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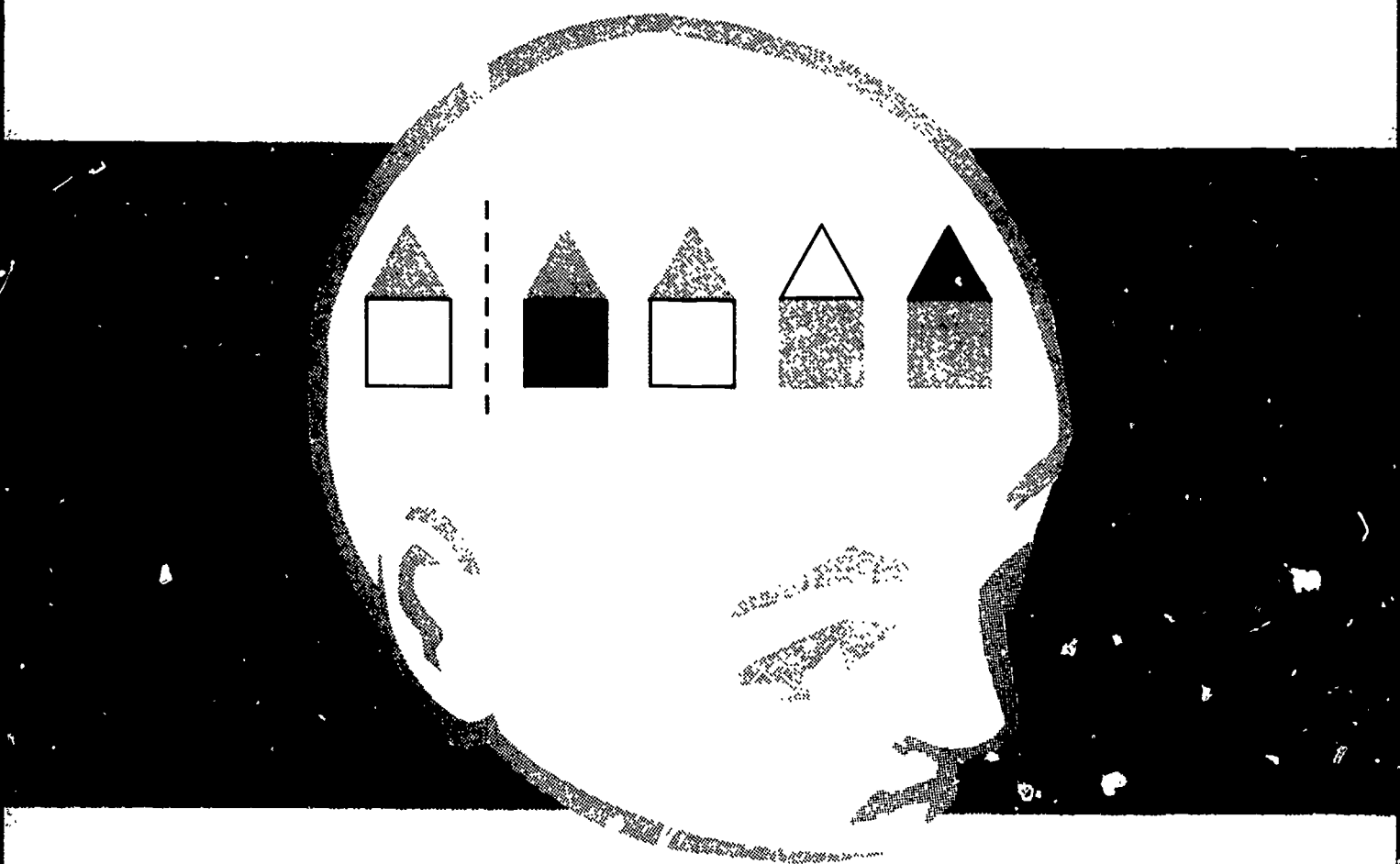
ABSTRACT

Designed to reach a varied audience, this catalog provides concise summaries of some of the major commercial programs that teach thinking, and furnishes descriptions in terms of major goal, target audience, assumptions, process/materials, time, and developer. The first section offers programs primarily intended for teachers, including the California Writing Project, cognitive levels matching, critical thinking, and tactics for thinking. The next section supplies summaries of available materials for students at various levels, including building thinking skills, future problem solving, Great Books, philosophy for children, and strategic reasoning. The final section furnishes material for specific age groups--elementary, middle school, and secondary students. Programs for elementary age groups include higher-thinking skills, reading and thinking strategies, and vocabulary learning strategies. Two middle school programs are summarized--Odyssey, and Thinking Posters. The secondary program summaries include creative problem solving, critical analysis and thinking skills, and problem solving and comprehension. Publisher and/or developer addresses are given for each program, as well as a cost estimate for the materials mentioned. (MM)

A Catalog of Programs for Teaching Thinking

Janice Kruse and Barbara Z. Presseisen



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INTRODUCTION

Educators considering the selection of thinking skills materials are often confused by the vast array of alternative published programs. To make matters worse, these programs are often described in a confusing way using unparallel descriptors. The purpose of this catalog is to provide concise summaries of some of the major commercial published programs that teach thinking. Each of these programs is described in terms of its major goal, intended audience, assumptions, process/materials, time and developer. These descriptions should be useful in finding the appropriate material suitable for your school needs and student population. The addresses provided at the end of each description will be of use to school personnel to obtain further information regarding the available programs.

BUILDING STUDENT'S THINKING SKILLS

GOAL — To help schools build a solid foundation for increasing such atributes as student motivation, school-wide discipline, and students' self-concepts.

INTENDED AUDIENCE — Teachers, administrators and parents.

ASSUMPTIONS — Inservice workshops are the most effective way to implement a thinking skills effort.

SKILLS — Creativity, teaching and learning styles, and verbal/thinking skills.

PROCESS/ MATERIALS — Workshops involve teachers, administrators, support staff and parents in planning an intergrated, multilevel and multidisciplinary approach to increasing students' thinking skills. Workshops are self-contained and require no outside experts. A detailed Guide and Plan gives complete directions for leading these nine specific workshops:

1. Critical Thinking
2. Questioning Methods to Improve Thinking Skills
3. Creativity in the Classroom
4. Promoting Active Learning
5. Decision Making Skills
6. Thinking Skills Instruction in the content areas
7. Thinking Skills Instruction by Culturally Different Students
8. Classroom Management
9. Evaluating Higher-Order Thinking Skills.

