mechanical elements contained in each of the three stories. A helpful walkthrough section takes teachers quickly through the program's workings to prepare them for using it with a class. Also included are tips for creating stories, ideas for using the program in the classroom, reproducible worksheets for pregame use (three to help students understand the game board and three to provide a simple grammar review), and story writing templates.

WEAKNESSES: There are several editing oversights in the on-screen text. The prepackaged stories may not hold the interest of all students, and the program will be of limited use unless teachers create their own stories (which are themselves limited in space and word size). There is no recordkeeping.

STRENGTHS: Teacher options to modify and create stories make the program more flexible and allow teachers to address particular classroom problems. Large-group play is an advantage in classrooms with one computer.

USES: GROUP GRAMMAR is suitable for review and reinforcement in lower grades and remediation in higher grades. Used well, it can be a tool for presenting various language elements in context rather than in isolation. Because text on any topic can be used in the program, it is a convenient way to integrate communication skills with other subjects.

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Series Title: READY-SET-READ
Title: SEQUENCE
Publisher: Continental Press
520 E. Bainbridge Street
Elizabethtown, PA 17022
Copyright: 1990
Price: $39.95
Contents of package: 1 program disk, 1 backup disk, 5 reproducible activity sheets, guide 15 p.
Systems (* indicates version previewed): Apple II family*
Equipment required: microcomputer, 1 disk drive, monitor (color preferred)
Grade level: K-2
Goals: Communication Skills Grade 1 Reading/Literature CG 3
Grade 2 Reading/Literature CG 5
Writing CG 1

READY-SET-READ: SEQUENCE provides three progressively more complex activities in which primary students put pictures or sentences in correct order. For each type of activity, guided practice with a brief example is available before students work through six to eight problems randomly selected from a pool of sixteen to twenty problems. In "Which Came First?" students determine which of two related events suggested by displayed pictures (of a snowman and a melted snowman, for example) happened first. Students receive positive feedback for correct answers or a message ("Here is the right answer") for incorrect choices. The program displays two sentences (starting with "First" and "Then") that explain the sequence and rearranges the pictures if appropriate. In "What Happened?" three sentences appear in boxes, and a cartoon alligator asks students to select the event that happened first, second, or last, allowing them to try again if their choice is incorrect. The program reinforces the appropriate sequence by rearranging the sentences. In "Mixed-Up Stories" the alligator presents four sentences for rearrangement. Students number each sentence based on a sensible sequence, moving the cursor and renumbering easily if necessary. For incorrect answers, the program indicates which numbers are right and allows the student one more chance to rearrange before placing the correct numbers beside each sentence and finally rearranging the sentences in the proper order. When students complete each activity, the program reports the number correct out of the number of attempts and may provide an animated reward graphic (for seventy or more percent correct) or a suggestion to seek help (for less than fifty percent correct). Students can also view or print a summary performance report on activities done in the current session. The package also includes four reproducible activity sheets compatible with program activities and a student progress record sheet. The guide provides detailed program description with screen facsimiles, preparatory and follow-up activities, and answer keys for activity sheets.

WEAKNESSES: When students need to try again in "Mixed-Up Stories," part of the screen message is out of sync with the program when some sentences are in correct order. The message reads "These numbers are right," but the incorrect numbers remain on the screen until the message window disappears.

STRENGTHS: This program uses developmentally appropriate examples, appealing graphics, and large screen type easily read by primary students. Feedback is carefully designed with pauses, emphasis, and final reinforcement.

USES: READY-SET-READ: SEQUENCE can be used for skills reinforcement with small groups or individual students or as an introduction to sequencing for a whole class using a projection panel. Pairs of students could work together in peer tutoring sessions. Students will need prior instruction on using the keyboard and on sequencing concepts before using the program independently.

