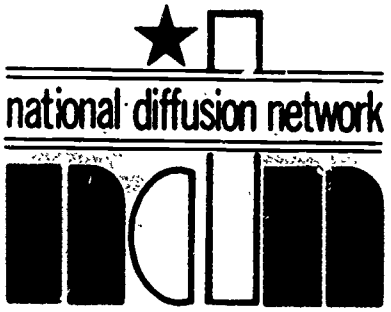
Proven Exemplary Educational Programs and Practices:

A Collection from the



Basic Skills-Mathematics

MICHIGAN STATE BOARD OF EDUCATION

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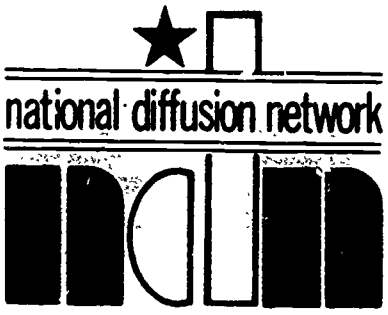

Basic Skills-Mathematics

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INTRODUCTION

The National Diffusion Network facilitates the exchange of information between the developers of successful projects and adopting districts. Many of the projects receive federal funding as Developer Demonstrators to provide teacher training, materials, and technical assistance to those who adopt their programs. Through the State Facilitator Project, the Michigan Department of Education is the principal link between Developer Demonstrators and those adopting new programs. The Department can help in the identification of programs to address current local needs, and in the adoption and implementation process.

The information contained in this booklet presents descriptions of educational programs that have been validated as successful. These projects have been developed by individual school districts throughout the nation, in response to their local needs. The Joint Dissemination Review Panel of the U.S. Department of Education has reviewed and validated the data presented by each project. These programs are available for adoption by other districts.

The following introductory pages contain an alphabetical table of contents, an index of programs by category and an index of programs by grade level(s) for which the programs have been validated. Some programs have been used successfully at other grade levels. This is noted in the abstracts. The Department of Education can assist in adoption of a program only at the grade level(s) for which it has been validated.

For further information about any of these programs, or for assistance in adopting or implementing one of the programs, please feel free to contact Mrs. Patricia Slocum, Michigan State Facilitator, Office of Grants Coordination and Procurement, Michigan Department of Education, Post Office Box 30008, Lansing, Michigan 48909, telephone (517) 373-1806.

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ASTRA'S MAGIC MATH: Beginning Math Program. A 22-unit success-oriented beginning math program employing an organized oral language based, multi-sensory approach using techniques for a foundation of any math system or program.

Audience Approved by JDRP for kindergarten students.

Description Astra's Magic Math increases math achievement by promoting the acquisition of basic math skills while helping children develop positive self-images. Throughout 22 self-contained units, the multi-sensory program utilizes oral language, manipulation, and writing activities during daily twenty to thirty minute lessons. The program utilizes discovery, mystery, and memory aids. It utilizes a multi-sensory approach through repetition, discovery, mystery, and memory aids. It combines frequent repetition and immediate correction or confirmation of children's responses with a game-like presentation of materials and positive feedback from the teacher. The program includes interactive large group activities and individual mastery worksheets. Astra's Magic Math stresses positive reinforcement and a belief in the ability of each child to succeed. Interest is stimulated through the use of Astra, a make-believe character from outer space. The program is designed to develop the positive academic self-concept and independence of young children; while satisfying their intellectual needs.

Astra's Box, an essential program prop, contains lesson materials for the day and stimulates curiosity in the children. The children believe Astra is the source of homework and badges awarded to them each unit. Astra also displays feelings of happiness, sadness, fear, excitement, and frustration, thus enabling the children to identify with her.

Kindergarten participants in the program have demonstrated gains in excess of 30 NCE's during a six-month period as assessed on the mathematics sub-scale of the Comprehensive Test of Basic Skills.

Requirements The program can be implemented in a typical classroom using regular teachers. A one-day training session is highly recommended. The only materials that must be purchased are the Astra's Magic Math Manual and Astra's Box. A variety of other educational and motivational materials to enhance the program is useful and highly recommended.

Costs Astra's Magic Math Manual including Astra's Box (one per classroom), $50 (required start-up); Astra Doll $50, Astra's Manipulatives, $20 (complete set = $112 reduced price).

Services Awareness materials are available at no cost. Visitors are welcome by appointment at project site and additional demonstration sites in home state and out of state. Project staff is available to attend out-of-state awareness meetings (costs to be negotiated). Training is conducted at project site (adopters pay only their own costs). Training is also available at adopter site (costs to be negotiated). Implementation and follow-up services are available to adopters (costs to be negotiated).

Contact *Jeanne Stout Burke, Judith Brown; or Gretchen Ross, Co-Directors; Astra's Magic Math; Sunshine Gardens School, 1200 Miller Ave.; South San Francisco, CA 94080, (415) 588-8082.*

Developmental Funding: Private

JDRP No. 83-54 1/24/84

BASIC: Basic Adaptable Skills for the Individual Child. Offers training in the Primary Education Program (PEP). The PEP program is a highly structured, sequential, and individualized curriculum in readiness, mathematics and reading.

Audience Project BASIC has been approved by JDRP for kindergarten through fourth grade. The PEP curriculum has been adopted successfully by public and private day care facilities, nursery schools, preschool and elementary handicapped programs, kindergartens and first grades.

Description The Primary Education Project (PEP) was designed for children from preschool through the early primary grades. PEP, an individually prescribed program, is based on the concept that cognitive development proceeds in an essentially hierarchical fashion; certain abilities appear earlier than others, and early appearing abilities comprise building blocks or pre-requisites for acquiring more complex abilities.

The objectives of the PEP program are met by using a combination of structured curricula and informal child selected activities. The structured curricula include components in quantification, classification, visual motor, auditory motor, general motor and letters and numerals. Each component emphasizes student self-management skills, positive reinforcement, continuous pupil progress, accurate and well-defined recordkeeping, and parent involvement. The curriculum is characterized by five critical elements; structured curricula for each content area comprised of a series of behavioral objectives arranged in a hierarchical order by unit and level; an assessment system of criterion-referenced tests matched to curriculum objectives; a management system designed to provide individual prescriptions and learning experiences; individualized instructional materials and teacher-constructed materials; and a monitoring and recordkeeping system depicting the location and mastery level of every student in each area.

The structured curricula just described are complemented by learning experiences in which children are encouraged to integrate and further develop their cognitive skills by engaging in self-selected and self-defined activities, and by interacting with peers in the course of learning tasks. The activities required to keep an individualized classroom running smoothly are termed management skills and are an integral part of BASIC's PEP program.

Requirements The decision to replicate any part of BASIC should be jointly shared by administrators, teachers and parents. Teachers are trained in implementation and monitoring. The Resource Center assists with preservice training and inservice training and provides continued assistance for the first two years. Special emphasis is placed on the individual school's management needs and evaluation.

Costs Cost of replication varies with school size, degree of implementation and equipment already available. The cost for all components of the PEP curriculum will be between $800 and $1000. Minimal replacement costs would be expected in the following years, usually not exceeding $100.

Services Awareness materials are available at no cost. A slide-tape and video tapes are available on loan. Visitors are welcome by appointment. Project staff are available to attend out-of-state awareness meetings (costs to be negotiated). Training is provided either at the project site or at the adopter site. Follow-up assistance is available to adopters for one year.

Contact *Kathleen Haug, Resource Center Coordinator; Sibley School; Montevideo, Minnesota 56265. (612) 269-6471.*

Developmental Funding: ESEA Title I

JDRP No. 74-124 (12/16/74)

CALCULATOR MATH. A supplementary program to improve students' mathematical skills through the use of a consumer-oriented curriculum which incorporates the hand calculator.

Audience Approved by JDRP as a supplementary math program for grades 7 t .gh 9.

Description Calculator Math is a mathematics project which parallels and supplements the 7th-9th grade program. It brings the technology of the hand calculator into the classroom with a proven instructional curriculum. The program teaches students: to use calculators with efficiency and with confidence; to improve their skills in problem solving, rounding off, estimating, and solving consumer word problems; to improve their ability to work with whole numbers, decimals, fractions and percentages.

Students use a calculator and calculator math worksheets one-fifth of their math time (approximately one day a week) for a year.

Project materials include the CALCULATOR MATH binder and task cards.

Binder contents: Teacher's Guide (describes the implementation and management of the program); Student Guide (introduces the student to the calculator and reviews rounding off, estimating, and solving word problems); Work Sheets (five units which supplement the whole number, decimal, fraction, and percentage curriculum).

Units contain pre/posttests and are adaptable for individual, small group or total class instruction.

Answers and Place Value Charts

180 Task Cards: written and illustrated by students. Cards are color coded and assigned on appropriate work sheets.

Requirements The program can be implemented in a typical math classroom using regular teachers. Materials which must be purchased are the Calculator Math Binder and Task Cards (one set per teacher), and Calculators (approximately one per two students). Calculator Math can be adopted by a single classroom or by several classrooms who may share the materials. A one day training session in the management and implementation of the use of calculators in the CALCULATOR MATH Program, and the development of problem solving skills is required for adoption.

Costs First year installation costs: Approximately $4.50 per student including purchase of calculators, materials and training. Subsequent year: $1.50 per student (duplication cost).

Services An NDN funded Developer/Demonstrator Project. Awareness materials are available at no cost. Visitors are welcome at demonstration sites by appointment. Project staff are available to attend out-of-state awareness meetings (costs to be negotiated). Training is conducted at project site or adopter site (costs to be negotiated). Implementation and follow-up services are available to the adopter.

Contact ***Director; Calculator Math Office—400 Mansell Street; Wilson Demonstration Site; SFUSD; San Francisco, CA 94134. Office: (415) 469-5697, School: (415) 239-6200.***

Developmental Funding: Title IV-C

JDRP No. 82-31 (5/26/82)

CAMEL (Calculator Assisted Mathematics for Everyday Living). A curriculum to increase the computation and application skills of general mathematics students.

Audience Approved by JDRP for 9th and 10th grade general math students.

Description CAMEL is an individualized two-year program for those students who have had little or no success in mathematics. These students usually have computational deficiencies that preclude their mastering many of the "living skills" concepts that are part of everyday life for most people. CAMEL is based on the premise that these students can and will learn these concepts if the amount of computations is reduced. Students in a CAMEL classroom use calculators to perform the computations necessary to learn and apply these concepts. All examples show how the given information is analyzed and entered in the calculator. All example answers are explained and are identified with units or labels where appropriate.

Paper and pencil computations are not excluded by use of the calculator. The program includes eight computations modules that the students must work using paper and pencil if they cannot demonstrate mastery of the skill on a pretest. Paper and pencil computations should take less than 20% of the students' time.

While CAMEL was developed for use in a regular classroom and is primarily used there, the individualized nature of CAMEL makes it appropriate for any group that is highly transient and not well motivated. In the developing district CAMEL is also used in the Juvenile Detention Center, the Alternative School for Disruptive Students, The Center for Emotionally Handicapped or Learning Disabled Student, and The Half-Way House for Young Adults.

Requirements The CAMEL program can be implemented by any math teacher. Teacher-student ratio 1:30. A one-day training session is desirable but not necessary. No special facilities are needed. Each student in the program should have access to a calculator. A set of CAMEL materials is required and consists of eight computational modules, 31 applications modules, and two applications review modules; teacher and manager manuals; complete set of pre- and posttests with answer key. A management system to help the teacher is also part of the program.

Costs One set of calculators ($9 each) and one set of CAMEL materials ($450) which can be used by one to five classes per day. Costs of expendable materials vary depending on the number of students involved.

Services CAMEL Resource Staff Project consultants provide technical assistance and training in program implementation. Visitors are welcome to visit a demonstration school. Awareness materials are available.

Contact ***Whiteford G. Colee, Project CAMEL; P.O. Box 1910; Daytona Beach, FL 32015-1910. (904) 255-6475; Suncom 391-1011.***

Developmental Funding: USOE ESEA Title IV-C

JDRP No. 82-5 (2/17/82)

PROJECT CATCH-UP. A diagnostic/prescriptive program in reading and/or math.

Audience Approved by JDRP for students in the lowest quartile in reading or math, grades 1-6. This program has been used successfully with students at other achievement levels and in grades K-12.

Description Project Catch-Up is a laboratory program of continuous diagnosis and pinpoints teaching in reading and/or math skills for underachieving children that can be adapted into any existing reading or math program.

Classroom and laboratory teachers work closely to identify program participants and formulate a laboratory schedule that does not cause any child to miss reading or math in the regular classroom.