Each workshop consists of an introductory activity, suggested activities for exploration, and a discussion. Workshops require the following printed and filmstrip materials:

Print ($2.50 per book)

1. Cooperative Learning: Student Teams by Robert E. Slavin
2. Creativity in the Classroom by E. Paul Torrance
3. Critical Thinking Skills by Marcia Heiman and Joshua Slomianko
4. Decision Making Skills for Middle School Students by Sherrel Bergmann and Gerald J. Rudman
5. Educational Games and Simulations, Revised Edition, by Wm. Ray Heitzman
6. Language Skills in the Classroom by Pamela Cooper and Lea Stewart
7. Lesson Planning for Meaningful Variety in Teaching, Second Edition, by Richard M. Henak

8. Listening Processes: Attention, Understanding, Evaluation, Second Edition, by Paul G. Friedman
9. Measuring Thinki g Skills in the Classroom by Richard J. Stiggins, Evelyn Rubel, and Edys Quellmalz
10. Perspectives on Effective Teaching and the Cooperative Classroom, edited by Judy Reinhartz
11. Questioning Skills, for Teachers, Second Edition, by William W. Wilen
12. Student-Centered Teaching for Increased Participation by James Kelly
13. Teaching Styles as Related to Student Achievement, Second Edition, by David L. Silvernail
14. Teaching Thinking Skills: Concepts and Techniques, edited by Marcia Heiman and Joshua Slomianko
15. Thinking Skills Instruction in English/Language Arts by Beau Fly Jones, Lawrence B. Friedman, Margaret Tinzmann, Beverly J. Walker
16. Thinking Skills Instruction in Mathematics by Jack Lochhead, Ronald Narode, Marcia Heiman, Joshua Slomianko
17. Thinking Skills Instruction in Science by Jack Lochhead, Ronald Narode, Marcia Heiman, Joshua Slomianko
18. Thinking Skills Instruction in Social Studies by Karen Rosenblum-Cale'
19. Thinking Skills: Research and Practice by Barbara Z. Presseisen
20. Unfinished Stories for Developing Students' Thinking Skills, edited by Elizabeth Hirzler Weiner

Filmstrip ($32.50)

21. Applying Student Thinking Skills
22. Identifying Student Thinking SKills
23. Evaluating Student Thinking Skills
24. Questioning Techniques, for Teachers and Students

TIME — Inservice time, can vary

DEVELOPERS — Marcia Heiman
Joshua Slomianko

AVAILABLE FROM — Available after May 1987 from
NEA Professional Library
P.O. Box 509
West Haven, CT 06516

OR

1201 16th Street, NW
Washington, D.C. 20036-3290
(202) 822-7200

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THE CALIFORNIA WRITING PROJECT

GOAL	To enable teachers to foster students' critical thinking skills through writing.
INTENDED AUDIENCE	Teachers of primary through college level students.
ASSUMPTIONS	Since writing is a complex, critical thinking activity, teaching thinking will enable students to become better writers and vice versa.
SKILLS	Teachers are given instruction on how to develop lessons to relate the affective domains of writing (sensory/descriptive, imaginative/narrative, practical/informative, and analytical /expository) to the thinking/writing process.
PROCESS/ MATERIALS	The teacher/consultants from the project have created a 300 page notebook, Thinking/Writing: Fostering Critical Thinking Skills Through Writing. This contains thirty demonstration lessons (one for each primary, elementary, intermediate, high school, and college teachers/students for each level of Bloom's taxonomy) that provide explicit strategies for teaching each stage of the composing process - prewriting, precomposing, writing, sharing, revisions, editing, and evaluation. The notebook also contains an explanation of how to create thinking/ writing lessons. To obtain a complete sample lesson, write to Henia Alony and specify the grade level and the thinking level you are interested in.
TIME	Variable.
DEVELOPER	The project is directed by Carol Booth Olson.
AVAILABLE FROM	Carol Booth Olson UCI Writing Project Office of Teacher Education University of California at Irvine Irvine, CA 92717 (714) 856-5011

COGNITIVE LEVELS MATCHING

GOAL	To facilitate cognitive development in students through appropriate educational intervention.
INTENDED AUDIENCE	Teachers and administrators of nursery through senior high schools.
ASSUMPTIONS	Adult logic cannot be imposed on children's learning. Teachers need to take a developmental perspective when teaching children.
SKILLS	Educators learn to apply principles from Piaget's constructivist theory of learning to the evolving processes of curriculum development and adaptation.
PROCESS/ MATERIALS	The in-service courses have been structured into three tiers. The first level concentrates on Piagetain theory. Level two is a follow-up of the first. Level three is an advanced level course offered to encourage teachers to explore the cognitive demands of specific curriculum areas while systematically evaluating their own teaching performances. In addition to conducting the courses, project consultants spend time in classrooms, working with teachers. The project has neither a prepackaged, fixed curriculum nor specific curriculum materials. Cost for 6 day seminar at South Hampton College, University of Long Island $540. Room and board brings costs to $715.00. Graduate credits are available at additional cost.
TIME	Given as a six day summer institute at Southampton College, Long Island University.
DEVELOPER	Dr. Martin Brooks
AVAILABLE FROM	Dr. Martin Brooks The Institute of Cognitive Levels Matching c/o Shoreham-Wading River Central School District Shoreham, NY 11786 (516) 929-8500

CRITICAL THINKING

GOAL	To assist teachers in their efforts to develop and integrate critical thinking skills in their classrooms.
INTENDED AUDIENCE	Teachers (K-12)
ASSUMPTIONS	Students are not prepared to meet the demands of an increasingly complex and rapidly changing world without critical thinking skills.
SKILLS	Methods of logical inquiry and reasoning. How to incorporate these into classroom instruction.
PROCESS/ MATERIALS	The AFT is developing materials and support services to assist teachers in their efforts to develop and integrate Critical Thinking Skills in their classrooms. The Critical Thinking Project features: • a series of five booklets highlighting the issues relating to teaching critical thinking • a special "Inside Your School" TV feature devoted to critical thinking skills • a series of videotapes with accompanying teacher guides for staff development on critical thinking instruction in the K-12 curriculum. Most of the above materials are still under development. The first booklet, The Goal of Critical Thinking: from Educational Ideal to Educational Reality by Debbie Walsh and Pichard W. Paul is available for $18.00.
TIME	Variable
DEVELOPERS	AFT (Debbie Walsh)
AVAILABLE FROM	AFT Education Issues Department 555 New Jersey Avenue, NW Washington, DC 20001 (302) 879-4420

STRUCTURE OF INTELLECT (SOI)

GOAL

To equip students with the necessary intellectual skills to learn subject matter content and to think critically.

INTENDED AUDIENCE

All students and adults. Can start as early as first grade. Staff training and retraining needed for implementation.

ASSUMPTIONS

Intelligence consists of 120 thinking abilities that are combination of such processes as comprehending, remembering, and analyzing; Contents such as words, forms or symbols; and products which are in single units, groups or relationships.

Individual differences in these abilities can be assessed with SOI tests and improved with SOI materials. (Educators are given at least a two day seminar in which they are shown how intelligence can be taught and learned).

SKILLS

Language Arts/ Reading

Basic
- Concept formation
- Differentiating concepts
- Comprehending verbal relations
- Comprehending verbal systems

Enrichment
- Memory for implied meanings
- Judging verbal implications
- Problem solving
- Interpreting verbal meanings
- Using analogical ideas
- Creative writing
- Creative interpretation
- Creative grammatics

Arithmetic, Mathematics, Science Preparation

Basic
- Comprehending space
- Conserving abstracts in spatial perspectives
- Deduction/formal logic
- Inductive reasoning
- Decision making

Enrichment
- Discriminating notational transformations
- Producing notational transformations
- Comprehending inferences
- Judging symbolic results
- Producing symbolic implications
- Creative consequences

PROCESS/ MATERIALS

Students use materials prescribed for them based on a diagnostic test. Computer software gives analyses and prescriptions. Training materials include source books of lesson plans and teaching strategies ($12.00), ability training kits of self instructional modules ($16.00 to $48.00), and memory training materials ($5.00 to $15.00). There is an Introductory packet available for $67.85.

