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INTRODUCTION

The ability to think clearly and reason logically is a primary goal of education, and can be taught to children in a way that is interesting and fun. In an information-saturated era, when this morning's facts are this afternoon's artifacts, a person must be able to think clearly, analyze information, and reason logically.

SIX TYPES OF LOGIC PROBLEMS

Logic, Anyone? presents six types of logic problems—analogies, matrix logic, table logic, circle logic, syllogisms, and Venn Diagrams. Step-by-step work pages introduce each type of problem, then lead students through the process of understanding and solving the problems that follow. A reminder page follows each set of work pages, detailing key points to remember when working the problems. The problems themselves are arranged in order of increasing difficulty. The last problems in each section are significantly harder than the first. By doing the easier problems first, students prepare themselves to tackle the more demanding ones at the end.

Each section concludes with three pages that help students make up their own logic problems to try on their friends. Students will find that constructing their own logic problems can be at least as demanding as solving problems made by others, and that it further builds the thinking skills used to solve logic problems.

HOW TO USE THIS BOOK

Much of the material in *Logic, Anyone?* originally was developed for the gifted, but it also has been used successfully with students, aged eight to fourteen, who are not necessarily identified as gifted.

In the classroom, the logic problems can be used in any of three ways: (1) as independent activities at learning centres; (2) as extra or supplementary work for advanced students and/or those who finish assigned work early; or (3) as a kind of mini-course in thinking skills, in "concentrated" form, for the entire class.

The work pages and problem pages in *Logic, Anyone?* are designed to be self-explanatory—most students should be able to do

them without help from the teacher. If the whole class is working on the problems at once, however, it might be a good idea for the teacher to introduce the material, perhaps leading the group through the work pages and even through the solution of the first problem or two. After that, students can work on their own. Some students will be eager to race through all the problems in a section; others will want to take more time. The pace is up to the teacher, who is responsible for duplicating and distributing the problems. For the most part, it's probably a good idea to take a few days with each section, encouraging students to make up problems to challenge one another, so that the material can be reinforced.

At the back of the book is an Answer Key, for use in correcting problems. The teacher may choose from among three alternatives regarding correction of problems: (1) collecting the students' completed problems and correcting them; (2) duplicating the Answer Key pages and laminating them so that students can correct their own work; or (3) reading the answers aloud to the entire group when all students are finished. This last alternative allows for further discussion and clarification, which will be particularly helpful when checking answers to the Venn Diagrams. In fact, the answers to the Venn Diagram problems include a brief discussion of the rationale for each answer.

PROBLEMS THAT ARE FUN TO WORK

Although the activities in *Logic, Anyone?* are called logic *problems,* they are more like puzzles, but with one important difference—there are no tricks. Like good puzzles, these logic activities are fun and stretch the brain. In introducing these problems to students, the teacher may want to emphasize their puzzlelike qualities to heighten students' motivation. While students are enjoying themselves working these puzzles/games/problems, they will also be working toward a very serious goal—developing the ability to think, organize, analyze, and arrive at logical conclusions.

ANALOGIES

An analogy is a logical way of making a comparison. Here is an example of an analogy:

Hot is to *cold* as *near* is to *far.*

An analogy compares relationships between two different sets. In the example, the two sets are *hot/cold* and *near/far.* Each two items in a set have a special relationship. The subjects of the sets can be different (*hot* and *cold* are about temperature; *near* and *far* are about distance). But the items in one set must be related to each other in the same way as the items in the other set.

Here's how that works. Start with one set—*hot* and *cold.* What is the relationship between these two? Underline the correct answer.

They: **1)** mean the same thing; **2)** mean almost the same thing; **3)** are opposites

ANSWER: Of course, they are opposites.

Now here's the other set—*near* and *far.* What is the relationship between these two? Underline the correct answer.

They: **1)** mean the same thing; **2)** mean almost the same thing; **3)** are opposites

ANSWER: Again, they are opposites.

What is the relationship between *hot* and *cold*? _____

What is the relationship between *near* and *far*? _____

ANSWER: Yes, opposites.

Since the relationships are the same, we can say, "Hot is to cold as near is to far," and we have made an analogy.

Let's try another analogy, using *leaf* and *tree* in one set and *petal* and *flower* in the other set.

What is the relationship between *leaf* and *tree*? Underline the correct answer:

They are: **1)** not a part of a whole; **2)** the same; **3)** a part of a whole

ANSWER: They are a part of a whole.

ANALOGIES REMINDER PAGE

- An analogy is a comparison of relationships between two different sets.
- The subjects of the sets are different, but the relationships are the same.
- Look for the relationship in the first set. Quickly survey the second set of choices for a similar relationship. Some relationships are:

  Part of a whole
  Opposites
  The same
  Time sequence (before or after, for example)

- Compare the two sets to see that the relationship in each set is the same.
- The words in both sets must be in the same order. For example, if the first set is *a part to whole*, the second set must be *a part to whole*, **not** *whole to a part.*
- An analogy has a special form. It is always written in the same way:

_____ is to _____ as _____ is to _____.