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EDRS PRICE   MF-$0.65 HC-$3.29
DESCRIPTORS   Algebra; Chemistry; *Computer Programs; *Computer
                Science Education; Physics; *Programing; Programing
                Languages; Secondary School Mathematics; Social
                Sciences
IDENTIFIERS   *Project Solo

ABSTRACT
                The current curriculum modules under development at
Project Solo are listed. The modules are grouped under the subject
matter that they are designed to teach--algebra II, biology,
calculus, chemistry, computer science, 12th grade math, physics,
social science. Special programs written for use on the
Hewlett-Packard Plotter are listed that may be used in conjunction
with modules in the subjects referenced. A sequential listing of
curriculum modules is also given. The relationship of the word size
of a given programing language to the accuracy of calculations
possible in that language is briefly explored. (JY)

PROJECT SOLO

AN EXPERIMENT IN REGIONAL COMPUTING
FOR SECONDARY SCHOOL SYSTEMS *

University of Pittsburgh • Department of Computer Science • Pittsburgh, Pennsylvania 15213

Newsletter No. 7   December 18, 1970

Curriculum Modules

This newsletter is being used to circulate our current listing of modules under development. If there are corrections or additions, please let Margot or Mary know.

Future newsletters will specialize by subject showing examples of modules along with the rationale used in selecting the key areas. Teachers in each area are invited to contribute information on their experiences with these units, or interesting extensions that they or their students have developed.

Double Precision in NEWBASIC

Two of the math modules we will be sending you explore the intriguing concept of high accuracy calculation of "transcendental" functions such as SINE, COSINE, LOG, etc. The accuracy possible with computers is related to the "word" size used in the machine, expressed in # of bits. NBS goes well beyond the capability of most other languages in this respect, as can be seen in the following comparison:
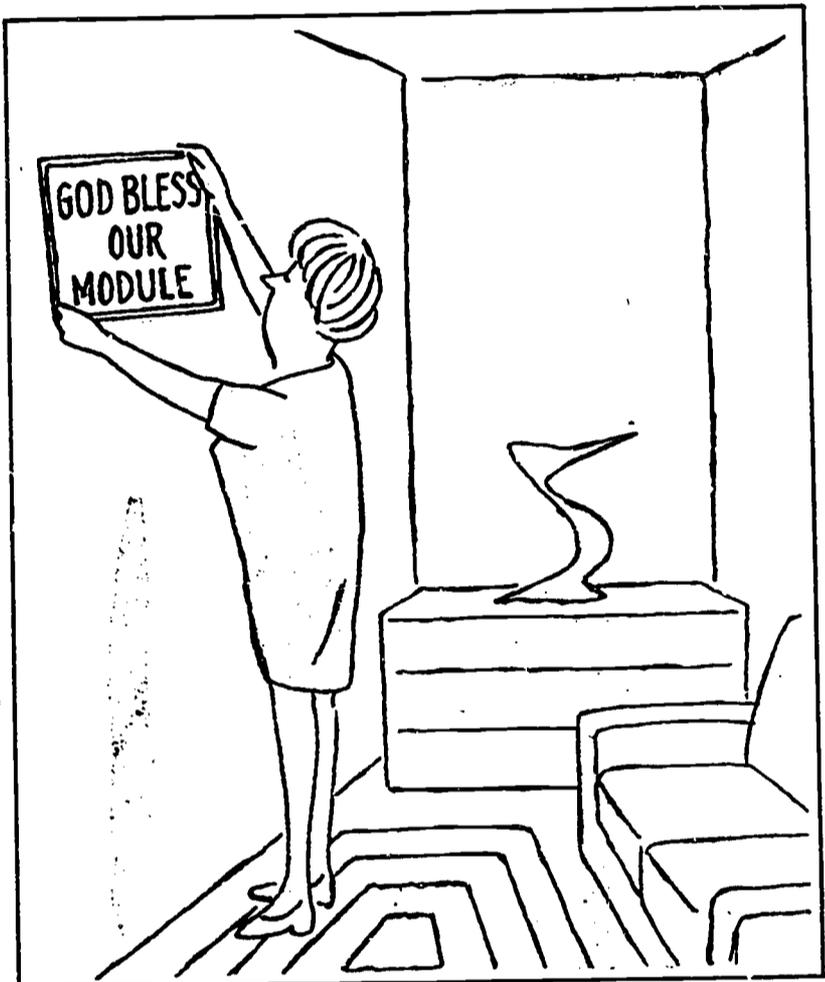
PIL (IBM 360/50, 32 BIT WORD)	Normal NBS (XDS 940, 48 BIT WORD)	DOUBLE PRECISION NBS (XDS 940, 96 BIT WORD)
>1.1 SET X=13 >1.2 TYPE X/7. >DØ PART 1 X/7 = 1.857143	>10 LET X=13 >20 PR. X/7. >RUN 1.857142857	>10 DØUBLE REAL X >20 LET X=13 PR. X/7. >RUN 1.857142857142857142