Laboratory teachers identify individual needs by means of continuous diagnostic testing. They then select materials and methods from a wide variety of high-interest resources available in the laboratory to meet the child's needs. Children spend an average of one-half hour per day in the laboratory, in groups of one to four, working with the teacher on skill deficiencies. The program is designed in such a way that each child experiences success and moves toward the acquisition of more difficult skills armed with increased confidence.

A list of recommended instructional materials and equipment, selected by project teachers, is available. Results can be achieved with limited resources if a diagnostic prescriptive method is used in a success-oriented environment.

With a few well-developed techniques, teachers have made participating children feel that the lab is "their lab" to such a degree that it has become necessary to have guest days to satisfy the desire of other children to participate even in a small way in the laboratory. Project Catch-Up's special events for parents consistently draw more parents than any other school function.

Achievement: Students have on the average at least doubled their rate of growth in math and reading skills as measured by the CTBS and THE CAT.

Requirements A school district interested in adopting or adapting Project Catch-Up should be able to: provide a laboratory-type setting of any size (we started in a closet, but at present have a classroom); administer diagnostic tests to participating children; provide professional instruction to meet diagnosed needs; and use high-interest materials insofar as they are available. The project can be adopted by a grade level or a school, and it can offer instruction in reading, math or both.

Costs The Starter Kits are $12. Diagnostic test budget, $.50 per student for math (commercially published); $.92 per student for reading (commercially published). Recommended: $100 to $400 for basic instructional materials, math and reading—non consumable. Optimum: $1,500 per site to enrich instructional materials selection.

Services Awareness materials are available at no cost. Visitors are welcome at project site on Fridays. Project staff are available to attend out-of-state awareness meetings. Training is available at adopter site (costs to be negotiated). Implementation and follow-up services are available to adopters (costs to be negotiated).

Contact *Fay Harbison; Project Catch-Up; P.O. Box 2506; Newport Beach, CA 92663. (714) 548-4240.*

Developmental Funding: ESEA Title I

JDRP No. 34 (4/4/73)
Recertified (10/84)

CLASSMATE 88 MATHEMATIC COMPUTATIONAL SKILLS PROGRAM. A pullout program incorporating technology to improve the basic mathematical computational skills of economically disadvantaged children.

Audience Approved by the JDRP for educationally disadvantaged children in grades 4-6.

Description Classmate 88 is a daily pullout program that uses technology as well as paper and pencil activities, fact cards, and puzzles to provide drill and practice in basic mathematical computational skills. The project treatment is for 32 weeks providing 40 hours of additional supplementary mathematic instruction during the school year. The project is designed to serve children, each using a calculator, in groups of three for fifteen minute sessions daily. Since this is an individualized project, each three students come from the same grade level. The Resource Teacher, working with the classroom teacher, schedules the students into the project so they will not miss the "core" or basic subject areas. The time out of class is during Art, Music, Gym, study periods or recess. Student placement in Project Classmate 88 is determined through a multistep process which begins with the Classroom Teacher and the Resource Teacher. An assessment is made of the child's level of functioning through a combination of placement tests (addition, subtraction, multiplication, division, fractions, and decimals) developed by the South Bend Community School Corporation. The scores on these tests are used to determine placement. The problem for each section within a test are weighted according to the skill level. The number right determines the starting level for the student. As the student works through each program, the aide monitors his/her progress, giving assistance as needed. All work sheets and papers are kept in the student's individual folders. After mastery the student proceeds to the next program. The unique technological feature of the program is the use of a calculator known commercially as Classmate 88. This machine provides practice in computational skills by (1) presenting computational problems appropriate for the child one at a time; (2) providing feedback after the child has worked the problem by the hand and input the answer; (3) noting when the answer is not correct; and (4) summarizing the child's performance on the set of problems. This tape is used by the aide and consultant to monitor progress; also, it may be displayed on a bulletin board or sent home to parents. The Classmate 88 calculator contains seventy (70) handwired programs that have been developed to help children reach the specific computational problems. Note that the calculator does not do the calculation for the child.

Requirements All equipment, materials and strategies used in Classmate 88 can be duplicated. Adopters must purchase Classmate 88, the curriculum guide, and provide a system for ongoing monitoring and support activities. Additional staff using para-professional personnel are necessary for replicating the project. The project has a three-day workshop that has been effective in training aides to use the Classmate 88 machine, the curriculum and teaching techniques. Special materials are not necessary, with the exception of the Classmate 88 calculator, paper tapes and ribbons.

Costs Costs, including personnel, equipment, consumable materials and equipment maintenance average $175.25 per pupil (N=48) for the installation year and $127.22 per pupil for subsequent years.

Services Awareness materials are available at no cost. Visitors are welcome by appointment at project site and additional demonstration sites. Project staff are available to attend out-of-state awareness meetings (costs to be negotiated).

Contact *James E. Parent; Chapter 1 Department, South Bend Community School Corporation; 635 South Main Street; South Bend, Indiana 46601; (219) 282-4181.*

Development Funding: ESEA, ECIA

JDRP No. 85-11 9/9/85

PROJECT CLIMB (Coordinated Learning Integration—Middlesex Basics). A program for excellence in basic skills in reading and mathematics.

Audience JDRP approved for students of all ability levels K-12.

Description Project CLIMB, a diagnostic/prescriptive approach in the acquisition of mathematics and reading skills, provides a management design for coordinating and integrating classroom and support personnel using existing instructional materials.

A teacher-developed and teacher-tested curriculum component which:

*Identifies reading and mathematics basic skills for grades K-12 in the form of skills arrays.

*Provides an evaluation system in the form of criterion referenced tests for each basic skill identified.

*Provides a recordkeeping system that monitors student progress through Grades K-12.

The training component includes methods for:

*Utilization of the curriculum components.

*Identification and correlation of adopting district's curriculum materials to CLIMB skills arrays.

*Administrative tactics for coordinating classroom instruction with support personnel.

*Classroom implementation.

*Incorporating basic skills into content areas.

Requirements Teachers and administrators participate in a two day training for effective utilization for CLIMB curriculum and management design. A follow-up training session is recommended. Teachers must be supplied with the CLIMB curriculum materials. The program can be adopted in either reading and/or mathematics at any or all grade levels.

Costs Start up costs are approximately $100/teacher for curriculum materials and supplies, including skills arrays, criterion-referenced tests on two grade levels, student recordkeeping folders, class profile sheet and training manual. Maintenance costs are minimal. Training costs are negotiable.

Services Awareness materials are available at no cost. Visitors are welcome at project site any time by appointment. Project staff are available to attend out-of-state awareness meetings. Training is conducted at project site or adopter site. Implementation and follow-up services are available to adopters. All costs are negotiable.

Contact ***Barbara Brenner, Director; Project CLIMB; Middlesex Public Schools; Administration Offices; Kennedy Drive; Middlesex, New Jersey 08846. (201) 968-4494.***

Developmental Funding: NJ TEEA R&D, USOE ESEA Title IV-C

JDRP No. 81-44 (1/28/82)
Recertified (9/85)

PROJECT COAST: Cognitively Oriented Approach to Skills Teaching. A cognitively oriented program for mathematics, language development/writing, and the application of skills through the use of learning centers.

Audience Approved by JDRP for students of all abilities and socioeconomic backgrounds in grades K-3.

Description The goals of Project COAST are growth in mathematics and communication skills through strategies that develop related concepts and provide opportunities for the application of skills. There are three program components: mathematics, language development/writing, and learning centers. A management system for small-group math instruction and the use of relevant manipulative instructional materials support a more individualized approach to concept and skill development. The understanding of mathematical concepts forms the "cubbyholes" within which skills are stored for easier retrieval.

Active units of study for various types of literature form the cognitive framework for expanding skills in oral and written communication. The resulting understanding allays the students' fears of not having "anything to write about." This process utilizes the language experience approach and naturally integrates all of the language arts (speaking, listening, writing, and reading) in a purposeful way. Communications and mathematics skills checklists based on Florida Minimum Performance Standards are available to aid the teacher in documenting student achievement.

Learning centers in the classroom allow children to make choices and work independently as they apply basic skills, solve problems, and make decisions. A well-planned and time-tested management system for centers provides the parameters within which the students are given the motivation and opportunity to be thoroughly involved in their own learning. The teacher's interactions and observations during this segment provide the basis for more appropriate direct instruction.

Requirements Several combinations of program components and training options will be made available in order to meet the specific needs, characteristics, and resources of each site. The adopting district must provide a facilitator (curriculum coordinator or administrative staff member) for an average of one hour per classroom per week to assist in the implementation and evaluation of the COAST program. The program can be adopted by as few as one district facilitator and two classroom teachers.

Costs The adopting district will allocate or secure funds to provide for (1) a part-time district facilitator for local implementation/evaluation, (2) the COAST consultant's travel expenses and per diem, and (3) time, space, and materials for program staff inservice workshops. COAST curriculum materials cost approximately $33 per classroom. Other needed materials are either teacher-made or are those typically found in elementary classrooms.

Services Awareness materials are available at no cost. Demonstration classrooms may be visited upon adoption. Project staff are available to attend awareness meetings (costs to be negotiated). Needs assessment, training, and follow-up services for classroom teachers and administrators are provided at adopter sites (costs to be negotiated).

Contact ***Mary F. Hancock, Director; Project COAST; or David Bidwell, Director; Panhandle Area Education Cooperative (PAEC); 411 West Blvd. S; Chipley, FL 32428. (904) 638-4131.***

Developmental Funding: USOE Follow Through JDRP No. 77-123c (2/4/81)

COMPETENCY BASED PROGRAM FOR MATHEMATICS MASTERY: An individualized diagnostic/prescriptive remedial math program.

Audience Approved by JDRP for grades 7 and 8 educationally handicapped students.

Description The Competency Based Program for Mathematics Master (CBPMM) incorporates a prescriptive learning competency based instructional approach. It draws on Bloom's Learning for Mastery and Keller's Personalized System of Instruction. Students are identified as needing mathematics remediation on the basis of their performance on the mathematics section of a district administered test. Placement tests for each strand are then administered to determine the sub-area into which the student will be placed. The student's instruction is based upon a prescription derived from these placement tests. The students then complete a mastery test appropriate for that strand. Each strand can be applied independently and students only work on the strands indicated by their placement test. Diagnostic and/or error pattern tests are used on as-needed basis. The error pattern tests determine why a student is not mastering certain material so that he/she can unlearn the misconception behind the problem. A total of 82 tests have been developed for use in the project. These include 41 diagnostic and error pattern tests, 11 placement tests, and 30 strand mastery tests. These tests have been through standard developmental processes including validity and reliability assessment. The error pattern tests assess the method the child uses to solve the problem as well as the answer. Thus, appropriate remediation can be applied.

The staff has developed 20 instructional games, 750 instructional puzzles, an instructional listening exercise , a deductive problem solving exercise; and 900 other manipulatives directly related to the CBPMM curriculum. Aside from project developed materials, commercial games, duplicating manipulatives, workbooks, textbooks, tapes and filmstrips can be used as supplemental material. A start-up kit is available which includes staff developed materials such as samples of "mathmatchtics" puzzles, several manipulatives, instructional games, and a listening exercise. A limited amount of equipment also is required for start-up operations. Practically all of the equipment essential to the program is traditionally found within schools. These include items such as typewriters, filmstrip projectors, cassettes, laminating machine, etc.

Requirements The adopting school district must conduct an 18 hour workshop on implementing project components. Certain specified materials should be available.

Costs Start-up costs depend on materials, personnel, and equipment already available. Contact project for more specific information.

Services Training can be provided by project staff at the expense of the adopting district. Other information available.

Contact *Linda Shibley, Director; Southeast Junior High; Rt 3; 2001 Ohio St.; Pine Bluff, AR 71601. (501) 535-6070 or -6478.*

Developmental Funding: Title IV-C

JDRP No. 83-16 (3/8/83)

COMPREHENSIVE SCHOOL MATHEMATICS PROGRAM (CSMP): An exciting, complete elementary-level mathematics curriculum from basics to problem solving for students of all ability levels.

Audience Approved by JDRP as a sequential mathematics curriculum for students of all abilities, grades K-6. CSMP students do better in relational thinking, estimation, mental arithmetic (large numbers), fractions, and word problems than students in more traditional programs.

