



Waterwheels

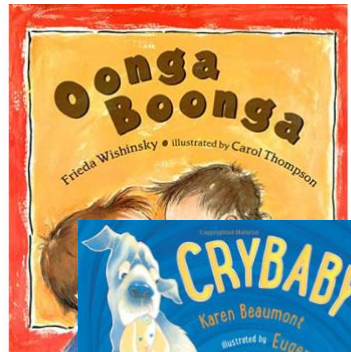
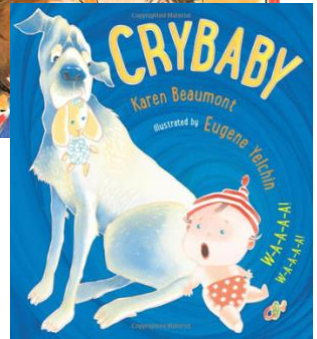
Standard Connection:
ELA.W.PK4.1b
ELA.SL.PK4.1a
M.MD.PK4.2
PD.SHS.PK4.1
PD.FM.PK4.4
S.PS.PK4.4

Enduring Understanding(s):

- As individuals and as a group, family members use their senses to observe and interact with their environment.

Essential Question(s):

- How do you most effectively communicate your thoughts, feelings, and traditions?

Materials	Vocabulary	Books
<ul style="list-style-type: none"> <i>Oonga Boonga/Crybaby</i> water 2-3 toy waterwheels scoops, spoons, and/or ladles cups empty yogurt containers empty spray bottles smocks shallow trays or bins spoons and ladles plastic or rubber gloves images of waterwheels (see Resources) paper clipboards writing utensils 	<ul style="list-style-type: none"> waterwheel: a wheel made to rotate by direction of water faster: move quicker slower: not fast pour: to cause to flow in a stream spin: turn around and around turn: move around an axis/center scoop: to pick up quickly fill: to put into as much as can be held 	 

Intro to Centers

Preparation: Set up materials.

For children with sensory issues, provide plastic gloves. Set up a smaller amount of water in an individual shallow tray or bin. Provide a spoon or ladle to pour water.

"In <i>Oonga Boonga</i> , Baby Louise cried so much that the author wrote, 'her tears ran like rivers to the sea'." In <i>Crybaby</i> , Baby just cried and cried so many tears. What do you notice?"	Show illustration.
"Today at Science, you can explore moving water with a waterwheel ."	Show waterwheel.
"What do you think will happen if I pour water on the waterwheel ?"	Children respond. Model.
"What did you notice?"	Children respond.
"How could I make the waterwheel spin faster? slower? "	Children respond. Model.
"Today at Science, there are materials for scooping and pouring water onto the waterwheels to make them spin ."	Show materials.

During Centers:

- Encourage children to experiment with making the waterwheels spin faster or slower. Show images of waterwheels and explain their uses (generating electricity, part of a larger machine, etc.).
- Encourage children to draw and label pictures of their observations of how water moves. Encourage children to use waterwheels to move objects in the water (a counting bear in a cup).

Guiding Questions During Centers:

- How can you pour the water to make the waterwheel spin faster/slower?
- What happens when you pour more/less water on the waterwheel?
- What do you hear when you pour the water (plop, splash, gurgle, etc.)?
- What does the water feel like if you pour it on your fingers or your hand?
- How is the moving water like Louise's tears?

Thinking and Feedback:

- Invite children to share their processes.
- Encourage children to describe the challenges they might have encountered.

Documentation:

- Collect samples of the children's work as well as photographs and/or video of their processes; use the documentation to launch a discussion during Thinking and Feedback.

Provocation:

Encourage children could paint waterwheels using watercolors at the Creative Arts.

Challenge children to consider work that a waterwheel could do in the classroom or at home?

Read *Pancakes, Pancakes* (Eric Carle) and *The Little Red Hen* (Paul Galdone) and notice illustrations of waterwheels.

Differentiation/Accommodation

For Intro to Centers, children with limited verbal skills can use a pre-programmed voice output device to answer questions about the story. (Keep in mind these will likely be closed-ended questions, as those are easiest to program into devices.) This can also be used to help students answer Guiding Questions. During Centers, provide a waterwheel that is designed to be operated by a one-button switch. Allow children with limited mobility to use the switch to operate the water- wheel. Discuss the movement of the wheel (fast/slow). Children can also work together, with one child moving the wheel with the switch while the other child catches water in a cup or puts in objects for the water to move.