

# **ADVENTURES IN PROBLEM SOLVING AND SKILL DEVELOPMENT**

*Summerday*

*P.O. Box 47, Lewis Run, PA 16738*

## **OBJECTIVES**

To provide ideas for integrating problem solving and skill development activities in the school and home environments.

To increase the level of problem solving and skill development expertise.

To have fun.

## **PROGRAM DESCRIPTION**

“Puzzles play tricks with the way we think and make us think in new ways.” (J. Dalgety - England) This course will explore ways of integrating problem solving and skill development activities, through the use of puzzles, in both the home and school environments. Materials provided at each session will allow immediate integration within the curriculum. Resources will allow selection of a wide range of activities to meet individual needs of teacher and student.

## **PROGRAM NEED**

Problem solving and skill development activities can be integrated within every grade level and curriculum area. The need for increased expertise in these areas is well documented and continuously addressed by educators.

## **PREREQUISITES**

None

## **MATERIALS FEE**

\$40 per student

## **GRADING**

Students contract for their grade. Grading criteria will include class participation and projects applying each of the levels of Bloom's Taxonomy and each of the Learning Modalities.

## SESSION 1

### Overview

Objectives

Sessions

Grading

### Classification of

#### Puzzle Types

Slocum/Boterman's

Book - *Puzzles Old  
and New*

Put-Together

Take-Apart

Interlocking Solid

Disentanglement

Sequential Movement

Puzzle Vessels

Dexterity

Vanish

Impossible Object

Folding

### Design and Materials

International Puzzle

Exchange

Designers

U.S.

England

Japan

France

Netherlands

Russia

Personal Puzzle Design

Materials

Wood

Metal

Glass

Foam

Plastic

Paper

## SESSION 2

### Problem Solving Techniques

STICKS 'N STORIES  
PYRAMIDS

Analysis

Application

Simple - Complex

Creative Extensions

Goldfish - Dog

Forming New Problems

Level of Difficulty

Do *remove* first

Sequencing

Thinking Differently

Visual

Verbal

Symbolic

Trial and Error

Transference

2-piece pyramid

4-piece pyramid

Visualization

Aha

Put aside

2D to 3D applications

## SESSION 3

### Skill Development

MOUSE AND CHEESE

BURR PUZZLE

CRIME - FLIP BOOK

Lateral Thinking /  
Paradigm

Rainbow Tree Puzzle

Simple vs. Wedge Key

Calculating

Classifying

Collecting Data

Communicating

Compare/Contrast

Centrifugal force

Controlling Variables

Defining Operationally

Estimating

Experimentation

Following Directions

Hypothesizing

Inferring

Interpreting Data

Investigating

Making Models

Measuring

Observing

Patience

Increased Time on Task

Predicting

Sequencing

Tables/Charts/Graphs

Making/Interpreting

Visual-Spatial

3D Topological Thinking

Lateral Thinking

Logic

## **SESSION 4**

### **Cross-Curriculum**

#### **Science**

Sticks 'n Stories  
Magnetism

#### **Math**

Combinatorial  
Geometry  
Topology

#### **Social Studies**

3D Architecture  
Historical  
Geography

#### **English**

Stories  
Proverbs

## **SESSION 5**

### **Multicultural**

Rainbow Tree  
Learning Differences  
Flags  
Folk Toys  
Language  
Culture  
Architecture

## **SESSION 6**

### **Cooperative Learning**

Positions Puzzle  
Trust activities  
Outdoor activities  
Floor Maze  
Balance Maze

## **SESSION 7**

### **Discovery Centers**

Biomes  
Oceanography  
Endangered Species

### **Jigsaws**

Location  
Matching  
Mystery  
3D

Dexterity / Patience  
Disentanglement

Metal  
String

Packing  
Stacking  
Mazes  
Folding Puzzles

Illusions

## **SESSION 8**

### **Interactive Bulletin Boards**

Smiles  
Jokes  
Halloween  
Photomicrographs

## **SESSION 9**

### **Extended Learning**

Computer  
    Brix  
Video  
Field Trips  
Orienteering

Body Language / Faces  
Rock Puzzles

Students will have the opportunity to take puzzles home to solve.

Students play **CHALLENGE BINGO** for each puzzle they solve. They receive Puzzle Give-aways.

## **SESSION 10**

### **Classroom Management Anecdotes**

Beginning of class  
Anticipatory Set  
Behavior Award  
Learning Center  
Club Challenge  
Challenge Bingo  
Extended Learning

### **Classroom Anecdotes**

Reading  
Self-Esteem  
Social Skills  
Motivation  
Hobby

### **Anticipatory Sets**

Magic  
Discrepant Events

## **SESSION 11**

### **Project Presentations**

Give a man a fish and he will eat for a day.  
Teach a man to fish and he will eat for a lifetime.

Students present and share.

A copy of each presentation is given to each participant.

## **SESSION 12**

### **Project Presentations**

Establish a puzzle exchange for interested participants.

Give-away cards

Where to buy puzzles

Sign-up sheet for those interested in:

PUZZLING ....

PLAYING ....

STORYTELLING ....

YOUR WAY THROUGH  
SCIENCE