

Know Your ANSWER

Your audience has questions. What you say should be the answer.

Most science communication fails before a single word is spoken, because the message was never built for the person receiving it. The **ANSWER framework** is a checklist, not a sequence. Work through all six before you speak, in whatever order fits your prep. Refine **what you say** first. Then, and only then, work on how you say it.

A Assess prior knowledge

What do they already know? Where do you need to start?

Learning sticks when new ideas connect to what people already know. Experts forget what it was like not to know, so start where your audience actually is and scaffold up from there.

Evidence: Ausubel (1968) on meaningful learning; Camerer, Loewenstein & Weber (1989) on the curse of knowledge

N Name the misconceptions

What do they think they know that's wrong?

Prior knowledge isn't just incomplete. Sometimes it's wrong, and wrong ideas actively block new understanding. Anticipate the myths and address them head-on instead of talking past them.

Evidence: Posner, Strike, Hewson & Gertzog (1982) on conceptual change

S Story

What's the And, But, Therefore?

Narratives increase comprehension, interest, and engagement compared to facts alone. Use the ABT template: set the scene (And), introduce the problem (But), deliver the resolution (Therefore).

Evidence: Dahlstrom (2014), PNAS; Braddock & Dillard (2016) meta-analysis; Olson (2015), Houston, We Have a Narrative

W Why

Why does this matter to the everyday person?

Personal relevance drives attention, memory, and engagement. If your audience can't answer "why should I care?", nothing else you say will land. In practice, this is where I always start.

Evidence: Hidi & Renninger (2006) on interest development; National Academies (2017), Communicating Science Effectively

E Empathy

What does this sound like from their side of the table?

Your audience doesn't do science every day, and that's not a flaw. Step into their shoes. Empathy is the antidote to the curse of knowledge and the foundation of every real connection.

Evidence: Alda (2017), If I Understood You...; Alda Center for Communicating Science training research

R Refine your words

Which words exclude, confuse, or mean two things?

Jargon doesn't just confuse people. It makes them feel like science isn't for them, even when you define your terms.

Watch for double-meaning words too: "theory," "error," and "bias" mean different things at the lab bench and the dinner table.

Evidence: Bullock et al. (2019) & Shulman et al. (2020) jargon experiments; Somerville & Hassol (2011), Physics Today

Your message passed the checklist? Turn to Part 2. Part 2 is how you say it: six delivery skills that turn a refined message into one people trust, feel, and remember.

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Say It With **IMPACT**

The message is ready. Now make it land.

A refined message can still fall flat if the delivery doesn't carry it. **IMPACT** is the delivery side of the framework, and like **ANSWER**, it's a checklist, not a sequence. These six skills cover how you look, how you sound, and how you connect. Work on them in any order, but work on them after the message. The what always comes before the how.

I Illustrate

What can you show instead of just say?

People learn better from words and pictures than from words alone. And keep it clean: extra text, clip art, and clutter don't make a slide thorough, they make it harder to understand.

Evidence: Mayer's multimedia learning principles, tested across decades of controlled experiments

M Move

What is your body saying before you speak?

Audiences judge speakers from seconds of nonverbal behavior alone: gestures, posture, expression, eye contact. Your body talks first, so make sure it's telling the same story you are.

Evidence: Ambady & Rosenthal (1993) thin-slice studies; nonverbal analyses of top TED talks

P Passion

Can they tell you care?

Credibility takes more than expertise. Audiences trust warmth, and scientists consistently rate as competent but cold. Let your enthusiasm show. Caring out loud is what turns respect into trust.

Evidence: Fiske & Dupree (2014), PNAS; research on enthusiasm as contagious in teaching

A Adapt

Are you reading the room or reciting a script?

One-way lectures rarely change minds. Watch reactions, invite questions, listen to the answers, and adjust in real time. Communication is a dialogue, not a download.

Evidence: the field's shift from the deficit model to the dialogue model; Trench (2008); Besley et al. (2018)

C Cadence

Does your voice rise, fall, pause, and breathe?

Speakers with more vocal variety are rated more engaging, trustworthy, and credible. Monotone kills a great message. Vary your pace, pitch, and volume, and don't be afraid of the pause.

Evidence: Hirschberg & Rosenberg (2009) on charisma perception; analyses of vocal variety in top talks

T Tap into emotion

How will this make them feel?

Emotion flags a memory as worth keeping. The same facts wrapped in feeling, whether wonder, humor, or concern, are remembered far better than a neutral delivery. Use it when appropriate: to illuminate, never to manipulate.

Evidence: McGaugh (2004) on emotional arousal and memory; Cahill & McGaugh (1995)

The whole framework in one sentence: know your ANSWER. Say it with IMPACT. Refine what you say, then master how you say it. Science deserves to be understood.

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