Description An underlying assumption of the CSMP curriculum is that children can learn and can enjoy learning much more math than they do now. Unlike most modern programs, the content is presented not as an artificial structure external to the experience of children, but rather as an extension of experiences children have encountered in their development, both at the real-life and fantasy levels. Using a "pedagogy of situations," children are led through sequences of problem-solving experiences presented in game-like and story settings. It is CSMP's strong conviction that mathematics is a unified whole and should be learned as such. Consequently, the content is completely sequenced in spiral form so that each student is brought into contact with each area of content continuously throughout the program while building interlocking experiences of increasing sophistication as the situations become more challenging. A feature unique to CSMP is the use of three nonverbal languages that give children immediate access to mathematical ideas and methods necessary not only for solving problems, but also for continually expanding their understanding of the mathematical concepts themselves. Through these languages the curriculum acts as a vehicle that engages children immediately and naturally with the content of mathematics and its applications without cumbersome linguistic prerequisites. These languages include: The Language of Strings (brightly colored strings and dots that deal with the fundamentally useful and important mathematical notion of sets); the Language of Arrows (colored arrows between pairs of dots that stimulate thinking about relations between objects); and the Language of the Papy Minicomputer. The Minicomputer, a simple abacus that models the positional structure of the numeration system, is used both as a computing device and as motivation for mental arithmetic. Its language can be used to represent all decimal numbers, positive or negative, and encourages creative thinking about the nature and properties of numbers. CSMP is flexible enough to facilitate whole-group, small-group, and personalized instruction, and is appropriate for all children from the "gifted" to the "slow learners." It recognizes the importance of affective as well as cognitive concerns and has been developed and extensively tested in classrooms nationally.

Requirements School system signs cooperative agreement with CSMP and appoints local coordinator who undergoes 5 days of training in St. Louis during spring or summer prior to first year of implementation. Coordinator trains all teachers new to CSMP before start of school. Smallest adoption unit is one teacher in one classroom. No training charge, but system pays expenses of attending training. Teachers and coordinators are required to buy training kits: K-3, $7; 4-6 $7. Optional adopter site training is available; there is a fee for this service.

Costs One teacher and 30 students: Kindergarten, $148; first grade $260; second grade, $320; third grade, $340; fourth, fifth and sixth grades $368. Replacement cost for 10 students: Kindergarten, $12; first grade, $36; second, third and fourth grades, $64; fifth and sixth grades, $76. Cost per supplemental use will vary with the situation.

Services Free awareness materials available. Visitors are welcome by appointment at project site and additional demonstration sites in home state and out-of-state. Project staff is available to attend out-of-state awareness meetings (costs to be negotiated). Training is conducted at project site (adopter pays own costs) in June and July. Training is also available at adopter site. Implementation and follow-up services are available to adopters (costs to be negotiated). Trainer travel costs, $150 per day fee, and $7 per person material costs paid by adopter.

Contact ***Clare Heidema, Director, CSMP, 470 N. Kirkwood Road, Second Floor South, St. Louis, MO 63122 (314) 821-1700.***

Developmental Funding:
OE ESEA Titles III & IV, and National Institute of Education

JDRP No. 78-169R 3/13/84

COMPUTER-ASSISTED-DIAGNOSTIC-PRESCRIPTIVE PROGRAM (CADPP) in Reading and Mathematics. A computer-managed program, utilized to generate personalized educational plans (prescriptions) for a diagnostic/prescriptive approach in Reading and Mathematics instruction.

Audience Approved by JDRP as a reading program for grades 3-9 and as a Mathematics program for grades 3-7.

Description The CADPP is a data-based management system which allows a user to load: 1) learning characteristics of individual students, to include age, instructional level and identified learning modality, if applicable; and 2) skill-oriented characteristics of available instructional materials, to include readability level, interest level, and modality utilized, into a computerized filing/retrieval system. Once these files are loaded, the CADPP cross-references these files to match similar student characteristics to material characteristics, and produces customized prescriptions (personalized educational plans) for each participating student, based upon the reinforcement skills requested by the instructor.

In addition to generating prescriptions, the CADPP tracks an individual child's yearly activities and can produce cumulative reports for: skills instructed and skills mastered, with date of mastery; and total listings of all instructional materials utilized during the year, or a designated period of time.

Program effectiveness is documented by a month and a half gain per month of instruction, utilizing the SRA Achievement Series, the California Achievement Test, and the CADPP CRT Series. Sustained gains studies support retention of gains.

Requirements CADPP can be adopted by a single classroom, school, district, or consortium. Adopters must have access to one of the following computers; Commodore Pet or 64; Apple II plus or IIe; Franklin; and/or TRS 80 Model III or IV. In addition, the program requires 2 disk drives and a printer for operation.

Costs A fee of $500 is charged for the CADPP software, which can be copied within the adopting district. Members of consortiums pay a $50 user's fee, and $500 is charged to the consortium. Updates and revisions are forwarded at no extra charge, and consultation from CADPP programs and/or administration is included in this cost. The CADPP Criterion-Referenced Tests (optional material) are available at $3 a booklet; CADPP Formative Test Manuals (optional material) are available for $10 a manual. Training manuals are $10 each.

Services Awareness materials are available at no cost. Visitors are welcome at project site by appointment. Demonstration sites are also available for visitation by appointment. Project staff and certified trainers are available to attend out-of-state awareness meetings; conduct training either at adopter site, or developer/demonstration sites; and to provide follow-up services at adoption site and/or through written correspondence and telephone consultation. Costs are negotiated for services that require travel for CADPP staff.

Contact ***Debra J. Glowinski, Federal Programs Director; Office of Federal Programs, Buckingham County Schools; P.O. Box 292; Dillwyn, VA 23936. (804) 969-3111 or (804) 969-3112.***

Developmental Funding: USOE ESEA Title I

JDRP No. 79-15 (6/12/79)
Recertified (12/84)

COMPUTER UTILIZATION IN EDUCATION (CUE). A remedial reading and mathematics program utilizing microcomputers.

Audience Approved for educationally disadvantaged students in grades 3-8.

Description The overall goal of Project CUE is to increase achievement in reading and mathematics through use of the micro-computer as an integral part of the instructional and management processes, coordinating classroom instruction with Title I supplemental services. CUE is a sequentially organized, criterion-referenced reading and mathematics curriculum which can be adapted to incorporate both a state syllabus and local curriculum objectives. Criterion-referenced objectives are correlated with the skills continuum of commercially developed, computer-assisted, instructional programs and other commercial materials. The CUE curriculum includes assessment techniques which may be utilized for the purposes of student diagnosis, placement, and instructional management. The program is designated for a laboratory setting but may be used as an in-class program. Students are scheduled for five 30-minute sessions of remedial instruction per week. Time on the computer will vary depending upon student remedial area(s) and instructional needs. A student is scheduled to use the computer daily for approximately 15 minutes per session, 75 minutes weekly. The student spends remaining instructional time on reinforcement activities or on alternate, related instructional materials. One microcomputer can service 24 target students, based on a six hour day. Planning time is provided for the laboratory staff on a daily basis. Teachers, administrators, support staff, and CUE staff utilize the laboratory to access student records (criterion-test results and computer-managed instruction test results) to monitor and access student progress. These records can be viewed on a terminal or produced as a printout. Keeping the equipment in a laboratory setting allows flexibility in teacher-student scheduling and permits additional classroom coordination in the use and development of microcomputer instructional materials which correlates to the project-developed reading, mathematics, and computer awareness curricula. Using the Iowa Test of Basic Skills (Reading Comprehension and Total Math), gains of project students exceeded the expected gains based on comparisons with the norming sample. The percentage of students scoring below the 34.4 NCE on the Reading Comprehension subtest declines from year to year; 20% of the students achieve a posttest score at or above the 41.9 NCE and no longer need program intervention.

Requirements Project CUE may be implemented at the school or district level. Supervisory personnel, a certified reading teacher and a paraprofessional should participate in training activities. Attendance in a one or two-day workshop is essential to understand the CUE process, determine curricula needs, and gain in microcomputer skills. After program implementation, follow-up visits are made by demonstration staff.

Costs Installation costs vary greatly regarding equipment needs, commercial software purchased, and to what degree of implementation a district desires. As the number of students in the program increases, the cost decreases proportionately. One set of training manuals, materials, and on-site training is provided by the Project; adopters pay own travel and lodging expesnses.

Services Visitors are welcomed by appointment. Awareness materials are available at no cost. Project staff are available to attend out-of-state awareness meetings (costs to be negotiated). Training is provided at project site (adopter pays its own costs). Training is also conducted at adopter site (costs to be negotiated).

Contact ***Carol Heiselman/Director, Christine Gilbert/Demonstrator; Project CUE; Central Square Central School District; Central Square Central School District; Main Street; Central Square, New York 13036. (315) 668-2611, Ext. 265.***

CONCEPTUALLY ORIENTED MATHEMATICS PROGRAM (COMP). An outcome-based objective-oriented mastery learning mathematics program designed to meet the needs of all children.

Audience Approved by JDRP for students of all abilities, grades 1-8. This program has been used in other settings with grades 9-12.

Description The Conceptually Oriented Mathematics Program is an objective based, mastery learning mathematics program that provides sequential mastery skills with corresponding instructional materials to be mastered in the basic skills area of mathematics. It is designed to meet individual needs through small-group instruction. Inservice training includes effective classroom management techniques to improve teaching techniques. Students are tested to determine their individual strengths and weaknesses and are grouped accordingly. The program provides continuous progress through the use of materials organized into 25 instructional levels. Nine strands are developed for mastery in these 25 levels. Each level has been broken into two or more steps. Step Z in each level provides additional materials for the gifted and talented students. Critical thinking skills are developed throughout the 25 levels. All COMP math objectives are correlated to major math textbooks. Correlations are included in the COMP Guidebooks. The program utilizes cooperative planning and teaching. The ideal instructional situation is one in which each teacher has no more than two instructional groups. It is the intent of the program to encourage teachers to be creative in their teaching and to adapt the program to the learning styles of their students. Key Elements: placement testing; teaching by objectives via COMP Guidebooks; and COMP Activity books; small-group instruction; criterion-referenced testing; computerized classroom management system (IMPACT); computerized drill and application activities (Levels 1-12, Grades 1-5); cooperative teaching and planning; continuous progress for students; administrator involvement; school-community-parent relations. Effectiveness: Students who participate in the COMP math program continue to make significantly greater gains in math achievement scores than their peers who participate in other math programs. COMP student gains have continued to grow over the 11 years COMP has been an NDN program. Effectiveness data is widespread, including Maine, North Carolina and Texas. Recently a district-wide study on achievement gains in Corpus Christi showed COMP math students made significantly greater gains over the 5 years of the study than the same students made in reading or other subject areas which had been equally targeted for improvement during the same time span.

Requirements One day of training prior to implementation is required. All teachers and administrators involved in adoption should attend. One day of training following implementation is also required. Adopter school needs will determine the scheduling of this training. Adopter designates one staff member to serve as project contact person and coordinator.

Costs Exclusive of textbooks and the teacher's salaries, the basic cost is approximately $50/teacher plus cost of test materials. Additional materials for instruction and enrichment can be added as finances are available.

Services Awareness materials are available at no cost. Visitors are welcome at demonstration sites anytime by appointment. Project staff are available to attend out-of-state awareness meetings (costs to be negotiated). Training is conducted only at adopter site. Implementation and follow-up services are available to adopters (all expenses must be paid).

Contact *L. Leon Webb, Director—Irene Gilbert, Asst. Director; 161 E. First St.; Suite 5; Mesa, AZ 85201. (602) 969-4880.*

CROSS-AGED STRUCTURED TUTORING PROGRAM FOR MATH.

Audience Approved by JDRP for elementary grades 2-8.

Description The Structured Tutoring Program in Math is a pull-out program which combines tutoring in basic skills with a continuous assessment of the child's progress on a daily basis. It also features immediate feedback and positive reinforcement techniques which are literally built into the instructional materials. The thrust of the program is to identify the child who is deficient in basic math comprehension skills as early as possible and to supply the necessary intervention to help him/her function within the school system on a positive encouraging basis. Identification of students begins with an initial screening which uses the total Math subsection of the Stanford Achievement Test. The Harrison Diagnostic Criterion Referenced Test is then administered which gives an individual prescriptive plan for tutoring in the skill sequence. Once students needing supplementary educational assistance are identified, they receive the Stanford Diagnostic Math Test as a pre-post assessment for evaluation. Students entering during the year are referred by teachers or counselors.

Requirements A paraprofessional Tutor Manager per 40 Student Tutors is necessary. Listing of specific material requirements can be provided by project personnel. The program may be implemented on a class, school, or district level.

Costs The cost for implementing a program serving 50-60 students is approximately $12,959. This includes personnel (1 Tutor Manager and 1 Adult Tutor), training, equipment, and materials. No special facilities are required. Average per pupil cost over a 5 year period was $216. Average pay for a paraprofessional is $5.50 per hour.

