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ABSTRACT

Designed for resource teachers of gifted children, the resource guide explains the inquiry educational method and presents seven lesson plan designs. The inquiry learning process is said to encourage use of any communication style that relates to the individual and develops the following learning and thought processes: identification of study problems; collection and organization of problem information; statement of hypothesis and possible conclusions; research investigations to test hypothesis; communication of hypothesis, testing activities, and final product to others; and evaluation of total procedure. Each study unit is divided into five steps: concept to be investigated, procedure for development, communication or presentation of product done by students, evaluation, and materials and equipment. The units cover inquiry readiness activities, social studies, language arts, science, mathematics, fine arts, and related disciplines. (CB)

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HANDBOOK FOR RESOURCE TEACHERS
OF GIFTED CHILDREN

By

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Division for Exceptional Children
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FOREWORD

Education in North Carolina is an ever growing and changing institution geared to provide programs designed to meet the needs of our diverse population. Our State Government leaders and local school administrators realize the future belongs to the young. Each attempts to provide programs suited to the needs of every child. Students who are bright and talented are found in all parts of our State and in every ethnic and economic group. The resource program is yet another way to meet the needs of this segment of our pupil population. The resource teacher enriches the curriculum of many children who otherwise might not obtain services such as she offers. The HANDBOOK provides enrichment materials and ideas for the resource teacher.



A. Craig Phillips
State Superintendent of Public Instruction

Through the years the Staff in Program Services has helped to originate, modify, improve and change various methods and techniques of instructing our youth in North Carolina. This has been done in order to develop an educational program suited to the needs of the individual child. These efforts for change could not have been accomplished without the enthusiastic cooperation of the administrators and teachers in the local educational units. Recent interest in the gifted and talented area has resulted in the Itinerant Resource Teacher Program. This publication and the manual issued last year explain how this concept of individualizing instruction contributes to the education of our most talented students.



Jerome H. Melton
Assistant Superintendent for Program Services

PREFACE

A program for academically talented students in North Carolina has been in existence for a decade. During this time it has expanded in area, scope, pupil population and concept. Yet today only about one-third of our most able students receive differential educational experiences designed especially around their needs.

The Itinerant Resource Teacher Program, one of the newest and most flexible in the State, is an effective means of providing services for more students in our schools. A manual developed in 1970 described effective administrative procedures for developing such a program for gifted and talented students. That publication and the resource concept are in keeping with the growing reluctance to segregate the bright child from his peer group for much of the day. The HANDBOOK FOR RESOURCE TEACHERS OF GIFTED CHILDREN is the second part of the over-all plan from the State Department in providing a complete resource program. It is intended to serve as an instrument, consisting of a detailed description of the Inquiry Process and many unit ideas, to assist the teacher in her efforts to provide a better educational program for students with giftedness and talents who need more enrichment than the regular classroom is able to afford.

J. Edd McBride
Coordinator
Section for the Gifted and
Talented

INTRODUCTION

During the summer of 1970, THE ITINERANT RESOURCE TEACHER A Manual for Programs with Gifted Children was written, published by the North Carolina State Department of Public Instruction and disseminated to each administrative unit. The manual explained the resource teacher concept: its philosophy and objectives; items to consider in establishing such a program; teacher and student selection; orientation of faculty in schools using this utilization of staff; scheduling; teacher and administrative responsibilities; and evaluation.

The manual was well received and stimulated a great deal of interest across the State. Some eight administrative units used the idea in the 1970-1971 school year.

In late winter of 1971, the State Board of Education made two changes in the Rules and Regulations for the Gifted and Talented Program. First, the Special Allotments which had been used exclusively for the past ten years in classes for bright students became non-categorical in nature and were combined with the other allotments in the Division for Exceptional Children.¹ Second, the State criteria for eligible children were made more flexible; in addition to the four already established² another was added which read, "And/or possess other characteristics of giftedness and talents to the extent that they need and can profit from programs for the gifted and talented." These two changes combined with a growing awareness of a need to provide a program for more of our bright youngsters plus a reluctance to segregate highly intelligent children from their peers has made the resource teacher program more attractive to the superintendents trying to meet the needs of all their children.

An evaluation of the 1970-71 program focused on the realization that a companion publication including teaching techniques, learning styles and unit ideas was needed. The HANDBOOK FOR RESOURCE TEACHERS OF GIFTED CHILDREN written in the summer of 1971 has been the result.

The Special Abilities and Talents Staff in Charlotte-Mecklenburg gave of their time, energy and experience to prepare this publication. The guiding hand was that of Mrs. Betty J. Stovall, staff director in that administrative unit, working with her seven outstanding itinerant resource teachers whose ideas have made this book possible: Mrs. Mary Ellen Bundy, Mrs. Addie Mae Crayton, Mrs. Mildred T. Gamble, Mrs. Olive Holland, Mrs. June McKinney, Mrs. Mary Tripp and Mrs. Mildred Worrell.

¹The Trainable Mentally Retarded Program is not included in these allotments since it is a reimbursement procedure. Allotments distributed through the Division for Exceptional Children are used exclusively for programs in the following categories: Crippled, Educable Mentally Retarded, Emotionally Disturbed, Gifted and Talented, Hearing Impaired, Homebound, Hospitalized, Learning Disabled, Speech Impaired and Visually Impaired.

²The State criteria are:

1. a score of 120 or higher on a group IQ test;
2. a group academic achievement test score showing grade level or above;
3. a majority of grades of A and B;
4. teacher and/or principal recommendation.

Interest and support on the part of Dr. Jerome Melton, Assistant State Superintendent for Program Services, George A Kahdy, Deputy State Assistant Superintendent, Dr. Paul A. Peeples, Director of the Division for Exceptional Children and J. Edd McBride, Coordinator of the Section for Education of the Gifted and Talented, enabled the project to be funded. Proofreading for the entire publication was finalized by Miss Mary Henri Fisher. In addition, she made many constructive comments. The typing was done by Mrs. Jeanne Glover and Mrs. Anne Mills.

By early September each superintendent in North Carolina received the publication. THE ITINERANT RESOURCE TEACHER and the HANDBOOK together will give a complete picture of this innovative and progressive concept and will be tools in the hands of teachers to aid them in the education of our brightest minds.

Cornelia Tongue

Chapter I

THE ITINERANT RESOURCE TEACHER AT WORK

The task of the itinerant resource teacher is both challenging and demanding. Moving from one school to another,¹ planning for diverse needs in varied disciplines requires a sizeable knowledge of content area, a mastery of flexible teaching techniques, and a keen awareness of student needs and potentials. Constant contact with other teachers necessitates sensitivity to classroom teacher needs and prerogatives and the ability to diagnose problems and prescribe productive materials and activities.

To do this wisely, the resource teacher needs more than a passing acquaintance with teaching, learning and communication styles plus a sound background of educational and personal psychology. In addition, a stable process and structure ensuring educational continuity and growth must be clearly present or the entire program will disintegrate into a series of extra curricular activities. With these criteria in mind, this HANDBOOK is designed to help itinerant resource teachers establish a stabilizing structure for their work and to add a number of creative and effective ideas to the teaching-learning repertoire.

Learning is the major objective of a resource program for the gifted and talented student or for any student. But how learning takes place, where and when it occurs, and the pace it assumes are all personal matters. Indeed, these functions are so uniquely personal that even within the individual they display varying patterns at different times.

Learning is based on two basic functions--the need to know (motivation) and memory (retention of knowledge) with its complexities of recall and association. Acting as a facilitator, the resource teacher uses her teaching skills to combine the unique learning-communication styles of students with selected content and processes. This becomes the basis of the resource program in each school.

If the resource program is essentially an outgrowth of the work within the regular classroom, the resource teacher and classroom teacher act as a team to maintain the continuity of the learning process and activity. The close planning and consultation between the two educators results in a valuable in-service experience. (It is of great importance that this publication be used as a companion to THE ITINERANT RESOURCE TEACHER in order to fully understand this educational concept.)

The resource program can be a project designed and carried out by the resource teacher as an extended in-depth learning experience stemming from

¹Some resource teachers in this program are itinerant within one school in that they may work with children from many grade levels. Many, on the other hand, are itinerant in that they serve several different schools and may work in addition on various grade levels.

individual or small group needs and operating outside of the classroom. In either case, the resource teacher relies on a well clarified process that can be related to each learning experience and clearly understood by the classroom teacher. Otherwise continuity may be lost and the main objective--learning and how to do it--not attained.

Any process that offers reliability and permanence to an educational and developmental structure should be general enough to include all types of learning and communication styles, the basic learning processes, and to consider the potentials and talents of each student. At the same time, it must contain specific and logical steps applicable to many learning situations.

After two years of experience, resource teachers have found that a teaching structure built around the inquiry process and embodying a variety of learning and communication styles provided a dependable continuity vehicle. This inquiry teaching style includes the following steps:

- I. A problem or an area of interest is identified for investigation by a class, a group or an individual.
 - A. This problem or topic is then reduced to a manageable size--a task requiring much critical examination and evaluation.
 - B. The topic or problem is then discussed thoroughly to ascertain the student's present understandings and beliefs.
- II. The class, group, or individual makes a statement about the topic in the form of a hypothesis. (When background knowledge is limited, the student may have to formulate a suitable question instead of a hypothesis.) The teacher accepts this statement as the student's best present belief--whether right or wrong. It is important that the student know his idea is trusted and his present stance accepted as a bona fide beginning point. The teacher never tells a student he is "wrong." Rather, students are encouraged to take risks, experiment and not be afraid of failure. For the student to develop a good self image is a major objective of the resource teacher.
- III. Through investigations, research and study, students collect information about their hypotheses and formulate others.
 - A. Evidence is collected that proves the hypotheses correct.
 - B. Evidence is also collected that proves the hypotheses incorrect or partially correct.

Both types of information should be gathered.
- IV. The next step involves evaluation of the hypotheses in the light of the newly found information and decision making concerning the validity of the hypotheses.
 - A. Students are encouraged to change their beliefs freely without fear of censure.