TIME	Two half hour lessons a week are recommended. Can vary.
DEVELOPER	Mary Meeker. Program is based of J. P. Guilford's theory of intelligence.
AVAILABLE FROM	SOI Systems P.O. Box "D" Vida, OR 97488 (800) 835-3382 (503) 896-3936

TACTICS FOR THINKING

GOAL	To teach teachers to teach students to take command of their own learning.
INTENDED AUDIENCE	Teachers (K-12) and supervisors.
ASSUMPTIONS	Students need to be able to think in order to be productive citizens and to be able to meet the challenges of the future.
SKILLS	Participants learn: how to train teachers 22 thinking skills or mental tactics how to present exact tactic how to develop lesson plans for each thinking skill a set of strategies for teaching thinking throughout the curriculum.
PROCESS/ MATERIALS	A teacher's manual offers step-by-step lessons with objectives teaching strategies and examples. ($12.00) A trainer's manual is available for $35.00. Videotapes of training session are available for $545 from ASCD. (A special preview tape is available for a 2-day loan for $20). While the print materials are complete in themselves, it is recommended that trainers take the training institutes. These 3-day intensive sessions provide you with the materials and expertise to train others. Cost is $300.
TIME	Skills are to be integrated into regular curriculum. Training institudes last 3 days.
DEVELOPER	Dr. Robert Marzano
AVAILABLE FROM	Association for Supervision & Curriculum Development (ASCD) 125 North West Street Alexandria, VA 22314 (703) 549-9110 OR Mid-Continent Regional Educational Laboratory (McREL) Suite 201 12500 East Iliff Avenue Aurora, CO 30014 (303) 337-0990

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BUILDING THINKING SKILLS

GOAL

To teach students cognitive skill development and analytical reasoning.

INTENDED AUDIENCE

Middle elementary students and junior high school students, or secondary students with limited vocabularies.

ASSUMPTIONS

Four types of thinking skills are necessary for successful academic performance - identifying similarity and difference, recognizing and completing sequence, determining classification and drawing analogy.

SKILLS

Figural similarities, sequences, classifications and analogies; verbal similarities, sequence, classifications and analogies.

PROCESS/ MATERIALS

The program presently includes these six books:

Grade	Title
K-2	Building Thinking Skills: Primary ($19.95)
2-4	Building Thinkings Skills: Book1 ($11.95)
4-7	Building Thinking Skills: Book2 ($11.95)
6-10	Building Thinking Skills: Book3-Figural ($14.95)
6-10	Building Thinking Skills: Book3-Verbal ($14.95)

All books contain pencil-and-paper exercises on thinking skills basic to content objectives. These written exercises are followed by class discussions during which the thinking process is examined, clarified, and refined. Follow-up exercises provide practice and reinforcement. Teacher manuals available at additional cost ($15.95).

TIME

Variable.

DEVELOPERS

Howard and Sandra Black. Primary by Warren Hill and Ronald Edwards.

AVAILABLE FROM

Midwest Publications Company, Inc.
P.O. Box 448
Pacific Grove, CA 93950
(408) 375-2455

FUTURE PROBLEM SOLVING

GOAL	To develop students' creative problem-solving skills as they consider ways to solve predicted problems of the future. Program also embraces several other objectives: (1) increase students written and verbal communication skills, (2) help students become better team members (3) develop and improve students' research skills and (4) enable students to integrate problem-solving process into their daily lives, and (5) improve students analytical and critical thinking skills.
INTENDED AUDIENCE	Grades 4-12. A noncompetitive primary division has also been designed for students in grades K-3. To date, the program has appealed primarily to gifted students.
ASSUMPTIONS	Consideration of issues related to the future helps students prepare for the future. Problem-solving skills and creativity are necessary to function effectively. Creativity and problem-solving can be taught.
SKILLS	Skills relate to the formal problem-solving process developed by Osborn & Parnes.
PROCESS/ MATERIALS	Practice problems are the heart of the program. Teams of (4) students receive a set of practice problems. Students employ the following steps in solving these: • Research general topic • Brainstorm possible proble related to the given situation • Identify one underlying problem • Brainstorm alternative solutions • Develop 5 criteria for evaluating solutions • Identify the best solutions Results of this process are sent to trained volunteers who review these. State & National Bowls and Scenario Writing contests are held each year. Fees are about $55 for competive Division and $25 for primary.
TIME	Varies; often one hour per week.
DEVELOPER	E. Paul Torrance. Program is based on the problem-solving model of Alex Osborn and Sidney Parnes.
AVAILABLE FROM	In MD or DE: Dr. Ann Crabbe St. Andrews College Laurinburg, N.C. 28352 (919) 276-8361

In NJ:
Jean Carleson or Doug String
F.P.S. of NJ
Box 474
Sommers Point, NJ 08244
(609) 927-3455

In PA:
Elliot Sief
Buck Co. IU 22
Crosskeys Building
Rts. 611 & 311
Doyletown, PA
(215) 348-2940

(JR) GREAT BOOKS

GOAL	To enable students to read interpretively and to think independently and reflectively.
INTENDED AUDIENCE	Students from second grade through high school. Designed for students reading at grade level or above. There is also a two day in-service course to prepare teachers to use the program.
ASSUMPTIONS	To read interpretively is to think independently and reflectively.
SKILLS	Students develop the habit of reading critically, interpreting what they read, and supporting their interpretations with ideas and facts from the readings. They also learn new ways of looking at themselves, their fellow-participants, and the world around them.
PROCESS/ MATERIALS	It is a reading and discussion program based on a method of learning called shared inquiry. Teachers act as discussion leaders and lead discussions on problems of interpretations to which they themselves are not sure of the answer. They view students as partners in a joint effort to uncover new meanings in some of the outstanding works of literature of the past and present. Teachers training lasts 2 days and costs $60 (per person) (Training will occur in Philadelphia in June and Trenton in July). In addition to the actual reading selections, each Junior Great Books Series includes a short course on interpretive reading - statements and exercises on shared inquiry that are designed to teach and reinforce reading comprehension and discussion skills. Cost of student books vary from $7.35-8.35 according to level. Teacher lesson plan booklets are $3.25 per grade.
TIME	Students meet - usually once a week - for twleve sessions to discuss a story everyone has read in advance. Discussions last for 30-90 minutes, depending on grade level.
DEVELOPER	The Great Books Foundation
AVAILABLE FROM	The Great Books Foundation 40 East Huron Street Chicago, Illinois 60611 (312) 332-5870

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INSIGHTS
(CHICAGO MASTERY LEARNING READING PROGRAM)

