

Science and Math Concepts—Knowledge/Content

Content/Knowledge Areas	Apply to Book
<p><u>Science Knowledge/Content</u></p> <ul style="list-style-type: none"> • Life science—knowing about living things and their characteristics, including plant and animal kingdoms and human bodies, habitats and environments, life cycles • Physical science—knowledge of physical properties of objects and materials, manipulating objects and materials; what things are made of and their properties (float or sink) • Earth and space science—knowledge of earth’s environment, solar system, universe, such as seasons, weather • Use of Tools—knowing function of tools, using tools and technology to perform tasks; using tools to investigate (magnifying glass, binoculars, funnel) Tool is a device or utensil to carry out a particular function or aids in accomplishing a task 	
<p><u>Math Knowledge/Content</u></p> <ul style="list-style-type: none"> • Numbers and operations: counts, quantifies, connects numerals with their quantities • Patterns, Relationships, Functions: knowledge of patterns, sorts by characteristics, matching, function of various objects • Geometry and Spatial Relationships: recognizes and names shapes, various shape orientations, spatial relationships (above, below, between, on, in); sense of self in space • Comparison and Measurement: compares (more, less) and measures (standard and non-standard measures) • Time and Sequence: developing an understanding of the concept of time, especially in terms of daily routines and putting objects and events in order/sequence 	

Some ways to apply science content/knowledge:

- Add factual information through talking or reading book on a science content area
- Use actual items or props to explain or show
- Use science terms: what vocabulary words can you use to support science content? Learn and plan ways to use and help children understand the words.
- What is something made of? What properties of objects might you be able to explore?
- Ask: What do you observe?
- What content or topic can be expanded on related to science information?
- What equipment or tools can be talked about or used? Magnifying glass, tools for building, gardening, cooking, etc.
- What science content areas can be explored in books or rhymes?

Some ways to apply math content/knowledge:

- Math-related event in a story
- Use math-related vocabulary words
- Count: people in room or related to book or rhyme
- Matching and/or sorting activity by characteristic(s)
- How are things alike and different—visually (same character on different pages), size, weight, function?
- How can you sort? Activity for sorting?
- When separating or sorting, which has more? Which has less?
- Can you rearrange objects to show the children how addition and subtraction work? possible flannel board activity
- Use numerals—cardinal (one, two, etc.), ordinal (show order—first, second, etc.)
- Noting the order in story events or in storytime activities—first, second, next, then, last
- Talk about fractions—half, quarter, whole
- What shapes in pictures? Using flannel board, draw in the air; include 3-D shapes
- Describe spatial relationships—position words (above, between, next to, behind, etc.)
- Action songs or activities that help children position themselves and parts of their bodies in space
- What sequence of events/story/rhyme can you describe or have the children describe?
- Note patterns
 - in story—use pattern (repeated phrase, motif, cumulative story) to guess what will happen or be said next
 - clap or move to a pattern
 - visual patterns
- What tools are used to explore or measure: how big, weight, volume
- Use vocabulary words of comparison like more than, bigger than, heavier than, etc.?
- Describe that has attributes like long, short, tall, cold, heavy
- Compare objects by characteristics such as size, weight
- What can you measure using standard and non-standard (straws, paperclips, feet) tools?
- What objects can you bring in to sort and match?
- Can you chart something using a graph, bar or pie chart?
- Can you talk about change over time such as seasons, growth, etc?