**Examples of questions and comments for implementing a children’s investigation into building a tall tower.**

As you implement a tower-building investigation with children, think about:

prompts you might use during each phase of the EER.

* What questions will promote children’s use of inquiry *and* encourage them to think about how the properties of the building materials influence how high they can build their towers?
* What comments might you make that will model inquiry, scientific thinking, and language for children? (*I’m noticing that… I wonder if… I’d like to try… I’m thinking ...*).
* How might you scaffold questions for dual language learners in a way that promotes their English language development while maximizing their participation in the inquiry process?

vocabulary you might teach in context.

* Building explorations are a great context for introducing words to describe physical properties (rigid/flexible; long/short; triangular/rectangular), science vocabulary (*observe, predict, data, claim*), and questions such as *What do you notice…? Have you tried…? And Why do you think….?*
* Remember that children need to hear new vocabulary, as many as 20 times (Neuman and Wright 2014), before they understand and use it consistently. Try introducing a small set of target words during the Engage phase, then use the same vocabulary often throughout the Explore and Reflect phases.
* Always use the blocks, other props, photos, or a simple definition to provide clues to a word’s meaning.

*(Keep in mind that the questions, comments, and vocabulary below are suggestions, to be used over several explorations. It is not expected that you would ask all of these questions or introduce all of this vocabulary in a single exploration.)*

**Engage**

(Pass a few blocks around for children to observe.)

What do you notice about these different blocks? How do they look and feel?

Are they *heavy or light? Large or small? Smooth or rough? Rigid or flexible?*

*What shapes are they?*

What materials do you think the blocks are made out of?

(Show some photos of previous structures children have made.)

How have you used these blocks or building materials before? Could you describe this castle you made last week? What blocks or building materials did you use? How well did the wooden blocks work in your castle? Why do you think they worked or didn’t work so well?

(Show some pictures of tall towers and introduce the tower-building challenge.)

Which of these blocks or building materials do you think will work best for making a tall tower? Why do you think so?

(Write down children’s predictions and ideas for later reflection.)

**Explore**

(Invite children to work in pairs or small groups to build. Help them define space on the floor or at tables. Schedule 45–60 minutes for building time over a period of weeks, months, or throughout the year.)

I notice you are putting the heavy/light; smooth/rough; square/rectangular blocks at the bottom/top of your tower.

Do you think a bigger/smaller, differently shaped block might work better in that spot?

It looks like you’re thinking that the rigid wood is stronger than the flexible foam.

Look at how you placed that triangular block so it balanced! How did you do that?

(Invite children to draw or measure their towers or do a “walkabout” to look at and describe the towers made by others. Encourage them to ask questions of the builders.)

**Reflect:**

(Over time, facilitate formal and informal discussions with children individually and in groups. Invite children to use drawings, photos, and other props to express their observations and thinking.)

Tell us about your tower. What was easier/more difficult about building it?

What types of blocks or building materials did you use? How well did they work at the bottom/ top of your tower?

Which ones do you think worked best for building tall? Why do you think so?

(Remember that children need at least several opportunities to collect evidence before they can confidently begin making claims and drawing conclusions.)

If you were going to build another tall tower, which blocks would you choose? Why would you choose those blocks?

Do you think the tallest tower is also the strongest? Why do you think so? How could we find out?

**Reference**

Neuman, S.B., and T.S. Wright. 2014. The magic of words. *American Educator* 38 (2): 4–13.

[*www.aft.org/sites/default/files/periodicals/neuman.pdf*](http://www.aft.org/sites/default/files/periodicals/neuman.pdf).

**Resources**

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Hoisington, C., and J. Winokur. 2015. Gimme sn “E”! Seven strategies for supporting the “E” in young children’s STEM learning. *Science and Children*. 53 (1): 3–10

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