GOAL	To equip students with the learning strategies and study skills they need to succeed in school, and in their everyday lives.
INTENDED AUDIENCE	Elementary School level roughly grades K-8. It can be used with students of varying abilities and socio-economic backgrounds.
ASSUMPTIONS	Almost all students can learn what only the best students currently learn, if only the more typical or less able students are given appropriate learning opportunities.
SKILLS	Skills taught include using sentence context to determining word meanings, determining moods conveyed by sentences, comprehending comparisions, and distinguishing facts from opinions.
PROCESS/ MATERIALS	There are two books at each grade which teaches somewhat different skills. The emphasis in all books, however, is on learning to learn. Within each level book (grade) there are two kinds of units: comprehension and study skills at grades 5-8 and comprehension and word attack/study skills at grades K-4. Mastery learning is described as differing from traditional instruction primarily in the systematic and frequent use of formative and diagnostic testing within each unit. Instruction is done in groups, with individual assistance and remediation as necessary. Each unit contains these parts: student activities, optional teaching activities, formative tests, additional activities, enrichment activities, retests, and subject-related applications. The silver (grade 8) sequence for comprehension contains units on supporting facts, research aids, notetaking in outline form, summaries and generalizations, comprehending road maps, and understanding forms and directions. Student books are $4.50. Teacher manuals are $20 (There are 2 for each grade level). There is also a Test component and evaluation books are available for $2.00 or duplicating masters for $20.00 per grade. A Record Keeping System which includes a wall chart and progress forms sells for $10.
TIME	Can be implemented as part of the regular reading program.
DEVELOPER	Chicago Board of Education
AVAILABLE FROM	Mastery Education Corporation 85 Main Street Watertown, MA 02172 (617) 926-0329 or (800) 223-3214

INSTRUMENTAL ENRICHMENT

GOAL	To develop thinking and problem-solving abilities in order for students to become autonomous learners. (To alter the characteristically passive and dependent cognitive style of slow learners to that of active, self-motivated, independent thinkers.)
INTENDED AUDIENCE	Upper elementary, middle, and secondary students. Supplements regular curriculum. Involves teacher training.
ASSUMPTIONS	Intelligence is modifiable. Cognitive development requires direct intervention and mediated learning experiences which results in students learning how to learn.
SKILLS	Skills taught are mental operations such as: Gathering information, problem-solving, classifying/comparing, orientation in space, recognizing relationships, following directions, planning, organizing, logical reasoning, inductive & deductive reasoning, and synthesizing.
PROCESS/ MATERIALS	Students do paper-and-pencil lessons called "instruments" which are followed by teacher-led discussions. The program emphasizes this teacher mediation. The cognitive tasks are not subject-specific, but parallel the subject matter being taught. Whatever the particular focus of an instrument, its larger purpose is to further develop the students' conscious thought processes and to aid in their discovering practical applications for those processes.
TIME	Two-three hours a week over a three-year period. Can be adapted to a two year cycle. Teacher training involves a minimum of 45 hours each year.
DEVELOPER	Reuven Feuerstein
AVAILABLE FROM	Curriculum Development Associates, Inc. (Dr. Frances Link) Suite 414, 1211 Connecticut Avenue, NW Washington, DC 20036 (202) 293-1760 Or Scott, Foreman & Company Lifelong Learning Division 1900 E. Lake Avenue Glenview, IL 60025 (312) 729-3000

MUSCLES OF THE MIND

GOAL	To teach students important thinking skills and problem-solving habits through games.
INTENDED AUDIENCE	Anyone; families, school groups or individuals can all use the program, for people need no specific prior knowledge. Program is inter-disciplinary, applicable, and adaptable to all school subjects.
ASSUMPTIONS	Mental functions can be improved through proper "exercise." Games are fun and motivate people to "exercise" their minds. Research has shown the value of games for learning.
SKILLS	The program concentrates on these skills: Logical reasoning (deductive & inductive) Strategy Memory Creative Thinking Communication Visualization Problem-solving Psychomotor Skills
PROCESS/ MATERIALS	Teacher serves as a guide and arranges for students to play games emphasizing different skills in the same classroom session. The teacher organizes game competitions and directs students to prepare game problems for each other. The teacher also helps the class to see ways to apply principles from the games to their own lives. The basic materials used are such things as paper, pencils, cardboard, ordinary playing cards, coins, buttons, magazines, and other everyday objects, as well as a kit (which can be inexpensively bought or built) of cards with numbers, letters, colors, and shapes, and playing boards. A set of 3 books and activity kit cost $40.00. Separately each cost $12.95. Book titles are: Visual Thinking: Entertaining Activities to Increase Intelligence. Brain Muscle Builders: Games to Increase your Natural Intelligence. Muscles of the Mind Program: A practical Method to Improve Thinking. Muscles of the Mind Game and Activity Kit.
TIME	Variable.
DEVELOPERS	Marco Meirovitz and Paul I. Jacobs (Meirovitz is the inventor of the game Mastermind.)

AVAILABLE FROM

Trillium Press
P.O. Box 209
Monroe, NY 10950
(914) 783-2999

OR

Prentice-Hall Inc.
ATTN: Addison Tredd
Englewood Clifs, NJ 07632
(201) 592-2000

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PHILOSOPHY FOR CHILDREN

GOAL	To improve reasoning abilities by having students think about thinking as they discuss concepts of importance to them
INTENDED AUDIENCE	Kindergarten through high school levels, but it is generally used in the upper elementary and secondary levels.
ASSUMPTIONS	Children are by nature interested in philosophical issues such as truth, fairness, and personal identity. Children should learn to think for themselves.
SKILLS	Programs lists 30 thinking skills that it fosters: some of these are drawing inferences, making analogies, forming hypotheses, and classifying.
PROCESS/ MATERIALS	Students read special novels with inquisitive children as characters, then engage in classroom discussions and excercises. Each chapter contains a number of "leading ideas". The author's objective is for students to identify with the characters and to join in the kinds of thinking depicted in the readings. The early elementary portion of the program provides students with a broad array of situations that challenge them to practice reasoning and inquiry skills; the middle school portion introduces them to the principles underlying such practices; and the later portion enables them to apply their cognitive skills to a variety of academic and life situations. Specific programs are listed below:

Early Childhood Curriculum

Program: Reasoning About Nature
Grade Range: K-5 Target grades: 3-4
Novel: Kio and Gus ($7.00 paper bound)
Manual: Wondering at the World ($30.00)

Program: Reasoning About Language
Grade Range: K-5 Target Grades: 3-4
Novel: Pikie ($7.00)
Manual: Looking for Meaning ($30.00)

Curriculum for Middle School

Program: Basic Reasoning Skills
Grade Range: 4-7 Target Grades: 5-6
Novel: Harry Stottlemier's Discovery ($7.00)
Manuel: Philosophical Inquiry ($30.00)

Curriculum for Middle School

Program: Basic Reasoning Skills
Grade Range: 7-12 Target Grades: 7-8
Novel: Lisa (2nd ed) ($7.00)
Manual: Ethical Inquiry ($30.00)

Curriculum for the Secondary School

Program: Reasoning in Social Studies
Grade Range: 9-12 Target Grades: 11-12
Novel: Mark ($7.00)
Manual: Social Inquiry ($30.00)

Program: Reasoning in Language Arts
Grade Range: 8-11 Target Grades: 9-10
Novel: Suki ($7.00)
Manual: Writing: How and Why ($30.00)

TIME — About two and one quarter hours weekly for the entire year.