Many ideas in mathematics owe their origin to men who found fascination in numbers. Your students might use double precision to re-discover this world--say the recurring decimal property of rationals seen above.

CHRISTMAS GREETINGS: >RUN 166DM /J BELLS/ (McMillin's kids strike again!)

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PROJECT SOLO

AN EXPERIMENT IN REGIONAL CO. PUTING
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University of Pittsburgh
Computer Science Department
Pittsburgh, Pennsylvania 15213
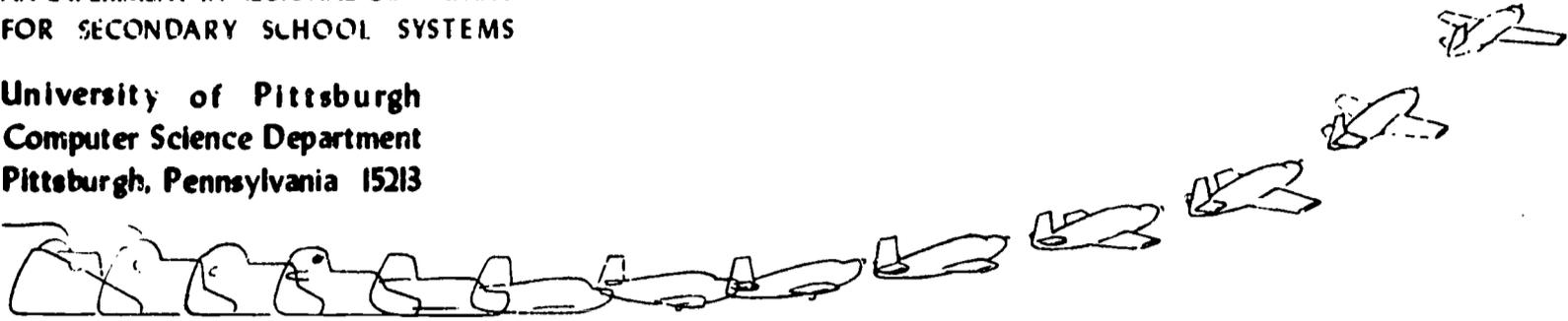
PROJECT SOLO CURRICULUM LIST

Each subject has two lists associated with it. The list
on the left of the page indicates topics that have been se-
lected in consultation with teachers and subject experts as
being representative of the key areas within that subject.
The list in the right column of each page indicates Project
Solo modules which are in development, or undergoing field
evaluation. They are associated with the given key areas as
shown, sometimes serving more than one subject.

File numbers from 0001 to 1999 are assigned sequentially
to curriculum modules on a chronological basis. The numbers
2001 to 2999 are used for supplementary texts, manuals, work
books. Numbers from 9001 to 9999 are used for programs that
require use of a plotter or other graphical display unit. File
numbers from 3001 to 8999 are being reserved to cross refer-
ence materials from other projects concerned with interactive
computing.

