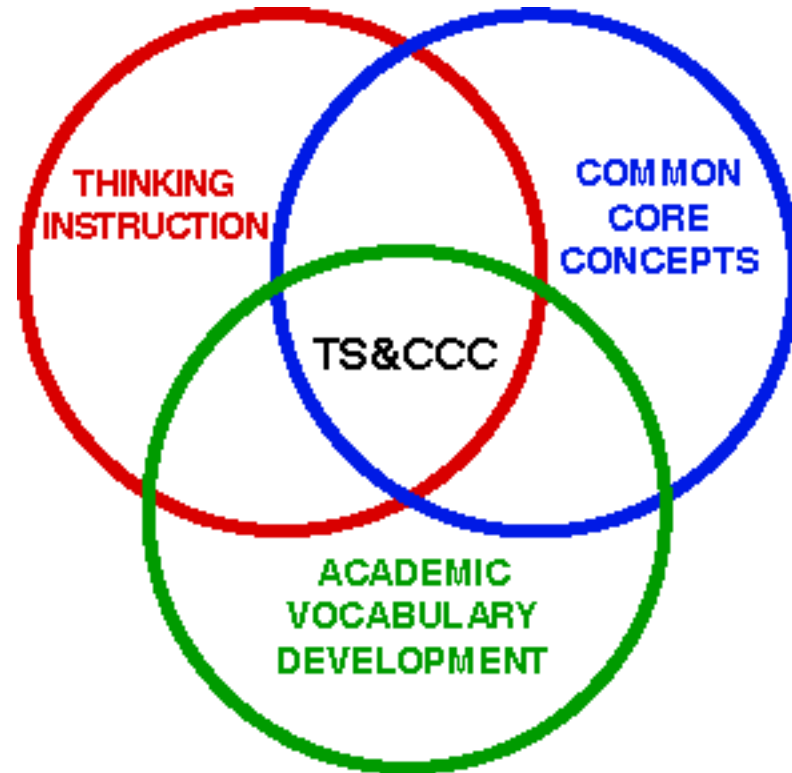
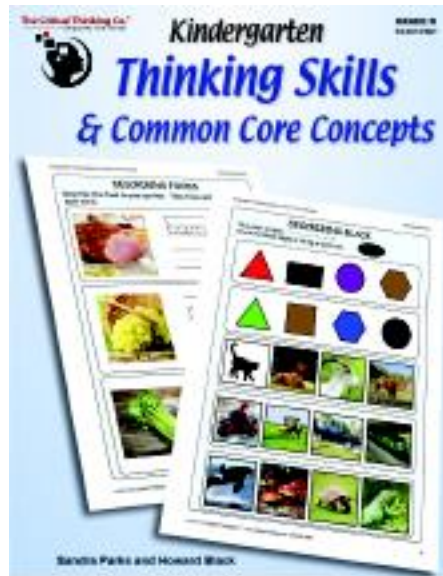
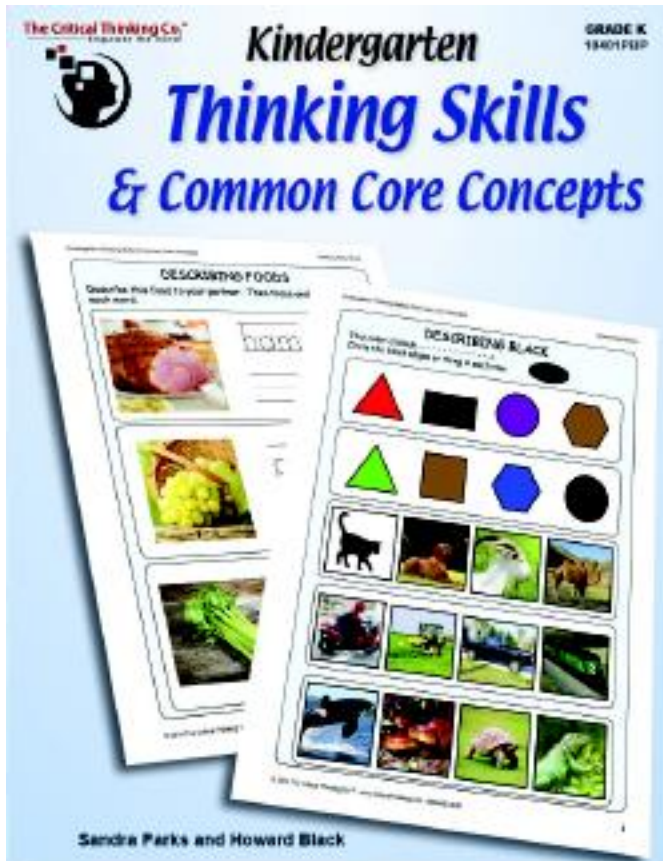


Thinking Skills & Common Core Concepts



Carefully sequenced lessons to develop thinking skills and promote understanding of key mathematics, science, and social studies concepts in the primary grades.

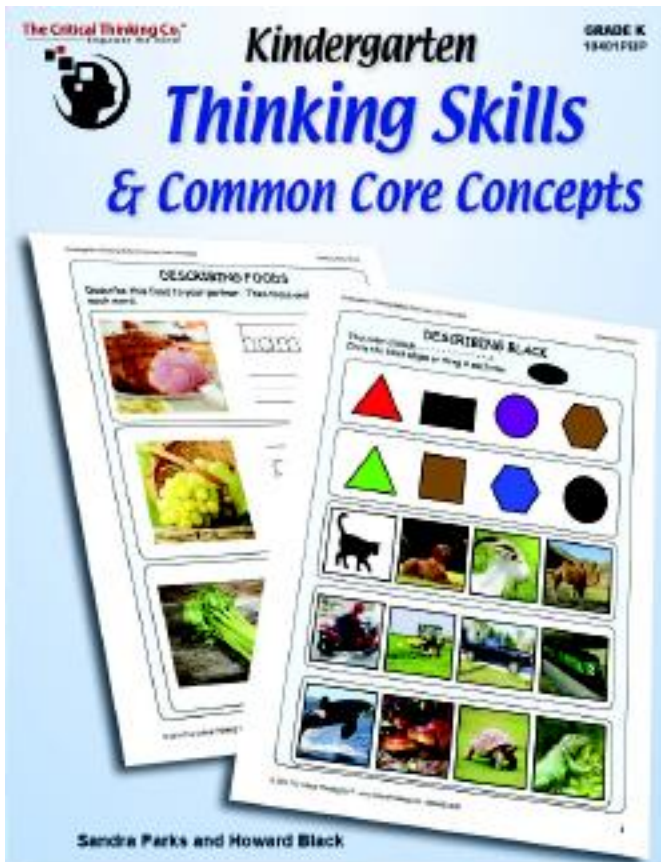
Thinking Skills & Common Core Concepts



Thinking Skills and Common Core Concepts is a researched-based program that:

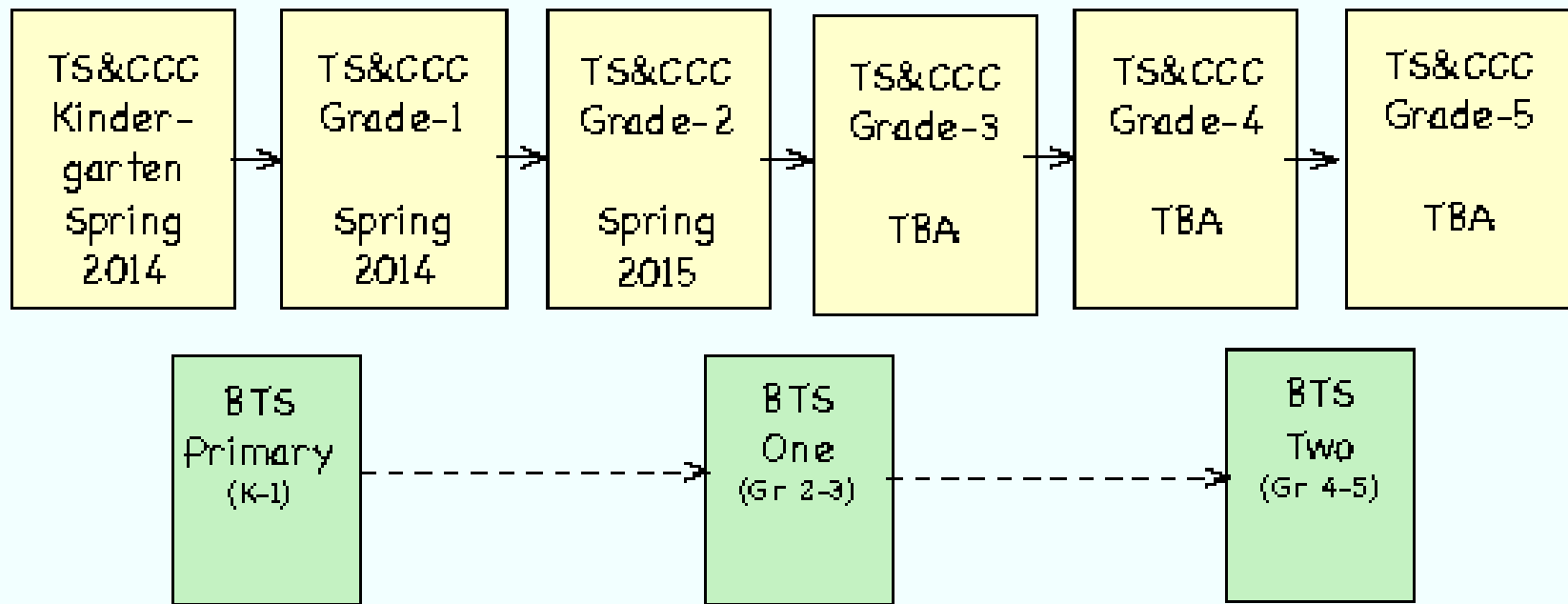
- develops thinking processes for effective content learning
- develops academic vocabulary
- promotes understanding of mathematics, social studies, and science concepts
- improves observation and description skills
- employs language integration techniques to teach thinking skills and key concepts.