DEVELOPER — Matthew Lipman

AVAILABLE FROM — Institute for the Advancement of Philosophy for Children
Montclair State College
Upper Montclair, NJ 07043
(201) 893-4277

STRATEGIC REASONING

GOAL	To teach students the fundamental thinking skills, reasoning abilities, and problem-solving techniques for functioning effectively in and out of school.
INTENDED AUDIENCE	Upper elementary, middle, secondary and community college level. It can be used in English, reading, math, social studies, and science courses. For any given population of students, appropriate instructional levels are identified and assigned. Minimum amount of staff development is required for implementation.
ASSUMPTIONS	There are six primary, natural thinking skills that form the core of all thinking and problem solving. The ability to use these productively depends on experience and training. These six skills can be taught to all students within the regular classroom.
SKILLS	Six thinking skills taught are: Identification (thing-making) Description (qualification) Classification (organization) Structure Analysis (part-whole relations) Operation Analysis (sequencing) Seeing Analogies.
PROCESS/ MATERIALS	Program includes teacher strategies, problem-solving activities and interdisciplinary applications. The program combines the six problem-solving skills with Dr. J. P. Guilford's Structure of Intellect, to provide the student with systematic and rigorous training in the logical processes of thinking. Conscious application and transfer activities are provided through three separate but complementary strands: non academic, academic, and real life. Activities progress from easy to moderate and end with the difficult. Non academic $3.00. Teacher starter packages are $298.00. Staff development is optional and can be obtained at 250 per day.
TIME	One period per week.

DEVELOPER	John Glade. The program is based on Albert Upton's work. See Upton, A (1961). Design For Thinking. Palo Alto. Pacific Books.
AVAILABLE FROM	Innovative Sciences, Inc. 300 Broad Street P.O. Box 15129 Stamford, CT 06901-0129 (800) 243-9169

HIGHER-ORDER THINKING SKILLS (HOTS)

GOAL	To engage students in higher-order thinking activities in order to strengthen their basic skills and social confidence.
INTENDED AUDIENCE	Chapter I students in grades 3-6. Can also be used with average students.
ASSUMPTIONS	Basic skills is not a prerequisite for engaging in higher-order thinking skills. Thinking activities should be organized in the same manner that the brain seems to organize information in long-term memory.
SKILLS	Developing and testing problem-solving strategies, interpreting computer feedback, integrating and synthesizing information and generalizing across content areas.
PROCESS/ MATERIALS	This is a pullout-type program with heavy reliance on computer activities. Students work in a computer lab. Work on the computer is preceded by a discussion in which teacher poses challenge questions for students to work on. Curricular materials include lesson plans, recommended software and instructional techniques. The HOTS curriculum provides the lab teacher with a day-to-day script which structures the problem-solving and linkage activities that students will engage in.
TIME	Chapter I students would have four lessons per week. Average students would need less.
DEVELOPER	Stanley Pogrow.. Program is based on cognitive psychology theories about the organization of information in the brain.
AVAILABLE FROM	Stanley Pogrow College of Education University of Arizona Tucson, AZ 85721 (602) 621-1305

JUST THINK

GOAL	To assist students in becoming active participants in the process of expanding and developing creative and cognitive kills.
INTENDED AUDIENCE	Students ages 3-13 programs can be adapted for students of varied abilities. Can be taught both by parents and teachers.
ASSUMPTIONS	Based upon deBono's CoRT model; same assumptions.
SKILLS	Lessons referenced against the most sophisticated levels of Bloom's Taxonomy.
PROCESS/ MATERIALS	For Just Think Programs (K-age 12), two types of lessons are given for each of the 30 week school year. The kindergarten program is $15.00 and all others, $25.00. In young think for ages 3 & 4 there are 100 lessons; cost is $15.00. Stretch Think Programs for ages 5-13 are designed for a 25 week school year and cost $35.00. The two types of lessons are: • Cognitive Skill Development Lessons which teach thinking through examinations of specific issues and problems • Lateral Skill Development Lessons which explore a wide range methods and solutions to creative problems and design ideas. These programs were developed and taught in Department of Defense Schools in U.S. England, and the Netherlands.
TIME	School year. Programs are Sequential.
DEVELOPER	Sydney Tyler
AVAILABLE FROM	Thomas Geale Publications, Inc. P.O. Box 370540 Montara, CA 94037 (213) 276-6394

READING AND THINKING STRATEGIES

GOAL	To promote children's metacognition about reading strategies in order to improve their reading comprehension
INTENDED AUDIENCE	Grades 3-4 and 5-6, reading language arts.
ASSUMPTIONS	Principles of cognitive strategies and self-regulation fostered by metacognition can be translated directly into practical classroom instruction which helps students read better. It is important to equip students with knowledge, skills, and attitudes that will promote continued learning.
SKILLS	Reading strategies, how they operate, when they should be applied and why they foster comprehension.
PROCESS/ MATERIALS	Two of the key features of Reading and Thinking Strategies are the use of metaphors (on Posters) to teach strategies and the use of group discussions. The instructional techniques resemble cognitive coaching. Materials consist of 18 (9 for grades 3-4 and 9 for grades 5-6) instructional modules which focus on a particular strategy, such as finding a main idea. Each module has 3 separate 45 minute lessons designed for whole group instruction. Classroom price is $150 for a kit consisting of 9 Posters and 3 lesson plans for each modules, and 10 workbooks (96 pp).
TIME	Variable
DEVELOPERS	Paris, Cross and Lipso (University of Michigan)
AVAILABLE FROM	DC Health & Co. (Karen Kaplan) 125 Spring Street Lexington, MA 02173 (217) 860-1372

SAGE

GOAL	To develop higher order and critical thinking skills and to improve academic achievement.
INTENDED AUDIENCE	Approved by JDRP (1986) for academically/intellectually gifted and talented students grades 1-5.
ASSUMPTIONS	Academically talented and gifted students are not necessarily good thinkers.
SKILLS	Critical, inductive, deductive and creative thinking skills.
PROCESS/ MATERIALS	The regular school curriculum is extended based on a three-fold model incorporating thinking skill development, mini-study units, extensions of the basic curriculum, are interdisciplinary in nature, and incorporate thinking skills activities in broad topic areas. A two-day training program is required at $150 a day. Sage program materials are $105 per set. An annotated listing of commercial materials which augment the program is available to adopters for $4.50. Awareness materials are available at no cost and visitors are welcome to the project site by appointment.
TIME	Regular instruction
DEVELOPER	Sandra Cymerman and Diane Modest
AVAILABLE From	Sandra Cymerman, Disseminator Diane Modest, Director Project Sage Barbler School . Framingham Public Schools Dudley Road Framingham, MA 01701 (517) 872-4253 (517) 872-3546