Services All Adult and Student Tutors receive training in positive reinforcement strategies, use of the sequenced materials, and recordkeeping activities. In addition, Tutor Managers and Adult Tutors are trained in testing techniques. Awareness materials are available at request at no cost from the Boise School District. Sample tutoring materials can be ordered from METRA Publishing, 366 South 500 East, Suite #103, Salt Lake City, Utah 84102.

Contact Dr. Geri Plumb, Coordinator of Federal Programs; Boise Public Schools; 1207 Fort Street; Boise, ID 83702. (208) 338-3400, ext. 246.

Developmental Funding: ECIA Chapter I

JDRP No. 83-20 (3/17/83)

DIAGNOSTIC PRESCRIPTIVE ARITHMETIC (DPA). A basic arithmetic program with emphasis on developing, modeling and mastering the basic concepts and skills.

Audience Approved by JDRP for students functioning at grade levels 3-5. This program has been used in other settings with grade levels 1, 2, and 6.

Description DPA is a process oriented program emphasizing the development and refinement of teacher modeling and questioning skills. DPA is an arithmetic program and includes counting, place value, addition, subtraction, multiplication, and division of whole numbers. Problem-solving skills are developed and reinforced through ongoing experiences with estimation and approximation, data collection, organization and interpretation, and real-life applications of arithmetic skills. Diagnostic tests for the major arithmetic topics (three levels) are used throughout the year to determine students' strengths and weaknesses both in concepts and skills. Prescriptions are then planned using the DPA Teacher's Manual, manual supplement, and other DPA resource materials. Each of the concept-developing and reinforcement activities in the Teacher's Manual has specific objectives related to the arithmetic instructional sequence and the diagnostic test items. The manual also includes descriptions of ongoing mathematics experiences, recordkeeping procedures, classroom management techniques, and instructions for developing a variety of teacher-made materials.

DPA can be used in self-contained elementary grade classes as the arithmetic component of the mathematics program or as a co-curricula remediation program (PSEN; Chapter I). Both approaches are essentially the same. A topic section of the DPA diagnostic test is administered, and the results are analyzed for group and/or individual needs. These data are recorded on the analysis chart, which aids the teacher in forming instructional groups and planning a program. Each student begins at his/her level of understanding. He/she may work with or without the teacher in a large group, small group, or independently. The student may use concrete materials for modeling a basic concept and may work with a DPA activity for reinforcing a new skill. The student may complete a written activity for practice or may help in the school by applying arithmetic to a real-life situation. This is a concept-based program that uses manipulative and physical materials and is adaptable to special education students.

Requirements A district must take the following steps: submit to DPA a statement of need and an implementation plan for the DPA program in the adopting district; provide for the release of participating teachers and supervisors for 3 full days of pre-implementation training; administer a standardized test as a pre/post instrument and provide DPA with a summary of results; employ ongoing DPA diagnostic tests for planning instruction; purchase necessary materials; identify who will act as the DPA on-site coordinator and liaison; and encourage cooperative planning and exchange among teachers.

Costs Start-up costs for curriculum and testing materials are about $7 per pupil or $200 per classroom or resource teacher. Maintenance costs are usually less than $2 per pupil.

Services Awareness materials are available at no cost. Visitors are welcome anytime by appointment at project site and additional demonstration sites in home state and out of state. Project staff are available to attend out-of-state awareness meetings (costs to be negotiated). Training is conducted at project site (adopter pays only its own costs). Training is also available at adopter site (costs to be negotiated). Follow-up services are available to adopters (all expenses must be paid).

Contact ***Matthew Scaffa, Director, or Janet Castellano, Project Coordinator; Community School District #31; 211 Daniel Low Terr.; Staten Island, NY 10301. (718) 447-3[illegible], ext. 36, 37, 38.***

Developmental Funding: USOE ESEA Title I

JDRP No. 74-68 (9/18/74)
Recertified (11/84)

PROJECT DPI. A diagnostic, prescriptive, individualized mathematics program.

Audience JDRP approved for students, grades 7-9.

Description The heart of the DPI curriculum consists of 23 "advancement tracks" or levels which encompass key learnings in arithmetic, pre-algebra, algebra, and geometry ranging in difficulty from grades 4-10. For each track—or continuum—a sequential set of about 15 study packets (daily lessons) is available. Results of a criterion-referenced pretest are the basis on which teachers diagnose each student's strengths and weaknesses to determine placement of that student in the appropriate study packet and track. Each packet—which concentrates on a single objective—contains practice exercises which are written in a multiple-choice format together with explicit instructions. After students complete four study packets, a checkpoint test is given. Successful students advance to the next packet or track, while unsuccessful students are retaught the skills just tested and then given an alternate checkpoint test.

Frequent, brief evaluation of progress occurs and, ideally, students spend one period a week in a math lab for classroom support activities.

Contact *Roger W. Shickler, Project Director; Project DPI; Long Beach Unified School District; Franklin Junior High School; 540 Cerritos Ave.; Long Beach CA 90802. (213) 437 8212.*

Developmental Funding: Calif. Comp. Ed. (SCE) JDRP No. 80-20 (5/19/82)

EVERY STUDENT EVERY DAY. A diagnostic/prescriptive program designed to meet the fundamental language, reading, and arithmetic skill needs of children in grades K-8 who score in the bottom CTBS quartile.

Description Ongoing diagnosis of pupil need is the core of this program. Each day's teaching-learning experience is specific to each child. Teachers and paraprofessionals are used to maintain a ratio of 4 or 5 children per adult. An optical mark reader that scores each teaching practice or exercise the moment the student finishes it makes immediate shifts in teaching strategy possible and acts as a strong motivator for students and teacher. Students attend special classes for 45 minutes daily. Each student's program provides 3 changes of activity during the period to assure full concentration. The program is an instructional management system using every possible strategy to insure that the right instruction reaches each student when it can be most effective. Test and practice materials copyrighted as the "Precision Teaching Program" form the major part of the program. Some commercially available materials have been adapted for machine scoring, and teachers and aides are shown ways of developing their own materials. A week-long workshop before the start of the school year is followed by biweekly half-day meetings. Teachers and aides are taught to individualize instruction, recognize and teach to student's need, use commercial materials properly, and build materials. The self-correcting feature gives the program potential for meeting the instructional needs of any group of students in any region.

Contact *Carlton M. Singleton, Project Director; 3908 So.12th St.; Arlington, VA 22204. (703) 521-3885. Darryl Boudreaux, Federal Project Administrator; St. Mary Parish School Board; P.O. Box 1239; Morgan City, LA 70380. (504) 384-1250.*

Developmental Funding: USOE ESEA Title I

JDRP No. 78-198 (11/27/78)
Recertified (11/84)

FIRST LEVEL MATHEMATICS (KINDERMATH). A program teaching the fundamentals of math to children.

Audience Approved by JDRP for children in their first year of mathematics instruction, kindergarten or first grade.

Description The program is diagnostic/prescriptive in nature, providing a sequential curriculum for individual developmental growth. The ninety lesson curriculum consists of the following nine components; same and different patterns; sets zero to five; shapes; sets six to ten; numerals six to ten; signs; and addition/subtraction. Key elements of the program are developmental hierarchies, mixed instructional modes; and low child-teacher ratio.

The program has been designed to be used by both regular and special education teachers. Because it is available in Spanish, it is also appropriate for use in bilingual and ESL programs.

As a result of participation in the program, children in their first year of mathematics instruction demonstrated statistically significant growth in knowledge of mathematics relative to national norms, as measured by CIRCUS Level A and B.

Requirements Program may be implemented in an individual classroom, a single school, or a district. Teachers wishing to implement the program and management system should attend a training workshop, which is most often held at district or regional sites. Administrators and paraprofessionals are also encouraged to attend training sessions.

Costs One KINDERMATH kit is required per classroom. Cost per teacher is $50 and includes a kit and training manual. Software for the program (if desired) is available at a cost of $275 for the 10 disk set.

Services Awareness materials are available at no cost. Visitors are welcome by appointment at project site and additional demonstration sites. Project staff is available to attend out-of-state awareness meetings. Training is available at project site or adopter site (costs to be negotiated). Implementation and follow-up services are available to adopters (costs to be negotiated).

Contact *Ms. Mary Alice Felleisen; 38 North Waterloo Road, Devon, PA 19333, (215) 688-7993.*

FLINT FOLLOW THROUGH. A Direct Instruction Model.

Audience Approved by JDRP for grades K-3. The project was developed for educationally and economically disadvantaged students.

Description In practice since 1969, educationally disadvantaged students have grown significantly in basic skills development as well as in their ability to more accurately perceive themselves as worthy, capable people.

Teaching materials are the highly structured, carefully sequenced, scripted lessons of READING MASTERY and DISTAR Language and Arithmetic. Each area is taught in daily 30-minute blocks. Increased achievement is attained by reciprocal teaching requiring a high degree of students time on task; multiple-response techniques to increase guided practice of new skills and prescribed procedures for evaluating students. Independent work activities review, reinforce and integrate the skills mastered in the directed lesson. Individual student progress is regularly monitored through criterion-referenced materials.

Students in the Direct Instruction program score significantly higher on achievement tests in reading, language, and mathematics than students from similar background not in the program. Results of the SRA Achievement Test show gains meeting or exceeding national norms in all areas.

A parent coordinator promotes an active parent involvement program.

Requirements Program components are correlated but may be adopted individually based on LEA needs. An adopter must agree to a two-year implementation, provide pre and post test data and purchase teacher and student materials.

Costs Costs are release time for staff development and materials. Teacher materials are a one-time purchase at $250 per curricular area. Consumable student materials are approximately $10 per student, per curricular area, per year.

Services A Follow Through Resource Center. Descriptive materials, on and off-site awareness sessions, staff development and bi-monthly consultant visits are available at no cost to the adopter.

Contact *Edward J. Hansberry, Director; Flint Follow Through; 923 E. Kearsley St.; Flint, MI 48502. (313) 762-1452.*

"GO-METRIC": A Supplemental Low-Cost Metric Curriculum. A low-cost metric curriculum that supplements existing programs.

Audience Approved by JDRP for students of all abilities, grades 5-8.

Description The unique design of "Go Metric" provides interested metropolitan and rural school systems, as well as communities, with a model for incorporating metric education into existing instructional programs at minimal additional cost and with no additional personnel.

This innovative program includes an elementary and secondary curriculum for all pupils in the school population and identifies a range of teaching techniques involving the pupils in a variety of hands-on activities using metric equipment. Audio, visuals, and games are also utilized to accommodate the special needs of all students. To provide additional in-depth understanding of metrics, the inservice requires teachers to participate in the same metric exercises that are used in the classroom. The curriculum is arranged so that it does not intrude on an already crowded schedule but enhances metric instruction as teachers integrate it into appropriate instructional areas.

Upon request by school systems implementing the program, trained personnel are available to conduct a 15-hour inservice for school personnel. Content of this inservice includes background in metric measurement, orientation to the curriculum guides, use of metric equipment, and a plan for implementing the program within the regular curriculum.

Contact *John E. Roller, Director; "Go Metric" Project; or Roger E. Kruse, Director of Federal Programs; Tulsa Public Schools; 3027 S. New Haven; P.O. Box 45208; Tulsa, OK 74145. (918) 743-3381.*

Development Funding: USOE ESEA Titles III and IV-C

JDRP No. 78-195 (8/10/78)

GULFPORT FOLLOW THROUGH: Mathemagenic Activities Program (MAP). Comprehensive education and intellectual model for developing cognitive and/or problem-solving skills for children of all ability levels in grades 1-3. Approved by JDRP for grades 1 and 3.

Description The Gulfport Follow Through Program is based on the University of Georgia Mathemagenic Activities Program. This program uses the assessment of cognitive level as a guide structuring a learning environment that maximizes development of the thinking process. Learning activities encourage the child to experiment with problems and discover solutions; this experience enhances the shift from concrete to abstract levels of thinking.

Based on the idea that learning occurs most easily when the child is an active agent in the process, all aspects of the classroom environment are designed in terms of three elements. The child is (1) presented materials just slightly more difficult than previously mastered (mis-match), (2) encouraged to choose his/her own method of problem solution (self-regulation), and (3) given time to manipulate learning materials (activity).

Basic mathematical skills are utilized, and a combination of individual and group activities encourage physical, mental, and social involvement. Small-group instruction is stressed. Teachers use a variety of guides prepared by the University of Georgia.