Thinking Skills & Common Core Concepts



- *Thinking Skills and Common Core Concepts* books are revisions of the *Building Thinking Skills* program to provide grade-specific thinking skills instruction and to improve concept learning in the primary grades.

THINKING SKILLS & COMMON CORE CONCEPTS



REASONS FOR REVISION

- To address Common Core State Standards in instruction for the thinking skills featured in the current BTS program (adding part/whole analysis).
- To provide grade-level thinking instruction for concepts in the TS&CCC.
- To integrate Organizing Thinking lessons into grades 2-5.
- To promote better understanding of key concepts using mental models.
- To reduce the costs of consumable materials at each grade level.
- To provide instruction in critical thinking and decision-making skills in grades 2-5.

Thinking Skills & Common Core Concepts

PROGRAM OBJECTIVES

THINKING INSTRUCTION

- **Develop basic thinking skills in kindergarten through second grade:**
 - describe**
 - define**
 - compare**
 - contrast**
 - classify**
 - sequence**
 - part/whole analysis**

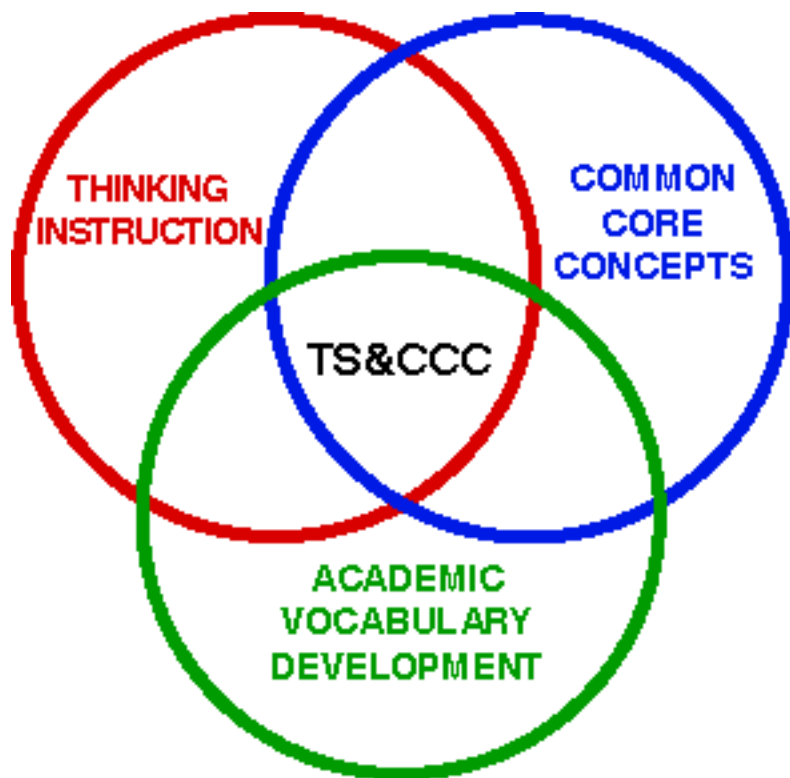
ACADEMIC VOCABULARY

- **Develops academic vocabulary for common terms in mathematics, science, and social studies.**

CONCEPT DEVELOPMENT

- **Develops mental models for key concepts in mathematics, science, and social studies.**

Thinking Skills & Common Core Concepts

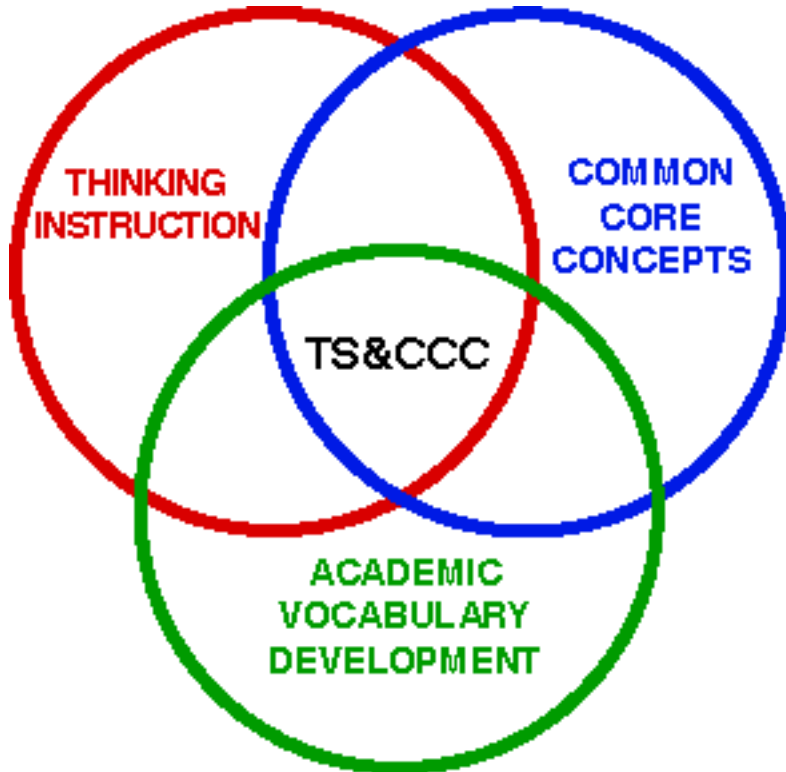


PROGRAM OBJECTIVES

- Promote observation skills
- Prevent the achievement gap in kindergarten through second grade
- Increase the participation of under-served population in gifted and advanced classes

Thinking Skills & Common Core Concepts

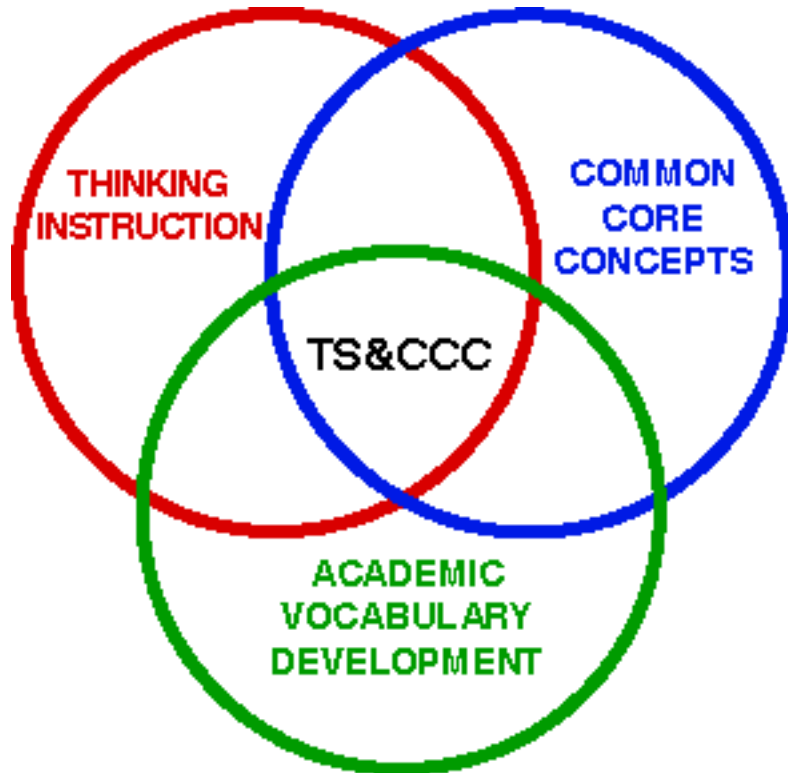
THEORETICAL FOUNDATION



- **Selection of thinking skills – revised Bloom Taxonomy, Albert Upton model**
- **Instructional methods – Piaget (observe, write, discuss), Madeline Hunter (direct instruction), co-operative learning (Johnson and Johnson)**
- **Metacognition theory**