- B. In no instance does the teacher say "I knew you'd change (or not change) your mind about your first belief." The important happening is that the student collect and examine new information, organize and evaluate it, and make an orderly decision. It is not likely that he could garner all the possible information and come to a final, irrevocable conclusion.
- V. Finally, the study is communicated to the class in an interesting and personal way with each student developing his own specific communication talent in skits, pictures, panels, debates, poems, stories, models, mobiles, charts, essays, music or notebooks.
- A. The product must be informative and display an acceptable level of organization regardless of the communication styles selected by the student to present his work.
- B. The product then becomes a source of information and model for other students. Students do not compete with each other but strive to achieve the best product each is capable of completing. Satisfaction comes from knowing that a good piece of work has been done and shared.
- VI. Final evaluation of the finished product is in terms of the following functions:
- A. Application of the inquiry process
- B. Involvement of learning processes
1. Memory - the act of recall, both short and long spanned
 2. Transformation - the act of transmitting information gained from one media or source in the format of a different media
 3. Interpreting - deriving significance and meaning from the content or activity
 4. Application - making use of the information or understanding or being aware of its use in external situation
 5. Analysis - taking things apart to identify the significant parts
 6. Synthesis - putting ideas and concepts or material together in new relationships The creative act is a part of this function.
 7. Evaluation - the critical examination of the product or process to ascertain results, quality or efficiency in relation to specified goals²
- C. Learning styles used by students
- i. The work of each student is related to his best approaches to learning:
 - a. Aural - listening
 - b. Visual - seeing
 - c. Tactile - touching and manipulating
 - d. Olfactory - smelling
 - e. Tasting
 - f. Oral exchange - discussion

2. The teacher deliberately plans so each student can develop all styles to some degree, and one or more to a point of sophistication.

D. Teaching styles for professional and student use

Both the teacher and student needs to be aware of these seven teaching styles which are used to facilitate learning:

1. The lecture - teacher centered, student "collects" information
2. Read and report - student reads and reports, written or oral, student centered
3. Question and answer - teacher and/or student centered, "give and take"
4. Discussion - teacher-student oriented interchange of information and ideas
5. Demonstration - teacher or student oriented, "show and tell"
6. Problem solving - teacher presents problem, students investigate and solve
- *7. Inquiry - students identify problem and concept, research and make decisions, and communicate conclusions

E. Communication styles for both student and teacher use

The teacher and students evaluate the degree of excellence to which communication styles have been developed and how additional styles have been employed as the situation requires. This promotes awareness and respect for the personal communication styles employed by other students. These styles include:

1. Verbal - both written and spoken
2. Models - three dimensional
3. Symbols - charts, graphs, formulas
4. Line and color - paintings
5. Movement - dance, pantomime, drama
6. Sounds - music, sound effects

As previously pointed out, these communication styles are closely allied to the specific talent of an individual and often dictate the best media for communicating his thoughts.

F. Decisions concerning present or probable worth of product

With this inquiry process acting as a general stabilizer for both the learner and the instructor, the resource teacher draws four important factors into the educational picture and helps the student become aware of the part each plays in the total operation: teaching styles, learning processes, learning styles, and communication styles.

A simple way to point out the basic relationships of these four factors is shown in Chart No. 1 on page 5. Using it, teachers can decide how many of the pupil activities, listed vertically on the left side of the chart, are put into operation when each of the teaching styles, listed horizontally, are used. As the teacher becomes more proficient in using the various teaching styles, she will notice a definite shift from the teacher-centered lecture style through the more child-centered demonstration style to the inquiry style.

CHART I

TEACHING, LEARNING AND COMMUNICATION STYLES AND PROCESSES

Teaching Styles	Lecture	Read & Report	Question & Answer	Discussion	Demonstration	Problem Solving	Inquiry
<u>Learning Styles:</u>							
Auditory							
Visual							
Tactile							
Olfactory							
Taste							
Oral discussion							

<u>Learning Processes:</u>							
Remembering							
Transforming							
Interpreting							
Application							
Analysis							
Synthesis							
Evaluation							

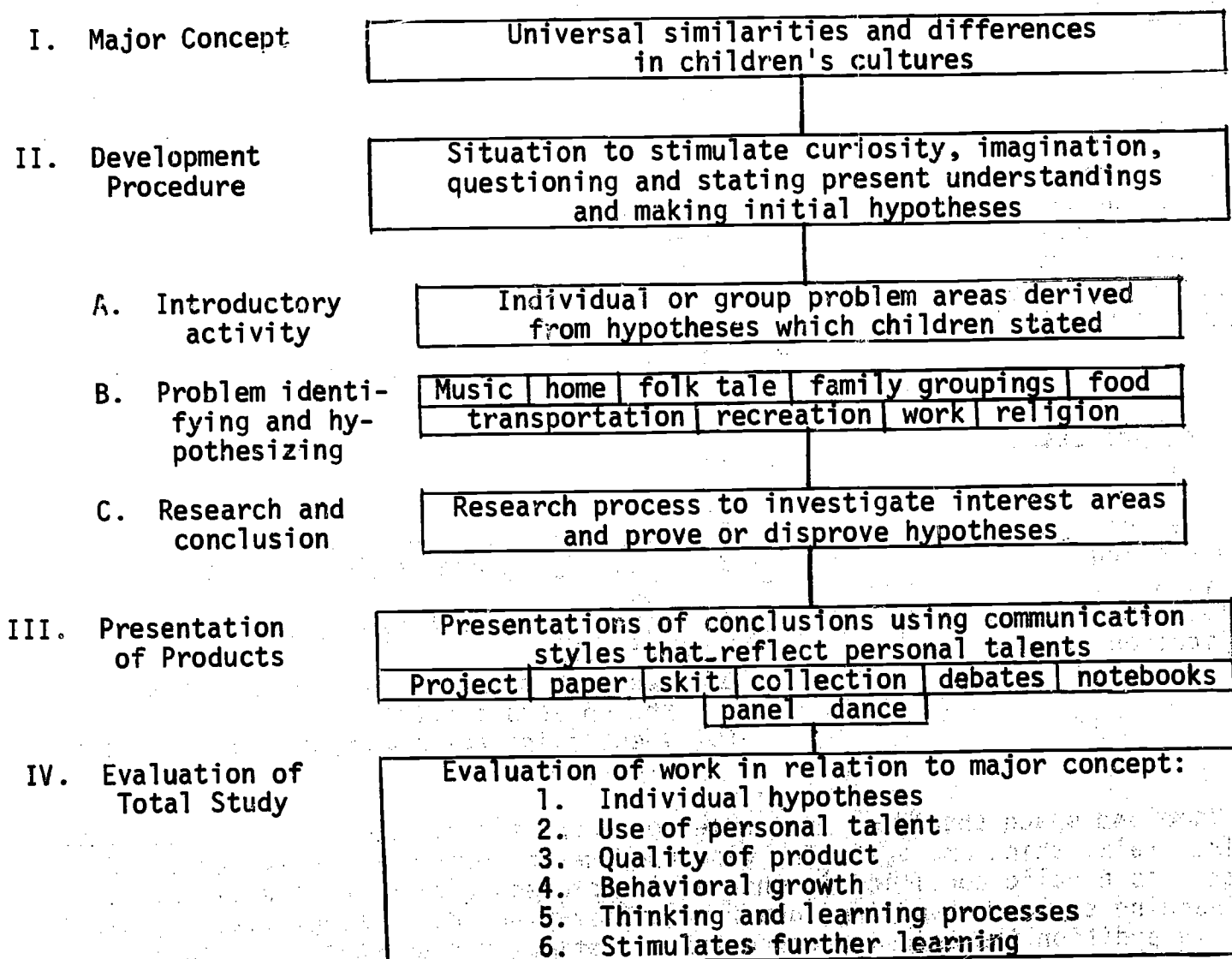
<u>Communication Styles:</u>							
Verbal-Oral							
Verbal-Written							
3 - Dimensions							
Color-line							
Sound							
Symbols: Charts Graphs							
Movement							

Chapter II

USING THE INQUIRY TEACHING STYLE

This section of the HANDBOOK outlines a unit of study using the inquiry process. The various steps taken to show the relationship of pupil defined problems to the major concept are shown on a chart giving teachers a quick grasp of the entire study.

CHART II



This model indicates many activities and ideas requiring the use of thinking and learning processes, and employs different learning and communication styles.

I. CONCEPT TO BE DEVELOPED:

PROCESS IN USE

Identification of concept to be studied

The lives of children have universal similarities and differences regardless of where or when they live. This concept can evolve from the students' expressed or implied interests or come from the teacher's awareness of the needs of the students to understand themselves and others.

II. DEVELOPMENT PROCEDURE

Inquiry situation to stimulate need to learn

A. The teacher may initiate the study by exhibiting a number of articles which stimulate curiosity, imagination, questioning and lead the children to use many of the learning styles and processes. Using no discernable order, display items from many countries on a table: dolls, games, books, a globe, vehicles, pictures of buildings, a drum, songs (records, books), articles of clothing and food (pictures, plastic, real), different utensils (spoons, chopsticks, pots), picture of family groups, pets, houses.

Learning styles used:

visual, aural, tactile, taste, olfactory, oral as students progress through the observation activity

B. Students are encouraged to examine these objects and discuss them freely.

Learning processes in action:

C. Teacher guides student activities:

remembering
interpreting
analysis
evaluation
application

1. questioning and hypothesizing
2. seeing relationships
3. classifying and comparing objects and ideas
4. contributing additional information and objects
5. looking for the major concept that ties the objects together
6. identifying areas for further investigation

Time and space should be available for each step of the process as students examine, talk, think and act. The classroom may be noisy and appear confused, but this is a valid condition in the inquiry procedure allowing the use of all the learning styles: handling, observing, listening, discussing, tasting, smelling. In addition the thinking processes are stimulated as students recall what is known, see new relationships, interpret, observe, apply, analyze, organize, classify, and relate what is discovered to personal experiences and understandings.