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Series Title: WRITE-ON!
Title: SARAH, PLAIN AND TALL
Publisher: Humanities Software
P.O. Box 950
Hood River, OR 9703.
Copyright: 1989
Price: $75.00
Contents of package: 1 data disk, 1 backup disk, class set of disk labels, series manual 32 p., handout section 12 p., manual supplement 10 p.
Systems (* indicates version previewed): Apple II family*, Macintosh, IBM-PC, Tandy 1000
Equipment required: microcomputer, 1 disk drive, monitor, printer (preferred), blank disks
Grade level: 4-7
Goals: Communication Skills Grades 4-6 Reading/Literature CG 6, 7, and 9
Writing CG 1 and 2

WRITE-ON! SARAH, PLAIN AND TALL supports literature-based instruction in the context of process writing with twenty-five activity files that develop reading, writing, and thinking skills using the award-winning novel by Patricia MacLachlan. The package is available in versions for many word processors. Most activities correspond to chapters in the book, but a review of word processing features and several culminating exercises are also provided. Writing activities alternately require students to focus closely on the work, predict or extend events, take the perspective of characters, or apply issues or situations to their own experiences. Guided commentary, text references, models, and prompts provide structure and focus. Some activities (such as completing story frames for character, setting, or plot) center on text review. Other activities involve writing poems (such as a biographical sketch or object description in free verse, a cinquain, or a diamonte poem exploring oppositions); reflection (about individual talents and characteristics, memorable family times, ambivalence and ambiguity, or adjusting to new experiences); and more traditional forms of exposition (including stating opinions, writing a persuasive paragraph, and description). In the "Word Picture" activity students list the five senses and look for examples of images for each sense in a chapter of the book. Then they brainstorm and list their own special places, and the program prompts them to visualize one place, identify sensory images associated with it, talk about the place with someone, and write a description of it to share. Another activity

provides a planning frame for writing a sequel to the novel. Files and student writing can be printed, and individual schools can copy disks and manuals as needed. The series manual discusses the role of word processing, class organization and computer availability, process writing, and the use of writing groups. The manual supplement for Sarah, Plain and Tall outlines each file in terms of learning objectives, student activities, and extension exercises. The manual also lists potentially unfamiliar vocabulary; summarizes the scope of language and thinking skills, writing processes, and reading objectives, processes, and comprehension levels addressed; and describes extension activities in several subject areas.

WEAKNESSES: Printing student writing without instructions and prompts is cumbersome.

STRENGTHS: This program integrates reading, writing, and critical thinking skills while encouraging students to respond both affectively and analytically to literature. The activities themselves and the diverse learning objectives in the manual clearly illustrate the potential of literature in the classroom.

USES: WRITE-ON! SARAH, PLAIN AND TALL is most appropriate in upper elementary or early middle grade settings that emphasize the writing process, whole language methods, and an integrated curriculum. Students comfortable with word processing will respond more fluently to the activities, but the exercises can be printed for use off the computer. Adaptable for use by individuals or groups, this courseware is a natural choice for a classroom center or writing workshop environment.

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MATH

Series Title: <in COMMON>
Title: ARITHMETIC
Publisher: Sunburst Communications
39 Washington Avenue
Pleasantville, NY 10570-9904
Copyright: 1989 (released 1990)
Price: $65.00
Contents of package: 1 program disk, 1 backup disk, guide 83 p.
Systems (* indicates version previewed): IBM-PC, IBM PS/2*, Tandy 1000
Equipment required: microcomputer, 1 disk drive, monitor (color preferred)
Grade level: 4-6
Goals: Mathematics Grades 4-6 CG 7

<in COMMON> ARITHMETIC encourages practice of arithmetic computation skills and thinking skills through four games: "Bingo," "Maratnon," "Rummy," and "Tic-tac-toe." Throughout the games math is reinforced as students group math expressions that equal the same number or nearly the same number for estimation problems. Users begin by selecting a game and then choosing one of the fifteen math topics for practice (e.g., addition, subtraction, multiplication, or division facts; addition or subtraction problems with or without regrouping; addition or multiplication of three numbers; addition or subtraction of fractions; estimation with whole number addition or subtraction; and powers of ten). Next, users choose from a variety of options such as size of game board,

difficulty level of problems, and number of players (one or two). In the race game "Marathon," users see math expressions above columns of blank spaces. Examples found in a multiplication facts game with four columns are "1 x 42," "56," "12 x 4," and "4 x 0." Players take turns placing items that appear on the screen in appropriate columns until a single player has filled an entire column correctly. A sampling of items to be categorized in this game could include "21 x 2," "8 x 7," and "4 x 14." Mistakes result in a lost turn; limited help is available to explain why an answer was incorrect for multiplication and estimation problems. The other three familiar games are generally played with their traditional rules except that matches consist of equal mathematical expressions.