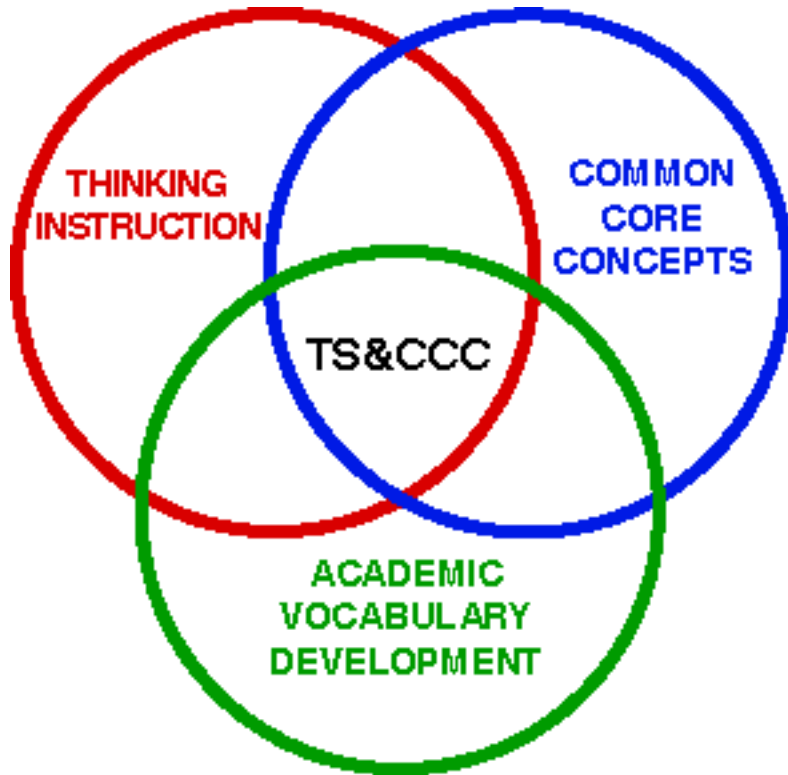
Thinking Skills & Common Core Concepts

RESEARCH BASIS



- 1980's thinking skills initiatives
- Dade County, Florida T.E.A.M.– 30 years of implementation using *Building Thinking Skills*
- Project Bright Idea, North Carolina Department of Public Instruction Javits Grant – 10 years of implementation and external evaluation
- Academic vocabulary development - Robert Marzano

Thinking Skills & Common Core Concepts



CONTENT SELECTION

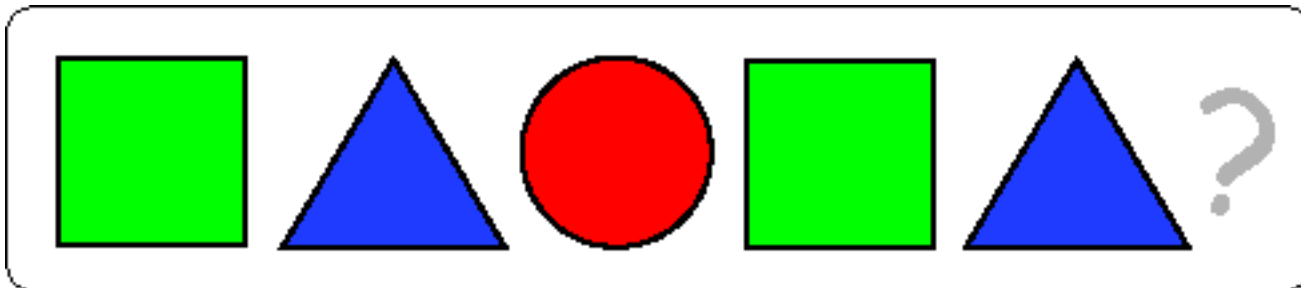
- **Standards**
North Carolina Standard Course of Study
Florida Sunshine State Standards
Common Core State Standards
- **Framework for 21st Century Learning**



- How do the goals and the methods of this program reflect the needs and strengths of the students you teach?

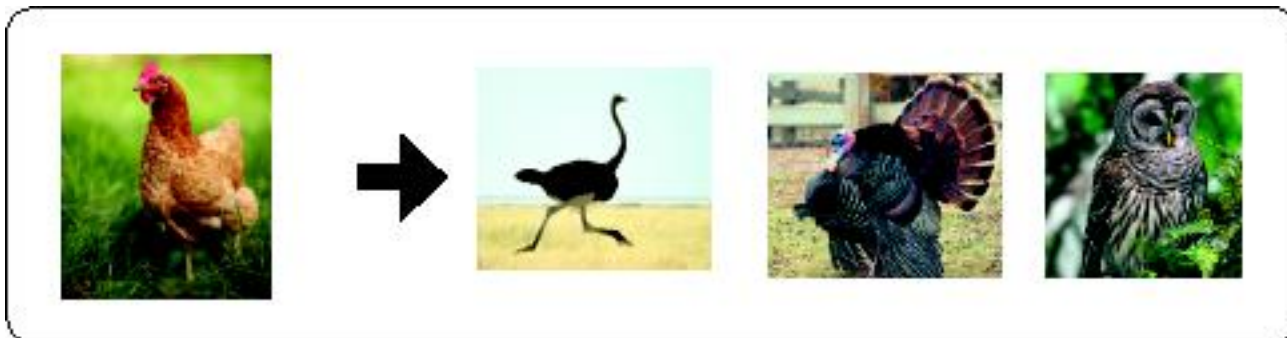
FIGURAL THINKING SKILLS

- **Describing Shapes** – Naming shapes, finding shapes to match a description, and 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.

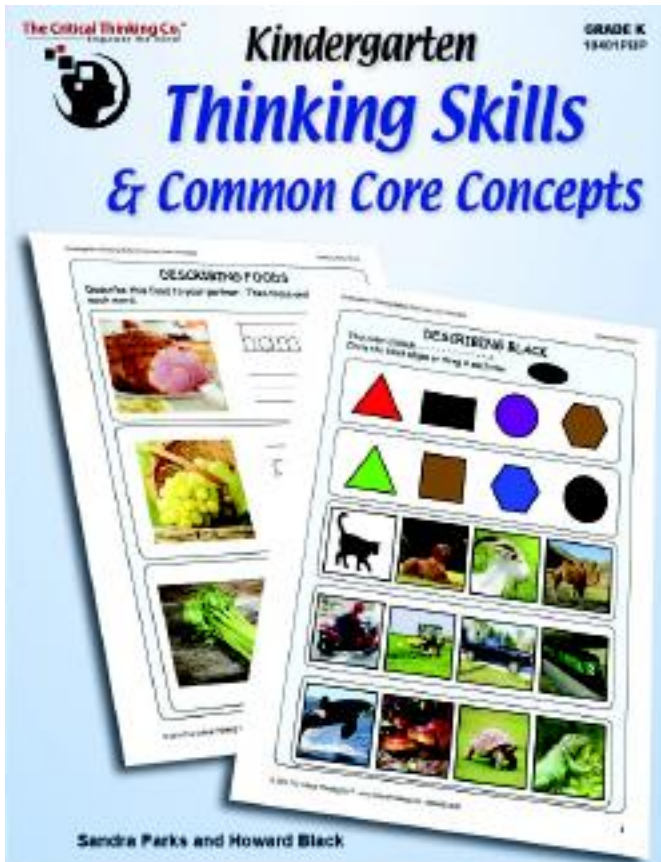


VERBAL THINKING SKILLS

- **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, and sorting into classes.
- **Verbal Analogies** – Naming the kind of analogy or completing the analogy.



Thinking Skills & Common Core Concepts



- Let's take a look at how the lessons are sequenced!

CONTENT OBJECTIVES- MATHEMATICS

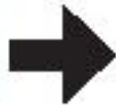
- **Properties of polygons** – Naming polygons and their properties, observing sides and angles
- **Reading and writing mathematical terms** – Recognizing and using geometry terms, ordinal numbers, and directional words
- **Pattern Recognition** – Rotation, reflection, and sequential patterns
- **Similarity and Congruence**



CONTENT OBJECTIVES

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, and cargo.



CONTENT OBJECTIVES - 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, and what they eat.

EXAMPLE



A grasshopper, the ant, and the bee are insects. The canary is a bird.

INSTRUCTIONAL METHODS



- **DIRECT INSTRUCTION** – Prior knowledge, objective, modeling, practice, metacognition, and application.
- **DEVELOPMENTAL FORMS** – Concrete (pictures), semi-concrete (student book), abstract (discussion).
- **LANGUAGE INTEGRATION ACTIVITIES** – Developmental activities, such as drawing, creating big books, telling stories, and writing.
- **COOPERATIVE LEARNING** – Paired problem solving, think/pair/share, and 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 non-fiction children's books.

SIMILARITIES & DIFFERENCES - VEHICLES

- Explain how these vehicles are alike.
Explain how these vehicles are different.



pickup truck



tractor



pickup

truck



tractor

- How are they alike?



pickup

truck



tractor

- How are they different?



- What did you think about to understand how the truck and tractor are alike and different?



SIMILARITIES AND DIFFERENCES VEHICLES



- I listened and remembered the important details of both vehicles.
- I matched details that both vehicles have.
- I noticed different details about the vehicles.



WHY DID THINKING ABOUT THINKING MATTER?