VOCABULARY LEARNING STRATEGIES

GOAL	To teach vocabulary acquisition as a set of thinking processes.
INTENDED AUDIENCE	Grades 1-6
ASSUMPTIONS	In order to learn concepts you must deeply process them. Dictionaries are not always necessary in order to teach vocabulary words.
SKILLS	Strategies for language building.
PROCESS/ MATERIALS	The program presents seven different strategies such as visualizing, categorizing, scaling and word analysis for learning new words. The teacher's (12.00) manual gives instructions in how to teach each strategy. Student booklets ($4.00) contains practice exercises. A teacher's manual comes free with a class order of student booklets.
DEVELOPER	Beau Fly Jones
AVAILABLE FROM	Mastery Education Corporation 85 Main Street Watertown, MA 02172 (617) 926-0329 (800) 225-3214

WRITING AND THINKING - A PROCESS APPROACH

GOAL	To develop enthusiastic, effective student writers.
INTENDED AUDIENCE	Grades 1-6
ASSUMPTIONS	Writing and thinking require the same processes. Students need to think in order to write.
SKILLS	Writing and thinking.
PROCESS/ MATERIALS	Students go through a five stage process: • setting the stage and planning the paper • writing a first draft • revising and editing • writing the final draft • post writing Teachers manuals or resource books are $65 and include duplication masters, or you can buy student workbooks at $4.00 per book. (A teacher's manual comes with a set of student books). Worksheets in the student books are designed to help students perform discrete tasks such as to organize information or take notes.
TIME	Part of regular language arts program (two or three times per week).
DEVELOPER	Linda Adelman
AVAILABLE FROM	Mastery Education Corporation 85 Main Street Watertown, MA 02172 (617) 926-0329 (800) 223-3214

ODYSSEY

GOAL	To enhance the ability of students to perform a wide variety of thinking skills.
INTENDED AUDIENCE	Upper elementary and middle school students. It has also been used for remediation with high school students. The program originally developed for use in Venezuela as part of that country's Project Intelligence. It is intended for regular heterogeneously grouped classes.
ASSUMPTIONS	Performance of intellectually demanding tasks is influenced by various factors. Some factors are modifiable and can be taught.
SKILLS	Skills include careful observing and classifing, deductive and inductive reasoning, the precise use of language, the inferential use of information in memory, hypothesis generating and testing, problem solving, inventiveness and creativity and decision-making.
PROCESS/ MATERIALS	Approach is deliberately eclectic. It combines knowledge from current cognitive research with the methods of direct instruction. Some lessons involve a Socratic inquiry approach, while others are based on a Piagetian-like analysis of cognitive activities. Still others emphasize exploration and discovery. Materials include six teacher manuals ($15.00 each) and student books ($4.00 each): Foundations of Reasoning Understanding Language Verbal Reasoning (by end of year) Problem Solving Decision Making Inventive Thinking These are intended to be used in the above order.
TIME	Three to five lessons per week. Each lesson about 45 minutes.
DEVELOPER	A team of researchers from Harvard University, Bolt Beranek and Newman Inc., and the Venezuelan Ministry of Education. D. N. Perkins helped to develop a portion of this program (creative thinking) and has popularized the Inventive Thinking materials.
AVAILABLE FROM	Mastery Education Corporation 85 Main Street Watertown, MA 02172 (617) 926-0329 (800) 225-3214

THINKERPOSTERS: KEYS TO CRITICAL THINKING

GOAL

To improve students' critical thinking by raising their consciousness of a number of key dimensions that distinguish good from bad critical thinking.

INTENDED AUDIENCE

Students in grades 5-8.

ASSUMPTIONS

The heart of critical thinking is being alert to the difference between strong and weak grounds for belief or choice.

It is not engough just to know the difference; alertness is called for.

PROCESS/ MATERIALS

Program is not intended to be a full course in critical thinking. Program cost $24.95 and includes:

- 8 posters with Teachers Guide for each
- Reproducible activity sheets
- Lessons to reinforce skills.

The poster serves as a focus for discussion and activities. The teacher and the student talk about the contrast introduced and the examples on the poster. The students do an in-class exercise provided on the poster. Then there is an assignment or activity for independent work that may last overnight or for several days. Finally, there is a "wrap-up" activity in which students share the results of their independent work. These steps provide the students with several rounds of practice in using the key contrasts and reinforce their awareness of it. Lessons can be linked to any subject matter. Many of the lessons call for issues to discuss. Although some are suggested teachers can make up their own, choosing issues from history, literature, and so on.

TIME

Each lesson has an introduction to be taught one day and a conclusion to be taught a day or two later. The introduction requires from a half to a whole period. So does the conclusion. It is recommended that teachers teach at least one lesson per week and no more than two. That means that the entire series will take from 5-10 weeks.

DEVELOPER

D. N. Perkins

AVAILABLE FROM

Sundance Publishers & Distributors, Inc.
Newtown Road
Littleton, MA 01460
(617) 486-9201

CoRT (Cognitive Research Trust)

GOAL	To teach students to develop original solutions to problems by learning to change their perceptions. (The lessons focus on the perceptual aspect of thinking.)
INTENDED AUDIENCE	Developer believes that thinking is best taught to 9-12 year-olds. However, it has been used with students from 8 to 22. The lessons have been taught to students ranging in I.Q. from below 80 to above 140. The lessons have also been used with groups of mixed ability.
ASSUMPTIONS	There are two stages in thinking: perception and analysis. Poor thinking often is due to errors in perception, rather than analysis. Perception skills are neglected by schools and deserve greater attention.
SKILLS	Perception tools that help students function better in his or her life outside of school. An example of such a "tool" is the PMI (for Plus, Minus, Interesting) which is intended to help students develop the habit of considering new ideas without immediately judging them as good or bad, right or wrong. Students are taught to "do an OPV" (for Other Point of View) or "do a CAF" (Consider All Factors) when making decisions.
PROCESS/ MATERIALS	The CoRT program; second edition has six sections or units (CoRT to Cort VI) each containing 10 lessons. After section 1, the lessons can be used in any order. Process consists of a teacher giving an explanation of a "tool" and students practicing using it in a variety of situations. There is an introductory packet available for $15.00. The total package cost $185.00.
TIME	One lesson (35 minutes or longer) each week for three years.
DEVELOPER	Edward de Bono. Cognitive Research Trust is the name of de Bono's organization in Cambridge, England.
AVAILABLE FROM	Pergamon Press, Inc. Fairview Park Elmsford, NY 10523 (914) 592-7700 Or Christine Maxwell, CoRT Editor (415) 841-7715

CREATIVE PROBLEM SOLVING (CPS)

GOAL	To develop in students the abilities and attitudes necessary for creative problem solving.
INTENDED AUDIENCE	Gifted middle level, and all secondary students.
ASSUMPTIONS	Creativity involves the application of knowledge, imagination and judgement to problem solving. Everyone has creativity. Creativity can be increased through teaching and practice.
SKILLS	Sample skills include sensing problems, observing and analyzing facts, deferring judgment, discovering new relationships and ideas, evaluating consequences, developing action plans and developing feedback systems.
PROCESS/ MATERIALS	Students are provided many opportunities to practice solving problems. Materials include a student activity book and an instructor's guidebook. This guidebook offers additional exercises, readings, films and test sources.
TIME	Varies. Material is best used in instructional blocks of 60 minutes. Plans for short and long programs are suggested.
DEVELOPER	Sidney J. Parnes. Program is based on the work of Alex F. Osborn.
AVAILABLE FROM	Bearly Limited 149 York Street Buffalo, NY 14213 (No Phone)

