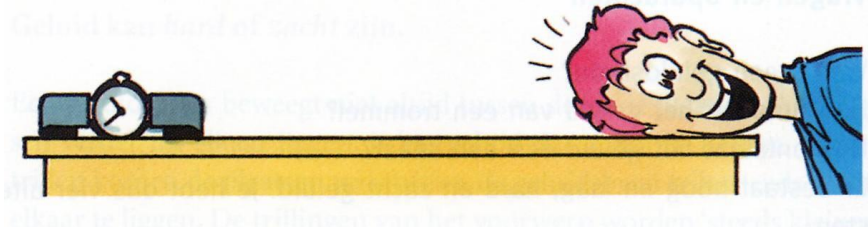


Content knowledge items

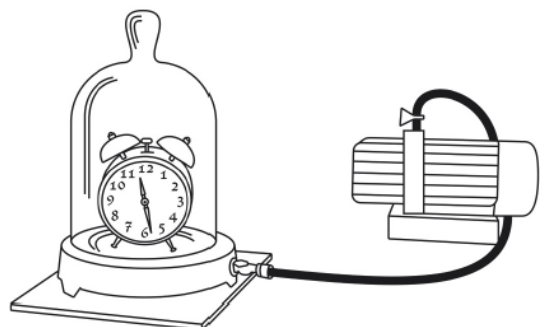
1. ***Take a look at the image below. Peter has placed a ticking watch on the table. He puts his ear on the table. Which of the sentences below is true?**



- Peter can no longer hear the watch ticking.
 - Peter can hear the watch ticking through the air, but not through the table.
 - Peter can hear the watch ticking through the table, but not through the air.
 - Peter can hear the watch ticking both through the air and the table.
2. **If you want to produce a high note on a harp, you...**
- Play a short string, it has a fast vibration
 - Play a short string, it has a slow vibration
 - Play a long string, it has a fast vibration
 - Play a long string, it has a slow vibration
3. ***Sound is easily reflected by...**
- Soft materials such as a curtain or carpet
 - Hard materials such as a rock or concrete

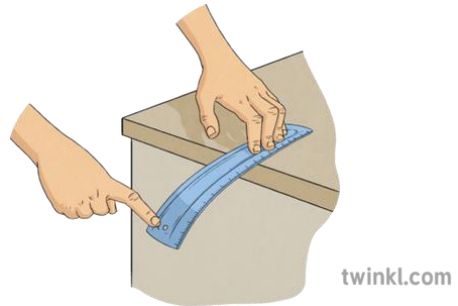
4. ***Take a look at the image below. You see a clock inside a bell jar and a vacuum pump. The air can be pumped out of the bell jar. Marie does an experiment. She lets the clock go off and pumps all the air out of the bell jar. Marie can now no longer hear the clock. True or false?**

- True
- False



5. Take a look at the image below. By pushing the ruler down with your finger and releasing it, the ruler vibrates and you will hear a sound. If you want the ruler to make a lower sound pitch, what should you do?

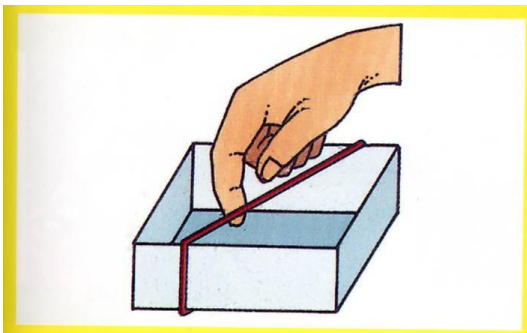
- Push the ruler harder
- Push the ruler softer
- Move the sticking out part of the ruler further from the table
- Move the sticking out part of the ruler closer to the table



6. If you tighten the strings on a guitar, the sound will become...

- Louder
- Higher
- Softer
- Lower

7. Take a look at the picture below. With a rubber band and a box, you can make a sound. What happens to the sound if you will use a thicker rubber band?