METACOGNITION

- **Metacognition involves thinking about one's own thinking:**



- **Being mindful of what one should think about as one carries through a complex thinking process**
- **Remembering the steps in a thinking process**
- **Evaluating whether one's thinking was clear, organized, and complete**



METACOGNITION

- **Why metacognition matters:**
 - Clarifies a thinking process that one is learning
 - Helps one remember a thinking process that one has learned
 - Promotes transfer when one must use the same thinking process in other contexts
 - Establishes the habit of mental management (evaluating and controlling one's own thinking processes)
 - Promotes one's confidence as an effective learner and thoughtful person



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. Provides independent practice.
- **Thinking about thinking (metacognition):** Clarifies the thinking process.
- **Personal Application:** Relates the thinking skill to students' experiences.

INSTRUCTIONAL METHODS DIRECT INSTRUCTION



- **Why is direct instruction important to improve students' thinking and learning?**

INSTRUCTIONAL METHODS DEVELOPMENTAL FORMS

- Why is it important to use concrete (pictures and picture books), semi-concrete (student book), and abstract (discussion) forms to improve students' thinking and concept learning?



INSTRUCTIONAL METHODS

COOPERATIVE LEARNING



Why is it important for students to discuss their thinking and learning with a partner before responding to the whole class?

INSTRUCTIONAL METHODS WHOLE SENTENCE RESPONDING

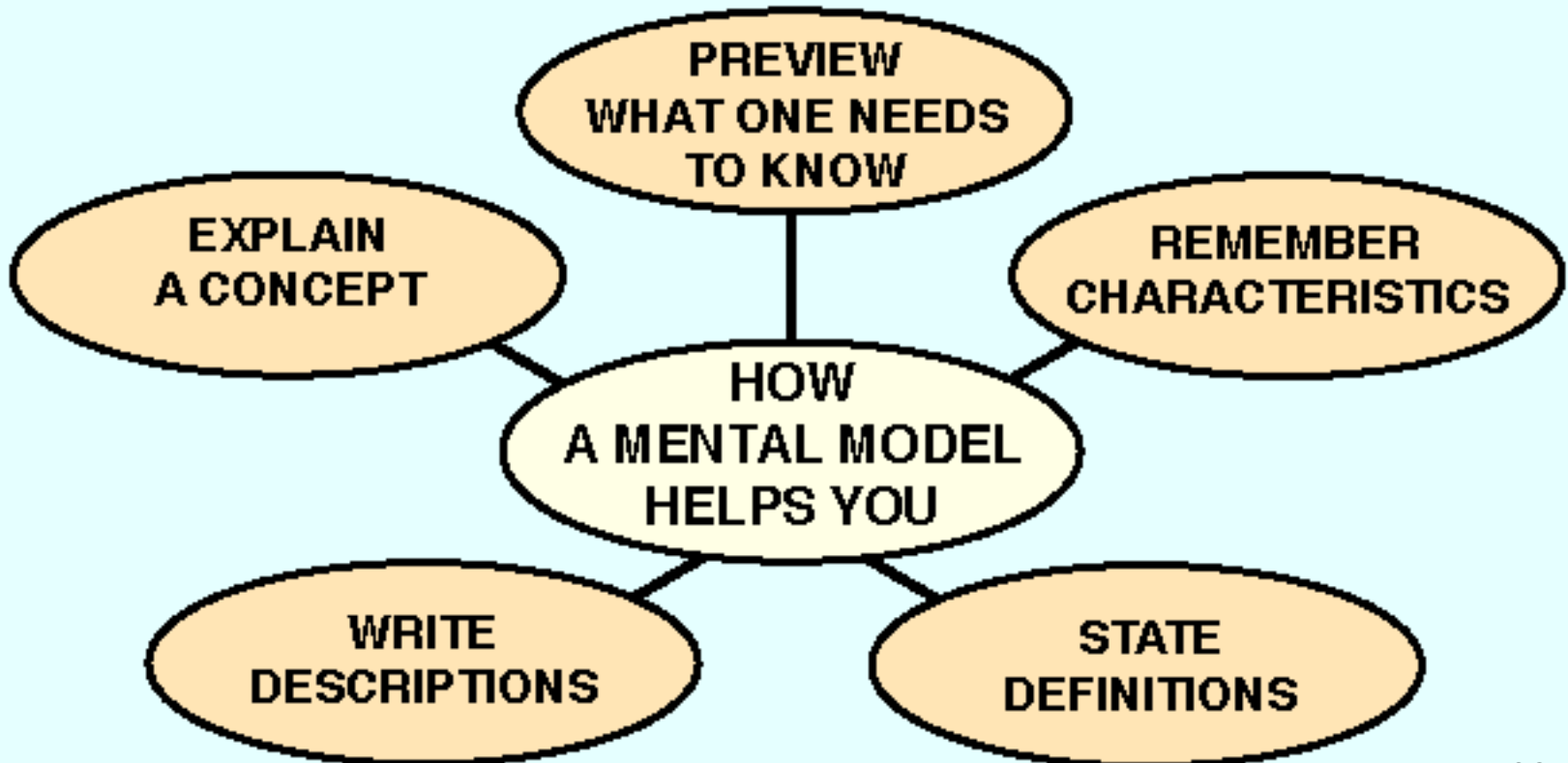


Why is it important for teachers and students to respond in whole sentences?