Contact *Carolyn Rushing/Jean King, Co-Administrators; Gulfport Follow Through Project; 1906 17th Ave.; P.O. Box 220; Gulfport, MS 39502. (601) 865-4672.*

Developmental Funding: USOE Follow Through

JDRP No. 80-51e (2/2/81)

HOSTS Math: HELP ONE STUDENT TO SUCCEED. A diagnostic/prescriptive/tutorial approach designed for students with remediation needs in the mathematical skills of concept development, computation and application.

Audience Approved by JDRP for math instruction in grades 2-6. It has also been used in other settings with kindergarten, first-grade and junior high students.

Description HOSTS Math is a mastery learning model; however, HOSTS Math's flexibility allows it to be used in a regular classroom as well as in a compensatory setting. Students are carefully placed in a precise sequence of math skills and progress from one skill to the next as mastery is demonstrated. Teachers are provided lesson plans which emphasize the manipulative, representational, symbolic approach to learning. Small group and/or one-to-one tutoring is used to remediate the deficiencies identified by the teacher. Assessment, record keeping, and review of materials are integral parts of the program available in paper and/or computerized format. HOSTS Math has been designated as a LIGHTHOUSE PROJECT by the USDE for its use of computer technology in improving student performance.

A computerized version of HOSTS Math is available.

There is also a HOSTS reading program.

Requirements Teachers participate in three days of inservice training. Aides and tutors are subsequently trained by teachers. No special facilities or staff are needed. The required implementation materials include Teacher Guide, Record Forms, Lesson Plans, the Math Objectives Continuum, Student Worksheets, Criterion Tests, and Answer Sheets for each classroom or resource room. The district must be willing to serve as a demonstration site.

Costs Start-up cost per school is approximately $6,000-$7,800. Second year costs are minimal.

Services Awareness materials are available at no cost. Visitors are welcome by appointment at the project site. Project staff are available to attend out-of-state awareness meetings. Training is conducted at project site or at adopter site. Implementation and follow-up services are available to adopters (all costs to be negotiated).

Contact *William E. Gibbons, Executive Director; HOSTS Foundation, 605 N. Divine Road, Vancouver, WA 98661. (206) 694-1790.*

Developmental Funding: USOE ESEA IV-C, private

JDRP No 82-8 (4/9/82)

I.M.P.A.C.T. (Improve Minimal Proficiencies by Activating Critical Thinking) A staff development project to infuse critical thinking skills into the basic skills curriculum, especially language arts and mathematics.

Audience Approved by the JDRP for seventh to ninth grade students in or near the normal intellectual range.

Description **Project IMPACT combines staff development and curriculum materials for the direct teaching of critical thinking while improving students' basic skills in language arts and mathematics. IMPACT's instructional approach has three essential components: (1) a universe of 22 critical thinking skills; (2) a model lesson format; (3) 10 teaching behaviors that activate student use of critical thinking.**

The training and materials model proven methods for integrating subject-matter content with such thinking skills as Comparing and Contrasting, Classifying, Ordering, Patterning, Identifying relevant and irrelevant information, Cause and Effect relationships, Predicting, and Logical reasoning. Program validation has shown that IMPACT students significantly ($p < .01$) outperform similar students in mathematics applications, reading comprehension, and critical thinking skills after only one semester in the program.

Teachers are trained to easily integrate the three key IMPACT components by using sixty model lessons in either language arts or mathematics. The lessons demonstrate both planning and instructional elements. The lesson design, based on the Hunter model, incorporates the *instructional elements* of Orientation, Direct instruction, Guided-practice, and Closure. The *planning elements* include the identification of thinking skills implicit in the standard curriculum, the prerequisite thinking skills, behavioral objectives, and materials and equipment.

During Level I training, experts demonstrate ten teaching behaviors that encourage and reinforce the thinking skills (e.g. cueing, probing, and reflecting with wait-time). Trainees receive supervised practice for lesson reinforcement and integration.

Requirements **Impact training occurs at two levels.** The project recommends that a district enroll a team of teachers and their site administrators in Level I training, an intensive 18-hour inservice that models the infusion of the IMPACT approach. Level II training, for which Level I is a prerequisite, is invitational. To become a District/Site Coordinator a Level I graduate must have taught 20 IMPACT lessons, filed a plan to implement IMPACT for 1 year, been appointed by the district, and been trained at a Level II seminar.

Costs *Level I* training (18 hours) is $200/person, $500/Team of two teachers and their site administrator plus $35/person for the Training Manual. The *Level II* seminar is invitational, at no cost to any district with 30 or more *Level I* graduates. The IMPACT kit (sold to trainees only) is $150 for language Arts handbook, Mathematics handbook, Universe of Critical Thinking Skills wallchart, HELP kits for student homework, and four filmstrips with audio tapes. Trainees can request price list for separate items. An awareness videotape (16 minutes) is available on loan at no charge.

Services Project IMPACT staff arranges technical assistance and in-district training on a cost-recovery basis.

Contact *S. Lee Winocur, Ph.D., National Director, Project IMPACT; Orange County Department of Education; P.O. Box 9050; Costa Mesa, CA 92628-9050. (714) 966-4375.*

INDIVIDUALIZED PRESCRIPTIVE ARITHMETIC SKILLS SYSTEM (IPASS). A computerized criterion-referenced testing and instructional program in basic mathematical skills utilizing microcomputers.

Audience Approved by JDRP as a supplementary mathematics program for grades 5 and 6. Developed as, and is an ongoing Chapter I program.

Description IPASS was designed to increase the achievement of intermediate grade students in mathematics through the use of advanced technology in the form of microcomputers. IPASS employs microcomputers and specially designed software as an integral part of both instruction and the management of student progress in a compensatory education setting. IPASS is an efficient and highly cost-effective project.

IPASS includes locally developed criterion-referenced tests, instructional and management software, cross-referenced tests, cross-referenced instructional resource file, and guides for teachers and students. IPASS objectives can be used to supplement most mathematics curricula without modification.

IPASS is designed as a "pull-out" program in which the student receives two 30-minute sessions per week. IPASS can be adapted to a classroom or laboratory setting. A teacher or aide using two microcomputers can serve up to 40 students per week. Locally developed instructional materials can be integrated into the remediation process. IPASS is available for R/S TRS-80 models I/III and IV, R/S Color disk (32K) Apple IIe. Cassette version no longer available. Adopted in more than 80 school districts in 17 states. Original funding Chapter I. Evaluation data is available upon request.

Requirements A TRS-80 or Apple IIe microcomputer and printer must be available. A training program is required for school personnel implementing the program. No prior experience with computers is necessary.

Costs A fee of $250 is charged for the IPASS software, including computer programs, criterion-referenced tests, student profile sheets, instructional resource file, and procedure guides for teachers and students. One copy of these materials is included and permission is given to reproduce any and all of these materials and programs in quantities necessary for the adopting school district.

Services Demo diskette for Model III, IV and color Apple IIe available $20. Awareness materials available at no cost. Visitors are welcome at any time by appointment. Project IPASS staff members are available to explain and demonstrate IPASS both at in-state and out-of-state awareness meetings (cost to be negotiated). Training is conducted at the project site and is also available at an adopter site (cost to be negotiated). Implementation and follow-up services are available (costs to be negotiated). Telephone hot-line is available to adopter districts at any time during normal hours.

Contact ***Robert R. Reynolds, Director; Project IPASS; Pawtucket School Department; Park Place; Pawtucket, RI 02860. (401) 728-2120.***

MATHEMATICS ACHIEVEMENT PROGRAM (MAP). A pull-out remedial math program. Approved by JDRP for educationally disadvantaged children, grades 2-5.

Description To help students overcome difficulties in computation and geometry skills, eligible students are scheduled into learning centers and provided instruction through a diagnostic/prescriptive system. Scheduling students is a cooperative effort of the Chapter I teacher and the regular classroom teacher that insures daily instructional sessions without interruption of classroom math or supportive instructional electives, and no more than one interruption weekly of all other major subject areas. Classroom teachers provide Chapter I teachers with all classwork that will be missed by each student attending the learning center sessions. The Chapter I teacher incorporates pupil needs revealed in the classroom with needs diagnosed in the center to promote maximum learning transfer.

Using a composite analysis of several criterion-referenced achievement tests, an individual Math Profile is developed for each student. Behavioral objectives are used to formulate a prescription to meet the interests and needs of each pupil. The Cross-reference Guide supplies information on materials available in every center to be used in remediation of a stated skill. Each MAP Learning Center is staffed with a certified elementary teacher and aide who serve about 62 pupils. Thirty-minute instructional sessions are conducted in small groups; teacher-pupil ratio 6/1.

Contact *John W. Williams; Mathematics Achievement Program; Chester Upland School District; 18th and Melrose Avenue; Chester, PA 19013. (215) 447-3865.*

Developmental Funding: USOE ESEA Title I JDRP No. 82-39 (7/22/82)

McCORMICK COUNTY FOLLOW THROUGH: Mathemagenic Activities Program (MAP). Comprehensive education and intellectual development, emphasizing math, for economically deprived children in grades 1-3.

Audience Approved by JDRP as a comprehensive approach for teaching mathematics to all children in grades 1 and 3.

Description The program is based on the University of Georgia Mathemagenic Activities Program, which emphasizes learning in the context of classroom environments that stimulate cognitive growth through concrete activities and intellectual challenge for the children.

The desired classroom environment evolves from the following principles and processes: after determining each child's developmental level, the teacher creates learning activities based on what children already know which at the same time stretches and challenges them; intellectual growth occurs as children become actively involved in constructing concepts for themselves as they manipulate physical materials; independence is fostered as children have an opportunity to choose materials and subject matter that will meet their individual learning rates and styles. Small group activities facilitate physical, mental, and social development.

A variety of guides prepared by the University of Georgia is used to supplement and reinforce the state-adopted textbooks. Inservice training on teaching techniques and Piagetian assessment is conducted with guidance from the university sponsor.

Contact *Susanna McKellar, Project Director; McCormick County Follow Through Project; McCormick County Public Schools; P.O.Box 417; McCormick, SC 29835. (803) 465-2715.*

Developmental Funding: USOE Follow Through

JDRP No. [illegible]-51c (2/2/81)

MICRO/MATH. A mathematics program that applies problem solving and programming skills in a proven instructional curriculum and integrates the computer into the classroom with career units.

Audience Approved by JDRP for students, grades 7, 8 general math, and computer literacy (adaptable for career ed, basic programming and the 6th grade.

Description MICRO/MATH is a mathematics/technology project which integrates three critical needs of mathematics education into a cost effective supplementary curriculum:

1) the need to teach students how to solve problems,
2) the need for students to apply computational skills,
3) the need to be aware of the use of computers and mathematics in jobs.

The curriculum parallels the traditional mathematics classroom program. Students use worksheets with and without microcomputers for 35 to 40 lessons for 1/5 of the math time. The project teaches them:

*to improve problem solving and logical thinking skills: rounding, estimating, processing information from graphs, tables, charts, diagrams, and solving mathematics word problems related to careers.
*to effectively apply computational skills-decimals, fractions, and percentages.
*to apply programming skills to job-related problems.
*to use computers with confidence and skill.

The project does not require restructuring of the school curriculum nor additional personnel. It draws upon many modes of instruction: cooperative, individual, and total class.

An independent evaluation showed that students who spent one-fifth of their math time in the project experienced significantly more growth on the Comprehensive Test of Basic Skills (CTBS) and the MICRO MATH Criterion-Referenced Test (CRT).

Requirements Adopting teachers need project materials and one or two days of training, depending on programming skills. Students need lessons, activities, and access to a computer for about 15 hours during the year. An adoption means adopting the key elements of the program's training, materials, implementation, and evaluation to classroom sites.

Costs A cost of $80 (per classroom) covers the training packet that includes a binder with over 100 worksheets, transparency masters, problem-solving activities, management plan, testing instruments and student workbooks. Training is conducted at the project or adopter site (costs to be negotiated).

Services Awareness materials are available. Visitors are welcome at demonstration sites by appointment. Project staff is available to attend out-of-state awareness and training sessions (costs to be negotiated). Implementation and follow up activities are available for adopter.

Contact *Judy Brown, Project Director, Education and Technology Foundation; Far West Laboratory, 1855 Folsom Street, Room 544; San Francisco, CA 94103, (415) 626-3070.*

Developmental Funding: 25 JDRP No. 83-31 (3/17/83)

MODEL CLASSROOMS' Computerized Classroom Management System (CLASS). A classroom management system that allows each student to work within the regular classroom at his or her individual math, reading and language achievement levels.

Audience Approved by JDRP for all students of all ability levels, grades 1-6. Software can also be used for secondary programs.

