

## Lessons 6 and 7

### **Lesson 6: Student Centered TEST MY TOWER ( 40 minute lesson: Review TEST MY TOWER/Introduce Tower Challenge Worksheet, Partner Investigation, Share, Closure and Assessment )**

- Lesson Objectives:**
1. Students will review the procedures of NoRILLA.
  2. Students will rotate through TEST MY TOWER.
  3. Students will record attempts and times for TEST MY TOWER.
  4. Students will test structure height vs an earthquake.
  5. Students will think interdependently (flexible) by working together to complete a task.
  6. Students will manage their impulsivity.
  7. Students will use precise and clear communication skills.

\*\*\* Briefly introduce and discuss these objectives setting purpose for the lesson.

Students will be expected to implement these objectives during the lesson.

**Materials Needed:** NoRILLA, building materials such as snap cubes, Legos, cardboard, Keva Planks, Lincoln Logs, Magnatiles, Bristle Blocks, Monkey blocks, Kinetic Sand, Tower challenge worksheet, ruler, height worksheet, books to place buildings on

● **Introduce:**

1. Let students know they will explore height with their partner, as well as interact with NoRILLA.
2. Let students know they will be using snap cubes (or ruler for older students) to measure, demonstrate how to measure and record with the cubes.
3. Discuss what height means. Give examples (student to teacher).

● **Guide Investigation:**

1. Pose the question to your civil engineers “how do you think the height of a structure affects how long it can withstand an earthquake?”
2. Discuss how they will rotate through their day. Starting with height, students will be given a **Height Worksheet** where they will be given three different height challenges. Partners draw and then build first version. Once the structure is created allow students to place structure on a book and gently shake their book to simulate an earthquake. (they can also shake them gently on the desk/table/chair if it works in your class).
3. Allow time to discuss what happened to their structure, go back to the worksheet and iterate.

4. While students are working through these challenges, choose partners to work through the TEST MY TOWER mode in NoRILLA. While at TEST MY TOWER in NoRILLA, students are given their **Test My Tower Worksheet** and 5-7 minutes to complete as many challenges in that time frame. Once completed these students return to the height challenges and two new students rotate to the NoRILLA station.



5. Continue rotating through height challenges and NoRILLA.

6. Not all students will get to NoRILLA in this lesson. Let students know that they will get a turn in lesson 6.

7. Allow students time to share their height worksheets.

- **Share Results:** 1. Repeat the above question. Have students share their ideas with a partner. Discuss what they have learned as a whole group.

- **Closure:** 1. Share what students found to be interesting, intriguing, even challenging about this lesson. Recap/discuss today's lesson. Let your civil engineers know that next time they will begin brainstorming and designing their own structures to withstand an earthquake.

2. Thumbs up/down: Gather students whole group, ask the questions below, have students show a thumbs up if they feel they met that standard today, thumbs down if they did not. Note those that give you thumbs down and have a brief discussion on that standard/question.

**OR**

Smile/frown face: Draw a smile and a frown on the whiteboard, students point to either one as you ask the questions below.

Showed perseverance today

Worked well with others

Managed impulsivity

Spoke clearly and precise like a civil engineer

- **Assessments:** Observation/Discussion