(Revised 3/1/71)

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Topics Extracted from Representative Syllabi	Modules in Progress	File Number
ALGEBRA II:		
Number Patterns, Series and Sequences	Limits of Sequences	0031
	Sum of a Series	0011
Special Products and Factoring		
Fundamental Operations		
Exponents and Roots (Synthetic Division)		
Complex Numbers	Drill on Complex Arithmetic	0074
Systems of Quadratic and Cubic Equations	Graphing by Computer	0044
Conic Sections	Conic Sections	0080
Sets and Set Theory	Introduction to Set Theory	0066
	Intermediate Set Theory	0103
Advanced Set Theory	Information Retrieval Modules	
Linear Functions		
Polynomial Functions	Evaluation of Polynomial Functions	0034
	Finding Roots of Polynomial Functions	0033
	Finding Minima and Maxima of Polynomials	0032
	Trig. Fctns. & Tchebychev Approx.	0060
Plotting Algebraic Functions	Graphing by Computer	0044
	Hewlett-Packard Plotter Modules	9001...
Introduction to Composite Functions		
Step Functions	Fourier Series & Trig. Functions	0065
Inverse Functions	Inverse Circular Functions	0061
Matrices	Communication Matrices	0045
	Matrix Operations	0107
Systems of Linear Equations	Systems of Linear Equations	0081
	Network Flow	0110
Linear Programming		
Quadratic Functions	The Quadratic Equation	0082

Topics Extracted from Representative Syllabi	Modules in Progress	File Number
BIOLOGY:		
Tools of the Biologist	Tools of the Biologist	0085
The Scientific Method	The Scientific Method	0087
History of Biology	History of Biology	0088
Evolution	Quiz on Evolution	0042
Classification of Taxonomy	Maple Key	0005
Ecological Systems	Cat-Mouse Simulation of Predator-Prey	0089
Biochemistry	The Ecology-Monopoly Game	0090
Heredity	Mendel I,II,III	0040
	Hardy-Weinberg	0041
Cytology	Cell Multiplication	0092
Development		
Reproduction		
Organ Systems		
Human Anatomy and Physiology		
Behavior		
Photosynthetic Systems		

Topics Extracted from Representative Syllabi	Modules in Progress	File Number
CALCULUS:		
Definite Integral	Approximating Definite Integrals	0017
Slopes of Tangent Lines	Slopes of Tangent Lines /SINTAN/	0018 9002
Definition of a Limit	Limits of Functions Definition of a Limit	0019 0037
Continuity	Continuity	0070
Curve Sketching	Graphing Functions and Their First and Second Derivatives	0094
Functions	Limits of Functions	0019
Approximating Areas	Approximating Areas Using Limits of Sequences to Define Areas Monte Carlo Integration	0049 0064 0111
Derivatives	Detecting Derivatives Derivative Function of sin(x) Derivative Functions of Various Functions Approximating the Value of a Derivative	0046 0104 0105 0106
Limits of Sequences	Limits of Sequences	0036
Infinite Series	Limits of Sums of Sequences	0121
Fundamental Theorem of Integral Calculus	Fundamental Theorem of Integral Calculus	0122
Differential Equations	Solving Differential Equations	0123

Topics Extracted from Representative Syllabi	Modules in Progress	File Number
CHEMISTRY:		
Metric System	Metric System	0047
Gas Laws (Boyle's Law, Charles' Law, Comb. Law)	Gas Laws	0068
Stoichiometry: Part A (Weight-weight,volume- weight, volume-volume)	Weight-Weight, Volume-Weight, Volume-Volume (Willie Wizbang)	0050
Periodic Table	Mystery of the Periodic Table	0008
Stoichiometry: Part B (Concentration)	Concentration (Superchemist)	0051
Kinetics		
pH	pH (Revision)	0084
Equilibrium	Equilibrium	0052
Summary: Prep. for Final	Chem. Quiz (A Drill and Practice for Final Exam)	0048

Topics Extracted from Representative Syllabi	Modules in Progress	File Number
COMPUTER SCIENCE:		

Algorithmic Thinking
    Precision or specification
    Certainty of termination
    Primitive logical steps
    Proof of correctness
	A Primer for the NEWBASIC/ CATALYST System	2001

Data Representation Symbols	Converting Bases of Numbers	0069
Numbers (exact & approx.) Synthetic structures	Distance and Error-Correcting Codes	0038
Coding	Elementary Geometric Figures	0097
Redundancy Space vs. Time	Graphing by Computer	0044
	List Structures	0093
	Tree Structures	0095
Control Varieties Transfer	Communication Matrices	0045