Reducing area to manageable size

Stating hypotheses

Understanding differences between opinions and facts

D. Students select interest areas to develop in depth, identify a particular problem to study, and prepare a hypothesis that includes the problem. Sample hypotheses can be:

1. all children play with toys (or pets or use money)
2. every child has a family (goes to a store for food)
3. all children go to school (or travel, paint pictures)
4. all children live in houses (or cities, or on land, or are healthy)
5. all children wear shoes (or hats or trousers)
6. laws protect all children (or children are treated the same everywhere)

The teacher will need to assist beginning students with this activity. Students are apt to choose too large a problem and too general an hypothesis that cannot be handled in terms of available time and materials. The maturity of the student must be considered also.

Problems for investigation may be closely related to any of the discipline areas. For example, investigating the concept of universal similarities and differences in the cultures of children may be carried on in these different disciplines:

Relating hypotheses to areas of interests, talent or disciplines

1. language arts - reading stories, legends, poetry; writing paragraphs and essays; study of authors; creative writing; dramatics; note taking, outlining, letter writing; vocabulary extension
2. social studies - cultural patterns, environmental factors, transportation, food, laws, water, geography, housing, clothes, education, races
3. mathematics - system of measurements, economics, money, use of geometry
4. science - geology, health, anthropology, animal and plant life, scientists, inventions, use of astronomy, medicine
5. art - sculpture, painting, architecture
6. music - instruments, songs, records and tapes of music, forms of music and uses of music
7. physical education - games, purposes in developing health, political uses, careers, toys, use in war and peace.
8. dance - folk, creative, formal dance, ballet, modern; pantomime; reasons for dance in society

E. Research to prove or disprove the hypothesis involves students in all types of resources:

Research for information

Use of learning styles:
visual, aural, tactile

Use of teaching styles:
lecture, read & report,
question & answer, dis-
cussion, demonstration

1. books, pamphlets, magazines, newspapers
2. family records, letters
3. films, tapes, records, pictures, objects
4. resource people
5. field trips to store, museums, businesses
6. exhibits, concerts, lectures, movies, dances

Thinking and learning
processes

The collected information is divided into proof and disproof sections. This requires careful use of such thinking processes as classification, interpreting, seeing application, analyzing and evaluating. All information is related to both the major concept being studied and to the individual or small group investigations.

Decision making

A decision is made concerning the validity of hypothesis based on the data which proves and disproves it. Either a proof or rejection of the hypothesis is accepted if the decision is supported by evidence.

During this activity, the teacher becomes a "process resource" person for the students until they are able to act independently. This takes time and patience, but provides a firm basis for future investigations and study.

III. PRESENTATION OF PRODUCTS

Talent
development

Communication
styles

Transforming

Creativity

Interpretation

Value
selection

Product

The students are now ready to share their achievements with others and select ways to communicate their new understandings. Charts, notebooks, murals, songs, skits, models, formulas, stories, poems, debates, pantomimes, bulletin boards, games may become the vehicle as each student selects a style that matches his personal talents. The teacher will again be sure that all the diverse talents are recognized and used whether they are commonly accepted talents such as art, music, creative writing, dance, drama and speaking or one of the lesser known talents such as classifying, manual dexterity, hypothesizing, transforming and divergent thinking. In any case, the final product should reflect both the processes used in the study, the talents of the class, and the values and appreciation relating to the major concept--the universal similarities and differences in childrens cultures.

IV. EVALUATION OF TOTAL STUDY

Finally, both the students and the teacher evaluate the product using such criteria as these to measure its worth:

- Comparing
- Assimilating and accommodating new values
- Change of attitudes and behaviors
- Consolidation of processes
1. Were the individual studies related to the major concept under investigation?
 2. What universal similarities and differences has the class discovered as they examined children living in many cultures?
 3. What understandings have been gained concerning human relations?
 4. What new appreciations or values has the study revealed?
 5. Were the interest areas carefully chosen and worth the efforts of the class?
 6. Were the hypotheses clearly stated?
 7. Which thinking and learning processes were used?
 8. What were the evidences of research and was the research well done?
 9. Were the hypotheses proved or disproved satisfactorily? Were new areas for investigation opened?
 10. Was the presentation interesting and suitable? Did it use the talents of the students?
 11. Was the work well planned and carried out?
 12. Could the presentation have been improved?
 13. Can the product be profitably shared with other classes?
 14. Do the students feel a sense of inner satisfaction from having made the study?

SUMMARY OF THE STRUCTURE OF THE INQUIRY PROCESS

One of the better means of guiding student learning is known as the inquiry process. This process provides a reliable tool of learning applicable to any subject matter at all educational levels.

Based on sound principles of learning, it can be continuously developed during the student's learning life-time. The process encourages the use of any communication style that relates to the personal talent or capacity of the individual and also clarifies and develops the different learning and thinking processes as described below:

1. Identification of problems to study- awareness of need, interpreting, evaluation, decision making
2. Collection and organization of known information concerning problem- remembering, arrangement, evaluation, decision making
3. Statement of hypothesis and possible conclusions - forecasting, decision making
4. Investigations to test hypothesis involving research - analysis, interpretation, synthesis, application

5. Communication of hypothesis, testing activities and final product to others

Use of varied means of communication and personal talents:

- . verbal - written or oral
- . three dimensional - models, projects
- . symbols - maps, charts, graphs, mathematical statements
- . line, mass, color - murals, notebooks, pictures, models, posters, cartoons
- . movement - pantomime, dance, skits
- . sounds - music, dynamics, rhythm

6. Evaluation of total procedure

- a. Quality of product and validity of process used
- b. Depth of study made by student
- c. Interest of topic and means of communication
- d. Practicality of study and product
- e. Degree to which study stimulates further learning

The itinerant resource teacher can use this summary as a measuring stick to be sure that all phases of the process are in use.

Chapter III

UNITS FOR CLASSROOM USE

Once the teacher and students grasp the structure of the inquiry process, it can be applied to problems and concepts in any area of the curriculum. The itinerant resource teacher can vary the area to meet the needs or immediate interests of each group of students.

Frequently, interest and motivation to learn can be stimulated which can carry back into the more structured situation in the classroom. Experiences with the itinerant resource teacher can be used to enrich or expand the learning of all children as students share these new learning and personalized products.

This part of the HANDBOOK describes several study units which are of interest and value and also lists a number of other concepts and topics which the teacher can develop when appropriate.

These study units are loosely grouped under these headings: Process, Language Arts, Mathematics, Social Studies, Science and Fine Arts. However, each can lead from one curriculum area to another, depending on the personal orientation of the students. The key in doing this is the imagination, curiosity and divergent thinking of both teacher and pupils.

For the teacher's convenience, each study unit is divided into five steps:

- I. Concept to be investigated
- II. Procedure for development
 - A. Introductory activity
 - B. Statement of problems and hypotheses
 - C. Research
- III. Communication or presentation of product done by students
- IV. Evaluation
- V. Materials and equipment

None of the units described in this book are entirely original but are examples of many effective ideas and demonstrations teachers can adapt to fit particular situations.

Section I

INQUIRY PROCESS READINESS ACTIVITIES

Before a student can best succeed in the inquiry process, he needs training in basic learning skills--observing, classifying, differentiating between observations and inferences, and communicating precisely.

General Concept:

Knowledge is collected through use of skills which employ learning styles and learning processes.

Skills Used

Observing is more than seeing. It requires using all of the senses--an object should be felt, shaken, smelled, pressed, etc. Observing means noting change and rate of change with media such as measuring exactly, estimating or making size comparisons. (Nothing is small or bright until compared.)

Classifying can be done only as a result of keen observations. People have difficulty observing more than one attribute at a time, so initial grouping activities should consider only one property such as color, shape, texture, etc.

Differentiating between observations and inferences is extremely important. To say that an object is wooden, metal or a piece of chalk are interpretations of observations and not observable properties of the object. Observations can be only the characteristics we perceive with the senses, no matter how valid the inference.

Without precise communication, wide interpretations will result. Lessons demonstrating this to pupils will result, hopefully, in better communication skills.

LESSON ONE

- I. Concept: Observations and Inferences are Skills of Learning
- II. Procedure:
- Research & Hypothecation
- The teacher presents an object (bell, rolling item, anything observable by as many senses as possible) in a sealed box to the class for observations. Each student is given a short time to observe individually the box. The teacher elicits and records on the chalk board all statements about what each child observed. After each statement is recorded, go back over the list and decide with the children which of the senses were involved in perceiving that the box is white, has something in it, etc. Record the sense or senses used. Be sure to differentiate between inferences and actual observed properties.
- III. Decision & Product:
- Cont'd research by comparing reactions to new box.
- To grasp what the students have inferred is in the box, have them draw and perhaps color what they think the contents to be. All drawings are acceptable and correct because you do not open the box.
- Present a second box and reveal the contents by opening it. Ask the students which box was the most interesting to learn about and why.

- IV. Evaluation & Conclusions about initial concept: Have students write a paragraph or so in which he compares his reactions to the processes used in learning about the boxes.
- V. Materials: Box with at least two items sealed within; a box to open.

Film: Gateways to the Mind - Southern Bell & Telegraph. Sense Perception - Part I & II - Moody

LESSON TWO

- I. Concept: Observations and Inferences are Learning Skills
- II. Procedure: Introductory activity
- Put some candy life savers of different color and flavors into a paper bag and close it securely. Have students hypothesize about what is in the bag as they observe it in every way possible without opening it.
- Hypotheccation
- Research
- Improve the observational situation by opening up more channels of learning. Give each student a life saver to observe more fully. Make available to the student materials he can use on or with the life savers in order to make his observations-- materials such as container of water and matches (for observing change and rate of change when placed in water or heated), coins (for size comparisons), ruler (for exact size measurement), scales (for weight measurement). Vinegar and oil are additional liquids you might make available.
- III. Presentation: Require that the student write his observations down as he observes them.
- IV. Evaluation: Review orally with the class their observations. Did they distinguish observations from inferences? Elicit what the problem has been from the pupils. (Identify an object through observing its properties and not from inferences.)
- V. Materials: Bag with life savers, water, matches, coins, ruler, scale, oil, vinegar

LESSON THREE

- I. Concepts: Observations and Inferences are Skills of Learning
- II. Procedure: Introductory activity
- Prepare several boxes for each group of children by sealing a common object (rock, radish, cork, button, bottle cap) in each box.
- One pupil in each group must know what is in the box so he can answer only yes or no questions from the group who tries to identify what is in the box.