The guide explains rules and procedures for setting up and playing each of the four games. It also contains plans and transparency masters for six noncomputer lessons: the first explores categorizing, the next four are each correlated to one of the four games, and the final one encourages students to devise noncomputer versions of categorizing activities.

WEAKNESSES: On the monitor during play and on page 73 of the guide, "53 - 12" is considered equal to "39." Student progress records are not maintained.

STRENGTHS: The program offers basic math skill practice in a variety of appealing formats. Teachers will find the guide useful for introducing the program to students prior to using the computer.

USES: <in COMMON> ARITHMETIC serves as an enrichment tool for reinforcing math skills. Mental computation and estimation practice can be emphasized, especially if calculators are not used. While the games can be played by a single user, many students will find these activities more motivating and will engage in more strategic play if they compete with another person.

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Series Title: MECC ESTIMATION SERIES
Title: ESTIMATION QUICK SOLVE I
Publisher: MECC
3490 Lexington Avenue North
Saint Paul, MN 55126-8907
Copyright: 1990
Price: $59.00
Contents of package: 1 program disk, 1 backup disk, guide 46 p.
Systems (* indicates version previewed): Apple II family*
Equipment required: microcomputer, 1 disk drive, monitor (color optional), printer (preferred)
Grade level: 5-8
Goals: Grades 5-8 Mathematics CG 5 and 7

ESTIMATION QUICK SOLVE I provides practice with estimation skills in a game show format. Teachers make a number of selections prior to student play: three or four of the problem categories (whole numbers, decimals, fractions, and percents), at least one problem type for each category from a variable number of options available for each (visuals, addition, subtraction, multiplication, division, and word problems), number of rounds in a game (from one to four), length of time the problem will be displayed on the screen (five to ten seconds

or ten to fifteen seconds), amount of time allowed for entering an answer (fifteen, twenty, twenty-five, or thirty seconds), and whether to permit "surprise" questions consisting of problems from a variety of categories. As a pair of students begin play, the computer decides randomly who has the first turn to select a problem category and point amount (ten, twenty, thirty, or forty) from the on-screen game board. Problems worth more points are shown on the screen for a shorter time, and the range of acceptable answers is narrower than for problems with fewer points. A general clue about the problem to come (such as "Use decimals to estimate the point on the number line" or "Use fractions to estimate the product") is shown on the screen so that students will be prepared to tackle the problem quickly. Once the problem has appeared, the first student to press a particular key assigned to him earns the opportunity to solve the problem as well as remove it from the screen. If this student is correct, points are added to his score; if he is wrong, the other student has a chance to enter an answer without viewing the problem again and earn points. No matter which student answers accurately, or even if neither does, a number line appears with the range of acceptable answers highlighted. Marks appear to show where right and/or wrong answers fell on the line. Users also have the opportunity to view the problem again. Play continues until the number of rounds designated by the teacher is completed and a winner declared. A single student can use this program by selecting one of six opponents provided by the program. The program gives descriptions of each opponent's abilities. Records of each student's games reflect the number of problems tackled and the number correct for each of the four problem categories. The guide explains operation procedures, teacher options, and player options and includes examples of each type of problem offered for each category, a list of thinking skills and ways this program supports them, and a bibliography of articles about estimation.

WEAKNESSES: Teachers might want to narrow the categories of problems to fewer than three if review is needed in a particular area.

STRENGTHS: Students will enjoy the challenging format. Seeing the relationship of answers on the number line and viewing the problem after answering allow students to analyze their responses for what went well and what did not in order to make adjustments in future estimations.

USES: Because it does not teach estimation strategies, ESTIMATION QUICK SOLVE I is useful for reinforcing skills already covered in class.

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Title: WHAT SHAPE IS THAT COLOR?
Publisher: Sunburst Communications, Inc.
39 Washington Avenue
Pleasantville, NY 10570-9904
Copyright: 1989
Price: $65.00
Contents of package: 1 program disk, 1 backup disk, guide 37 p.
Systems (* indicates version previewed): IBM-PC, IBM-PCjr, Tandy 1000*
Equipment required: microcomputer, 1 disk drive, color monitor
Grade level: 3-12
Goals: Mathematics Grades 3-5 Geometry CG 2
Grade 3 Classification, Pattern, Seriation
Grades 3-8 Problem Solving CG 5
Grades 9-12 Thinking Skills

