Improves Thinking Skills, Academic Vocabulary, and Concept Learning of Kindergarten Students

- A research-based instructional program
- Teaches beyond most state and Common Core standards
- Carefully sequenced lessons to develop thinking skills
- Promotes understanding of key kindergarten mathematics, science, and social studies concepts
- Improves observation and description skills
- Employs language integration techniques to teach thinking skills and key concepts
Major Benefits

- Eliminate the achievement gap in kindergarten through second grade
- Increase the participation of under-served populations in gifted and advanced classes

THINKING SKILLS INSTRUCTION

ACADEMIC VOCABULARY DEVELOPMENT

COMMON CORE CONCEPTS
Program Objectives

ACADEMIC VOCABULARY
Develop academic vocabulary for common terms in:
- mathematics
- science
- social studies

THINKING SKILLS INSTRUCTION
Develop basic thinking skills in kindergarten:
- describe
- define
- compare
- contrast
- classify
- sequence
- part/whole analysis

CONCEPT DEVELOPMENT
Develop mental models for key concepts in:
- mathematics
- science
- social studies
Content Selection

• Framework for 21st Century Learning

• Standards
  - North Carolina Standard Course of Study
  - Florida Sunshine State Standards
  - Common Core State Standards
INSTRUCTIONAL METHODS

- **DIRECT INSTRUCTION** – prior knowledge, objective, modeling, practice, metacognition, application

- **DEVELOPMENTAL FORMS** – concrete (pictures), semi-concrete (student book), abstract (discussion)

- **LANGUAGE INTEGRATION ACTIVITIES** – developmental activities, such as drawing, creating big books, telling stories, writing

- **COOPERATIVE LEARNING** – paired problem-solving, think/pair/share, pooled information

- **WHOLE SENTENCE RESPONDING** – In thinking skills activities students and teachers speak in complete sentences.

- **DISCUSSING PICTURE BOOKS** – introduction or extension of thinking skills lessons by appropriate nonfiction children’s books
HOW WE KNOW IT WORKS

• Increased scores on language proficiency and cognitive abilities tests
• Increased scores on normed or criterion-referenced achievement tests
• Proficient student writing
• Increases number of students placed in advanced classes and subsequent successful performance
How do the goals and the methods of this instructional program reflect the needs and strengths of the students I teach?
MATHEMATICS

- **Properties of Polygons** – naming polygons and their properties, observing sides and angles

- **Reading and Writing Mathematical Terms** – recognizing and using geometry terms, ordinal numbers, directional words

- **Pattern Recognition** – rotation, reflection, sequential patterns

- **Similarity and Congruence**
SOCIAL STUDIES

- **Family members** – age, gender relationships
- **Occupations** – consumer/producer, goods/services, community helpers
- **Buildings** – residences, businesses, government buildings, storage
- **Vehicles** – passenger, public transportation, work, recreation, cargo

Circle the picture of the vehicle that is most like the one on the left. Then explain why they are similar.
SCIENCE

• **Food** – plant or animal products, preparation, type (dairy, meat, vegetable, grain, fruit), part of the plant we eat (root, stem, leaf, seed, fruit)

• **Animals** – type of animal (fish, bird, mammal, amphibian, reptile), reproduction (eggs, live birth), habitat, what they eat

Circle the picture of the food that is most like the one on the left. Then explain why they are similar.
FIGURAL THINKING SKILLS

• **Describing Shapes** – naming shapes, finding shapes to match a description, describing characteristics of a shape

• **Figural Similarities and Differences** – matching and combining shapes, producing equal figures, figure completion

• **Figural Sequences** – recognizing and producing the next figure in a sequence

• **Figural Classification** – classifying by shape and/or color, forming classes, depicting overlapping classes
VERBAL THINKING SKILLS

- **Describing Things** – matching a picture to a description, describing people, animals, or objects shown in pictures
- **Verbal Similarities and Differences** – selecting similar people, animals, or objects, explaining similarities and differences
- **Verbal Sequences** – ranking objects or people by a significant characteristic
- **Verbal Classifications** – explaining characteristics of a class, exceptions, sorting into classes
- **Verbal Analogies** – naming the kind of analogy or completing the analogy

Circle the picture of the animal that is most like the one on the left. Then explain why they are similar.
COMMON CORE THINKING SKILLS INSTRUCTION

1. Emphasizing Informational Texts
   Discussing detailed photographs helps students develop the vocabulary used in nonfiction texts and produces a thorough comprehension of each concept.

2. Building Knowledge Within Content Domains
   All thinking skills exercises employ or exceed content knowledge in mathematics, science, and social studies in kindergarten.