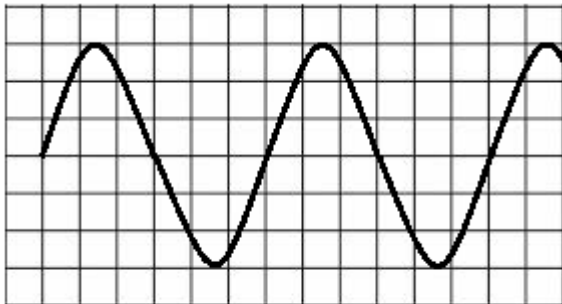


- The sound will be louder
- The sound will be softer
- The sound will be lower
- The sound will be higher

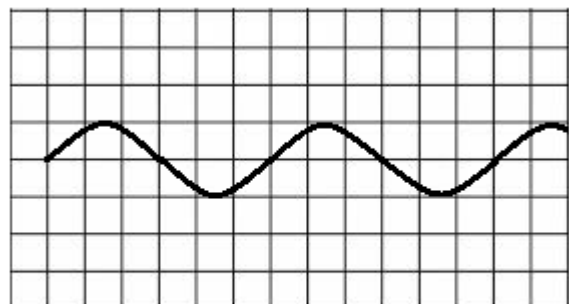
8. *The violin has a smaller sound box than a contrabass. The violin sounds...

- Softer than the contrabass
- Harder than the contrabass
- Slower than the contrabass
- Faster than the contrabass

9. *Below you see two images of sound waves. Which sentence about the sound waves is true?



Sound 1



Sound 2

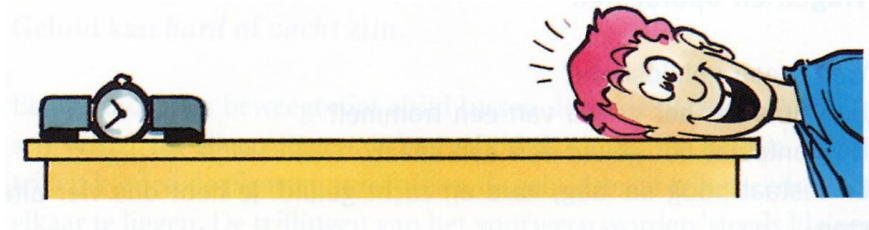
- Sound 1 has a higher pitch than sound 2
- Sound 1 has a lower pitch than sound 2
- Sound 1 is louder than sound 2
- Sound 1 is softer than sound 2

10. A bee and a mosquito both make a buzzing sound when they fly. Why does the sound of the bee sound lower than the sound of the mosquito?

- Because the bee is thicker
- Because the bee's wings vibrate more slowly
- Because the bee is larger
- Because the bee's wings vibrate faster

Post-test

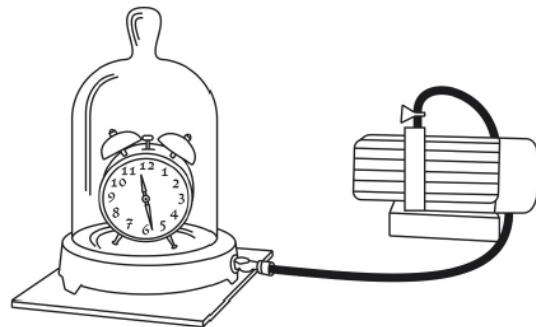
1. ***Take a look at the image below. Peter has placed a ticking watch on the table. He puts his ear on the table. Which of the sentences below is true?**



- Peter can no longer hear the watch ticking.
 - Peter can hear the watch ticking through the air, but not through the table.
 - Peter can hear the watch ticking through the table, but not through the air.
 - Peter can hear the watch ticking both through the air and the table.
2. **If you want to produce a low note on a harp, you...**
- Play a short string, it has a fast vibration
 - Play a short string, it has a slow vibration
 - Play a long string, it has a fast vibration
 - Play a long string, it has a slow vibration
3. ***Soft materials such as a curtain or carpet cause sound to be...**
- Reflected
 - Absorbed

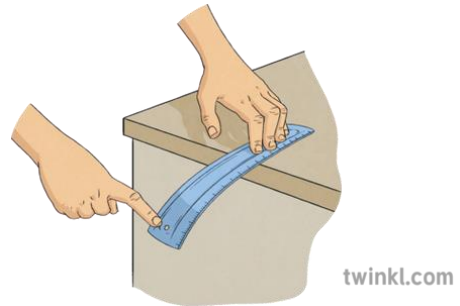
4. ***Take a look at the image below. You see a clock inside a bell jar and a vacuum pump. The air can be pumped out of the bell jar. Marie does an experiment. She lets the clock go off and pumps all the air out of the bell jar. Marie can still hear the clock. True or false?**

- True
- False



5. Take a look at the picture below. By pushing the ruler down with your finger and releasing it, the ruler vibrates and you will hear a sound. If you want the ruler to make a higher pitched sound, what should you do?