CRITICAL ANALYSIS AND THINKING SKILLS (CATS)

GOAL	To teach students how to apply critical thinking skills to problems and issues.
INTENDED AUDIENCE	CATS has been approved by the JDRP (1986) as a program for high school students (grades 9-12) of all ability levels. CATS has also been used with students in the lower grades. It has been used in social studies, language arts, and related classes. There is a special ADVANCED CATS for the gifted student.
ASSUMPTIONS	Thinkings skills are necessary for rational decision making.
SKILLS	Basic critical thinking skills, decision-making, critical reading and writing persuasive essays.
PROCESS/ MATERIALS	CATS projects fall into two district phases. In PHASE 1 (Defining and Evaluating, studying, learning how to precisely define issues, evaluating them, and prioritizing information. Students use a six-step decision-making process to define and evaluate issues on specially formatted worksheets. In PHASE 2 (Writing and Revising) students are asked to write persuasive essays. Students are constantly called upon to analyze and synthesize their thinking. Teachers receive CATS training in a one-day workshop. Cost for this are: trainer, $200, travel expenses, and materials at $35.00 per teacher. Included in the materials cost is the CATS Instructional Package, Making Rational Decisions. Visitors are available at the project site by appointment. Awareness training can be negotiated.
TIME	Variable. Students should complete at least 5 projects per semester.
DEVELOPER	Terry P. Applegate and W. Keith Evans
AVAILABLE FROM	Terry P. Applegate or W. Keith Evans CATS Program 4988 Kalani Drive Salt Lake City, UT 84117-6421 (801) 466-9365

INTELLIGENCE APPLIED

GOAL	To help people understand and increase their intellectual skills.
INTENDED AUDIENCE	High School or college students
ASSUMPTIONS	Intelligence is a broad concept. Intelligence can be modified. It does not matter how intelligent people are if they are unable to use their intelligence.
SKILLS	Background information on intelligence, relation of intelligence to the internal world of the individual (encoding, mapping), relation of intelligence to experience (insight, automatization mental speed) and application of intelligence to the real world (practical situations).
PROCESS/ MATERIALS	Book is appropriate as a main text for course on critical thinking, improving thinking skills, improving intelligence, or developing reasoning and problem solving skills. Could also be used as a supplementary text in courses on study skills, thinking, intelligence, reasoning etc. which teach how to think. Price is $14.95.
TIME	Variable. Teacher discretion.
DEVELOPER	Robert J. Sternberg
AVAILABLE FROM	Harcourt Brace Jovanovich 7555 Caldwell Avenue Chicago, IL 60648 (312) 631-3400

LEARNING TO LEARN

GOAL	To improve students' academic performance in content areas and in general reading, writing, listening and reasoning situations.
INTENDED AUDIENCE	Junior and senior high school students. It was originally designed for use with disadvantaged college students.
ASSUMPTIONS	All successful learners: Generate questions. Break down complex tasks. Formulate goals. Assess progress towards goals.
SKILLS	Generating questions, organizing information into charts and maps, reading for different types of information, and systematic problem solving.
PROCESS/ MATERIALS	Content area teachers incorporate program activities into classroom and homework assignments can also be taught as a year-long course in psychology, and it includes reading on the psychology of learning. Has JDRP approval. It is available to schools through a combination of training workshops and instructional materials. Content area teachers receive field -relevant instructor manuals which review those skills most suited to a particular discipline, suggest ways of using the skills as classroom activities or homework assignments, and provide sample lesson plans. Manuals are available for teachers of Social Studies, English, mathemathics, physical science, and biology/earth science. In addition, student workbooks are available in these areas. A detailed manual provides teachers of the LTL credit course with step-by-step instruction in the content and structure of the course. A student workbook gives students practice in using LTL skills and suggests ways to adapt them for use with content classwork.
TIME	Integrated into regular classes or taught as separate subject.
DEVELOPERS	Marcia Heiman & Joshua Slomianko

AVAILABLE FROM

Learning Skills Consultants
Box 493
Cambridge, MA 02138

OR

Marcia Heiman
Learning to Learn Program
Boston College
Chestnut Hill, MA 02167
(617) 552-8000

PROJECT IMPACT (Improving Minimal Proficiencies by Activating Critical Thinking)

GOAL	To improve student performance in mathematics, reading, and language arts by infusing critical thinking instruction into the content areas.
INTENDED AUDIENCE	Middle and secondary levels. Although designed as an alternative approach to remedial reading and math at the junior and senior school levels, it is compatible with various other content areas and grade levels. Approved by the JDRP for seventh to ninth grade students in or near the normal intellectual range. Staff development is required for implementation.
ASSUMPTIONS	Thinking skills are basic to the learning process. Thinking skills can be successfully taught to all students. Thinking skills must be related to the curriculum.
SKILLS	Sample skills include: Classifying and categorizing, ordering, identifying relevant and irrelevant information, formulating valid inductive and deductive arguments, and rendering judgments.
PROCESS/ MATERIALS	Skills are presented in a lesson plan format. The Curriculum Materials Kit provides ($150) a language arts and a mathematics handbook containing 60 teacher-developed lessons. Small-group and individualized instruction are emphasized, but large group instruction and discussion are also used. Study sheets accompany each lesson and are written at various levels of vocabulary and task difficulty. Learning activities include oral and written reports, research projects, art work and dramatic presentations. Four filmstrips are included in each kit. The program also has "Home Enrichment Learning Packets" which are sent home with students. These contain supplementary materials to reinforce the aspects of skills identified as the most difficult for students to grasp. Level I training (18 hours) in Project Impact is $200/person, $500/team of 2 teachers and their site administrator plus $35/person for the Training Manual. During this training, experts demonstrate 10 teaching behaviors that encourage and reinforce the thinking skills. The Curriculum Materials Kit is sold to trainees only. Level II training is invitational, at no cost to any district with 30 or more Level I graduates. Project impact staff arranges technical assistance on a cost recovery basis.