Loops
    Iteration
    Recursion
    Co-routines
    Non-determinism
	Iteration-Square Roots	0096

Synthetic Languages Grammars	Intro. Set Theory (Parsing Algorithms)	0066
Recognizers Analyzers	Mini-Comp (Assembler Lang.)	0100
Translators	Assemblers (XAP and TAP)	0101
Idealized Machines	PDP Simulators	0115

Finite State
    Stack
    Turing
    Relation to Languages		

Machine Intelligence	Green Valley (Linguistics)	0043
Games and Puzzles Pattern Recognition	New Writing Team (String Manipulation)	0004
Natural Languages	Learning Basic at the Terminal	0091
	Reverse English (String manipulation)	0001
	Story Writing (String Manipulation)	0039
	Tic-Tac-Toe on Plotter	9017
	Super-Tutorial: Laws of Sines, Cosines	0112

Topics Extracted from Representative Syllabi	Modules in Progress	File Number
COMPUTER SCIENCE (CONTINUED):		
Simulation	Billiard Ball Simulation	9007
Traffic	Analogue Simulation	0102
Ballistics	Negotiation Simulation	0108
Flows	Simulation (Quite a few of the modules from other subjects will serve as starting points and/or examples under this heading)	0099
Numerical Problems	Trig. Functions and	
Linear Equations	Tchebychev Approximations	0060
Confidence of results	Elementary Geometric Figures	0097
Continued fractions	Systems of Linear Equations	0081
Optimization problems		
File Processing	Grade Averaging Program and	
Sorting	Other Classroom Aids	0009
Buffering	Electronic Data Processing	0098
Memory media	Mini-Market	0109
Economics of computing	File-Oriented CAI	0114
Supplementary Material		
NEWBASIC/CATALYST	A Primer for the NEWBASIC/ CATALYST System	2001
	NEWBASIC/CATALYST Reference Manual	2002
	NEWBASIC/CATALYST Cue Card	2003
Other Processors	SNOBOL Manual	2004
	XTRAN Manual	2005
	QED Manual	2006
	CRS Primer	2007
	CRS Manual	2008
Miscellaneous Applications		
Music: Rhythm	Jingle Bells	0116
Composition	Melody Production	0117
Harmony	Automated Harmony	0118
Tone Quality	Synthesizer Control	0119
Marching Band	Marching Formation Generator	0120
English: Vocab. Drill	File-Oriented CAI	0114
Linguistics	Green Valley	0043
Composition	New Writing Team	0004
	Story Writing	0039
Art	See various H-P plotter routines	9001...
	Non-computer, see module covers, some student-produced.	

Topics Extracted from Representative Syllabi	Modules in Progress	File Number
12TH GRADE MATH:		
Review of Algebra II: Distance Formulae	Hyperspace	0012
Polynomial Functions of Degree N	Real Roots of a Quadratic Equation	0010
	Bisection Method for Finding Roots	0071
	Newton's Method for Finding Roots	0072
Trigonometric Functions	Conversion From Radian Measure to Degree Measure	0023
	Solving Oblique Triangles, Direct Mode	0022
	Circular Functions	0062
	Inverse Circular Functions	0061
	Review of Trigonometric Identities	0024
	Pythagorean Theorem	0059
	Area of a Triangle	0058
	Phantom Vortac	0021
	Trigonometric Functions and Tchebychev Approximations	0060
	Fourier Series and the Trigonometric Functions	0065
	Circular Functions - Tutorial	0063
	Super-Tutorial: Laws of Sines; Cosines	0112
Complex Numbers	Drill on Complex Arithmetic	0074
Polar Coordinate Geometry	Hewlett-Packard Plotter Modules (See Page 9)	9001...
Greatest Integer	The 23 Skidoo Game	0075
Conic Sections	Conic Sections	0080
Indication of Conic, Given Quadratic Expression in Two Variables	Elliptical Billiard Table	0113
Translation of Axes		
Rotation of Axes		

