

STRING THING ONLINE GAME

String Thing is an interactive online game on the *Design Squad* Web site. In the game, students change a virtual string's tension, length, and gauge to create different musical pitches. These are the same kinds of changes they'll be making in the *Build a Band* challenge.

A class can complete *String Thing* in as little as 20 minutes, or the game can fill an hour. Use the game as an introduction to define relevant terms (e.g., frequency, pitch, gauge) and as a way to give students experience manipulating the variables they'll work with in *Build a Band*. Alternatively, use it at the end of the unit as a culminating activity, a review, or as an assessment of concepts and factors related to sound.

Preparation

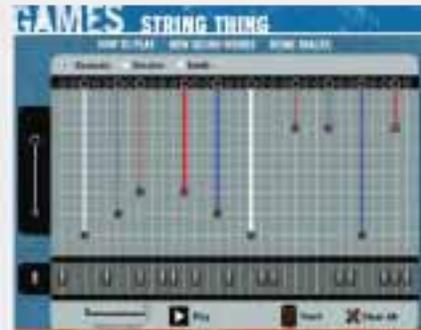
- Decide if you'll do *String Thing* to introduce or end your sound unit—or both.
- Bookmark *String Thing* (Visit pbs.org/designsquad and click on “Play Games.”)
- Copy the *String Thing* handout (one per student).
- Provide one computer per student pair, or project *String Thing* onto a screen to do as a class.

Procedure (20–50 minutes)

Distribute the handout and have students complete it, either in pairs or as a class. Review the terms **tension**, **gauge**, and **length** on the handout. If students are playing *String Thing* in pairs, give them 10–15 minutes before you start reviewing the questions together as a class.

Answers to questions on the student handout:

3. List three ways to lower a string's pitch. (*Lengthen it; reduce its tension; or increase its gauge.*)
4. Drag a long string and a short string onto the grid. Change the tension or gauge of these strings so they play the same pitch. Describe what you did. (*To raise a string's pitch, increase the tension, decrease its gauge, or both. To lower a string's pitch, decrease the tension, increase its gauge, or both.*)
5. Which changes the pitch more: increasing the gauge of a string by one click, or the length of a string by one fret? (*Gauge changes the pitch more than length does.*)
6. How do you play the highest note possible? (*Use a short, thin, tense string.*)
7. List some reasons why adult voices are usually lower than kids' voices. (*Pitch depends on the length and thickness of vocal chords. Long, thick vocal chords are lower pitched than short, light vocal chords. That's why adults have lower ranges than kids do—125 hertz [vibrations per second] for men, 210 hertz for women, and 300 hertz for boys and girls.*)



USING STRING THING WITH STUDENTS

Depending on computer access, *String Thing* can be done as homework, in small groups on classroom computers, or as an activity with the whole class using an interactive whiteboard or computer projector.

“Design Squad is the full package. This program brought cohesiveness to my unit.”

**Doug S.
Concord Middle School
Concord, MA**

THE STRING THING GAME

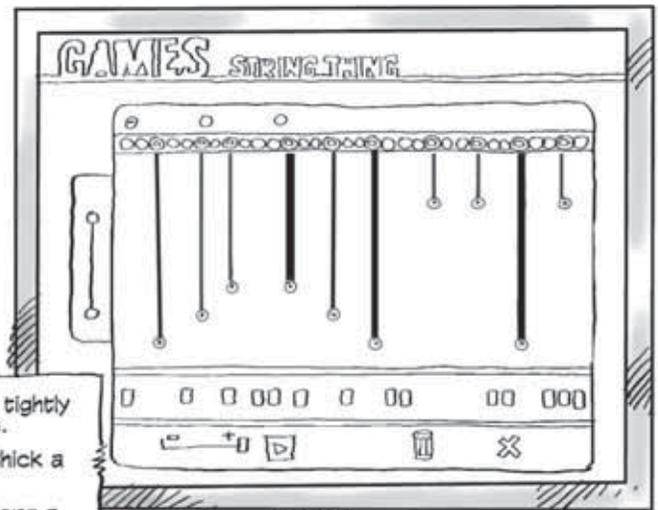


as built on TV
pbs.org/designsquad



1. Open the String Thing game. If you need to go online, go to pbs.org/designsquad and click on "Play Games."

2. Drag strings onto the grid. Click on them to change their properties.

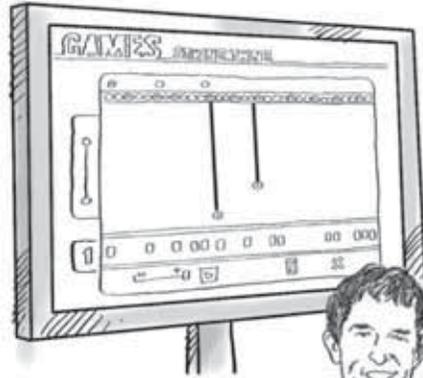


Tension is how tightly pulled a string is.
Gauge is how thick a string is.
Length is how long a string is.

3. List three ways to lower a string's pitch.



5. Which changes the pitch more: increasing the gauge of a string by one click, or the length of a string by one fret?



4. Drag a long string and a short string onto the grid. Change the tension or gauge of these strings so they play the same pitch. Describe what you did.

6. How do you play the highest note possible?



7. List some reasons why adult voices are usually lower than kids' voices.

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