WHAT SHAPE IS THAT COLOR? helps students develop problem-solving and mathematical reasoning skills as they recognize common attributes among sets of objects. While viewing a grid made up of cells containing a variety of objects, students must describe the attributes of a specified set of objects in a way that defines them exclusively. The objects' attributes are shape (squares, triangles, or circles), color (red, yellow, or green), and size (little or big). Students describe common attributes using the traditional Boolean algebra connectors and, or, and not. Students are awarded points for correctly describing the attributes shared by a set of objects in specific cells. Cells can be described in the most obvious way possible by using all three attributes and every color description; however, a description written using the fewest possible descriptors scores more points. The program contains two levels of play: "Rule Maker" for beginning and intermediate users and "Big Board" for more advanced students. In "Rule Maker" a twelve-cell grid (three cells by four cells) is displayed. Certain cells on the grid are highlighted. Students must identify the attributes of the objects within the highlighted cells in such a way that the attributes apply to only those objects. If students' definitions are exclusive (apply to no other cells), the program responds with the message "Your Rule Works!" If the definition includes objects in cells other than the highlighted ones, the program responds "Too Many Cells" and highlights the other cells for emphasis. Students are not penalized for incorrect answers and may adjust their answers as many times as desired. The second level, "Big Board," is similar to "Rule Maker" except it features a fifty-four cell grid. The program provides three help sections. The "analysis" screen gives students a step-by-step true or false analysis of their rule as it applies to any cell on the grid, a generic help screen describes several ways of writing rules with as few components as possible, and a "rule syntax" screen gives eight examples of rules written in correct format. The ample documentation provided with the program lists objectives, describes content, gives sample lesson plans, and provides transparency and worksheet masters.

WEAKNESSES: Reviewers found no major weaknesses in the program.

STRENGTHS: The program offers problem-solving exercises in a setting in which students can apply multiple solutions. The program's authors recognize that studying mathematics is more involved than studying narrowly stated, traditional problems. The program lends credence to a continuous experience of grouping attributes and defining them succinctly.

USES: WHAT SHAPE IS THAT COLOR? allows individuals or small groups to develop an understanding of geometric objects and relationships. At the secondary level the program helps students develop problem-solving skills such as making and testing conjectures, judging the validity of arguments, and constructing simple valid arguments. Teacher intervention and guidance are necessary at all grade levels until students become familiar with the program's objectives, scorekeeping, and strategies for solving problems.

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SAT

Title: YOUR PERSONAL TRAINER FOR THE SAT
Publisher: Davidson & Associates, Inc.
P.O. Box 2691
Torrance, CA 90509
Copyright: 1990
Price: $49.95
Contents of package: 1 program disk (3.5"), 1 data disk (3.5"), workbook (How to Take the SAT), guide 44 p.
Systems (* indicates version previewed): IBM-PC (DOS 2.11), Tandy 1000* (DOS 2.11.26 or higher)
Equipment required: microcomputer (512K); 1 disk drive; VGA, MCGA, TGA, EGA, CGA, or Hercules compatible monitor required; printer (preferred)
Grade level: 9-12
Goals: NA

YOUR PERSONAL TRAINER FOR THE SAT combines software, a companion workbook, and an individualized study schedule to help students prepare for the Scholastic Aptitude Test. Menu options include assessment; practice in the SAT areas of reading (sentence completion and comprehension passages), vocabulary (antonyms and analogies), and math (arithmetic, algebra, and geometry); and a game-style review of test-taking strategies. Students take one of six practice tests using questions in the workbook and an on-screen answer sheet. They can take a verbal test, a math test, or a test with both components. Each math or verbal test portion is timed for thirty minutes but covers the range of problems on the SAT. The computer generates both a performance report (listing scores and general strengths and weaknesses) and an individualized training program (providing step-by-step references to practice segments on the computer and specific sections in the workbook). These products can be printed, and scores for at least seventy students can be saved. The program also graphs student scores in comparison to maximum score, national average, and admission requirements for selected colleges (approximately 250 schools with 1989 data). Within each of the program's practice segments, users review key strategies and work a sequence of ten demonstration problems (or two reading passages) from actual SATs. Special options enable students to review major strategies for the current question type, use a glossary of selected vocabulary words and mathematical terms, read a "training tip," obtain a context-specific hint for each question, and darken answer choices they have ruled out. The "Block 1600" game requires students to capture adjacent blocks on a game board by answering strategy questions quickly.

