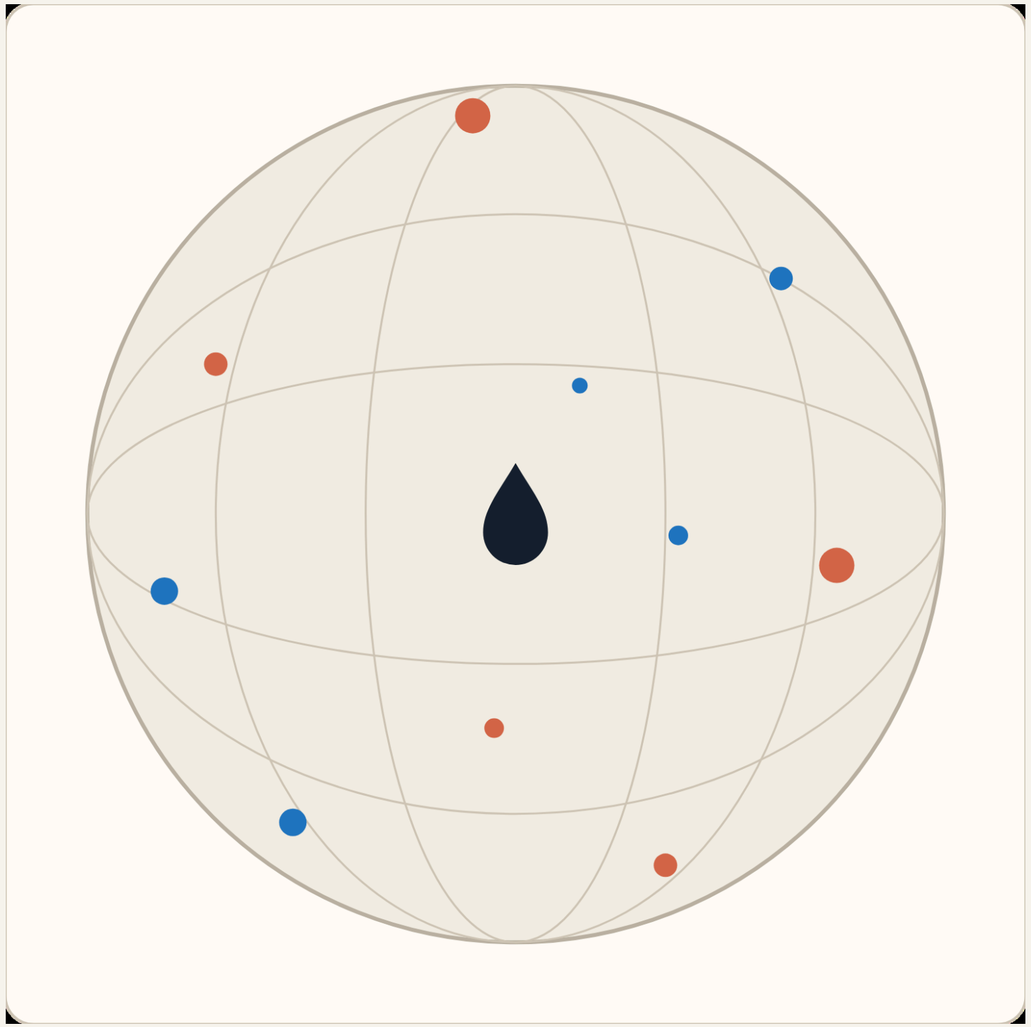
PART 1.2 · ABOUT 6 MINUTES

Why spatial sound?

Same content, different placement.



PART 1.2

We hear in every direction

Sound reaches us from front and back, left and right, above and below, near and far, all at once.

That multi-directional quality is what makes a space feel like a *place*, and feel real.

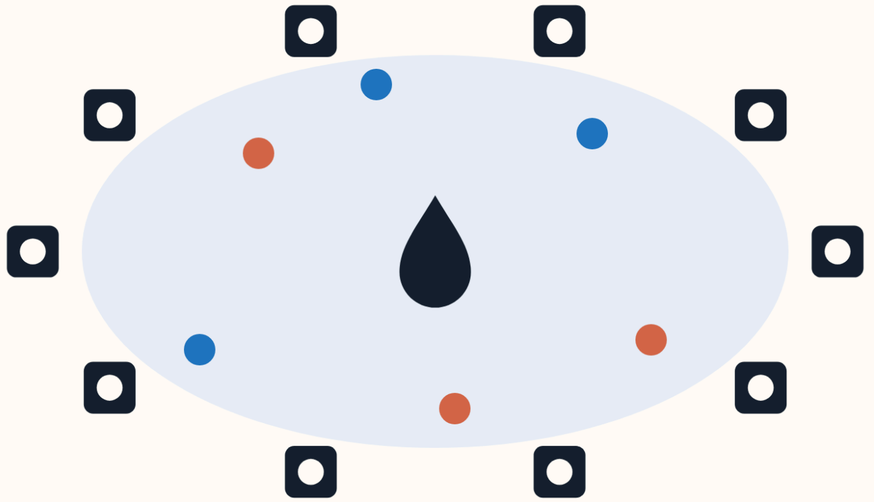
For an immersive exhibit to feel real, its sound has to be designed spatially: as a **sound environment**.

PART 1.2

Stereo vs. a sound environment



Sound sits on the arc between two speakers, in front of you



Sound can come from anywhere around you

Stereo: two channels, usually two speakers.

Spatial: one sound environment made of many speakers.

PART 1.2

Where most venues start

WITHOUT SPATIAL AUDIO

One stereo file plays through two or more speakers.

WITH SPATIAL AUDIO

Each sound gets its own place in the room, with far more precision.

WITHOUT SPATIAL AUDIO

Different sounds play from different speakers.

WITH SPATIAL AUDIO

Those speakers join into one sound environment that visitors walk through or are immersed in, and sounds can travel from one speaker to the next.

Spatial audio can be additive: it often starts from the speakers a venue already has.

Sound shapes how visitors engage

A growing body of research suggests that natural, spatial sound improves experiences. The studies are small, and they point the same way.

Mavridou et al., *Frontiers in VR* (2025)

68 people · VR scenes with and without spatial sound

- More immersion and presence
- A better sense of the place
- Stronger emotional involvement

Rodero & Rodríguez-de-Dios, *Media Psychology* (2024)

50 people · the same audio stories, with and without binaural sound

- Much higher enjoyment
- More vivid mental images
- More attention, slightly better recall

Västfjäll, *CyberPsychology & Behavior* (2003)

45 people · music in mono, stereo or six channels

- Six channels: the most presence
- The most emotional realism
- The strongest emotional response

Langiulli et al., *Frontiers in Neuroscience* (2023)

32 people · film clips in mono, stereo and 5.1

- 5.1: the most immersion
- The most enjoyable and real
- EEG signs of stronger embodiment

Sound Travels (TERC)

Zoo and aquarium educators

- Positive sound experiences raised learning engagement noticeably
- Negative ones had a much weaker effect

Positive sound experiences matter more than negative ones.

In Sound Travels research with zoo and aquarium educators, sound experiences visitors enjoyed raised learning engagement noticeably; unwanted sound had a much weaker effect. So designing the sounds people enjoy does more than only fixing the ones they don’t.

Next, in part 1.3: imagine the environment you want, and name the sounds in it.