Topics Extracted from Representative Syllabi	Modules in Progress	File Number
12TH GRADE MATH (CONTINUED):		
Vectors	Introduction to Vectors	0025
	Billiard Simulation	9007
	Bouncing Ball	9001
Permutations	Factorial Program	0076
	The Hot-Dog Problem	0077
Combinations	Enumeration	0057
Probability	Probability	0014
	Monte Carlo Integration	0111
Sequences and Series	Sum of a Series	0011
	Limits of Sequences	0031
Midpoint of a Line Segment	Midpoint of a Line Segment	0003
Sets	Introduction to Set Theory	0066
	Intermediate Set Theory	0103
Enumeration	Enumeration	0057
Logarithmic Functions		
Exponential Functions	Population Growth	0078
Absolute Value		
Advanced Set Theory	Information Retrieval Modules	
Matrices	Communication Matrices	0045
	Matrix Operations	0107
Systems of Linear Equations	Systems of Linear Equations	0081
	Network Flow	0110

Topics Extracted from Representative Syllabi	Modules in Progress	File Number
PHYSICS:		
Metric System	MKS System (I,II,III)	0083
Vectors	Vectors	0053
	Billiard Simulation	9007
Newton's Laws of Motion	Newton's Laws of Motion	0020
Circular Motion	Circular Motion (I,II,III,IV)	0007
Kepler's Laws	Kepler's Laws	0055
	Orbital Mechanics (Dartmouth)	8001
Optics	Billiard Simulation	9007
Wave Motion		
Mechanical Energy		
Conservation of Momentum	Conservation of Momentum	0054
Conservation of Mass-Energy		
Static Electricity		
Kirchoff's Laws	Systems of Linear Equations	0081
Kinetic Theory		
Electricity and Magnetism	Electric Fields (on Plotter)	9013
Particle Physics	Billiard Simulation	9007
Electronics		

Topics Extracted from Representative Syllabi	Modules in Progress	File Number
SOCIAL SCIENCE:		

I. <u>World Cultures</u>:

World War I (Cause and effect)		
World War II		
Sub-Saharan Africa-- Economic, Social, Educational Development	Discover the Country: Africa	0006
China Since 1900-- Political, Economic, Social, Educational Development		
Depression (Cause and effect)		
Enlightenment and French Revolution		
Growth of Communism and Socialism(Especially in Russia)		
Growth of Democracy		
Growth of International Government (League of Nations and United Nations)		
Growth of Nationalism (Especially in Germany and Italy)		
India Since 1900-- Political, Economic, Educational Development		
Middle Ages		
Renaissance		
Reformation		
The Advent of Fascism in Italy and Germany	Preface to Hitler	0026
Statistics and Geography	Statistics and Geography	0030

Topics Extracted from Representative Syllabi	Modules in Progress	File Number

SOCIAL SCIENCE:

II. American Democracy:

  Private Business

  Consumer Buying

  Economic Growth

  Labor Unions

  Laisses-Faire, U.S.

Legislative Powers and Decision Making Process	Congressman Game	0027
Mass Media and Propaganda	Communication Matrices	0045
Presidents and Qualifications		
The Role of Political Parties		
The Supreme Court		
Stock Market	Mini-Market	0109
	Stock Market Simulation	0028
Population Pressure and Environmental Deterioration	Survival Game	0029
	Ecology-Monopoly Game	0090
Conflict in a Free Society	Confrontation	0015
	Negotiation Simulation	0108

HEWLETT-PACKARD PLOTTER PROGRAMS

This page lists special programs written for use on the Hewlett-
Packard Plotter. These are not modules but supplementary routines
that can be used in conjunction with modules in the subjects
referenced.

Plotter Program Name	File Number	Subject(s) Cross-Reference
Bouncing Ball (Inelastic Collision)	9001	Physics, Vector Mathematics
/SINTAN/	9002	Calculus
/SINPETAL/	9003	Analytic Geometry, Polar Coordinates
/COSPETAL/	9004	" "
/CARDIOID/	9005	" "
/VALENTINE/	9006	" "
Billiard Simulation (Elastic Collision in a ported box)	9007	Physics, Vector Mathematics
Pantograph	9008	Geometry
Zoom Lens	9009	"
Diagonals of a Polygon	9010	"
Sin Waves (Animated Movie Generator)	9011	"
Startrek	9012	"
Electric Fields	9013	Physics
Three-D Illusions	9014	Art
Isometric Drawing	9015	Engineering Drawing
Two-Aircraft Navigation Rally	9016	Trigonometry, Physics
TIC-TAC-TOE	9017	Computer Science