The workbook, How to Take the SAT, provides eight math and eight verbal practice tests (with six of each type being program tests), practice exercises and strategies for each kind of verbal question as well as general vocabulary review, five practice tests for Standard Written English, and math content review with practice problems in twelve sections. The guide provides an overview, start-up instructions, and program description.

WEAKNESSES: On-screen access to basic instructions (such as how to enter answers or play the game) involves a somewhat slow loading process. The program itself provides a limited number of practice problems although additional examples are available in the workbook. Reviewers noted several minor typographical errors.

STRENGTHS: The program's practice modules contain actual SAT questions and explanatory answers that model effective solution strategies. A colorful format, the training theme, and report capability give the program a contemporary touch that will appeal to high school students. The training schedules provide clear instructions for activities on the computer and in the book, a focus on boosting weak areas, and a framework that encourages students to assume responsibility for test preparation.

USES: YOUR PERSONAL TRAINER FOR THE SAT is particularly useful for students who want to work on weak areas and track their progress through several sample tests. The assessment tests must be used with the workbook, but the program practice modules are self-contained and the workbook can be used alone as part of a training schedule or for overall review.

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SCIENCE

Title: DINOSAUR BLEND
Publisher: The Math Learning Center
P.O. Box 3226
Salem, OR 97302

Vendor: Portland State University
Continuing Education Pubs.
P.O. Box 1394
Portland, OR 97207

Copyright: 1989
Price: $195.00
Contents of package: 2 data disks, 2 Student Software Reference Manuals 267 p. and 205 p. (APPLEWORKS and FREDWRITER versions), time line wall chart, set of 40 data cards (each 4" x 11"), three-ring notebook/tabbed guide 285 p.
Systems (* indicates version previewed): Apple II family*, Apple Mac
Equipment required: microcomputer, 1 disk drive, monitor (monochrome preferred), printer (preferred), blank disks, APPLEWORKS or FREDWRITER and FREDBASE
Grade level: 3-8
Goals: Arts Education Grades 3-8 Visual Art CG 3
Communication Skills Grade 3 Writing CG 1, 6, and 8
Grades 4-8 Writing CG 1-4
Library/Media & Computer Skills Grades 4-8 CG 6
Mathematics Grades 3-8 CG 5
Science Grade 3 CG 3
Grade 4 CG 2
Grades 5 and 8 CG 4
Social Studies Grades 3, 5, and 6 Skills CG 4-6
Grade 7 Skills CG 2, 4. 5, and 6
Thinking Skills Grades 3-8

DINOSAUR BLEND is a multifaceted package designed to support integrated learning. Using dinosaurs as its theme, this package includes numerous computer and noncomputer activity plans and reproducible worksheets (with answer keys) grouped by topics: "Definitions and Vocabulary," "Field Research," "Information Research," "Classification," "Mathematics and Problem Solving," "Writing," "Social Studies," and "Arts and Crafts." Computer work focuses on applications of word processing, database, and spreadsheet tools. Users do not work from beginning to end with this program or select from a menu of choices. Instead, teachers familiarize themselves with the scope of the exercises, set goals, and choose a combination of tasks for students to complete. The "Teacher Information" section of the guide acquaints teachers with the lessons using lists of general education, skill development, and computer goals that guided the creation of the program; explanation of the teacher information page that accompanies each activity; charts that link thinking skills, content areas, and grade ranges to lessons; and other supporting documentation. "Reference Masters," another part of the guide, provides a hodgepodge of information about dinosaurs and the program, such as a definition of dinosaur; dinosaur, computer, word processing, database, and spreadsheet vocabulary; Greek translations of dinosaur names; and keys to symbols on the data cards. Noncomputer activities are diverse and include using the "Reference Masters" to determine if animals illustrated on a worksheet are dinosaurs; crossword puzzles; word searches; simulating a dig for fossils using Jell-O and fruit pieces or plaster of Paris and twigs, shells, etc.; reading a time line to determine time periods in which types of dinosaurs lived; and making dinosaur models. The set of forty data cards has one card for each record on the larger dinosaur database (a second database with twenty records is provided). The cards can be used as a transition from desk to computer work or to adapt some computer activities to desk

activities if there are not enough computers. Database activities feature practice with a sample file on the data disk to familiarize users with a database before they progress to answering questions on a worksheet by using the more extensive dinosaur database. Writing assignments are meshed with word processing, and one use of a spreadsheet is to calculate answers to questions about dinosaur weight. Each Student Software Reference Manual, needed in varying degrees depending on users' expertise with the computer tools, provides information about using the utility programs.