Hypothecation & Research

The teacher is free to move from group to group to observe kinds of questions and aid leaders in deciding yes or no.

III. Presentation: (communication)

Questions the children ask can be of the following types:

- Nominative--Is it a rock?
- Attribute --Is it hard?
- Material --Is it wood?
- Use --Can you write with it?
- Generic --Is it a mineral? A tool?

IV. Evaluation:

Nominative type questions are low level thinking as well as questions about what letter the objects start with. If this type of questioning is prevalent, a series of lessons training in classification skills will greatly enhance the type of questioning.¹ If children can identify attributes of objects and use those attributes to group objects, they can ask better questions when they play "What's in the Box?"

V. Materials:

Boxes containing common objects.

LESSON FOUR

I. Concepts:

Observations and Inferences are Learning Skills

**II. Procedure:
Introduction
Hypothecation & Research**

Put on a table a knife, fork, spoon, two different drinking glasses, two sizes of nails, three coins of different values, two varied buttons and several books. Have students observe the complete set of objects.

III. Product:

After ample observation time, call on one student to describe the observable properties of one of the objects without naming it. Be sure only observable properties are stated--never give interpretations of observations.

IV. Evaluation:

Can the class identify the object from the description? What properties of each can be used to distinguish it from all the others in the set?

V. Materials:

Knife, fork, spoon, glasses, nails, coins, buttons, books.

LESSON FIVE

I. Concept:

Observations, Inferences and Classifications are Learning Skills

¹An excellent source showing how to develop the art of questioning is found in a paperback by Norris M. Sanders, CLASSROOM QUESTIONS WHAT KINDS? (New York: Harper and Row, 1966).

II. Procedure:
Introductory activity

Place a set of polyhedra (solid geometric forms) on a table. Allow the students to observe them using all their senses--manipulation is necessary. After ample observation time has been given, have them list all the ways the set of objects are alike and different.

Research &
Hypotheccation

Discuss how they are alike and different.

Next have students think of ways to group them. As one manipulates objects into groups, observers guess the rule for grouping (those with corners or without corners, those that will roll or will not roll, etc.)

III. Product:

Display groups or classifications.

IV. Evaluation:

Discuss in reference to the concepts named.

LESSON SIX

I. Concept:

Observation and Classification are Learning Skills

II. Procedure:
Introductory activity

Place a set of attribute blocks before each group of children for careful observation. Talk about how the blocks are alike and different. Allow the pupils to manipulate the blocks into groups--in order words to classify them.

Research &
Hypotheccation

The following are ways in which they might be grouped:

1. Having one attribute in common:
 - a. Shape
 - b. Color
 - c. Size (big or little)
 - d. Thickness
 - e. Number of corners
 - f. Kind of wood (solid or laminated)
 - g. Number of plane surfaces (five or six)
2. Having two attributes in common:
 - a. Color and size
 - b. Color and shape
 - c. Color and thickness
 - d. Size and shape
 - e. Size and thickness
 - f. Shape and thickness
3. Having three attributes in common:
 - a. Shape, size and color
 - b. Shape, size and thickness
 - c. Size, color and thickness
 - d. Color, shape and thickness

III. Conclusions and Product:

Observers tell the rule for division into the groups.

IV. Evaluation:

As students become more skilled in categorizing, you may have them divide the blocks into groups and then subgroups.

V. Materials:

At \$2.00 a set (48 blocks) attribute blocks can be purchased from:

Mr. W. R. Fippen
1618 Emory Rd., N. E.
Atlanta, Georgia

Directions for other uses of these blocks can be purchased for \$2.45 from:

Learning Logic and Logical Games by
Dienes
Herder and Herder
232 Madison Avenue
New York, New York 10016

LESSON SEVEN

I. Concept:

Inferences, Communication and Observations are Skills of Learning

II. Procedure:
Activity
Hypotheccation

Place a set of attribute blocks in front of each group of children.

Activity One:

Play a game like "Twenty Questions." As the teacher you think of one block. Children ask you questions, answerable only with yes or no, to guess the right block. (They begin to discover which questions are not necessary and try to use as few questions as possible to name the block--the fewest number is seven.)

III. Conclusions &
Communication

Activity Two:

One child describes the properties of a block and students pick up the block he has described. (Eventually it will become evident that naming four properties is the least number of words needed to describe a block--shape, color, size, thickness. Example: triangular, red, small, thin.

Activity Three:

Teacher holds up one block. Students working in groups find the blocks that are different in one way only from her block. Manipulation of the blocks within the group is a must! When one group has found all, have them tell you how each is different in one way only. (7 blocks will be different.)

Activity Four:

Follow the same procedure for finding the blocks which are different in two ways from the one the teacher holds up. (There will be 17.)

IV. Evaluation:

See body of lesson seven.

V. Materials:

Set of attribute blocks

Additional Lessons - Classification

Other lessons using classification skills can be accomplished with sets of odds and ends (differing kinds of paper, cloth, wood, plastic, glass, metal, spices, seasonings, liquids, powders, etc.). After classifying activities, students identify a problem regarding one of the items and go through the entire inquiry process.

Section II

UNITS FOR SOCIAL STUDIES

Action Map

- | | |
|-----------------------|---|
| I. Concept: | Interdependence: What It Means To Be "The United States" |
| II. Procedure: | On a table, place a variety of objects - a U.S. map, a globe, car, ear of corn, lump of coal, a vacation sticker, a rock, a small tree, pictures of several types of houses or buildings, an orange, a rocket, sailboat, etc. Let students examine table and objects and discuss freely why they are there. Lead into seeing relationships and making statements about their experiences with the ideas represented. |
| Introductory activity | Collect statements on what students believe to be the reason for the collection and the inference that these separate items are all a part of the USA. |
| Hypotheccation | Pose question: How can we prove these items all have a part in making the U.S. what it is?
<ol style="list-style-type: none"> 1. Food comes from everywhere. 2. All parts of the country use minerals. 3. There are mountains all over the country. 4. Everyone needs a vacation spot. 5. Everyone has a home, but they may be different, depending on the locality. 6. All parts of the country are interdependent. |
| Research | Each student begins to research his own interest area using all available materials. |
| Second Hypotheccation | A map is a symbol which can show relationships and interdependencies. |
| Research | Study of different kinds of maps: road maps, relief maps, globes, air maps. |
| III. Product: | Making an action map that can show relationships and interdependencies.
<ul style="list-style-type: none"> - Secure a large sheet of plastic approximately 16 X 10 feet - Draw a map of the United States on it with magic marker |

- Keep map on floor so students can walk on it.
- 1. Involve mathematics - scale, linear and areal measure; estimating distances and using scale to prove or disprove
- 2. Create physical features
 - rivers made of yarn
 - mountains of plaster of paris
 - lakes of blue paper or plastic
- 3. Locate population center with small buildings of cardboard
- 4. Locate industries
- 5. Locate agriculture, food enters
- 6. Trace transportation routes - air, land, water
- 7. Locate mineral sources, forests, etc.
- 8. Locate recreational areas
- 9. Locate weather factors - winds pressure areas, etc.
- 10. Study Indian and other population aggregations
- 11. Trace historic movements, legends, heroes

IV. Evaluation:

Does the map show how the United States is a group of interdependent factors - all of which combine to show what "The United States" means?

Discuss growth, dependency, movement, etc.

The map can be used in all areas of the curriculum.

An event such as the railroad strike can be vividly described and understood.

V. Materials:

Plastic sheet 16 X 10 feet, magic markers, rulers, and tapes, yarn or strips of paper, cardboard for stand-up cut outs, plaster of paris, small cars, houses, people, etc.

Social Studies books - Atlas, Globe, Maps: road, airline, transportation, physical.

Who Am I? (A Three Part Unit)

I. Concept:

The Self Image: A person's self-concept is determined by his physical and cultural heritage; he may alter his environment but not his heredity.

II. Procedure:

Investigation of present situation: The Individual.

Introductory activity

1. Quick inventory of personal preferences and information.

- a. What is your favorite food? (TV program?) (Color? Singer or group? Song, animal, etc.?)
- b. How many brothers have you? Sisters?
- c. What do you like to do after school?
- d. What is the name of a book you have read recently?

Present knowledge

- e. What do you like best about school?
- f. If you could live anywhere in the world, where would you choose to live?

**Research &
decision making**

2. Make individual collages representing each person's likes, wishes, feelings, (pictures torn from magazines and glued to cardboard). Children may guess identity of each collage-maker. Some may wish to tell why they have chosen certain pictures to represent themselves. Discussion of environment and heredity.

III. Product:

3. Story about wolf-children in India. After listening to the story, the children used whatever means of communication they wished (drama, music, dance, painting, puppets, stories, poetry) to illustrate their understanding (based on the story) of the differences between heredity and environment.

I. Concept:

Same as above.

**II. Procedure:
Introductory
activity**

Investigation: The Family

1. Give pictures clipped from magazines and clothing catalogs representing persons of all ages, races, sexes, occupations. Ask children if they can group pictures in any way that would have meaning. (Groups of children quickly put together family groupings.) These can be mounted on a bulletin board. The children's rationale for their chosen groupings is valuable.

Research

2. Discuss roles in the family.
 - a. Who does the cooking? cares for the children? tends pets? earns money? cleans house? cares for yard?
 - b. Name those things you like especially well about your family.
 - c. Name three things about your family you would change if you could.

**III. Product and
Evaluation:**

3. Role play and create drama based on situations and feelings.

I. Concept:

Same as above.

**II. Procedure
activity**

Investigation: The Community

Research

1. Find out from the children all of the businesses and public buildings in their neighborhoods. Inquire where the working members in each family are employed. Ask what the children do. Have (can be drawn, made of construction paper or clipped from magazines) to make community around family groupings worked within preceding lesson on The Family.

