FIRST at Home Activity

Stable Tower

ACTIVITY SUMMARY

Students will use a variety of skills and *FIRST* Core Values, while building a tower to help Andrea create a new building in her town. Students can use LEGO® bricks, blocks, boxes, or other toys and found materials.

Age Range & Grade Level: *Ages 4-6, Grades Pre-K through 1st*

Program Connection: *FIRST*® LEGO® League Discover

ACTIVITY OUTCOMES

Participants will:

1. Sketch designs of towers
2. Construct towers for different purposes
3. Explore concepts learned and share what they discovered about their design

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RELEVANCE MATRIX – Subject Area Crosswalks and Core Values Addressed

Science	Math	Literacy	Social Studies	Technology Literacy
Motion, Stability, Forces	Counting, Geometry	Reading Foundational Skill, Speaking & Listening	N/A	Engineering Design Design Thinking
Discovery	**Innovation**	**Impact**	**Inclusion**	**Teamwork**

FUN! Our last core value should always be used when doing any *FIRST* activities.

Explore *FIRST* Core Values

KEY VOCABULARY

Height Balance Stable Gravity

MATERIALS & SUPPLIES NEEDED FOR THIS ACTIVITY

- At least 12 similar-sized blocks or boxes, preferably rectangular instead of cubes. For example, LEGO DUPLO 2x4 bricks. (Number of blocks does not matter)
- (Optional) measuring tape

GUIDANCE SET-UP

Description – Action – Guidance	Notes
Provide students with the student Design Brief. Share FIRST core values with students, ask them to think about using these during the activity. Explore *FIRST* Core Values	The design brief document is for the students and is in a separate link. Encourage students to plan and draw a design before building their tower. Use the design brief to reflect on the learning.
Set out the blocks for the student to use	
Review the problem statement and criteria/constraints with the students. Remind students they will be using the engineering design process to work towards a solution. **Criteria / Constraints:** • Tower should be free-standing (not held up by hands or propped up by any other objects) Blocks cannot be "clicked" or stuck together (such as when using LEGO bricks). The must freely separate when one is picked up.	Review the age appropriate engineering design process with your students.
Determine how students will complete the activity, what their length of time will be, how to collaborate and how to share their solutions. Have students work on their solutions.	Sharing can take place virtually by showing video or pictures of the towers built.
Determine how (or if) the activity will be graded, such as with the student design brief or evaluation of the tower itself.	Questions for Reflection: How many ways can they think of to stack the blocks to build a tower? Which way is most stable? Tallest? Use the measuring tape to measure the height of each tower and compare to determine the tallest.
Explore the *Go Further!* opportunities	See below
Wrap up – Have students complete their self- reflection and review.	Core Values self-reflection is found in the student Design Brief document.

STUDENT OR TEAM ACTIONS

1. Review the student design brief, problem statement and criteria/constraints.
2. Students complete the design brief by drawing sketches.
3. Students set out their blocks separately, in any order.
4. Students build towers.
5. *Optional* - Explore the Go Further! opportunities.
6. Students share their solution and reflect on their learning by explaining what they did to a teacher, friend, or family member.
7. Students complete their self-reflection.

GO FURTHER!

- Try changing hands or using only one hand.
- Team up with a family member to combine all their blocks to build a single tower.
- Add additional blocks and see how tall a tower they can build.