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0001 REVERSE ENGLISH (STRING MANIPULATION)         COMP SCI
0002 OBSOLETE
0003 MIDPOINT OF A LINE SEGMENT                     MATH 12
0004 NEW WRITING TEAM (STRING MANIPULATION)         COMP SCI
0004 NEW WRITING TEAM (STRING MANIPULATION)         COMP SCI(MISC)
0005 MAPLE KEY                                      BIO
0006 DISCOVER THE COUNTRY# AFRICA                   SOC SCI
0007 CIRCULAR MOTION                                PHYSICS
0008 MYSTERY OF THE PERIODIC TABLE                  CHEM
0009 GRADE AVERAGING PROGRAM AND OTHER CLASSROO     COMP SCI
0010 REAL ROOTS OF A QUADRATIC EQUATION             MATH 12
0011 SUM OF A SERIES                                MATH 12
0011 SUM OF A SERIES                                ALG II
0012 HYPERSPACE                                     MATH 12
0013 OBSOLETE
0014 PROBABILITY                                    MATH 12
0015 CONFRONTATION                                  SOC SCI
0016 OBSOLETE
0017 DEFINITE INTEGRAL                              CALC
0018 SLOPES OF TANGENT LINES                        CALC
0019 LIMITS OF FUNCTIONS                            CALC(DEF)
0019 LIMITS OF FUNCTIONS                            CALC(FUNCTNS)
0020 NEWTON,S LAWS OF MOTION                        PHYSICS
0021 PHANTOM VORTAC                                 MATH 12
0022 SOLVING OBLIQUE TRIANGLES, DIRECT MODE         MATH 12
0023 CONVERSION FROM RADIAN MEASURE TO DEGREE M     MATH 12
0024 REVIEW OF TRIGONOMETRIC IDENTITIES             MATH 12
0025 INTRODUCTION TO VECTORS                        MATH 12
0026 PREFACE TO HITLER                              SOC SCI
0027 CONGRESSMAN GAME                               SOC SCI
0028 STOCK MARKET SIMULATION                        SOC SCI
0029 SURVIVAL GAME                                  SOC SCI
0030 STATISTICS AND GEOGRAPHY II                    SOC SCI
0031 LIMITS OF SEQUENCES                            ALG II
0031 LIMITS OF SEQUENCES                            MATH 12
0032 FINDING MINIMA & MAXIMA OF POLYNOMIALS         ALG II
0033 FINDING ROOTS OF POLYNOMIAL FUNCTIONS          ALG II
0034 EVALUATION OF POLYNOMIAL FUNCTIONS             ALG II
0035 OBSOLETE
0036 LIMITS OF SEQUENCES                            CALC
0037 DEFINITION OF A LIMIT                          CALC
0038 DISTANCE AND ERROR-CORRECTING CODES            COMP SCI
0039 STORY WRITING (STRING MANIPULATION)            COMP SCI
0039 STORY WRITING (STRING MANIPULATION)            COMP SCI(MISC)
0040 MENDEL I,II,III                                BIO
0041 HARDY-WEINBERG                                 BIO
0042 QUIZ ON EVOLUTION                              BIO
0043 GREEN VALLEY (LINGUISTICS)                     COMP SCI
0043 GREEN VALLEY                                   COMP SCI(MISC)
0044 GRAPHING BY COMPUTER                           COMP SCI
0044 GRAPHING BY COMPUTER                           ALG II (QUAD & CUBIC)
0044 GRAPHING BY COMPUTER                           ALG II(-PLOTTING FUNCTIONS)
0045 COMMUNICATION MATRICES                         SOC SCI
0045 COMMUNICATION MATRICES                         ALG II
0045 COMMUNICATION MATRICES                         MATH 12
0046 DETECTING DERIVATIVES                          CALC
0047 METRIC SYSTEM                                  CHEM
0048 CHEM. QUIZ                                     CHEM
0049 APPROXIMATING AREAS                            CALC
0050 WT.-WT., VOL.-WT., VOL.-VOL.(WILLIE WIZBAN     CHEM
0051 CONCENTRATION (SUPERCHEMIST)                   CHEM
0052 EQUILIBRIUM                                    CHEM
0053 VECTORS                                        PHYSICS
0054 CONSERVATION OF MOMENTUM                       PHYSICS
0055 KEPLER'S LAWS                                  PHYSICS
0056 OBSOLETE