Decision
making

2. To demonstrate interdependence, attach pieces of yarn (colors to represent work, recreation, volunteer service, membership, purchasing) from each family member to appropriate buildings. For example, mother might have one color strand going to the restaurant where she works, another going to the church where she is a member, other colors going to stores and bank where she is a customer. Children would have strands showing their attendance at school, their membership in clubs, their being consumers at the candy store, etc.

III. Product:

3. Children can role play the merchants and service persons in their community.

IV. Evaluation:

4. Have children think about the most important part of the community to them as individuals. Have them express their feelings (using any means of communication they wish) if the most important part of the community were to be removed by accident - fire, explosion, storm.

V. Materials:

Wide variety of art and scrap materials. Simple props for role playing. Magazines for tearing. Scissors, paste, glue, cardboard, paints, brushes.

Record player, tape recorder.

The Shopping Center - A New Concept for Urban Living

I. Concept:

Man must always create in order to live in a changing world.

II. Procedure:

Objective: To help children understand a modern business situation, to identify problems within it, to stimulate inquiry and research and to gain a better appreciation of our culture.

Introductory
situation

You are a millionaire with more money than you know what to do with. You have bought all the things you want or need or can give away. You still must spend your money, and you prefer to spend it in a way that will be useful. So you decide to build a new shopping center in your town. How do you go about it?

Present
understanding

1. Questions to discuss
 - a. What do you know about a shopping center?
 - b. How do you suppose it got there?
 - c. What had to be done before the stores could move in?

Problems &
hypothesis

2. Let each student or small group identify problems to investigate.

3. Set up committees:
 - a. designing
 - b. insurance and legal requirements
 - c. location, real estate
 - d. advertising
 - e. security
 - f. parking and transportation
 - g. public facilities
 - h. building and financing
 - i. business administrator

**Research, observation &
decision making**

4. Visit a shopping center
 - a. One in operation
 - (1) make a list of stores
 - (2) interview the center manager
 - (3) check arrangement of stores
 - (4) observe color schemes
 - (5) consider advantages and disadvantages of location
 - (6) other considerations
 - b. A center being built
 - (1) watch construction, machinery
 - (2) talk to manager
 - c. Invite guest speakers to stimulate decision making, such as: architect, mortgage banker, security guard, contractor, insurance agent, lawyer, advertiser, and promotion manager. (You would not use all of these.)
 - d. Individual class members can interview people connected with a shopping center or get shoppers reactions. Report information to class.

III. Product:

Students share information and understandings gained from research.

1. Oral and written reports
2. Panel discussions
3. Interviews
4. Making a model shopping center complete with stores and parking facilities.

IV. Evaluation:

What has been learned about the need and uses of a shopping center?
 Were the individual reports and activities thorough and of high quality?
 Are shopping centers here to stay?

Section III

UNITS FOR LANGUAGE ARTS

Etymology

- I. Concept: Growth of Language: Words are symbols of ideas, objects and actions and originate from these sources.
- II. Procedure: Collect names of people such as Carpenter, Smith, Brown, Strong, and discuss how they may have been given to persons.
- Do the same with common words such as daisy, Adam's apple, bedlam.
- Hypotheccation After students make hypotheses concerning origins, introduce a research period to test hypotheses.
- Research How were people named?
- A. Discover word origins
1. Use reference materials such as:
 - a. Collegiate dictionaries
 - b. What To Name The Baby - Wells, E.
 - c. What's In A Name - Davis, S.
 - d. Horse Feathers And Other Curious Words - Funk & Funk
 - e. Words At Work - Bellafiore
 - f. Almanacs
 2. Example: Daisy
Even a thousand years ago it was observed that the white rays of its flowers opened with the rising sun, exposing its golden disk through the day and folded again in the evening. They called it "daeges eage," "days eye".
 3. Example: Adam's apple
"In Adam's fall we sinned all". His "fall" has since been marked on all mortals, by superstitious belief, by a projection on the fore part of the neck representing a piece of the forbidden fruit of the Garden of Eden that stuck in Adam's throat as he ate it.
- B. Discover history of naming people
1. Caveman - named for sound he most commonly made - (Ug)
 2. Middle Age Man - named for his occupation- shoe maker
 3. Scandinavian Man - named as to father - son of Ander - Anderson
- C. Discover word roots, prefixes and suffixes that enable students to define new words.

III. Product:

Prepare presentations showing how words originate

1. Skits
2. Picture illustrations
3. Name originating in Bible characters
- Jonah, Jeremiah, David, Isaac
4. Names of things that have their origin from the names of men who discovered or invented them - watt, volt, galvanize, sandwich
5. Collect modern words with Greek origins -
- telephone, microscope, biology
6. Trace a word through several languages and note similarities
7. Prepare posters, illustrated dictionaries
8. Create new words, using good derivatives
9. Prepare a dictionary of the future.

IV. Evaluation:

1. Was the study rewarding in that it developed appreciation of the language?
2. Was the interdependence of languages clearly perceived?
3. Was the concept that the language is a symbol clearly portrayed?
4. Did the study reveal that man in all parts of the world have many of the same ideas, actions, experiences?
5. Did the study reveal the need for better communication forms, perhaps a universal language?

V. Materials:

Books - mentioned in text

Contact publishers of dictionaries

Films: "Who Makes Words" - Coronet

"Writing Through the Ages" - EBF

"Alphabet Conspiracy" - Southern Bell & Telegraph

Communication

I. Concept:

Communication: A use of many talents and media.

II. Procedure:

Introductory situation

The Itinerant Resource Teacher's class has been invited to produce and direct a program using the students in a lower grade (2nd) as actors and learners.

Divergent thinking
Decision making

1. How can children of various age levels join in an educational enterprise?
2. What type of program can be produced that is suitable for second grade children and still be a profitable activity for older pupils?
3. What topics appeal to primary children?
4. What can primary children do?
5. What media can be used?

Hypothecation

If little children can act, sing and remember lines, could a TV program be written and directed by the gifted class for these children to present?

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Sub-problem

What committees will have to be established?
 What talent is present in the older children?
 Where can the students get help?
 What must be done first?

Decisions

- A. The type of program to be produced. This should center around an area relating to the interests of the younger group of children.
- B. Committees needed may include:
1. Producer and director
 2. Script writers
 3. Staging and property
 4. Costumes
 5. Lighting
 6. Art and Scenery
 7. Music
 8. Dancing
 9. Sound effects
 10. Tutors to teach lines to children
 11. Publicity
 12. Taping
 13. Transportation

Research

1. Visit a TV station for information
2. Ask TV program manager to speak to class
3. Invite music, art, physical education teacher to confer with committee
4. Collect informational materials from library for content of program
5. Watch and evaluate TV programs for composition and format, learn about titles, cast, introduction, audio and video sections, conclusion
6. Meet with teacher and students of younger class to discuss program, casting, rehearsals, publicity, list of parents
7. Meet with TV station personnel to arrange for taping and showing program

III. Product:

Pre-taping

1. Write script, rehearse children (send copy of script to TV station)
2. Prepare scening, props, sound effects
3. Rehearse music, dances
4. Simulate a practice run of taping
5. Transportation committee sees that cars are available and that permission slips are in order
6. Prepare an evaluation sheet for audience to rate program

Use the gifted class in all these activities

At Studio

The stage is set and program taped

IV. Evaluation:

Observe tape and evaluate

1. How will the program meet expectations?
2. Were the lines spoken well?
3. Were the costumes and scenery effective?
4. How could the program have been improved?
5. Did viewer enjoy the program?
6. What educational experiences did the younger class have? The older children?
7. What were the results of the evaluation sheets completed by the audience? What "rating" did the program get?
8. What talents did the program use?
9. What means of communication were used?

V. Materials:

These will vary with the kind of program being prepared. If the program cannot be actually presented on TV, it can be shown to other classes as a simulated program using imitation cameras, mikes, announcers, etc. Perhaps a tape can be made and coordinated with a home movie or slides.

Who Are Heroes?

I. Concept:

Heroes: The Embodiments of Moments of Greatness

II. Procedure:
Introductory
activities

1. Listen to records of actual voices of well-known individuals, or readings of their works
2. Ask original riddles describing well-known people
3. Discuss "What is a hero?"
4. Stimulate interest and inquiry by displaying "mod" posters of contemporary heroes and others from the past
5. Display book jackets which have picture of main characters, both human and non-human

Discover what the students believe a hero to be.
List characteristics of a hero.

Hypotheation

Have each student make a statement that identifies a hero of his choice.

Research

questions and
activities

1. What makes this person a hero?
2. What hero characteristics does he have?
3. What factors in early life influenced him?
4. What obstacles did he overcome?
5. What are his beliefs and values?
6. Discover that a hero may be a romantic or tragic or comic figure. Also clarify meaning of "romantic" and be sure students learn it doesn't always mean love.
7. Identify heroes in children's literature, mythology, poetry, history, contemporary times. Show that the characteristics of a hero can be personified in a machine, animal, plant, ocean, storm.

9. Identify heroes of differing ethnic groups.
10. Establish the universality of hero characteristics by reading literature from all over the world.
11. Compile chart of characteristics of heroes and keep visible in room.

Product:

Does the research prove that the person selected by the student is really a hero? What kind of hero? What are his main characteristics?

Present the hero and his characteristics to the class through:

1. Dressing as a hero and letting him tell his story
2. Preparing a report, or question and answer panel
3. Dramatizing the hero's life
4. Writing "What if---" paper such as "What if this had not happened in my hero's life?"
5. Make chart of hero's life events that demonstrate he is a hero
6. Collect and show film strips, movie, pictures of hero's life
7. Make models, projects, replace to represent hero's life
8. Make maps showing influential factors in life of hero: birthplace, childhood environment, education, style of life
9. Make a "people" time line showing people who influenced hero. Do the same for each student
10. Collect music, art, plays that hero may have experienced
11. Prepare a geneological chart of hero
12. Compile the values and beliefs held by various heroes and things underlying their greatness

Evaluation:

1. Compare today's values and beliefs with those of heroes. Do values change?
2. Do certain characteristics of heroes recur in literature and history from the beginning of recorded time?
3. Have the values and beliefs of the class been modified by this study?
4. Have the means used to examine the characteristics of heroes been a good example of inquiry?
5. What learning, teaching, and communication styles were used?
6. Is each student satisfied with his conclusions concerning his hero?