Description This Washington State program was developed by Urban Rural Racial Disadvantaged (URRD) funds to remedy the basic skills deficiencies of disadvantaged students. The classroom management system was subsequently refined for use by all students in regular classrooms. The program usually takes place in the morning and lasts until lunch. During this time, students work independently and in small groups on assignments keyed to their individual achievement levels. These assignments are determined in student-teacher conferences. Bicultural students can receive assignments in their native language if they prefer. This classroom management system teaches students how to become responsible for their own learning. They, with their teacher determine the rules and procedures to be followed in the classroom, and they perform the daily chores required to maintain an orderly work environment. Student progress is assessed weekly. Students have access to their personal progress records and are responsible for suggesting the direction of their program for the following week.

A training workshop is conducted either at the adopter site or at a regional workshop. During the workshop, participants learn to select and organize placement tests, cross-reference materials, design class profile sheets, and establish a student-managed classroom organizational plan.

Model Classrooms' Computerized Classroom Management System (CLASS) consists of three separate programs: a file initialization program which establishes a student record file, an assignments file, and a chapter objectives file; a student update program; and a report generator which prepares and prints student prescriptions, class profiles, and student summaries. The CLASS system is available for the Apple II and TRS-80 Models III and IV.

Requirements Workshop participants must supply the following materials and equipment: a textbook for any subject or 10 objectives and assignments for students. CLASS can be implemented in any classroom environment with an unlimited number of students.

Costs Cost for the training workshop is negotiable. All participants receive a comprehensive instructional manual on the application of CLASS in the classroom management setting. The disk with the three software programs is also included. No special materials are required when participants return to their classroom.

Services Awareness materials are available at no cost. Training is conducted at a regional site usually after school or on a Saturday. Implementation, software modification services, and follow-up are available to adopters.

Contact *Sherry Avena; Model Classrooms; 4095 173rd Place S.E.; Bellevue, WA 98008. (206) 746-0331.*

Developmental Funding:
Ed. Regional Research Prog., Voc. Rehab. Coop. Research Act, and State JDRP No. 78-170 (3/27/78)

M2C: MATH MOTIVATIONAL CENTERS. A pull-out program that provides intensive remedial instruction.

Audience Approved by JDRP for students in grade 9.

Description In each Math Center, which is set up to operate separately from the math classrooms, are located state-of-the-art materials for instruction in basic math skills. The M2C instructional management system provides for diagnosis, through criterion-referenced pretests, of each student's strengths and weaknesses in specific skills. Prescriptions guide the teacher and students to appropriate learning materials which are available in several modes. The management system has been designed to increase actual time on task to the maximum possible in each class period. Mastery of each instructional unit is measured by criterion-referenced posttests. A simplified recordkeeping system is used to document each student's progress through his or her own curriculum path. The component skills of mathematics have been tagged with 239 separate learning tasks and a series of matched math action applications. Each student has a folder in which all of the numbered tasks and applications appropriate to the level of study are listed with check-off boxes. As the student completes a unit, and passes the test that goes with it, the progress can be recorded on the folder to allow the student to identify the exact skills mastered and the progress being registered. The units also include a concordance of textbooks, workbooks and coded materials for study to master the indexed skills. The materials are cross-referenced to levels, lesson number and page number for each skill.

Each Math Center is under the direction of an instructor who works with the students and reports their progress to the regular math teacher. Skill diagnosis and determination of individual needs are first determined by the regular math class teacher. Computer-assisted instruction is also a part of the center. The terminals are not only important in providing motivation for the student, they also provide the opportunity to become literate in the use of computers, a skill becoming more and more essential in the modern world. Parents are involved as both tutors and learners at the Math Centers. The program is currently expanding the opportunities for participation in the Centers. Students are able to drop in as their schedule permits to work on their own and work with fellow students in peer tutoring.

Requirements Center can be established per teachers' manual directions; however, site visitations and workshop recommended.

Costs Estimated cost to implement a Center other than computer hardware is $500 per Center, which includes teacher's manual, computer software, and training. (This does not include travel to training site). Please note, M2C Center can be established without the computer component. (See description.)

Services Visitors welcome at project site by appointment. Training will be given at workshops. Time and place for workshops will be sent upon request. Brochures are also available upon request.

Contact *Carolyn Rosenfield and Raymond Senes; 105 Main Street; Norwalk, CT 06852. (203) 847-0481. Ext. 266 and 258.*

POCATELLO FOLLOW THROUGH: Mathemagenic Activities Program (MAP). A comprehensive educational and intellectual model for developing cognitive and problem-solving skills.

Audience Approved by JDRP for grades 1 and 3.

Description The Pocatello Follow Through program is based on the University of Georgia Mathemagenic Activities Program, which emphasizes mathematics in the context of classroom environments that stimulate intellectual growth through concrete activities and intellectual challenge for the children. The desired classroom environment evolves from these principles and processes: learning activities must be based on what children already know and at the same time stretch and challenge them, so the teacher must assess each child's developmental level. Intellectual growth occurs only through active involvement, so manipulation of objects is called for; independent activity is necessary for learning, so children must exercise choice, and to experience such self-regulation, select activities and work independently. A combination of structured and non-structured individual and small group activities facilitate physical, mental and social development. Teachers use a variety of guides prepared by the University of Georgia to supplement and reinforce the state-adopted textbooks. Inservice training on teaching techniques and Piagetian assessment is conducted with guidance from the university sponsor. Medical and dental health, nutrition, psychological and social services, and parent involvement are other essential elements of the University of Georgia model.

Contact *Petrea Goold, Director; Pocatello Follow Through Project; Pocatello School District No. 25; 3115 Poleline Rd.; P.O.Box 1390; Pocatello, ID 83201. (208) 232-3563, ext. 269.*

Developmental Funding: USOE Follow Through

JDRP No. 80-51a (2/2/81)

PRE-ALGEBRA DEVELOPMENT CENTERS. A complete one-year program to develop basic conceptual/computational mathematics skills and prepare students for algebra.

Description The curriculum design develops students' basic computational and conceptual skills through five units of concentration: Ratios and Proportions, Fractions, Decimals, Percent, and Metric Measures.

The program's curriculum materials are based on mathematics principles, called Tools of the Trade, which provide a foundation for teaching all concepts and for further learning in mathematics. Tools of the Trade include: Ratios and Proportions, One—Its Name and Properties, Place Value, and the Additive and Subtractive Properties of Numbers. The program's original instructional approach involves mathematics laboratory instruction, regular classroom instruction, and individualized diagnosis and remediation (LCD technique) coupled with reading in mathematics.

Training covers math lab techniques, individualizing for math instruction, techniques for building a conceptual foundation for mastering basic mathematics skills, and use of the program materials. Key Elements: three-day intensive training, use of Pre-Algebra unit packs for instruction, use of the laboratory classroom diagnosis and remediation technique (LCD), use of Tools of the Trade for instruction, evaluation of the program's effectiveness

Contact *Dorothy Strong; Pre-Algebra Development Centers; 1819 West Pershing Road 6 C (SE), Chicago, IL 60609. (312) 890-7945.*

Developmental Funding: USOE ESEA TITLE III

JDRP NO. 75-33 (5/13/75)

READING—INDIVIDUALIZED REMEDIAL LABORATORIES. MATH—INDIVIDUALIZED REMEDIATION. A project designed to provide continuous diagnosis of student needs and daily prescriptions for learning improvement. Approved by JDRP as a reading program for children ages 6-18.

Description The reading laboratories have been developed for high concentration on improving of basic reading skills. A reading laboratory staffed by one special reading teacher accommodates 80-120 students daily for the entire school year. Each student's daily prescription includes two or more activities designed to meet his/her needs. Students' prescriptions include programmed and self-instructional materials purchased from a variety of vendors or developed by both consultants and project teachers. Emphasis is placed on inservice education, focusing on cognitive reading skills and on the management and use of individualized instruction in the classroom. Inservice education is provided through workshops, consultant classroom visits, and local supervisory service and support. The mathematics program provides systematic remedial instruction in areas of individual student weaknesses. A teacher works with 80-120 students daily in a specially equipped classroom. The mathematics laboratories focus on carefully selected essential concepts, skills and applications with number ideas and computation; an individualized approach to the instruction; a meaningful approach to learning content; careful monitoring of student achievement; and teacher guidance in a supportive atmosphere.

Contact *Virginia Morgan; Reading Laboratories; Dougherty County School System; P.O. Box 1470; Albany, GA 31702. (912) 436-6544.*

Developmental Funding: USOE ESEA Title I

JDRP No. 74-107 (10/18/74)

PROJECT R-3: Readiness, Relevancy and Reinforcement. A motivational basic skills program that interrelates the reading and mathematics curricula through gaming/simulation activities involving career awareness.

Audience Aproved by JDRP for students of all abilities, grades 7-9. This program has also been used with elementary, high school, and alternative school audiences.

Description Project R-3 was jointly designed in 1967 by the San Jose Unified School District and the Education Systems Organization of Lockheed Missiles and Space Company with the help of consultants from San Jose State University. Its competency-based curriculum interrelates reading and mathematics and supplies reinforcement through gaming/simulation, intensive involvement (a three-day study trip), parental involvement, and an inservice training program for staff development. The main objective of Project R-3 is the upgrading of essential reading and mathematics skills. By deeply involving the students in classroom games and simulations, the program seeks to motivate them to achieve in learning experiences: to make them ready to learn, to make learning relevant, and to reinforce positive attitudes and behavior.

The project utilizes the diagnostic/prescriptive individualized approach in reading and math. Reinforcement of skill areas is provided through gaming/simulation activities that involve team learning, the decision-making process, and career awareness development.

Requirements Reading and mathematics teachers should have a knowledge of the diagnostic/prescriptive approach to individualized instruction. Teachers must be receptive to team planning. All staff should develop expertise in gaming/simulation. Aproximately 50 hours of inservice work are accomplished by each staff member in a given year.

Costs The basic materials of a secondary-level reading program can be utilized. Specially prepared math contracts cost approximately $150 for a complete set of masters which can be duplicated. A complete set of consumable math contracts for 250+ students can be purchased for $6.00 per set ($.21 per contract). Eighteen simulation booklets containing teacher guide and student materials cost $8 per book. Other costs: reproduction of gaming/simulation activities and contracts; secondary instructional aides.

Services Awareness materials are available at no cost. Visitors are welcome at project site anytime by appointment. Project staff are available to attend out-of-state awareness meetings (costs to be negotiated). Training is conducted at the project site (costs to be negotiated). Training is also available at adopter site (trainer travel and per diem must be paid). Implementation and follow-up services are available to adopters (costs to be negotiated).

Contact *Pauline E. Perazzo, Director; 1635 Park Ave.; San Jose, CA 95126. (408) 287-1111 or 1112.*

Developmental Funding: State USOE ESEA Title III

JDRP No. 74-13 (2/20/74)

THE RESPONSIVE EARLY CHILDHOOD EDUCATION PROGRAM (RECEP). A program of language, mathematics, and problem-solving for children in grades K-3. Approved by JDRP for children, grades K-3.

Description The Responsive Early Childhood Education Program is currently serving 1,100 children, grades K-3, who meet Follow Through and/or Headstart eligibility. An additional 550 children receive Responsive Education instruction as a result of their placement in Follow Through classrooms. The goals are to increase children's learning of the basic skills of language and mathematics and of problem-solving abilities; to stimulate the development of positive attitudes toward learning; and to foster culturally pluralistic attitudes and behaviors.

Special attention to the improvement of basic skills has characterized the Goldsboro project since its inception. Distinctive features include a basic skills personalized instructional program using trained volunteers and comprehensive test results.

RECEP is based on the belief that all children have an accumulated learning base upon which additional knowledge and skills can be developed. The evaluation component of this program provides the teacher with specific information for each child that describes his/her strengths and weaknesses. Individual student needs are assessed, and standardized test scores are regularly compared with those of children elsewhere in the country.

Contact *Winnie D. Brewington, Director: The Responsive Early Childhood Education Program; Goldsboro City Schools; P.O. Box 1797; Goldsboro, NC 27530-0038. (919) 734-0561.*

Developmental Funding: USOE Follow Through

JDRP No. 77-154b (2/4/81)
Recertified (4/85)

SCHOOL VOLUNTEER DEVELOPMENT PROJECT. A delivery system of school volunteer services that directly addresses critical learner needs for grades 2-6 in reading and mathematics.

Audience Approved by JDRP for students in grades 2-6 who are functioning one or more years below national norms in reading and mathematics. It has also been used in grades K-1 and 7-12.

Description The School Volunteer Development Project includes an overall plan for a delivery system of volunteer services and the accompanying support materials, recruitment procedures to generate a resource pool of volunteers, training for volunteers and teachers who use these services, and evaluation of each phase of the project, along with an overall evaluation of the system. The system, designed to locate, process, and evaluate volunteer services in Dade County (Florida) Public Schools, is transportable and easily adoptable in rural or urban settings.