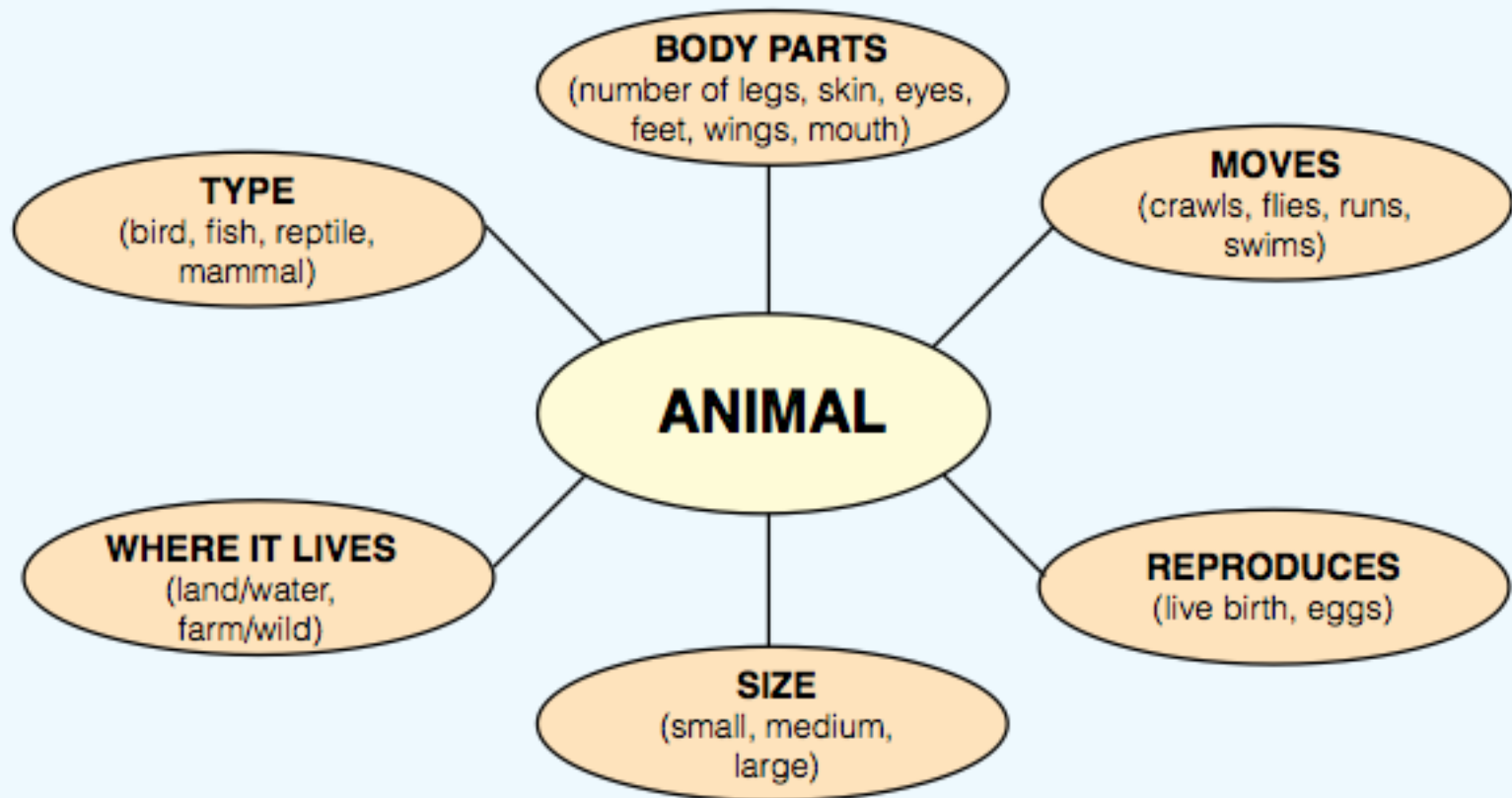


MENTAL MODELS

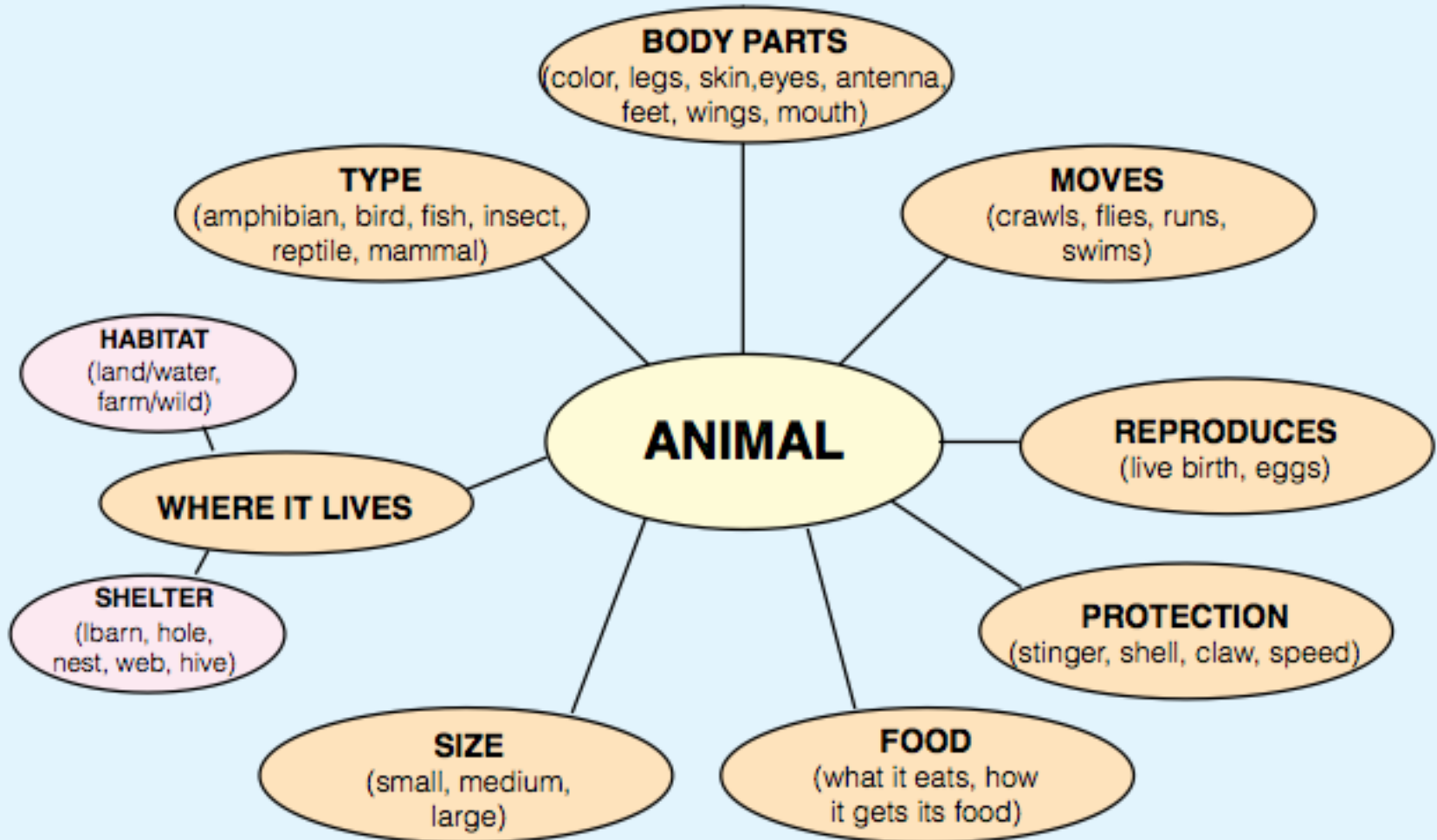
A mental model outlines the characteristics that one must state to describe or define a concept.



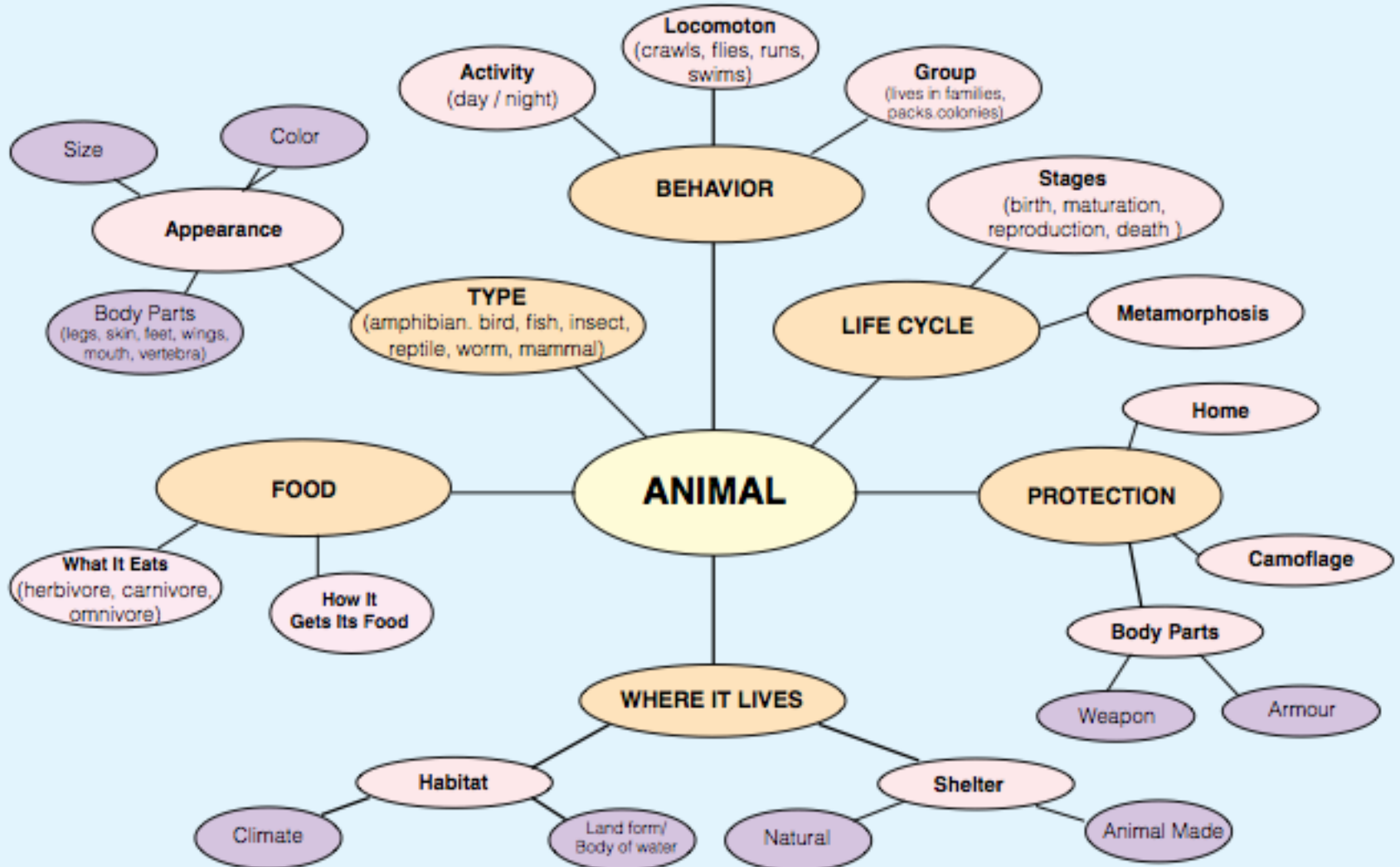
MENTAL MODEL OF AN ANIMAL - KINDERGARTEN