It is understood that vocabulary, sentence and paragraph construction, grammar and spelling are of high quality.

V. Materials:

1. Copious collection of children's stories about people, animals and animated machines
2. Pictures of heroes ranging through historical figures, current heroes
3. Film strips such as How Minorities Made America Great
4. Any motion picture that has a basic plot, story line and strong characters
5. Anthologies of World Literature and Mythology
6. Records

Original Tales

(Legends, Fables, Myths)

- | | |
|------------------------|--|
| I. Concept: | Folk literature: How it may have originated in various cultures |
| II. Procedure: | Display large, colorful picture of animals. |
| Introductory situation | Read selected stories from <u>The Hat-Shaking Dance and Other Tales from Ghana</u> <u>Anansi's Hat-Shaking Dance</u> or <u>How Anansi (the Spider) Got His Bald Head</u> , or <u>Anansi and the Elephant Go Hunting</u> or <u>Why the Elephant is Large in Front and Small Behind</u> . |
| Hypothesis | Discuss tales read. Ask about other folk tales from past and present cultures (Paul Bunyan, Greek and Roman Myths, etc.) <ol style="list-style-type: none"> 1. Discuss traits of Anansi in stories read. What might this say about the values of the Ashanti people? 2. Discuss pictures: Hypothesize: What tales could we create? (Suggestions: Why the Camel has a Hump, Why the Frog has Bulging Eyes, Why the Elephant has a Trunk, Why the Possum Hangs by his Tail.) |
| Statement of problem | Establish problem as being that of creating an original tale, either as an individual or as a small group. Decide on animal to be the main character. |
| Clarification | Have children ask themselves what they know about the animal. Write these down or discuss them in their groups. After they have decided on character, they should hypothesize about questions they have about the animal--his appearance, his habits, his home, the sounds he makes. |
| Research | Collect books, pictures, etc. and test hypothesis. Add interesting information for discussion as it is discovered. Collect the animal itself if possible. |

III. Product:

Decide on means of communicating the tale to the class after individuals or small groups have planned their original tale together.

Communication

Encourage children to present tale in any creative way they desire. It is not necessary to write their story unless they choose this as their communication style. Suggestions: dramatize story, pantomime, make booklet, sculpture character(s) tell story around "camp fire", use original transparencies to illustrate story as it is told, puppets, large filmstrip, use background music, tape recorder, verse, monologs

IV. Evaluation:

1. Examine to see if the presentation is well organized. Well written. Does it follow accepted criteria for a story?
2. Are the characters and plot well developed?
3. Is the vocabulary well chosen?
4. Is the story (or product) convincing?
5. Were the skills of composition in both writing and speaking well used? Spelling, grammar, sentence construction.

V. Materials:

Courlander, Harold and A. K. Prempeh, The Hat-Shaking Dance and Other Tales from Ghana. (New York: Harcourt, Brace, Jovanovich, 1957)

Personification

I. Concept:

Personification: A recurring literary metaphor

II. Procedure:

Through discussion and example, clarify what is meant by personification, ascribing human characteristics to objects and non-human beings

Research
use of all
learning processes
and styles

1. Relate to nursery rhyme and folk tales, stories such as Three Bears or Red Riding Hood, Humpty Dumpty or The Little Engine That Could
2. Relate to use of "her" when referring to ship or hurricane. Discuss why-what things are related to "he".
3. Find other examples of personification in everyday life.

Activity

Give each student a slip of paper listing an inanimate object or a non-human being. Ask each to portray, without words, some characteristics he ascribes to it. Such objects could include an overdue library book, a garden hose, a melting snowflake, a needle and thread.

Hypotheation

Let each student guess what his classmates are trying to portray

- Activity** Let each student choose an object--possibly an historic one such as a nail from the shoe of Paul Revere's horse, George Washington's hat, Franklin's kite, or something from their own experiences
- Research**
1. Discuss which elements can be personified and which can not
 2. Find examples of personification in stories, poetry, advertizing, on TV, radio, in newspapers, cartoons
 3. Relate personification to appeal to the senses, to inference and to other relationships
- III. Product: Communication styles** Let students produce their own examples of personification in pantomimes, stories, characterizations, pictures, verses, skits
- IV. Evaluation:**
1. Could the characteristics of the personification be readily identified?
 2. What human characteristic did it recall?
 3. Was the personification vivid and memorable?
 4. Was the characteristic universal?
 5. Can examples of it be found in many periods of history and literature?
 6. What learning styles were used in this study? What thinking processes? What communication styles?

Section IV

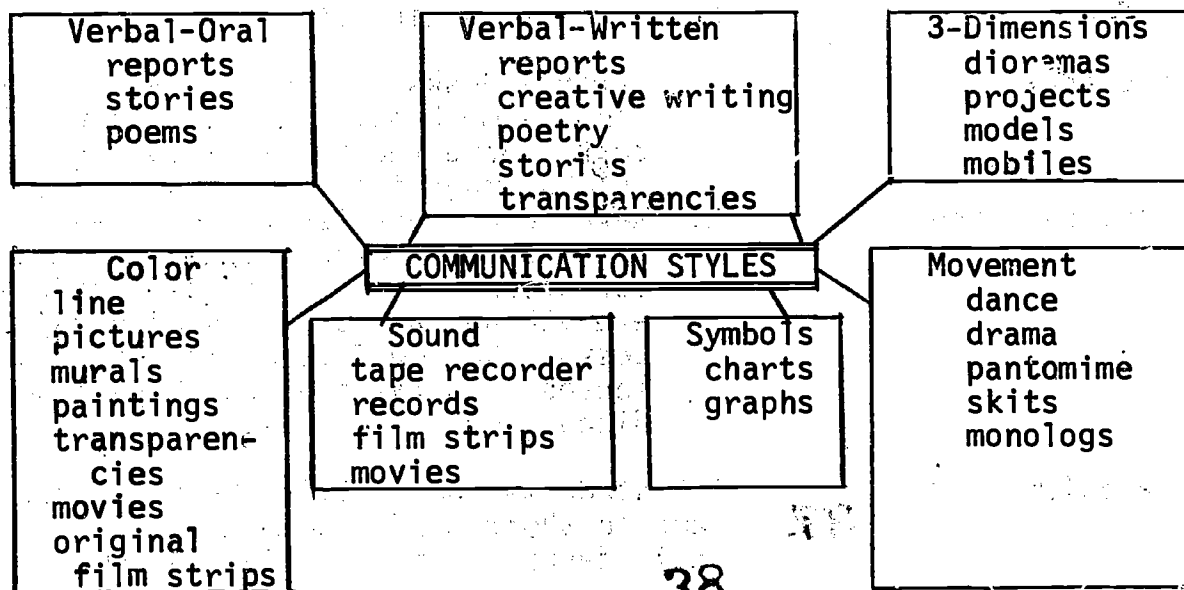
UNITS FOR SCIENCE

An Inquiry Lesson on Honey and Honeybees

- I. Concept:** Scientific Study and the Inquiry Process of Learning
- Familiarize the children with the inquiry process of learning and the many styles of communication. Refer to Section I, page 2 and beyond.
- Show that this kind of learning can be very exciting.
- II. Procedure:**
- Introduction**
1. Arrange desks in twos. Place section of honeycomb, some honey and bread on plastic wrap on desk. Have readily available cups of water, rulers, magnifying glasses, microscopes, etc.
 2. Make no explanation to children, but allow plenty of time for exploring. As discussion and conversation develop, suggest that they find out everything they can about the object on their desks. Review ways of learning (using all senses plus talking together). Begin directed discussion.
- Problem** Ask students to identify the first question that came to their minds when they saw the objects on their desks. (This is the problem: What is it?)

Analysis	Ask what students knew about the objects when they first saw them--obvious things before full investigation.
Hypothesis	Ask what students thought it was, how it would taste, feel, smell, etc. and how they went about proving or disproving these hypotheses.
Research to test hypotheses	List on the board all the things discovered (learned) about the object (how it tasted, felt, smelled, looked, sounded as they experimented with it--geometric shapes in comb, change in forms, etc.)
Conclusions	<ol style="list-style-type: none"> 1. Ask what students now conclude about what they have observed. Marvel together at the number of things they discovered in a short period of time. Ask if there are other things pupils would like to discover about honey or bees. (If enthusiasm is high, proceed to develop this topic further in language arts by reading together the story "Bees" from <u>Sounds of Mystery</u>.) 2. Read together the story. Teacher reads orally and involves children in choral reading. This story has great possibilities and raises some interesting questions about bees. Enjoy words, pictures, language structure. 3. Suggest that students choose one or possibly two things they would like to know about bees. Discuss fully where they can get information. Be sure to encourage the use of all senses and be sure that many, many sources of information are mentioned. 4. Have each person go through the inquiry process of establishing problem (in writing if possible--writing analysis of what he presently knows about problem, hypothesize, and then begin their research and observation.)

III. Presentation of investigations: As investigations progress, have a session in which COMMUNICATION STYLES are discussed.



Discuss fully examples of each of these as they are suggested by the children. Accept these suggestions freely. Help them to understand that any/all of these are legitimate ways of communicating ideas--written work is not the only way.

Encourage the use of as many communication styles in their presentations as can be effective.

IV. Evaluation:

After each presentation, evaluate by discussing whether or not the problem was solved, if the hypothesis proved correct, which learning styles were used for collecting information, and the communication styles used in getting across ideas to the class. Were they effective? Discuss strengths and weaknesses of presentation.

This experience will take more than one session. However, endeavor to limit the time span especially if the resource teacher meets with the class weekly or bi-weekly. The goal is to show that learning and communicating ideas can be exciting and this goal cannot be reached if the project lasts longer than the interest span of the children.

V. Materials:

Martin, Bill, Jr., Sounds of Mystery. New York, Holt, Rinehart and Winston, Inc. 1967.

Jar of honey in comb, loaf of bread, small paper cups, rulers, magnifying glasses, microscopes, plastic wrap.