WEAKNESSES: Users without database, word processing, or spreadsheet skills may find the computer tasks overwhelming at first. Help offered in the guide and student manual may not be sufficient for novices needing tidbits from several places in each document. A tutorial lesson including all necessary commands might give wary users the confidence to advance to more independent projects.

STRENGTHS: Many of the lessons include versions for elementary, intermediate, and middle grade students. Sometimes selecting one is advisable; other times it is best for more advanced students to start with the simplest lesson and build on it by doing the rest. This variety of complexity makes the program appropriate for students with a wide range of skills. Users experienced with other utility programs or in need of refresher practice with one of the two required programs will find the guide and student manual helpful.

USES: Teachers interested in applying integrated learning techniques, in self-contained classrooms or in teams, will find a wealth of possibilities in DINOSAUR BLEND. Many activities could be set up in centers. Teachers must be allotted planning time before using this program, and those unfamiliar with the utility programs required can expect additional expenditures of time. Since the computer information includes only text and the print illustrations are black-and-white outlines, teachers will want to supply additional, colorful resources.

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Series Title: SCIENCE INQUIRY COLLECTION
Title: FOSSIL HUNTER
Publisher: MECC
3490 Lexington Avenue North
St. Paul, MN 55126-8907
Copyright: 1990
Price: $59.00
Contents of package: 1 program disk, 1 backup disk, guide 48 p.
Systems (* indicates version previewed): Apple II family*
Equipment required: microcomputer, 1 disk drive, monitor (color preferred), printer (optional)
Grade level: 4-6
Goals: Science Grade 5 CG 1 and 4

In FOSSIL HUNTER's three activities students apply organizational and analytical skills while exploring the world of fossils. In "Explore the Site" students collect fossils from ten clearly defined layers of rock. Each layer corresponds to one of ten geological periods of history ranging from Cambrian (350 million years ago) to Tertiary (2 million years ago). Each time students command their on-screen counterpart to swing a pick at the rock layer, a fossil is displayed on the screen. Students then use four tools to help them gather information about

the fossil. "Graph" displays a horizontal bar chart of the ten geologic time periods. The span of time during which an organism lived, and could therefore appear as a fossil in specific rock layers, is displayed on the graph. "List" provides students with the names of all forty fossils included in the program. As specimens are located, a check mark appears on the "List" next to the fossil's name. "Read" provides students with a brief description of each fossil found, its category (seed plants, lower animal), its group (bird, reptile), and its habitat. "Review" lists the name of each fossil and the layer in which it was found. The program's second activity, "Find the Fossil," presents the task of finding specific fossils among the ten labeled layers of rock. Using the same tools provided in "Explore the Site," students use the "Graph" to determine in which of the geological periods the specimens existed. In "Identify the Period" students have the challenge of digging into an unlabeled rock layer and determining its geologic period by analyzing the fossils contained in or missing from the layer. Using the same tools provided in the previous activities, students take fossil specimens. Students must use "Graph" to determine the time span when the organisms lived and thereby eliminate possible geological periods. At the difficult levels of this activity, students must infer the time period of the layer by recognizing the absence of certain fossils.

The program's student recordkeeping lists or prints students' names and scores for each activity. The recordkeeping system provides information on the last seventy-five sessions and then discards the oldest record as more students use the program. The guide provides a complete explanation of the program's purpose and operation, suggests classroom uses and lesson plans, gives correlations to ten textbooks, and describes how the program can be used to integrate thinking skills into science content lessons.

WEAKNESSES: The recordkeeping system counts each student session as a single record regardless of how many times that student signs on.

STRENGTHS: The program encourages students to adopt a systematic method for collecting fossils and accomplishing assigned tasks. The use of science content to integrate thinking skills provides students with a concrete framework for the application of scientific method.

USES: FOSSIL HUNTER is an excellent supplement to classroom units covering fossils, geologic time, and layers in the earth's crust. The program's structure provides a framework for application of the scientific method--and thereby thinking skills--by requiring students to gather, organize, and analyze information.

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