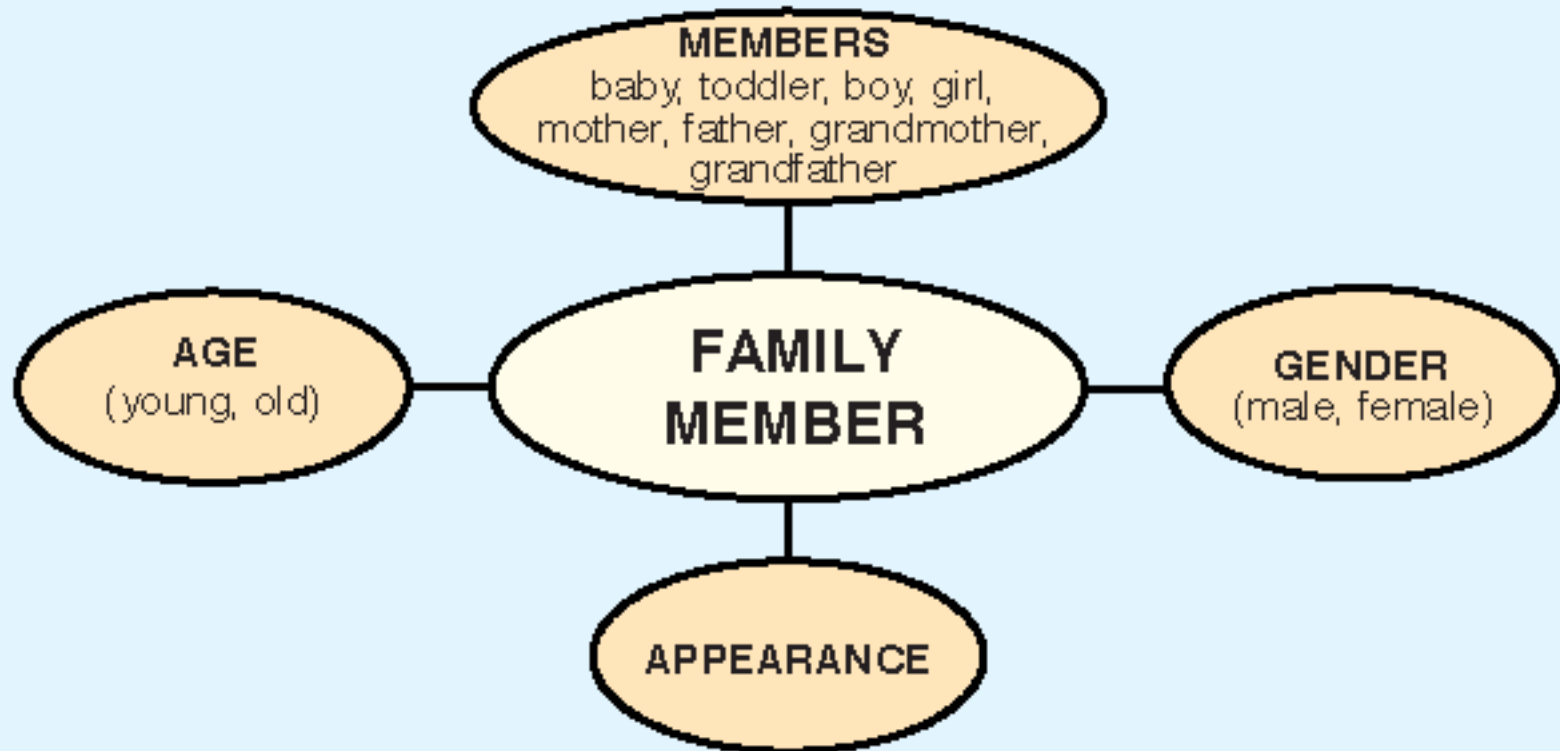
MENTAL MODEL OF AN ANIMAL - FIRST GRADE



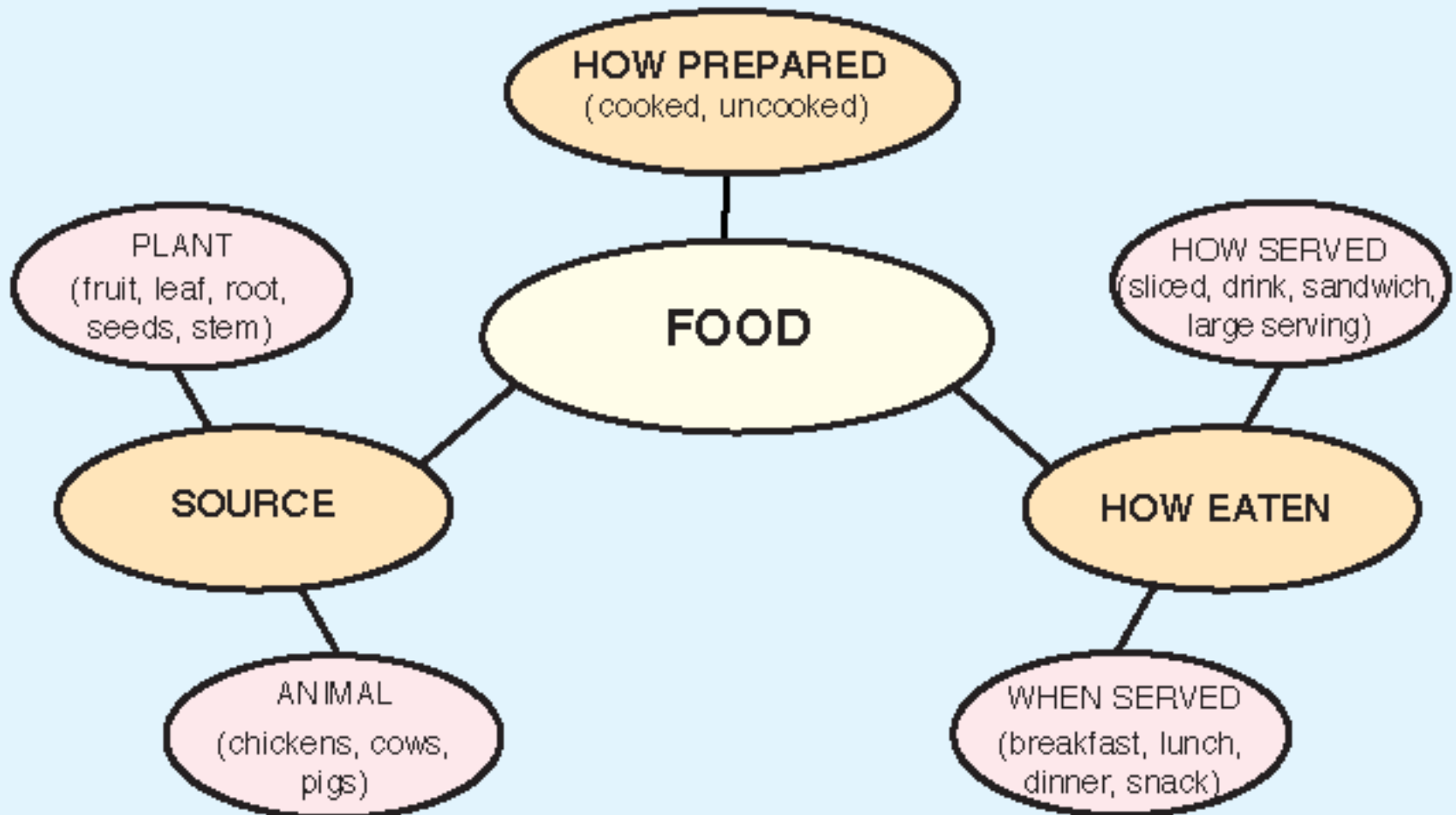
MENTAL MODEL OF AN ANIMAL - SECOND GRADE



