

Celia DUQUAIRE 2nde6
Ikram BEN SABER 2nde6
Anna PIERRE 2nde6

Why do astronauts wear special suits?

Why do astronauts have to wear suits to communicate in space?

Hypothesis :

Astronauts cannot communicate without air (pressure). That being so, if astronauts didn't wear special suits, they would not be able to communicate because of the lack of pressure in the atmosphere. With the suit, however, astronauts are able to communicate because of the air present in it.

Experience :

Protocole : (in **bold** ; material used)

- Put the **barometer** (to measure the atmospheric pressure), **sonometer** (to measure the sound level), and the **timer** under the **vacuum bell**.
- Check that the vacuum bell is nicely closed.
- Set the timer on 15 seconds to have time to close the bell, and make it ring.
- Turn the vacuum bell on to suck out the air present in the bell.
- Look out for :
 - on the barometer, the needle moving, going down (decrease in pressure)
 - on the sonometer, the number shown decreasing (sound heard is decreasing)
- Listen to see if you can still hear, or not the timer ringing.

Images :



Results :

After turning on the timer (making it ring) and sucking the air out of the vacuum bell, gradually, the sound of the timer vanished, until it was silent. *We could not see clear numbers because the bell was not see through.*

Interpretation :

This experience has helped us understand why astronauts need special suits to communicate (and for other reasons) ; this shows us that without pressure, there is no sound. That is why they need to have pressure/air in their suits to be able to speak into a microphone and make sound.

Conclusion :

Astronauts need to wear special suits for multiple reasons. One of them is to be able to communicate. Using our knowledge and research, we know that if there is no pressure, there is no sound. We proved this by using a vacuum bell which sucked out all the air existing in the bell, and a timer to make sound. Once all the air had been sucked up we could see, on the sonometer placed in the bell, that while the pressure went down, the level of sound did too. At the end, we could not hear the timer ringing, until we opened the bell.

NB : in a space suit, there is pressure, but there is a lot less then there is in our atmosphere. Communication might still be harder in space, even with a special suite.