0057 ENUMERATION                                    MATH 12(ENUM)
0057 ENUMERATION                                    MATH 12(COMB)
0058 AREA OF A TRIANGLE                             MATH 12
0059 PYTHAGOREAN THEOREM                            MATH 12
0060 TRIGONOMETRIC FUNCTIONS AND TCHEBYCHEV APP     COMP SCI
0060 TRIGONOMETRIC FUNCTIONS AND TCHEBYCHEV APP     ALG II
0060 TRIGONOMETRIC FUNCTIONS AND TCHEBYCHEV APP     MATH 12
0061 INVERSE CIRCULAR FUNCTIONS                     MATH 12
0061 INVERSE CIRCULAR FUNCTIONS                     ALG II
0062 CIRCULAR FUNCTIONS                             MATH 12
0063 CIRCULAR FUNCTIONS TUTORIAL                    MATH 12
0064 USING LIMITS OF SEQUENCES TO DEFINE AREAS      CALC
0065 FOURIER SERIES AND THE TRIGONOMETRIC FUNCT     ALG II
0065 FOURIER SERIES AND THE TRIGONOMETRIC FUNCT     MATH 12
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0066	INTRODUCTION TO SET THEORY	ALG II
0066	INTRODUCTION TO SET THEORY	COMP SCI
0066	INTRODUCTION TO SET THEORY	MATH 12
0067	OBSOLETE	
0068	GAS LAWS	CHEM
0069	CONVERTING BASES OF NUMBERS	COMP SCI
0070	CONTINUITY	CALC
0071	BISECTION METHOD FOR FINDING ROOTS	MATH 12
0072	NEWTON'S METHOD FOR FINDING ROOTS	MATH 12
0073	OBSOLETE	
0074	DRILL ON COMPLEX ARITHMETIC	ALG II
0074	DRILL ON COMPLEX ARITHMETIC	MATH 12
0075	TWENTY-THREE SKIDOO GAME	MATH 12
0076	FACTORIAL PROGRAM	MATH 12
0077	HOT-DOG PROBLEM	MATH 12
0078	POPULATION GROWTH	MATH 12
0079	OBSOLETE	
0080	CONIC SECTIONS	ALG II
0080	CONIC SECTIONS	MATH 12
0081	SYSTEMS OF LINEAR EQUATIONS	ALG II
0081	SYSTEMS OF LINEAR EQUATIONS	MATH 12
0081	SYSTEMS OF LINEAR EQUATIONS	COMP SCI
0081	SYSTEMS OF LINEAR EQUATIONS	PHYSICS
0082	QUADRATIC EQUATION	ALG II
0083	MKS SYSTEM	PHYSICS
0084	PH	CHEM
0085	TOOLS OF THE BIOLOGIST	BIO
0086	OBSOLETE	
0087	THE SCIENTIFIC METHOD	BIO
0088	HISTORY OF BIOLOGY	BIO
0089	CAT-MOUSE SIMULATION OF PREDATOR-PREY	BIO
0090	ECOLOGY-MONOPOLY GAME	BIO
0090	THE ECOLOGY-MONOPOLY GAME	SOC SCI
0091	LEARNING BASIC AT THE TERMINAL	COMP SCI
0092	CELL MULTIPLICATION	BIO
0093	LIST STRUCTURES	COMP SCI
0094	GRAPHING FUNCTNS & THEIR 1ST & 2ND DERIVAT	CALC
0095	TREE STRUCTURES	COMP SCI
0096	ITERATION - SQUARE ROOTS	COMP SCI
0097	ELEMENTARY GEOMETRIC FIGURES	COMP SCI(SYN STRUC)
0097	ELEMENTARY GEOMETRIC FIGURES	COMP SCI(CONFID)
0098	ELECTRONIC DATA PROCESSING	COMP SCI
0099	SIMULATION	COMP SCI
0100	MINI-COMP (ASSEMBLER LANGUAGE)	COMP SCI
0101	ASSEMBLERS (XAP AND TAP)	COMP SCI
0102	ANALOGUE SIMULATION	COMP SCI
0103	INTERMED. SET THEORY	ALG II
0103	INTERMED. SET THEORY	MATH 12
0104	DERIVATIVE FUNCTION OF SIN(X)	CALC
0105	DERIVATIVE FUNCTNS OF VARIOUS FUNCTIONS	CALC
0106	APPROXIMATING THE VALUE OF A DERIVATIVE	CALC
0107	MATRIX OPERATIONS	ALG II
0107	MATRIX OPERATIONS	MATH 12
0108	NEGOTIATION SIMULATION	COMP SCI
0108	NEGOTIATION SIMULATION	SOC SCI
0109	MINI-MARKET	SOC SCI
0109	MINI-MARKET	COMP SCI
0110	NETWORK FLOW	MATH 12
0110	NETWORK FLOW	ALG II
0111	MONTE CARLO INTEGRATION	CALC
0111	MONTE CARLO INTEGRATION	MATH 12
0112	SUPER-TUTORIAL# LAWS OF SINES+ COSINES	MATH 12
0112	SUPER-TUTORIAL# LAWS OF SINES, COSINES	COMP SCI
0113	ELLIPTICAL BILLIARD TABLE	MATH 12
0114	FILE-ORIENTED CAI	COMP SCI(MISC)
0114	FILE - ORIENTED CAI	COMP SCI
0115	PDP SIMULATORS	COMP SCI
0116	JINGLE BELLS	COMP SCI(MISC)
0117	MELODY PRODUCTION	COMP SCI(MISC)
0118	AUTOMATED HARMONY	COMP SCI(MISC)
0119	SYNTHESIZER CONTROL	COMP SCI(MISC)
0120	MARCHING FORMATION GENERATOR	COMP SCI(MISC)
0121	LIMITS OF SUMS OF SEQUENCES	CALC
0122	FUNDAMENTAL THEOREM OF INTEGRAL CALCULUS	CALC
0123	SOLVING DIFFERENTIAL EQUATIONS	CALC
2001	A PRIMER FOR THE NEWBASIC/CATALYST SYSTEM	COMP SCI(ALGO.)
2001	A PRIMER FOR THE NEWBASIC/CATALYST SYSTEM	COMP SCI(SUPPLMT)
2003	NEWBASIC/CATALYST CUE CARD	COMP SCI
2004	SNOBOL MANUAL	COMP SCI
2005	XTRAN MANUAL	COMP SCI