3. Increasing Complexity
   Exercises provide carefully sequenced instruction of key curriculum concepts, describing their properties in greater detail than common text information.

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COMMON CORE THINKING SKILLS INSTRUCTION

4. Answering From Texts
Students discuss the properties of key concepts in mathematics, social studies, and science. Lessons provide carefully scaffolded writing activities to teach kindergarten students how to write from observations of detailed photographs.

5. Writing From Sources
The lessons address the increasing rigor for writing in the kindergarten grades by modeling the sentence patterns and using the signal words to describe relationships.

6. Developing Academic Vocabulary
The terms used are introduced one year prior to most state standards in order to provide practice for students unfamiliar with these terms.
RESEARCH BASIS

- 1980s thinking skills initiatives
- Dade County, Florida T.E.A.M. – 30 years of thinking skills instructions
- *Project Bright Idea*, North Carolina Department of Public Instruction Javits Grant–10 years of implementation and external evaluation
- Academic vocabulary development – Robert Marzano
THEORETICAL FOUNDATION

Thinking Skills
- Revised Bloom’s Taxonomy
- Albert Upton model

Metacognition Theory

Instructional Methods
- Piaget (observe, write, discuss)
- Madeline Hunter (direct instruction)
- Cooperative learning (Johnson and Johnson)

THINKING SKILLS INSTRUCTION

ACADEMIC VOCABULARY DEVELOPMENT

COMMON CORE CONCEPTS
Metacognition is analyzing your own thinking to ensure it is clear, organized, and complete.

METACOGNITION

• Helps students clarify their thinking processes
• Helps students remember thinking processes they are taught
• Promotes transfer of thinking processes to other contexts
• Establishes the habit of students evaluating and controlling their own thinking processes
• Promotes students’ confidence as effective learners
Mental models outline the characteristics needed to describe or define a concept.

MENTAL MODELS

By the end of this book, students should know the significant characteristics of these mental models and how to create new ones.

- Polygons
- Family members
- Foods
- Jobs
- Vehicles
- Buildings
ANIMALS MENTAL MODEL

Students will:

- Describe, compare and contrast, and classify animals
- Discuss an animal’s appearance (color, size, body covering), where it lives, how it moves, and what it eats
- Learn types of animals: fish, birds, reptiles, mammals, and insects
Students will:

- Describe, compare and contrast, and classify family members
- Discuss age, gender, roles, relationship to other family members, and experiences that make various family members special
Students will:
- Describe, compare and contrast, and classify food
- Discuss whether food is a plant or animal product, its appearance and taste
- Describe food products from plants
- Identify the parts of a plant: root, stem, leaf, fruit, and/or seed
Students will:

- Describe, compare and contrast, rank, and classify occupations
- Discuss whether jobs provide goods or services, how much training is required, the activities of various professions, and the equipment and uniforms associated with the profession
- Learn types of jobs: producers, health workers, government workers, and service providers
VEHICLES MENTAL MODEL

Students will:
• Describe, compare and contrast, rank and classify vehicles
• Discuss the size, speed, and purpose of various vehicles; where the vehicles are driven; their appearance; their ownership; and their parts
• Learn types of vehicles: passenger, public transportation, work, recreation, and cargo
**BUILDINGS MENTAL MODEL**

**Students will:**
- Describe, compare and contrast, and classify buildings
- Discuss the size, purpose, construction, design, materials, and location of various buildings
- Discuss who lives or works in a building, and who owns it
LESSON STRUCTURE
DIRECT INSTRUCTION

- **Introduction**
  Indicates prior knowledge

- **Stating the Objective**
  Explains what students will learn in the lesson

- **Conducting the Lesson**
  Guides the thinking process and provides independent practice

- **Thinking About Thinking (Metacognition)**
  Clarifies the thinking process

- **Personal Application**
  Relates the thinking skill to students’ experiences
SUGGESTIONS FOR TEACHING

• 20-30 minute sessions, 3-4 times a week

• Schedule the first five chapters early in the school year. The remaining chapters can be taught according to your curriculum guide.

• For the first year use your text materials to supplement each chapter. As you become familiar with this instruction, you may use these lessons to supplement your text.

• Keep the sequence of lessons in each chapter in the order that they appear.
Before a lesson, read aloud from a picture book about an item that students may not know well.

Select books that describe the properties taught in the lesson.

Use books with photographs as often as possible.

Select books that are interesting and beautiful.
Affordable Pricing!*
Student book (160 pages) $21.99
Teacher’s manual (192 pages) $22.99
*Inquire about volume discounts

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