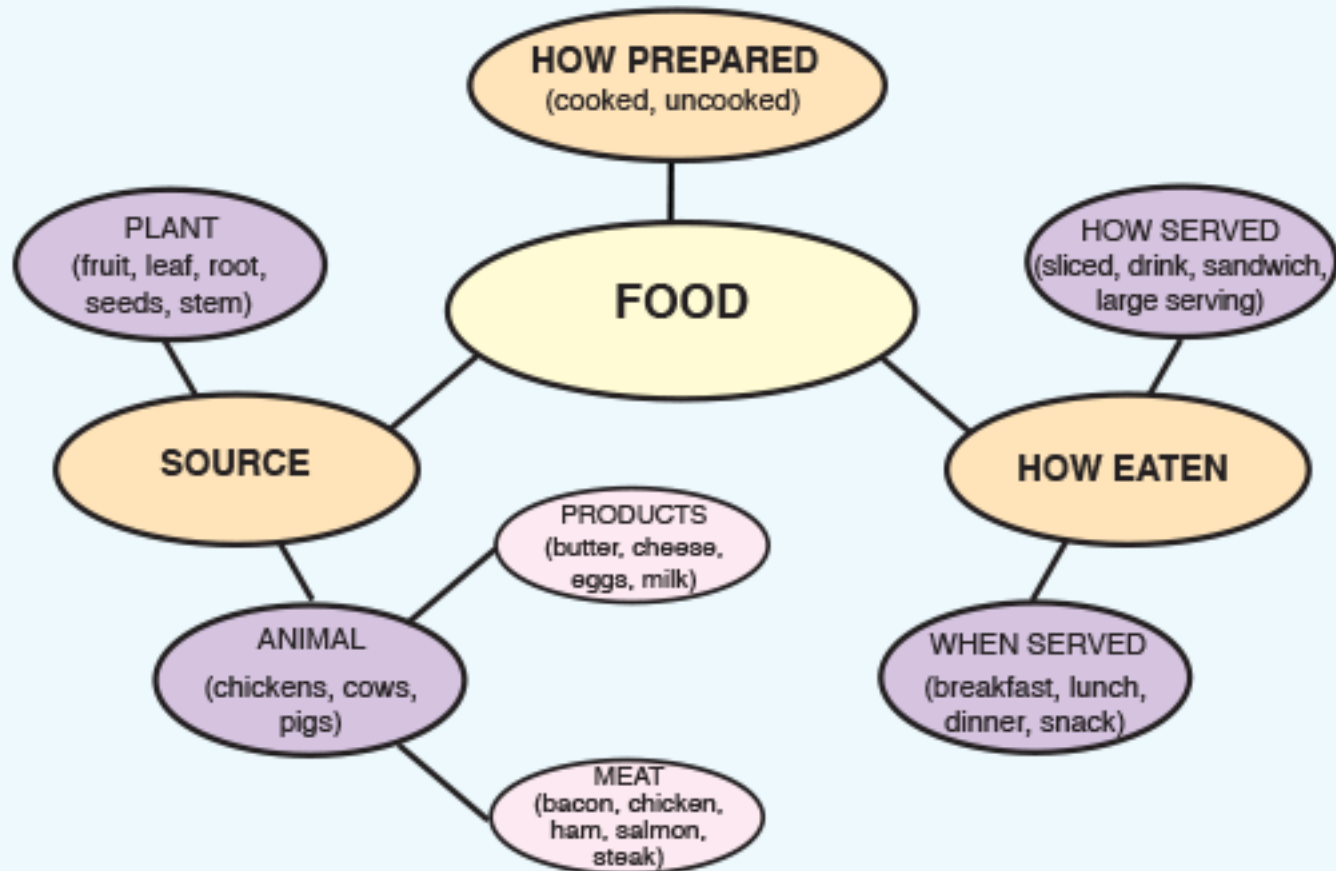
MENTAL MODEL OF A FAMILY MEMBER



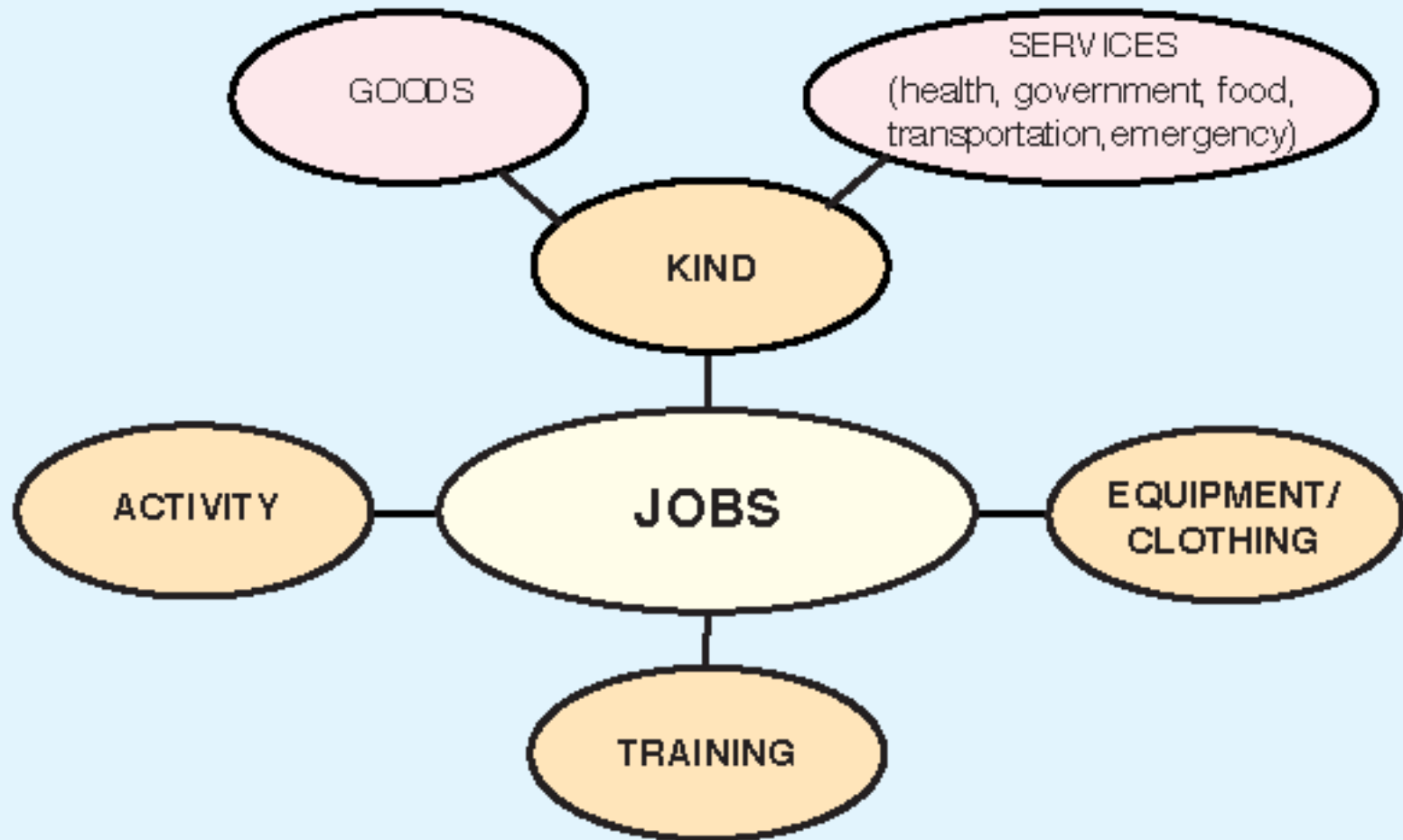
MENTAL MODEL OF A FOOD



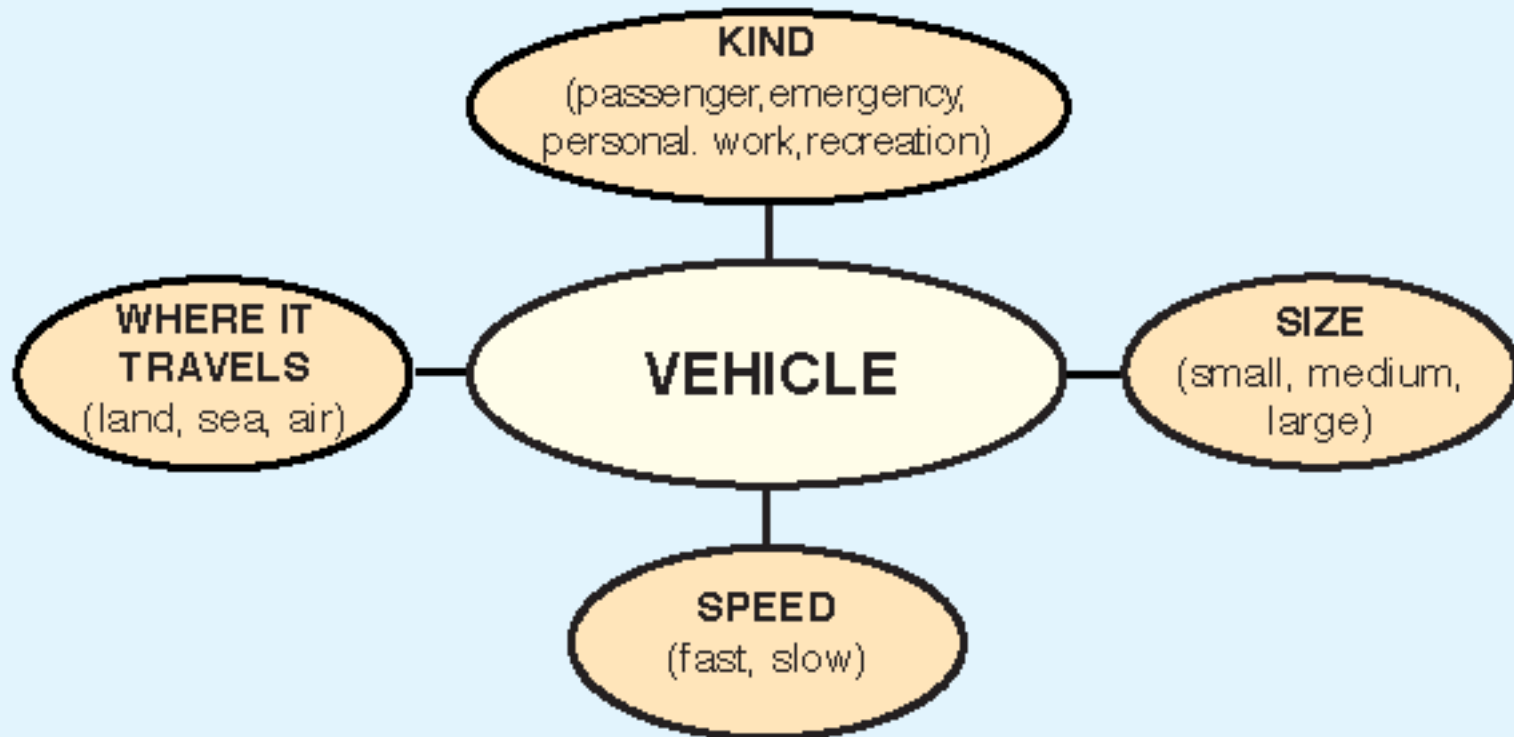
MENTAL MODEL OF A FOOD - FIRST GRADE



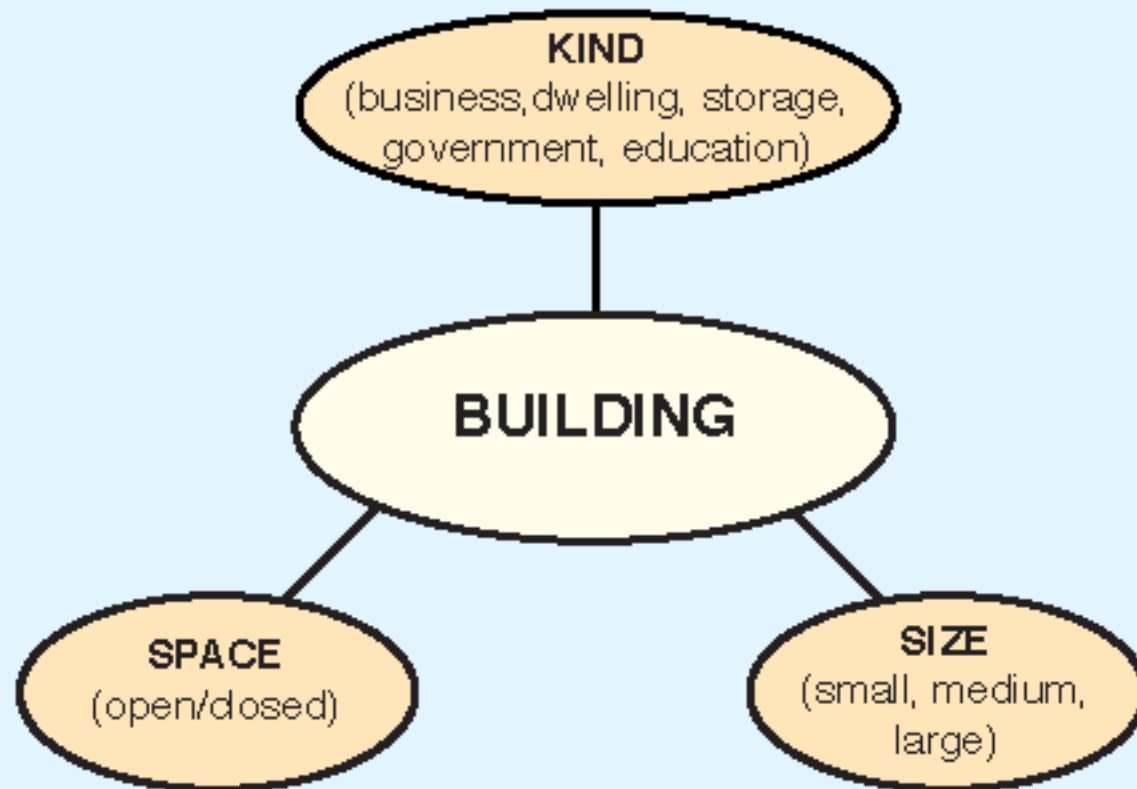
MENTAL MODEL OF A JOB



MENTAL MODEL OF A VEHICLE



MENTAL MODEL OF A BUILDING





UNDERSTANDING MENTAL MODELS

- **By the end of each chapter students should know the significant characteristics of key concepts that they have discussed. For each polygon, family member, food, job, vehicle or building, students should be able to cite all these characteristics for each of the examples they have studied and can apply the mental models to new examples.**

THINKING ABOUT FAMILY MEMBERS

Students describe family members, compare and contrast them, and classify them. They discuss age, gender, roles, relationship to other family members, and experiences that make various family members special.



THINKING ABOUT FOOD

Students describe, compare and contrast, and classify food. They discuss whether food is a plant or animal product, its appearance and taste. To describe food products from plants, students identify the parts of a plant: root, stem, leaf, fruit, and/or seed.



THINKING ABOUT ANIMALS

Students describe animals, compare and contrast them, and classify them. They discuss whether various animals give live birth or eggs, its appearance (color, size, body covering), where it lives, how it moves, and what it eats. Students learn types of animals: fish/birds/reptiles/mammals/insect.



THINKING ABOUT JOBS

Students describe, compare and contrast, rank, and classify occupations. They 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. They learn types of jobs: producers, health workers, government workers, and service providers.



THINKING ABOUT VEHICLES

Students describe, compare and contrast them, rank and classify vehicles. They discuss the size, speed, and purpose of various vehicles, where they are driven, their appearance, their ownership, and the kind of equipment they contain.



THINKING ABOUT BUILDINGS

Students describe, compare and contrast, and classify buildings. They discuss the size, purpose, construction, design, materials, location of various buildings, as well as who lives or works there, and who owns it.

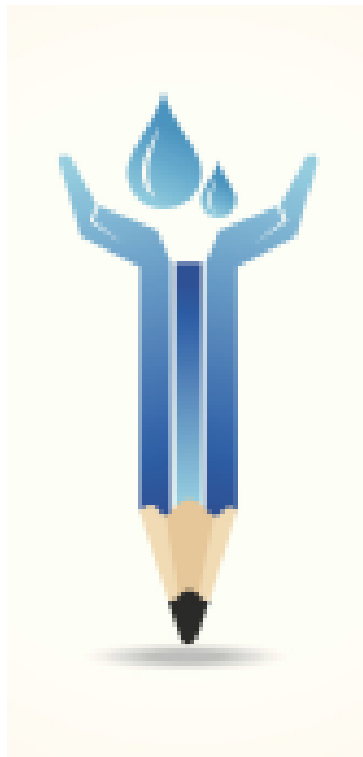




PICTURE BOOKS

- Before a lesson, read aloud 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.

HOW WE KNOW THAT IT WORKS!



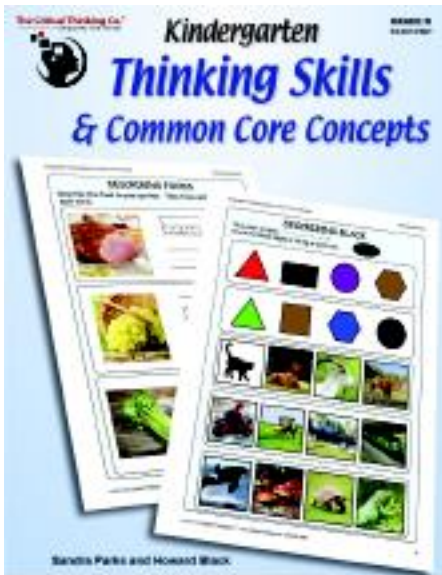
