

Inside Reading Level 4
Unit 4 Skill Review: Cause and Effect

Name: _____

Date: _____

The Review Skill in Unit 4 asks you to find the factors that affect the volume of a guitar. Let's take a look at a couple of the paragraphs from "Guitars: The Quest for Volume." As you look for causes and effects, focus on what makes a guitar sound louder and what makes it quieter.

The shape and dimensions of the guitar body are important in making sure that the vibrations from the different strings are amplified fully and equally. Guitar designers experimented with many different designs. After much refinement, they found that a figure-eight shape with a larger and a smaller chamber separated by a narrower waist works best. This shape best amplifies and smoothes the sound of all the tones that a guitar can make.

Even with this optimal design, a guitar made entirely of wood is not very loud. Guitar designers faced an intrinsic difficulty in the physical properties and design of a guitar. Heavier, tighter strings are louder. Thinner wood is also louder. But heavier, tighter strings place tremendous stress on the guitar, requiring thicker wood to strengthen the guitar and keep it from breaking. So the increase in volume gained by using heavier strings and greater tension is offset by the thicker wood needed to strengthen the guitar. Guitars, it seemed, would never be loud.

In the early 20th century, the search for a louder guitar intensified. Two solutions appeared. One design strengthened the guitar by running a metal rod through the neck of the guitar and by adding more support in the bridge area. This way, louder steel strings could be used without damaging the guitar. Today, these design improvements are incorporated into most hollow body, steel-string guitars. The second solution added metal resonator plates to the top of the guitar to take advantage of the "twangy" acoustic properties of metal. The twang not only made guitars louder, but the change in tone helped them stand out more when played along with other instruments.

A List four more causes that contribute to a guitar's volume being louder.

1. A figure-eight shape with a larger and a smaller chamber separated by a narrower waist.
2. _____
3. _____
4. _____
5. _____

B List another cause that leads to a guitar's volume not being very loud.

1. A guitar made of wood is not very loud.
2. _____

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Answer Key

A There are several causes that lead to a guitar's volume being amplified. List them below.

1. A figure-eight shape with a larger and a smaller chamber separated by a narrower waist work best.
2. Heavier, tighter strings are louder.
3. Thinner wood is also louder.
4. Louder steel strings could be used.
5. Metal resonator plates take advantage of the "twangy" acoustic properties of metal.

B There are several causes that lead to a guitar's volume being not very loud. List them below.

1. A guitar made of wood is not very loud.
2. Heavier, tighter strings require thicker wood, which makes the sound quieter.