Film: "The Honey Bee" - EBF

Additional books, magazines, film, etc.

A Trip Back in Time

I. Concept:

The evolution of living things on earth is a long and complex process.

II. Procedure:

Introductory activity

Talk with students about taking an imaginary trip back in time in a time ship equipped with observation windows.

1. Choose a navigator - a student who is interested in astronomy or mathematics
2. Select a log-keeper - a student who writes well
3. Designate the other students as specialist observers: botanists, zoologists, geologists, hydro-scientists, meteorologists, writers, reporters, artists, astronauts

Hypothecation

What will be observed if the time ship goes back 10 million years? 100 million years? Let students make statements concerning their expectation.

Research

1. Show selected film strips, slides and movies. Run movies without sound. Have each student or group describe and identify what is seen. Stop films at certain points to indicate "trip stops" for more detailed examination.
2. Collect books and pictures for students to compare what is seen with recorded material and data.
3. Keep a running log of "discoveries" of plant, animal, mineral and meteorological data. Also account of how travelers react.
4. Invite guest lecturers to add data and explanations. These may be informed adults or students who are "authorities".
5. Discuss differences between facts and opinions; observations and inferences.

III. Presentations

1. Prepare a report of trip and discoveries for such occasions as:
 - a. television
 - b. radio
 - c. newspapers
 - d. lectures
 - e. magazine article
2. Prepare models for a museum showing the process of evolution and change.
3. Prepare a time line showing change
4. Prepare a series of pictures showing record of trip

IV. Evaluation:

1. Evaluate trip and discoveries by checking data with time and reliable resources
2. Evaluate process of thinking, learning, communication used in entire study
3. Evaluate the way the group reacted to study which required cooperation and interdependence
4. Evaluate the quality of the writing, models, pictures and reports

V. Materials:

Slide projector, motion picture machine, screen

Slides (Beacon Company has excellent slides)

Films - "How Living Things Change" - Coronet
 "Prehistoric Times: The World Before Men" - Coronet
 "History of Living Things" - Coronet
 "Lost World" - EBF

Additional activities

Using information related to space and moon exploration, let time ship carry students into the future.

Ecology

- I. Concept: Ecological relationships
- II. Procedure: Guide students on observation tour through selected plot of land. Record findings, discuss and classify.
- Hypotheccation
1. Ecology is the relationship of one thing to another.
 2. All living things are interdependent on each other and their environment.
- Research
- From the classification and problem identification evolving from the first trip, return to the plot for specialized observation.
- Observation
1. Search for animal homes
 2. Search for wild flowers, plants, trees
 3. Search for bird life
 4. Search for water life
 5. Make a study of the soil and test it for composition
 6. Make a study of the water supply and test it
 7. Test the air and compare with city air
- Discussion making
- Discuss why particular types of plant and animal life are or are not found in this specified area. Deepen knowledge on each topic through a study of films, pictures, slides, books, talks with resource people.
- III. Product:
- Select a trail, number each station and record topics of interest to be observed and studied at each. Develop a nature trail.
- Communication
- Draw picture of the wild-life found in the area and write short paragraphs of pertinent information. Compile into booklets for distribution. When the trail and its points of interest are well established, remove the temporary markers and replace with permanent concrete markers with station numbers painted on each. Erect an entrance sign with the name of the trail.
- Take photographs of the trail at different times of the year, of specific instances of interdependence--roots in water, birds nesting or feeding in trees, symbiotic relationships.
- IV. Evaluation:
- What has been discovered about ecological relationships?
 How can these understandings be applied to other situations?
 What are some concerns on dangers that have been discovered?

2. Sirens, traffic
3. Buzzing insects
4. Jack hammer and construction noises
5. Noises at night
6. Classroom noise

Research

1. Collect news articles on noise
2. Locate scientific studies
3. Report on people who are bothered by noise
4. Set up noise experiments with plants or animals
5. Visit airport to measure noise
6. Measure noise at certain downtown locations.
(Use tape recorder set a certain volume.)
7. Study why dogs howl
8. Study of cause and effect of sonic boom and its effect on egg production
9. Ask doctor to discuss ear and sound
10. How can sound be helpful?

III. Presentation:

- Use as many means of communication as possible
1. Exhibits of experiment
 2. Panel discussions
 3. Debates
 4. Charts
 5. Stories, poems, plays
 6. Bulletin boards and notebooks

IV. Evaluation:

- Examine each presentation in relation to the major concept.
1. Does the exhibit prove or disprove concept?
 2. Is the data valid? Is it fact or opinion?
 3. Does the exhibit transmit the information in an interesting manner?
 4. Can the exhibit be shared with others?
 5. Discuss the learning styles used to collect data.
 6. Discuss the communication styles used to present data.

V. Materials:

- Science books from library
Tapes, records, films on Sound
Record player, plants, hamsters, cage, soil
Film - "Learning About Sound" - EBF
"Our Senses: What They Do for US" - Corohet
"Sound Energy and Hearing" - Harvey White - EBF
"Ears and Hearing" - EBF

Section V

UNITS FOR MATHEMATICS - THE WHOLE AND ITS PARTS

I. Concept:

The whole is made up of many parts.

- II. Procedure:
- Introductory activity Draw squares, rectangles, Greek Cross and triangles on chart paper and cut out to form puzzles. Put each puzzle in an envelope giving directions on what is to be made.
- Hypothesis Give to students to put together.
- Hypothesis Encourage students to guess what each puzzle will be before and during the solving.
- Research Let students put puzzles together to make a whole and to find that there are patterns which facilitate mathematical operations. Students will be handling, observing, using trial and error, looking for relationships, analyzing and making decisions.
- III. Product: The completed puzzle proving the hypothesis.
- This can be extended into students making their own puzzles and patterns or an activity such as changing a quarter which uses the total process again.

Changing A Quarter

- I. Concept: The whole is made up of many parts.
- II. Procedure: Students are divided into groups, each given a quarter in various coins and asked to find how many ways it can be changed.
- Activity
- Hypothesis Students estimate how many combinations are possible for changing quarter.
- Research Students make as many combinations as possible; or until a pattern is discovered.
- III. Product: A chart is made that shows the pattern and total possible combination (See Chart I)

CHART I

The following plan will help you know when you have all the possible combinations for changing a quarter:

Find the Pattern

Dimes	2	2	1	1	1	1	0	0	0	0	0	0
Nickels	1	0	3	2	1	0	5	4	3	2	1	0
Pennies	0	5	0	5	10	15	0	5	10	15	20	25
Total Coins	3	7	4	8	12	16	5	9	13	17	21	25

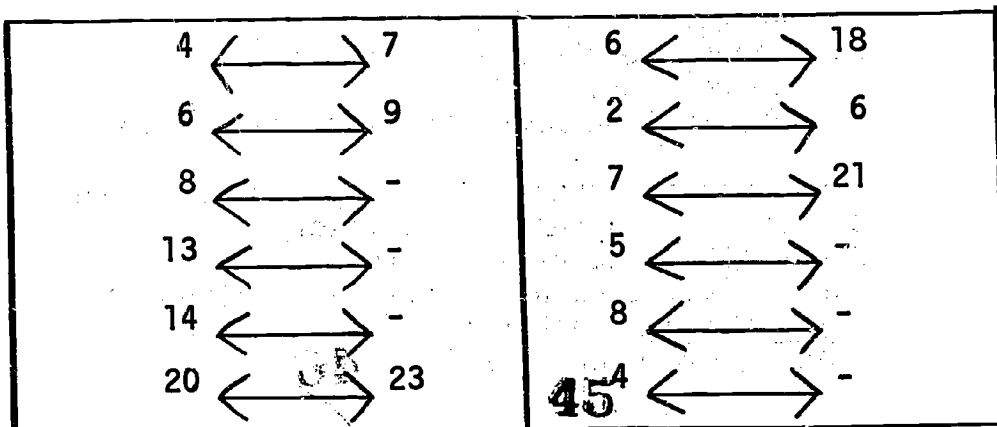
A pattern hunt exercise can be developed from this evaluation similar to the following one in chain addition.

CHART II

Finding Patterns

1.	2.	3.	4.	5.	6.
2	1	3	3	2	-
2	2	2	3	3	3
4	3	5	-	-	8
6	5	-	-	-	-
10	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
42	44	50	63	55	79

7.	8.	9.	10.	11.	12.
2	5	7	6	9	2
1	6	5	5	8	2
3	7	6	7	7	3
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
64	192	182	188	242	75



IV. Evaluation:

The entire procedure can be evaluated in terms of the initial concept with such questions as:

1. Did students find that the parts are accurate in size?
2. Do "patterns" facilitate mathematical computations?
3. How can these concepts be applied in other ways? disciplines? situations?

V. Materials:

Puzzles
Quarters
Pattern Hunt Sheets

Geometry

I. Concept:

Geometry is a precise science.

II. Procedure:
Introductory activity

Show the class a simple closed figure as a cone or cube. List as many observations as the students can give that describe the figure.

Hypothesis

Let students hypothesize about the way the figure is constructed; how the figure is used or applied in reality; and also consider the hypotheses that somethings must be exactly correct if they are to be useful or successful.

Research

Give students paper, protractors, rulers, scissors, glue and tape and ask them to make the cube or cone.

Evaluation

Was the figure correct in appearance?
Where and how is it different from the model?

III. Product:

Using the directions given in Elementary Mathematics Enrichment help students construct cones, cubes and then more complex figures such as dodecahedrons and icosahedrons.

Experiment with the forms to learn about volume, weight bearing, tension.

IV. Evaluation:

1. What controls must the student use to construct these figures?
2. Can measurement by the eye be accurate enough to construct these figures?
3. Where are these figures used in the world of reality?
4. Why must accuracy be of paramount importance?

V. Materials:

Construction paper, glue, tape, rulers, pencils, compasses, protractors, scissors
Plastic 3-D Geometric forms
Book: May, Lola J., Elementary Mathematics Enrichment, Book 6 (New York: Harcourt, Brace and World, Inc., 1966) 46

UNITS IN THE FINE ARTS

Music

Concept:

Music is a form of communication and can tell a story, create an emotion or paint a picture.

