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11 tips for communicating science to the public

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Monica Metzler (executive director of the Illinois Science Council) gave tips on how scientists can succeed at public outreach during the AAAS Annual Meeting. Here are 11 helpful ideas from her talk.

1. **Science outreach is important!** The U.S. has a shockingly low scientific literacy rate. If we want to see the end of fad diets, the anti-vaccination movement, and monstrosities like anti-evolution museums, the public needs to understand more

about science.

2. **Outreach activities can pay off professionally.** Most [outreach activities](#) inherently involve organizing your thinking and working on communication skills. Developing these skills can lead to better grants, papers, and teaching. Sharing your research on social media may pay off with increased citations for your papers. A study found that [highly tweeted articles were 11 times more likely to be highly cited than less-tweeted articles](#) (although whether this is a causal relationship is unknown).

3. **There are many ways to do outreach.** Is writing your strong suit? Try writing an op-ed for your local newspaper, an article for your alumni magazine, or start a blog (or microblog on [Twitter](#) or Facebook). More interactive opportunities include science cafes, bringing students into your lab, and going into senior centers and Rotary clubs.

4. **Outreach isn't about you, it's about your audience.** You probably won't talk about your actual research—this level of detail will be too much for most audiences. You may have to zoom out a great deal to get to the right level, and sometimes you may have to talk about a different subject all together. Metzler provided a great example of a researcher who studies depression but gave a public talk about happiness (in part because people are more likely to come to an uplifting talk!).

5. **Don't win at Bad Presentation BINGO!** Check out [Metzler's BINGO board](#) of bad presentation habits and try to avoid them.

6. **Don't worry about "dumbing it down."** According to Metzler, you should never worry about dumbing down your subject. All people—from mechanics to hairdressers—simplify their messages to get points across. It does not degrade science to do this.

7. **Don't use equations and don't expect data to speak to your audience.** As sad as it is to some of us, most people never use equations during their day to day lives and aren't used to looking at charts and graphs. Make sure any data you show are displayed simply and are well explained (good advice for giving presentations to colleagues too).

8. **Jargon is slippery.** It takes practice to know what words are jargon and which aren't. Even trickier are terms that mean one thing for scientists and something else to the lay public. [The table in this paper gives some nice examples of these.](#) Metzler specifically said to avoid the word "theory" because scientists often go back and forth between the word's two meanings—this is confusing to people.

9. **Separate science from policy.** According to Metzler, studies have shown that scientists are respected for their knowledge of their science. However, expressing a policy opinion actually decreases how much people trust a scientist's knowledge of the science. She suggests separating your opinion from discussions of scientific findings (i.e. "as a citizen this is how I think about...").

10. **Find the story.** Talk about the people involved and the process of science. Convey how the scientific process works in practice and the role that uncertainty plays. Metzler says to figure out the story before making slides (if you have them).

11. **Don't worry too much.** Don't let your fear of being perfect prevent you from doing outreach! The public wants to see you as human and will appreciate your effort. Besides, [your presentation is guaranteed to be better than this one!](#)

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