The community is the backbone of the project, with volunteers selected from high school and college students, parents, senior citizens, and community-minded people from business and industry. Orientation and preservice training for volunteers is provided in addition to inservice training for classroom teachers.

This project also has the capability to recruit, train, and place volunteers in classes for the educable/trainable mentally retarded and learning-disabled.

The multimedia Starter Kit for the utilization of volunteer services contains two adminstrative reference books, handbooks, and training materials (one filmstrip-tape) for training volunteers, teachers and administrators. Three training modules with tapes, a course outline for cross-age tutor training, and two additional reference books are offered as optional items.

Requirments The basic requirements for adoption are that a school or district purchase the project materials, appoint a person (staff or volunteer) to coordinate the program, provide training for that person in the implementation of the program, and operate the program in at least one school for one year.

Costs Based on a paid coordinator, the total per-pupil cost per school year is $2.25 ($.31 for start-up, $.38 for management, $1.56 for operation). This cost can be reduced to approximately .70 if the adopting school or district uses a staff member or volunteer to coordinate the program.

Services Awareness materials are available at no cost. Visitors are welcome at project site on the third Thursday and Friday of each month. Project staff are available to attend out-of-state awareness meetings (costs to be negotiated). Training is conducted at project site (all expenses must be paid). Training is also available at adopter site (all expenses must be paid). Implementation and follow-up services are available to adopters (all expenses must be paid).

Contact *Johanna Goetz, Coordinator of Training; School Volunteer Development Project; 1410 N.E. Second Ave.; Miami, FL 33132. (305) 371-2491.*

PROJECT SITE: SUCCESSFUL INSERVICE THROUGH TURNKEY EDUCATION. A mathematics inservice program for the development of higher-level thinking skills through the use of manipulative materials.

Audience Approved by JDRP for elementary school teachers and supervisors (grades 2-6) and students of these participants.

Description The SITE program is based on a problem-solving approach to learning new mathematical concepts and skills. Unlike other mathematics inservice programs, SITE integrates content and methodology, using hands-on activities with a variety of manipulative materials. Since teachers "teach as they were taught," the program uses processes and activities which are immediately applicable in the classroom as the instructional model. SITE activities are readily integrated into the existing school mathematics curriculum. Eight of the ten basic skills identified by the National Council of Supervisors of Mathematics are incorporated in the SITE program. Specific instruction is provided in area, volume, decimals, metric measurement, ratio and proportion, graphing, and estimation. The project provides the printed instructional materials as well as the mathematics equipment needed to implement the program.

Evaluation of process and content is continuous, from initial training through classroom implementation with students. The project has demonstrated its effectiveness in urban, suburban, and rural schools. Teachers' mathematical knowledge increases substantially, while enthusiasm and skill in teaching math is noticeably enhanced. Student growth in knowledge from pre- to posttest has been significant (at 0.05 level).

Project SITE may be adopted at one of two levels. LEVEL I: Training the Turnkey Trainer (20 hours over 4 days) includes: (1) Mathematics described plus instruction in teaching strategies (i.e. motivation, questioning and critical thinking skills); and (2) Training skills (i.e. workshop organization and leadership, brain dominance and learning styles and the psychology of the adult learner). Trained participants act as turnkey trainers for other teachers in their schools or districts. Trained teachers implement the SITE program with students. LEVEL II: Direct Training for Classroom Teachers (15-hours over 3 days) includes: Mathematics described plus instruction in teaching strategies (i.e. motivation, questioning and critical thinking skills). Teachers implement the SITE program with students.

Requirements LEVEL I Adoption: 4 full days of SITE training; turnkeys conduct SITE inservice for other school or district teachers totaling 10-15 hours; classroom implementation with students by each trained teacher, for 20-40 hours in the classroom; Pre-post testing of teachers and students is expected. The program can be adopted by a district, a school, or an individual teacher. LEVEL II Adoption: 3 full days of SITE training; classroom implementation with students for 20-40 hours; pre-posttesting of students. The program can be adopted by a district, a school, or an individual teacher.

Costs Travel and per diem for SITE trainers. Level I training fee is $100 per participant. Level II training fee is $85 per participant. One SITE Starter Kit for each adopting unit is $375 each. (Starter Kit costs can be reduced by the use of equipment already existing in the district.) NOTE: Adoption costs can be minimized by forming a consortium of districts.

Services First-level Awareness materials are available at no cost. Visitors are welcome by appointment at the demonstration sites in East Meadow, NY and Miller Place, NY. Project staff is available to attend out-of-state awareness meetings (cost to be negotiated). Training is conducted at adopter site. Implementation and follow-up services are available (costs to be negotiated).

Contact ***Dr. Barbara Berman or Dr. Fredda J. Friederwitzer, Co-Directors; Project SITE; Educational Support Systems, Inc.; 446 Travis Ave., Staten Island, NY 10314. (212) 698-3636.***

Developmental Funding: USOE Metric Education Program

JDRP No. 82-27 (5/27/82)
(9/24/85)

STAMM: Systematic Teaching and Measuring Mathematics. A complete mathematics curriculum that provides continuous progress in mathematics for students in grades 2 through 8.

Audience Approved by JDRP for students of all abilities, grades 2-8. The program has also been used in other settings grades K-1 and 9-12 (Algebra I-Trigonometry).

Description The major objective of the program is to provide continuous progress in mathematics for the entire school experience of all students.

The STAMM program represents a complete system that can be adopted or adapted by other districts. A framework of objectives and assessment by criterion-referenced tests are basic to STAMM. Careful monitoring of student progress, measurement of mathematics competencies, and alternative courses are featured. The program may be used successfully in many different classroom situations, including small-group instruction, large-group instruction, individualized instruction, team teaching, and math labs. Resource material is provided for each objective; textbooks, manipulative materials, and teacher-made resources may be incorporated as well. Since STAMM is based on continuous progress, it is important for a school using STAMM to keep complete records on each student and to test each student's progress frequently. This enables a teacher, in the fall, to continue a student from where he/she left off in the spring. A teacher with one grade level of students may need to be familiar with more than one level of the program to accommodate continuous progress.

The basic skills continuum for grades 2-8 is covered in levels A, B, C, D, E, F, GE, G, and H. Special materials are packaged for Chapter I (formerly Title I), gifted/talented, and special education. Related Vocational Math workbooks for the areas of Electronics, Electro-mechanics, Construction, Food Service, Auto Mechanics, Metals, Health Occupations and Auto Body courses are available. LOGO software for selected geometry objectives in grades 4-6 are now available for teachers who wish to utilize computers in instruction.

Over 70% of the students tested (grades 2, 3, 5, 6, 7 and 8) scored above the national norm on the Comprehensive Test of Basic Skills. This achievement has been consistent from 1973 through 1984. Prior to implementation, roughly half the students scored above the national norm.

Requirements STAMM guides, tests, and workbooks may be used by a single teacher or an entire school system. The more levels involved in implementation, the greater the gains from the continuous-progress aspect of STAMM. A two-day training session prior to implementation is recommended. Weekly or monthly meetings are recommended for the local staff. STAMM does not dictate teaching style and may be used in any classroom setting. Textbooks may be used as an integral part of the program, but experience advises that they be supplemented with teacher-made or STAMM resource materials.

Costs STAMM teachers' manuals, $20 each. Each teacher needs one manual for each level or course taught. Test books and workbooks: $3.25 each for single copies, $3 each for 11-100 copies, and $2.75 each for 101-250 copies, $2.25 each for 251-500 copies, and $2 each for more than 500 copies.

Services Awareness materials are available at no cost. Visitors are welcome at project site by appointment. Project staff are available to attend out-of-state awareness meetings (travel and per diem must be paid). Training conducted at project site on request. Training is primarily available at adopter site (costs to be negotiated). Implementation and follow-up services are available to adopters (costs to be negotiated).

Contact *Sherry Stumbaugh, STAMM Project Director; Jefferson County Schools; 1005 Wadsworth Boulevard; Lakewood, CO 80215. (303) 231-2381.*

STUDENT TEAM LEARNING. A set of instructional techniques placing students in four- or five-member heterogeneous learning teams to master basic skills.

Audience Approved by JDRP for students grades 3-12.

Description Student Team Learning (STL) consists of three major techniques: Student Teams-Achievement Divisions (STAD), Teams-Games-Tournament (TGT), and Jigsaw. All three require students to work in learning teams that are heterogeneous in terms of sex, race, and past performance. In STAD, students study worksheets in their teams following a teacher presentation. Then they take quizzes individually to demonstrate how much they have learned. The student's quiz scores are summed to form a team score, which later is printed in a weekly newsletter. TGT is similar to STAD, except that students display their learning by playing academic games instead of taking quizzes. In Jigsaw, students become "experts" on topics relating to narrative material they have read and teach these topics to their teammates. STL is the umbrella term for these three programs. STAD is approved for language arts and TGT for language arts and math, and the STL program as a whole is approved for intergroup relations.

Student Team Learning can be used with the teacher's manual and teacher-made curriculum materials alone. Inexpensive materials in mathematics, language arts, and nutrition are available (see below). The techniques are very practical. They are in use in hundreds of schools across the U.S.

The effects of Student Team Learning on intergroup relations are strong and consistent, because the team goal and team interactions allow students to view one another positively. There is no specific mention of race or ethnicity in the program. Because the program is inexpensive, takes no more class or teacher time than traditional methods, and increases achievement as well as improving intergroup relations, it can be used as a regular part of class instruction in any subject.

Requirements Individual teachers can implement TGT through use of teacher's manual and construction of own worksheets and games. For school or district implementation, there should be general awareness training followed by workshop training (two days). If TGT's published curriculum materials are used, no teacher development of materials is required.

Costs Basic starter kit for use with teacher-made worksheets and games is available for $5. Objectives-based curriculum materials (worksheets and game sheets) available for reproduction: Language arts, grades 3-8, 100 objectives, $40; 20 usage objectives, $20. Mathematics, grades 3-8, 20 basic objectives per grade level, $20 per grade level.

Services Awareness materials are available at no cost. Visitors are welcome any time by appointment at project site and additional demonstration sites out of state. Project staff are available to attend out-of-state awareness meetings, and/or training at the adopter site. The cost for this service is $250 per day plus expenses. Training is conducted at the project site at a cost of $50 per person per day. Implementation and follow-up services are available to adopters ($250/day).

Contact *Barbara A. Bennett, Dissemination Coordinator; Center for Social Organization of Schools; 3505 N. Charles St.; Baltimore, MD 21218. (301) 338-8249.*

SUCCESS UNDERSTANDING MATHEMATICS (SUM) formerly Title I Compensatory Mathematics Program. A comprehensive mathematics program which uses concrete objects and questioning techniques to develop understanding.

Audience Approved by JDRP for grades 2-6. The program also has components in use with grade 1.

Description The program was designed to increase the level of mathematics achievement of children who were achieving below the level expected. The project materials and teaching techniques are appropriate, however, with students of all ability levels. Direct instruction is emphasized to facilitate student interaction in their development of concepts. Teaching strategies described in project manuals are based on Jean Piaget's research about the way children learn mathematics, specifically elementary school children's difficulty with abstract thought and their consequent need for concrete materials. Teachers guide students to develop mathematics concepts as students move objects to solve problems. Computational algorithms are developed through objects to solve problems. Drill follows but does not precede understanding.

Some unique characteristics of Success Understanding Mathematics include: (1) Program materials can be used with any commercial text. (2) Planning for instruction is matched to student needs. (3) Objectives for mathematical skills include a problem-solving strand. (4) Criterion-referenced tests for the objectives and recordkeeping materials are available. (5) Parent involvement and an on-going inservice program provide support for teachers.

Chapter 1 students have made proven advances measured by the mathematics batteries of the Metropolitan Achievement Test and the Iowa Test of Basic Skills. Mean Annual gains scores have ranged from 6.6 NCE's (Normal Curve Equivalency) to 13.0 NCE's.

Requirements The program may be implemented by a teacher, school, supplementary program, or an entire district. Adopters will be invited to visit a demonstration site, to name a local project coordinator/contact person, to provide release time for teachers and administrators to participate in 2 days of pre-service training, to ensure that the key elements including the teaching strategies and on-going inservice will be implemented, to evaluate student achievement, and to provide information about the adoption.

Costs Costs per adopting teacher include $41.50 for initial purchase of project publications and $285 for the non-recurring purchase of commercial teaching supplies, many of which may already be available in the adopting district. Funds to purchase norm-referenced tests and release time for teachers to attend inservice meetings should also be budgeted.

