The scenario

Subject (field/title)	**Wave properties of sound / Bell in a vacuum**
Length of movie	2:02
Main Goals	Representation of sound as a mechanical wave
Detailed Goals	Proving that a mechanical wave needs an elastic medium to propagate.
Structure and description of the experiments	
1. Introduction	Explanation: A mechanical wave needs a medium to propagate through space.
2. Main topic	Explanation: This video demonstrates the fact that a sound wave is a mechanical wave
Part 1	
	Tools: Electric bell, vacuum bell, vacuum pump, manometer, sponge. **Description:** We set the electric bell based on a vacuum cover. Turn on the bell and cover it with a vacuum bell. The sound of a bell comes from under the vacuum bell. We close the lampshade valve and turn on the vacuum pump. As the pressure decreases, which can be observed on the pressure gauge, the sound of the bell becomes quieter. Under optimal conditions, the sound of the bell may not be heard at all, but we observe how the bell trembles. Opening the valve after turning off the pump results in pushing air under the cover. The ringing tone is heard again. **Questions:** Why do we hear explosions in the Sun? **Conclusions:** By pumping out the air from under the shade, we reduced the number of particles that can transmit vibrations in space. Thus, we limited the possibility of sound wave propagation. By letting air into the diffuser again, we increased the number of particles and thus enabled the transmission of vibrations between them - that is, we allowed the propagation of the sound wave. Therefore, we have proved that a sound wave needs a medium and is a mechanical wave.
3. Summary and notes	Point out to students that mechanical waves need a medium to propagate, unlike electromagnetic waves, which can also propagate in a vacuum. **Level:** primary school and high school

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