Procedure:

Introductory activity

1. Provide a musical situation to be explored by playing several records:
 - a. Stars and Stripes Forever - Sousa
 - b. William Tell Overture - Rossini
 - c. Funeral March - Chopin
 - d. A rock and roll selection
2. Discuss the differences in mood, rhythm, tempo, tonal coloration
Discuss choice and use of different instruments, why each was selected for special effects in mood, rhythm
Discuss what distinguishes a lullaby from a march - rhythm, melodic line, volume, instrumentation
What makes music sad, happy - major and minor keys, tempo

Hypothesis

Students State Hypotheses:

1. Music can tell a story or paint a picture.
2. A regular rhythm makes people move.
3. Hopping, skipping, running, can be described musically.
4. A whole story can be told in music.
5. The same story can be told in music, in art, in literature.

Research

Collect records to illustrate

Example: Carnival of Animals - Saint Saens

Each section represents a certain animal.

1. What characteristics of each animal does the music portray? (proof)
2. Would you have recognized the animal only by hearing the music? (possible disproof)
3. Could the music have portrayed a different animal? (ambiguity)
4. Why does the use of a running scale represent horses?
5. Why do bass violins represent the elephants?
6. Can sounds really portray a animal? (disproof)

Example: Sorcerer's Apprentice - Dukas

1. Tell the story of the Wizard's boy apprentice who, disliking his chore of carrying water from the yard well to fill the tubs in the basement,

puts on the Wizard's forbidden hat and causes the broom to perform his task. Not knowing how to stop the broom when the tubs are filled and running over, the apprentice takes an axe and chops the broom to bits. Each bit becomes a new broom and carries more and more water. The frantic apprentice sees the water rising higher and higher and is forced to call for help and to confess his disobedience. The Wizard retrieves his hat, orders the water back to the well and roars to the apprentice, "Don't touch my hat!"

Research
cont'd

2. Students discover the musical themes which Dukas uses to tell the story: the shimmering magic music, the apprentice, the axe chopping, the broom walking, water pouring, rising water, call for help, and the final admonition "Don't touch my hat!"

Other activities

1. Research concept of a tone poem
2. Research instrumentation
3. Decide if music can tell a story

III. Communication:

Music Can Tell A Story.

Presentation of
conclusion

1. Act out Sorcerer's Apprentice or Carnival of Animals
2. Draw pictures or mural
3. Tell story against background of music
4. Permit musically talented students to compose their own tone poem using either real instruments or rhythm band instruments
5. Tape different kinds of sounds to tell a story-- the city streets, the farm
6. Listen to tape of background music on TV or movies

IV. Evaluation:

Conduct the evaluation in terms spelled out in Chapter II

V. Materials:

Record player, records, tapes, art materials, books, pictures, rhythm band instruments

Additional
activities

The same procedure can be used to show a story represented in different art forms by studying the love story of Francesca da Rimini, as it is told by:

1. Dante in The Inferno - poetry
2. Rodin in The Gates of Hell - sculpture
3. Tchaikovsky in Francesca da Rimini - music

Art

- I. Concept: Beauty
- II. Procedure:
- Introductory activity
1. Ask each student to bring something he considers beautiful to share with class.
 2. Discuss the qualities that make things beautiful--shape, texture, mood, color, pattern, rhythm, meaning, strength, ruggedness, composition, relationships, etc.
 3. Classify collected objects to illustrate these qualities.
- Hypotheccation
- Students make observations and state hypotheses: (samples are listed)
1. All art has form, color and texture.
 2. All art uses variety, contrast.
 3. Art is a modern concept.
 4. Colors establish moods and create feelings.
 5. Dark colors are mysterious and stand for harshness or ugliness.
 6. There is more room for the imagination to work in modern or non-objective art than in art which is realistic or primitive.
 7. People use art to tell about themselves or famous events.
 8. Artists don't need to know much about the world.
- Research
- Students select exhibits that illustrate their discoveries about art
1. Primitive art forms
 2. Renaissance art
 3. Modern American
 4. Specific artists work
 5. Cartoons, posters
- Different kinds of artists are invited to be consultants:
1. Cartoonists
 2. Architects
 3. Painters
 4. Sculptors
 5. Photographers
 6. Decorators
 7. Stage designers
- Conclusions are reached concerning hypotheses about the nature of beauty.
- III. Product:
- Each student reports his conclusions to class, illustrating with examples. A poster such as form is demonstrated to be present in art, music, a play, a story, a poem.

- IV. Evaluation: Students use media to demonstrate form, space, tell a story, as other students decide form. Product is evaluated in terms of suitable criteria concerning the individual media and the nature of beauty.
- V. Materials: Slides, prints, films, artifacts, models, paint, clay, other art materials.

Section VII

ADDENDA

Additional topics and concepts which can be developed in the Itinerant Resource Program are listed with suggestions regarding implied purposes and related disciplines. By applying the teaching and learning processes described in Chapters I and II, each can be developed into a full inquiry unit.

I. Related Disciplines: Social Studies, Language Arts, Fine Arts, Process

1. Interdependence A study of how different peoples, economies, ways of living, cultures, sciences or disciplines support and augment each other.
2. Where Did You Get That Hat? A study of countries, climates, occupations or fashions.
3. Candlemaking Exploration into the art of producing common household items and relating them to their "peak" historic periods.
4. South of the Border Comparative studies of the history, cultures, people, archeology, geology, economics of Mexico, other Central and South American countries and the United States.

II. Related Disciplines: Language Arts, Fine Arts, Process, Social Studies

1. Haiku and Diamontes A study of small poetic forms as a means of self expression. Also relates to Asiatic literature, to art and to music.
2. Books for Young Children Original stories, poems or informational books for kindergarten or primary children, illustrated by class artists and read aloud by vocally talented students. Books can be donated to school library.
3. Creative Writing Project Use series of mounted magazine pictures to promote in-depth thinking, group inter-action, reinforcement of personal values.
4. Cartoons and Riddles Development of critical thinking, interpreting, analyses and transformation by condensing an idea or message into compact media.
5. Newspapers Using the newspapers to develop awareness of meaning of fact, opinion, inference, propaganda. Also for study of the changes in modern language; communication styles such as charts, numerical listings as in sports and stock exchange, cartoons; economics, interdependence, tragedy, comedy.

6. Debates Developing research techniques, organization and decision making skills, scope and sequence factors in support or against an idea. Development of vocal presentation skills and talents and knowledge of rules governing debate.
7. Creative Dramatics Development of dramatic talent. Also use to develop good self images, self expression--verbally and through body movements; create awareness of non-verbal communication and how to use it to express ideas and emotions.

III. Related Disciplines: Science, Art, Music, Language Arts, Social Studies, Process

1. Mirrors Study of light reflection, use of lens, distortion, illusions, signaling as a means of communication, laser beams. This can be lead to astronomy, the study of light as source of energy, or science fiction.
2. Insects The history and future of insects on this planet; their effect upon man's economy, health, emotions; the place insects occupy in literature, art, music, mythology.
3. Seeds Study of plant growth, elementary botany, agriculture, man's dependency. Relate to geographic areas of planet; food, transportation and population ecologies; the use of seeds in art, the symbolisms found in literature and our language.

IV. Related Disciplines: Mathematics, Music, Language Arts, Industrial Arts, Social Studies, Process

1. Picture Graphs and Number Lines To help students become aware of diverse application of mathematics.
2. Weights and Measurement Introduction to and experience in using weights and measurements other than the common pound, foot, gallon, etc.
3. Literary Mathematics A study of mathematical vocabulary by creating awareness of mathematical terms used in stories such as: once upon a time, many, more, high, slow, hour, etc. Try removing all mathematical words from a story.
4. Toys and Puzzles Discover the use of mathematical principles and laws used in toys and puzzles. Investigate the use of geometric forms, pulleys, inclined planes found in toys.
5. Travel Investigate how many divergent ways can be taken to travel from Chicago to Hawaii, the mileage, the costs, the time. Make charts and graphs comparing discoveries.
6. Musical Math Construct an orchestra of wind, string and tonal percussion instruments by applying principles of math to length of strings, depth of water in bottles or length of whistle pipes, and size and proportion of wooden xylophone blocks.

V. Process

1. Classification and Diversification - Use 50 or more varied objects for the purpose of identification and multi-stage classification. Attribute blocks are excellent for this. Also a bag full of "junk". Follow up with research to determine composition, history, divergent uses. Try thinking of original ways to use single object or combination of two or more objects. Ask such questions as, "How can a spoon be used when it is not being used to dip and carry (the normal usage)?", "Which is softer-- a whisper or a piece of cotton?"
2. The Boxes - Pass a sealed box containing two or more moveable objects around class. List all observations on board. Classify ways used to collect data. Distinguish between facts and inferences or hypotheses. Ask each student to use two different ways to communicate what he believes to be in the box. Collect.

Show a second box. Open it to show what it contains. Ask which box interests the class most. Share the communications about the content of the first box. Discuss the validity of these hypotheses and the evidence that supports each. Refer to individual personal experiences that bolster his decision.

Do not open the first box. Not ever. This reinforces the validity of each decision. No one fails, and all decisions are accepted as correct for each individual. Once the box is opened, no one will ever think of it again. Closed, it remains an object of investigation stirring up all the thinking processes.

Learning should always be open-ended and curiosity should be respected and valued as a primary motivator of learning.

Chapter IV

CONCLUSION

The HANDBOOK will give the perceptive, innovative and resourceful teacher of gifted students concrete units spelled out in great detail. Every unit of work can and will be modified by the teachers who use this publication. From the additional activities and the Addenda in Chapters II and III, resource teachers will derive many more unit ideas. No publication could possibly give the teacher all the material she will need in the development of a curriculum for the students who possess the special abilities and talents that these bright children do. Many ideas will originate from the children themselves. These units of work will enable the teacher to allow the children to work independently, in small groups and at times as a whole class. Class size will vary from school to school. The resource teacher will use this publication as a springboard in developing her own program to meet the needs of her students.