Services Awareness materials are available at no cost. Project publications are furnished to adopters at no cost. Visitors are welcome anytime by appointment at the project site. Project staff are available to attend awareness meetings. Training is available at project site or adopter site. (Costs to be negotiated.) Two days pre-service training is required. Two days implementation training scheduled two to four months later and a one day on-site follow-up visit at year end are strongly recommended. (Costs to be negotiated.)

Contact ***Kathleen Bullington, Project Director; Success Understanding Mathematics, Des Moines Public Schools; Rm 113, 2430 East University, Des Moines, IA 50317. (515) 265-4554.***

A SYSTEMS APPROACH TO INDIVIDUALIZED INSTRUCTION (SAII). A systematic instructional program in reading and mathematics.

Audience Approved by JDRP for students of all abilities, grades 1-6. It has also been used in other settings with grades 7 and 8.

Description SAII has developed crierion-referenced tests and learning modules for 135 reading skills (e.g. readiness, phonics, syllabification, and structural analysis) plus 200 criterion-referenced tests and learning modules for the computational skills of mathematics.

The project has also developed sets of teacher questions and student worksheets to accompany over 400 paperback books (e.g., Profiles in Courage, Henry Huggins, Little Red Hen). Each set of questions has been divided into lessons with each lesson having questions on five levels of comprehension: recall, interpretation, extrapolation, analysis, and evaluation. A set of two handbooks is available to help the teacher manage the component parts. The program can be adapted to the areas of diagnosis (criterion-referenced—math and reading) or basic skill development (learning modules in reading and math or comprehension components of reading).

Requirements A one- to three-day preadoption workshop is required. Consultant help is available at cost. SAII is implemented by the regular classroom teacher. The reading component requires two teachers, the math component, one. Master tapes—available for reproduction—are required for the reading component.

Costs Print-ready set of project materials is available at cost. Diagnostic tests: reading, $20; math, $24. Learning modules: reading, $70, math $120; comprehension questions, $165; games to accompany reading learning modules, $20.

Services Awareness materials are available. Visitors are welcome October through March. Training is conducted at the project site (adopting site must cover all trainer costs as well as covering own costs). Training is conducted out of state (exemplary project staff costs must be paid). Project staff can attend out-of-state conferences (expenses must be paid).

Contact *Charles L. Barker; Josephine County School District; 706 N.W. "A" St.; Grants Pass, OR 97526. (503) 476-1484.*

TEAM ASSISTED INDIVIDUALIZATION: MATHEMATICS

Audience Approved by the JDRP for grades 3-6.

Description Team Assisted Individualization (TAI) is a mathematics instruction program that combines cooperative learning and individualized instruction to solve motivational, managerial, and direct instructional deficits of previous individualized models. Students work in 4-5 member heterogeneous learning teams on individualized materials. Student checking and management frees the teacher to provide direct instruction to homogenous subgroups.

TAI is appropriate for any grade 3-6 classroom, but is especially appropriate in heterogeneous classes, such as ones containing mainstreamed or gifted students, classes in schools that do not use tracking, and so on.

In five field experiments involving random assignment of classes to TAI or control treatments, differences between TAI and control classes in grade equivalent gains on the Comprehensive Test of Basic Skills Mathematics Computations scale had a median ratio of more than two to one.

Requirements TAI does not require aides or special personnel of any kind. Training of teachers can be accomplished in a single day. Materials provided include non-consumable student books, test books, test answer books, teacher's manual (including concept lesson guides), homework, and facts tests. These materials replace traditional textbooks.

Costs Cost per student (N=30) is $12.00 with a recurring cost of about $2.00. Costs include training and non-consumable curriculum materials.

Services Awareness materials are available at no cost. Visitors are welcome at Project site by appointment. Project staff are available for awareness meetings (cost to be negotiated).

Contact *Barbara Bennett, Dissemination Coordinator, Center for Social Organization of Schools, Johns Hopkins University, 3505 N. Charles St., Baltimore, MD 21218. (301) 338-8249.*

TITLE I MATHEMATICS COMPUTER ASSISTED INSTRUCTION (CAI). A diagnostic/ prescriptive pull-out mathematics program with students receiving 10 minutes of daily concentrated drill on CAI.

Audience Approved by JDRP as a mathematics program for Title I students in grades 3-6.

Description Lafayette Parish had an effective diagnostic-prescriptive mathematics ESEA Title I pull-out program. In order to increase growth in mathematics, computer-assisted instruction was added to an already effective math program. The program is operated with close coordination of math-lab instruction and daily CAI drill. The CAI program adjusts instructions to the level of the students and provides immediate feedback to the student. The CAI program provides daily, weekly, and monthly descriptions of progress and areas of difficulty which the classroom teacher can use to correct specific conceptual misunderstandings. Classroom instruction is imperative in providing conceptual understanding and remediation. Daily CAI drill provides the practice which Title I students especially need. This particular program was operated with 40 minutes a day of mathematics laboratory time and 10 minutes of CAI. The particular program was devised by Computer Curriculum Corporation of Palo Alto, California.

The addition of CAI instruction produces significantly superior achievement when compared to standard mathematics laboratory instruction.

Requirements Math Lab-CAI can be adopted to supplement any regular program if 200 students are enrolled. Two to three days of inservice training are necessary. The project used Computer Curriculum Corporation Programs from Palo Alto, California. Correlation between your project and CAI must be established.

Costs In addition to your regular program, the added dimension of Computer Assisted Instruction costs approximately $200 per student if at least 200 students are enrolled. As the number of students in the program increases the cost decreases proportionately. Since installation costs occur only in the first year courses or purposes, the number of students can be reduced.

Services Awareness materials are available. Visitors are welcome at project site anytime by appointment. Project staff are available to attend out-of-state awareness meetings (costs to be negotiated). Training is conducted at project site (costs to be negotiated). Training is also available at adopter site (cost to be negotiated). Implementation and follow-up services are available to adopters (costs to be negotiated).

Contact *Mr. Marion J. Cortez, Supervisor; Federally Supported Programs; Lafayette Parish School Board; P.O. Drawer 2158; Lafayette, LA 70502. (318) 232-2620, EXT. 307.*

TRAINING FOR TURNABOUT VOLUNTEERS. A cross-age tutor-training program that prepares students in grades 7-9 to serve as reading or math tutors with students in grades 1-6 who are achieving below grade level. Approved by JDRP for tutors in grades 7-9 to tutor grades 1-6.

Description The Training for Turnabout Volunteers (TTV) project includes an extensive multimedia training program as well as an overall plan for a delivery system for cross-age tutors. As the training program is structured, students in grades 7-9 participate in a total of 26 training sessions which provide them with tutoring skills and strategies that can be applied within the tutee's basic skills curriculum. The training program is divided into three mini-courses: General Volunteering Skills (GVS), Tutoring in Reading, and Tutoring in Math. Each mini-course consists of a series of videotaped lessons for initial concept development, mini-paks (workbooks) with practice and extension activities for the tutor, and reinforcement activities that can be used by the tutors with their tutees. After preservice training in the GVS mini-course, students attend inservice training in the reading or math mini-course once a week and tutor four times. The TTV delivery system for cross-age tutors includes procedures and support materials for recruiting, screening, and placing cross-age tutors, training for the teachers who direct their activities, and strategies for monitoring and evaluating the program. The TTV project is transportable and easily adoptable since it requires no special staffing, facilities, or curriculum. TTV is used in conjunction with the adopting school or district's reading or math program and can be dovetailed into the school's program as an elective or extra-curricular activity.

Contact *Johanna Goetz, Coordinator; Training for Turnabout Volunteers; Dade County Public Schools; 1410 N.E. Second Ave.; Miami, FL 33132. (305) 371-2491.*

Developmental Funding: USOE ESEA Title IV-C and Local

JDRP No. 81-11 (6/2/81)

TRENTON FOLLOW THROUGH: Behavior Analysis Approach. A complete program in the basic skills of reading, arithmetic, handwriting, and spelling. Approved by JDRP for students of all abilities, grades K-3, and their parents, especially from low-income families.

Description The Follow Through program uses a wide array of systematic techniques involving the precise use of positive reinforcement to attain clearly stated instructional objectives. The program introduces reading, arithmetic, handwriting, and spelling at the kindergarten level and emphasizes the continued mastery of these skills through the third grade. Augmented classroom staff, including a certified lead teacher, a teacher's aide and a parent educator, allow for small-group instruction. Programmed instructional materials are used to enable each child to progress at his or her own maximum rate. A high level of motivation is maintained with a token and contract system used by all members of the teaching team. The curriculum materials used in the Trenton program have been selected for their capacity to accommodate a continuous-progress monitoring system. Parents are involved in the Trenton program as classroom instructional personnel and as participants in the Policy Advisory Council. Parents are invited to become an integral part of their children's education. As parent educators, their primary instructional duties focus on the teaching of handwriting and spelling (for a five-month term). Each parent educator participates in a five-day training sequence. School Nurse Practitioners provide a complete health history, physical assessment, hematology studies, and dental and vision screening, with follow-ups to each child enrolled in the program.

Contact *Dorothy N. Barber, Project Coordinator; Follow Through Program; Trenton Board of Education; Administration Building; 108 N. Clinton Ave.; Trenton, NJ 08609. (609) 989-2876.*

Developemental Funding: USOE Follow Through

JDRP No. 77-139 (8/26/77)

PROJECT UNDERSTAND: Arlington's Chapter I Program. A program to help strengthen reading, language, and math skills in children in grades K-8 scoring at or below the 40th percentile in reading and language arts and math for whom a supplementary learning experience best meets their academic needs.

Description A fundamental aim of this program is to help strengthen reading, language, and math skill development in K-8 target children. A weighted student checklist is used to identify those students who will participate in the program. Participating students come to a center for 150 minutes of instruction per week. Students are seen on a one-to-one basis if their needs require it, but the majority are seen in small groups (up to six) to encourage collaborative learning and interaction. Although the evaluation design for the project is tightly structured, the staff is humanistic in its approach, working from students' strengths rather than weaknesses. Centers appear informal and are run on a workshop basis enabling individual progress and small-group activity to flourish simultaneously. Staff are allowed great latitude in the decision-making process, not only when writing the project, but also when ordering instructional materials for the individualized needs of their students and schools. An orientation precedes each regular school year program. Regular staff meetings (where staff exchange instructional strategies) and inservice sessions are held two afternoons per month, when all students are released early. The program works to increase parental involvement, thus fostering collaboration and understanding between school and home life.

Contact *Jane E. Faley, Chapter I Director; Arlington Public Schools; 869 Massachusetts Ave.; Arlington, MA 02174. (617) 646-1000, Ext. 3143.*

Developmental Funding: USOE ESEA Title I

JDRP No. 74-121 (12/16/74)

WEST HILLS FOLLOW THROUGH PROJECT. Comprehensive services for low-income families and children with preschool experience. Approved by JDRP for grades K-3.

Description The goal of this program is to help children become confident, inventive, responsive, and productive people. To achieve this goal, it uses a multidimensional learning process for adults and children that features assessment of each child and an individualized program based on consultations among the entire teaching team. This team consists of the classroom teacher, teaching assistant, staff developer, psychologist, social worker, parents, nurse, speech therapist, community worker, and Bank Street College of Education advisor. Social studies, emphasizing the children's environment and the people in it, supplies the framework for the curriculum. Children ask questions and find their own answers through first-hand experiences on field trips and through interviews. Children practice language and math skills. Classroom life and discussions help to develop problem-solving skills. Instruction in reading follows the language experience approach and is supplemented by basal readers and trade books. Math concepts and logical thinking are taught by means of manipulative materials, charts, graphs, computation, and problem solving stories. Parents are involved in their children's school life. They volunteer in the classroom; they are members of the Policy Advisory Committee, which gives them an active voice in school program policy decisions; and they participate in activities that develop their own interests, skills, careers and help them understand how their children grow and learn.

Contact *Audrey P. Tiani, Director; West Hills Follow Through Project; c/o West Hills School; 311 Valley St.; New Haven, CT 06511. (203) 787-6456.*

Developmental Funding: USOE Follow Through

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Phillip E. Runkel
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Office of Grants Coordination and Procurement
Daniel W. Schultz, Acting Director

Patricia Slocum, Supervisor
Grants Administration

Walter Worthy, Education Specialist
Office of Grants Coordination and Procurement

For Further Information Contact:

Mrs. Patricia Slocum
Michigan State Facilitator
Michigan Department of Education
Box 30008
Lansing, Michigan 48909
(517) 373-1806

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