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INTRODUCTION

“Use it or lose it!” is a catchy phrase that has particular significance for those of us battling to keep our wits about us as we age. Recent research in the cognitive sciences confirms that the stimulation of important centers in the brain will not only dramatically slow the natural decline of one’s mental powers but, in fact, help *improve* the function of brain cells. It is also important to understand that the brain’s different skills don’t compete with each other for space or resources, but rather *support* one another. *E pluribus unum* — “out of many, one” — clearly holds more than one guiding principal for all of us as we go about our daily lives.

The mental exercises in this book are designed to challenge a variety of real-world brain skills in entertaining ways: logical deductive reasoning; creative visualization of forms; manipulation of the symbols and rules of mathematical computation; and application of verbal expression and grammatical logic to identify solutions to problems presented in non-verbal ways. A good illustration of how different skills team together can be found in that cluster of techniques and abilities loosely referred to as *creativity*. Brainstorming is a right-brain activity to the extent that it’s non-judgmental, and “divergent” rather than “convergent” in the sense that it’s not goal-directed towards a single “right” answer. But in order to produce good results, any brainstorming session must be followed by critical evaluation, to analyze the logical conclusions of each idea, thus sorting the good ones from the bad. Conversely, pushing a simple idea to its logical conclusion may lead to a counterintuitive conclusion, that is sometimes referred to as the “Eureka!” effect.



In like manner, plotting the details of a *Routes* exercise may lead to a flash of insight as the pieces begin to come together. The intuitive visual insight as to a possible solution might pan out after you’ve applied a detailed analytical check — or it might not!



Number manipulation is a classic left-brain skill, and your left hemisphere will come into play as you work on the *Nimble Numbers* exercises. But many of those puzzles also have visual elements that tap right-brain skills, such as analyzing a collection of numbers both in terms of their abstract mathematical pattern, and their spatial pattern as laid out on the page.



Eye-Ques also present logical conundrums (left brain) in a visual format that may require a contribution from the right-brain’s spatial-IQ regions. For most people the “Life or Death Logic” on page 50, for example, requires visualizing the problem in one’s mind’s eye before determining the answer.



Pat-Turns are the exercises that will tap your right-brain spatial abilities. But again, their complexity will require you to keep track of solutions previously attempted and discarded in a way that will probably call on your left-brain language skills and frontal-lobe planning, organizing, and “mental tracking” abilities.

When visual exercises can be solved with a verbal explanation you’ll be able to use left-brain regions to help solve them. Whether you view your linguistic problem-solving faculty as a crutch or invaluable tool depends on your point of view. Different minds work in different ways, and you may find that your approach to solving one of these exercises is different from that of a friend or partner. For that reason, many of these exercises are fun to do in pairs. For a quick test of how different your and your partner’s minds really are, try presenting him or her with the “Possible Pairs” exercise on page 48, and then compare your answers. In any case, we believe it’s good to have as many problem-solving techniques at your disposal — both individually and collectively — as possible.

A few suggestions:

- We have provided a hint to each answer, printed upside down at the bottom of the page, two pages after the exercise.
- For the faint of heart, we have also supplied a solution to each exercise. It usually can be found upside down five pages after its corresponding exercise. Don’t peek and eliminate the challenge!
- You may wish to mark the answers on a separate sheet so you can also challenge a friendly competitor with the problem. If necessary you can make notes on a tissue or clear acetate laid over the page.
- Lay tracing paper over mazes to check your route after you think you have found it by eye alone. To make a maze more challenging, cut a hole the size of a dime in the center of a two-inch-square card. Place the hole at the beginning of a maze and follow the route through the hole as you move the card along the maze paths.



EYE-QUES: Abstract logic — if A and not B is so, then not-A is not so, but not-B may be so.



NIMBLE NUMBERS: Number patterns — numbers must obey rules. First figure out the rules that govern a group of numbers.



PAT-TURNS: Spatial relationships — being forced to visualize a dimension you cannot touch or measure.



ROUTES: Pathfinding — as in mazes.