- **Increased scores on language proficiency and cognitive abilities tests**
- **Increased scores on normed - or criterion-referenced achievement tests**
- **Proficient student writing**
- **Increases number of students placed in advanced classes and subsequent successful performance**

SUGGESTIONS FOR TEACHING



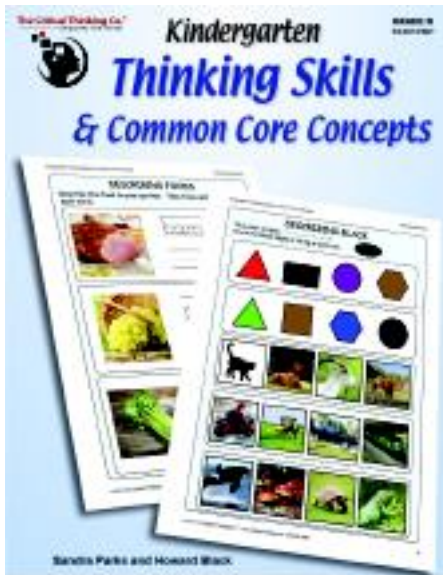
- 20-30 minute sessions 3-4 times a week
- Schedule the first five chapters early in the school year. The remaining chapters can be taught according to your curriculum guide.
- For the first year use your text materials to supplement each chapter. As you become familiar with this instruction, you may use these lessons to supplement your text.
- Keep the sequence of lessons in each chapter in the order that they appear.

THINKING SKILLS INSTRUCTION AND COMMON CORE SHIFTS



- **Emphasizing informational texts.** *TS & CCC* develops thorough comprehension of concepts by discussing detailed photographs and helping students develop the vocabulary used in non-fiction texts.
- **Building knowledge within content domains.** All thinking skills exercises employ or exceed content knowledge in mathematics, science, and social studies in the primary grades.
- **Increasing complexity** Exercises provide carefully sequenced instruction of key curriculum concepts, describing their properties in greater detail than common text information.

THINKING SKILLS INSTRUCTION AND COMMON CORE SHIFTS



- **Answering from texts.** Students discuss the properties of key concepts in mathematics, social studies, and science. Lessons provide carefully scaffolded writing activities to teach primary students how to write from observations of detailed photographs.
- **Writing from sources.** *TS & CCC* lessons address the increasing rigor for writing in the primary grades by modeling the sentence patterns and using the signal words to describe relationships.
- **Developing academic vocabulary.** The terms used in *TS & CCC* are introduced one year prior to most state standards in order to provide practice for students unfamiliar with these terms.

KINDS OF ANIMALS

- **Three of these animals are the same kind. Which animal does not belong to that group. Explain to your partner why it is different.**





KINDS OF ANIMALS- THINKING ABOUT THINKING

What did you think about to describe a different kind of animal?

1. I looked at the pictures of the various animals and remembered important details about them.
2. I named the kind of animal that has the important details of three of them.
3. I named the animal that does not belong to that group and explained why.