TIME	Two to three hours per week.
DEVELOPER	S. Lee Winocur
AVAILABLE FROM	S. Lee Winocur National Director Project IMPACT Orange County Department of Education P.O. Box 9050 Costa Mesa, CA 92628-9050 (714) 966-4375 OR Center for Teaching of Thinking 2132 Magnolia Street Huntington Beach, CA 92646 (714) 964-3106

PROBLEM SOLVING AND COMPREHENSION

GOAL	To teach the kind of careful, systematic, analytical thinking charactistic of academically successful students.
INTENDED AUDIENCE	College freshmen and college-bound high school students. Intended primarily as a remedial program for students who are marginally qualified for college work.
ASSUMPTIONS	A few analytical skills are largely responsible for successful academic work. These skills can be learned by poor students.
SKILLS	Topics covered include the hidden nature of thinking, the consequent need for thinking aloud, and the need for demonstration and guided practice. Students work on verbal reasoning problems, speed reading, analogy problems and mathematical word problems.
PROCESS/ MATERIALS	Problem Solving and Comprehension is both text and workbook for this course. Course begins with students taking the Whimbey Analytical Skills Inventory (WASI) in order to gain insight into their own thinking. After students analyze test results and learn ways to avoid common errors, they begin solving problems Demonstrations of correct procedures preceeds practice. Students usually work in pairs to solve problems with the problem solver thinking aloud to a listener. Students then study model solutions. Book is $10.95 from Erlbaum. Erlbaum also sells problem cards for $19.50 a box. Each box contains 25 copies of 40 different problems.
TIME	One semester course.
DEVELOPER	Arthur Whimbey
AVAILABLE FROM	Franklin Institute Press Box 2266 Philadelphia, PA 19103 (215) 448-1551 OR Lawrence Erlbaum Associates, Inc. 365 Broadway Hillsdale, NJ 07642 (201) 666-4110

Unique products and services bringing research knowledge to education professionals

Founded in 1966, RBS is a private, non-profit educational research and development firm. Many public and private organizations fund RBS to conduct R&D projects to meet their needs. A major sponsor is the U.S. Department of Education which funds RBS to serve as the educational laboratory for the Mid-Atlantic region. This funding supports research and policy studies on key education issues, development of improvement approaches and services to schools, consultant assistance to state leaders, product development for special populations, and networking on a national level to increase the use of research-based products and knowledge. As a result, RBS has developed extensive staff experience in solving problems which now can be made available to all education professionals in the form of practical, research-based products and services.

RBS offers research-based products

In-Service Video Network	A series of videotapes produced in cooperation with Instructivision, Inc on a variety of timely instructional issues and topics designed for use in teacher professional development, tapes may be rented or purchased Professional development planning services also are available.
Context and Change	A training program for school improvement consisting of a book on factors affecting the success of improvement efforts, a professional development workshop manual, and a companion videotape. School improvement training and technical assistance services also are available.
Looking at Schools: Instruments and Processes for School Analysis	A directory describing more than 30 instruments for analyzing and assessing students, teachers, administrators, school climate, and the effectiveness of school-community relations. The instruments were selected based on technical quality, availability, and usefulness. The directory is designed primarily for school and district administrators and planning committees. School analysis technical assistance services also are available.
Your Leadership Style	A training program for educational leaders which focuses on observable behaviors and emphasizes the interaction between leader and work group with the goal of effective management leading to improved productivity. Program materials include a training manual and companion videotape. Leadership training workshops also are available.
PACE: Polling Attitudes of Community on Education	Developed by Phi Delta Kappa, these materials describe how to survey community opinions and attitudes about education based on Gallup Poll results and local interests. Included are a planning manual, Gallup Poll results, and a videotape on interview techniques. Survey technical assistance and scoring services are available from RBS.
What's a Plan Without a Process?	A handbook for school work groups participating in collaborative problem-solving and decision-making activities. Materials include sections on team building, prioritizing, problem-solving, planning, and implementation analysis. Each section is introduced with an explanation of the process and includes an activity designed to teach the steps of the process. Through use of this handbook, work groups both learn about the processes and gain experience in applying the concepts learned. Team development workshops also are available.
RBS Publications List	The findings and products of many RBS projects are made available in monographs on topics including school improvement, thinking skills, public-private partnerships, and at risk youth, as well as special features The Publications List may be obtained at no cost from RBS

RBS offers research-based services

School Assessment Survey: Information for School Improvement	This survey procedure measures the organizational conditions in elementary and secondary schools which promote school effectiveness and improvement (e.g., leadership, communication, conflict). The procedure includes a teacher survey, computer scoring and interpretation based on research and a normative sample—all presented in school-by-school graphic profiles, item analyses, and a summary report. RBS consultants help in interpretation and use of the findings.
School Analysis	This is a school or district level assessment of the quality of educational programming based on surveys, observations, document reviews, and interviews. Survey instruments, "The Dimensions of Excellence Scales", are utilized in the assessment. Results can be interpreted in a norm-referenced or criterion-referenced form based on eight dimensions found by the effective schools research to be critical to educational excellence (e.g., curriculum, teacher behavior, monitoring and assessment). Specific improvement recommendations are offered. Staff development training is available on each excellence dimension.
Educational Evaluation	RBS has a staff group of evaluators who design and conduct studies and technical assistance based on rigorous, but practical, evaluation technology. Services are customized to client needs and include program evaluation, program validation, program audit, needs assessment, test and questionnaire development, school effectiveness reviews, and technical training and assistance related to evaluation.
Data Processing	The RBS data processing group provides customized services in the preparation and management of data utilizing a variety of hardware and software systems. These services include test scoring, coding, management information systems, data base management, and statistical analysis
Public Private Partnerships	RBS offers services related to planning and operating collaborative projects involving educational programs and private sector businesses, foundations, and other institutions. Sample projects are school-to-work, adopt-a-school, literacy training, postsecondary programs. Services are customized to client needs and include program planning, evaluation, materials development, staff training, and technical assistance.
Strategic Planning for Educational Reform and Improvement	This policy formulation system combines data-based decision making and strategic planning. It enables policy makers to understand, analyze, and respond more effectively to the pressures that influence the quality of students' education. RBS works with local policy makers to customize and conduct the system activities: focused issues assessment and action recommendations; targeted research studies and data summaries; and tailored policy analyses and position briefs.
Achievement Directed Leadership	This training service addresses staff and organizational development related to instructional programs, with the goal of increased student achievement. The content is drawn from research findings in instructional effectiveness, educational change, and professional inservice education. Training and technical assistance are customized to client needs and include extensive materials in the form of staff handbooks, training guides, and videotapes.
Thinking Skills Development	RBS has responded to the renewed interest in cognitive development and student achievement by offering professional development and curriculum planning services related to thinking skills. School leaders and teachers learn how to improve the cognitive aspects of instruction in their schools. Workshops feature recent R&D developments, hands-on materials, and new instructional resources. Consultant assistance also is available.

RBS staff are its greatest resource

RBS currently employs a workforce of over 50 persons, who represent a wealth of experience and expertise in a variety of educational content and technical areas. Two-thirds have been classroom teachers at the elementary, secondary, or university level; one-third have conducted research and evaluation studies within public or private organizations. One-third also have served as administrators in state or local education agencies. Three-quarters of the professional staff have advanced degrees, in over 15 academic disciplines, from a number of the nation's finest universities. Most current staff have been with RBS for more than five years.

Representative RBS clients

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Instructivision
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National Institute of Drug Abuse
New Jersey Department of Education
Pennsylvania Department of Education
Philadelphia High School Academies Association
Pleasantville, NJ Public Schools
San Antonio, TX Education Service Center
Tulsa, OK Public Schools
U.S. Department of Defense
U.S. Department of Education
U.S. Department of Labor
William Penn Foundation
Wilmington, DE Public Schools

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