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2006  QED MANUAL                                    COMP SCI
2007  CRS PRIMER                                    COMP SCI
2008  CRS MANUAL                                    COMP SCI
8001  ORBITAL MECHANICS                             PHYSICS
9001  BOUNCING BALL                                 MATH 12
9002  /SINTAN/                                      CALC
9003  /SINPETAL/                                    MATH 12
9004  /COSPETAL/                                    MATH 12
9005  /CARDIOID/                                    MATH 12
9006  /VALENTINE/                                   MATH 12
9007  BILLIARD SIMULATION                           PHYSICS(VECTORS)
9007  BILLIARD SIMULATION                           PHYSICS(OPTICS)
9007  BILLIARD SIMULATION                           PHYSICS(PARTICLES)
9007  BILLIARD SIMULATION                           MATH 12
9007  BILLIARD SIMULATION                           COMP SCI
9008  PANTOGRAPH                                    GEOMETRY
9009  ZOOM LENS                                     GEOMETRY
9010  DIAGONALS OF POLYGON                          GEOMETRY
9011  SIN WAVES (ANIMATED MOVIE GENERATOR)          MATH 12
9012  STAR TRECK                                    COMP SCI(MISC)
9013  ELECTRIC FIELDS                               PHYSICS
9014  THREE-D ILLUSIONS                             COMP SCI(MISC)
9015  ISOMETRIC DRAWINGS                            COMP SCI(MISC)
9016  TWO-AIRCRAFT NAV. RALLY                       MATH 12
9017  TIC-TAC-TOE ON PLOTTER                        COMP SCI
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