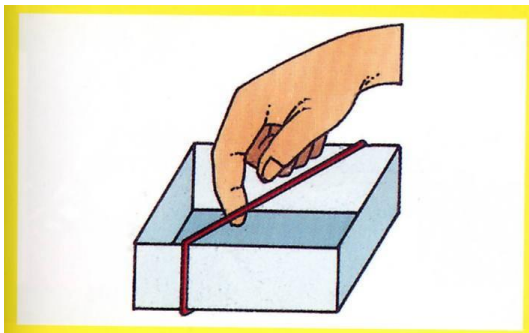
- Push the ruler harder
- Push the ruler softer
- Move the sticking out part of the ruler further from the table
- Move the sticking out part of the ruler closer to the table



6. If you loosen the strings on a guitar, the sound will become...

- Louder
- Higher
- Softer
- Lower

7. Take a look at the picture below. With a rubber band and a box, you can make a sound. What happens to the sound if you will use a thinner rubber band?

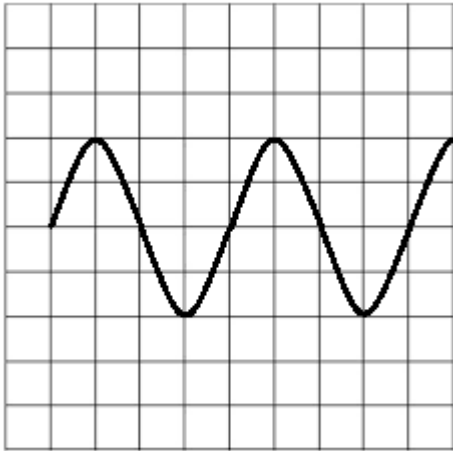


- The sound will be louder
- The sound will be softer
- The sound will be lower
- The sound will be higher

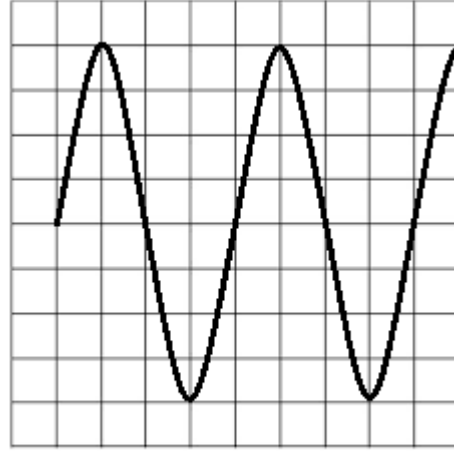
8. *The violin has a smaller sound box than a contrabass. The violin sounds...

- Softer than the contrabass
- Harder than the contrabass
- Slower than the contrabass
- Faster than the contrabass

9. *Below you see two images of sound waves. Which sentence about the sound waves is true?



Sound 1



Sound 2

- Sound 1 is louder than sound 2
- Sound 1 is softer than sound 2
- Sound 1 has a higher pitch than sound 2
- Sound 1 has a lower pitch than sound 2

10. **A bee and a mosquito both make a buzzing sound when they fly. Why does the sound of the mosquito sound higher than the sound of the mosquito?**

- Because the mosquito is skinnier
- Because the mosquito's wings vibrate more slowly
- Because the mosquito is smaller
- Because the mosquito's wings vibrate faster

* Items excluded after reliability analysis

References

Images found on the web

- N.a. (n.d.). Retrieved from: <https://maken.wikiwijs.nl/p/questionnaire/standalone/1653758>
- N.a. (n.d.). Retrieved from: <https://www.twinkl.com/kw/illustration/flicking-ruler-experiment-sound-vibration-test-science-roi-ks2>