Science and Math Concepts
Process Thinking and Communication Activities

Concepts	Apply to Book	Apply to Your Storytimes
Process Thinking • Observing and investigating • Exploring • How things work • Different perspectives • Questioning • Wondering • Predicting/Hypothesizing • Noticing cause and effect • Experimenting • Collecting data • Analyzing data • Drawing conclusions • Estimating • Comparing/contrasting • Sequencing • Noticing, continuing, making patterns • Problem solving • Thinking creatively • Making connections • Exploring different perspectives		
Communication • Using non-verbal and verbal language • Saying what observed • Saying what happened • Explaining reasoning • Sharing/reporting discoveries, ideas, challenges, conclusions • Asking for help • Asking open-ended questions • Using science and math vocabulary • Using process thinking vocabulary • Representing including drawings, pictures, photos, charts • Learning collaboratively		

Some ways to apply the process thinking:

- Vocabulary of process thinking—predict, wonder, problem solving, experimenting
- Look at situations from different points of view
- Look at books, rhymes, songs, activities with processing thinking in mind, may be as a starting point for an activity/experience
- Add activity to support science and math thinking used in a book
- Model for adults ways to talk that develop process thinking
- Encourage children to look at a situation from different points of view, alternative solutions
- Ask: What do you observe?
- Ask questions that support thinking, observing, predicting
- Ask: What if … ? or What do you think would happen if …? How could . . . ?
- Compare items by characteristic—texture, function, habitat, etc.
- Can you make a hypothesis, a prediction, or have the children make them?
- Can you talk about cause and effect?
- Think aloud to show how you reason.
- Share books/stories that lends itself to problem solving ideas
- What sequence of events/story/rhyme can you describe or have the children describe?
- Can you guess/estimate how much or how many there are of something?
- Note patterns
    - in story—use pattern to guess what will happen or be said next
    - clap or move to a pattern
    - visual patterns

Some ways to apply science and math communication:

- Ask open-ended questions
- Use science and math vocabulary
- Use process thinking vocabulary
- Narrate what you observe, using the word observe
- Narrate what happened
- Explain your reasoning, allow children to explain their reasoning
- Set up opportunities and allow time for children to share discoveries and conclusions
- Offer writing opportunities to represent what children observe, problem solve, categorize, compare, conclude
- Offer ways for children to explore collaboratively