INSTRUCTOR NOTES: *PUT THE SLIDES TO ONE SIDE*

This exercise will empower science students and scientists to make *science the protagonist* of their story when presenting. Encourage students to *put the slides to one side* and instead use props, demonstrations or models to explain scientific concepts or theories.

Part One: Alternatives to slides

Ask students to work in small groups to discuss alternatives to PowerPoint presentations when communicating science. Encourage the class to share their ideas to an online interactive poll so that you can share the ideas as a class.

E.g. Mentimeter Word Cloud: https://www.mentimeter.com/features/word-cloud

Examples emerging from your class discussion might include:

Prop, demonstration, experiment, model, drawing, diagrams, figures, sculpture, animation, illustration, podcast, video, dance, song, music, sounds, soundscape etc.

Part Two: Introducing demonstrations, props and models

Start by either using a demonstration, prop or model to communicate a scientific concept to your class (feel free to create your own or take inspiration from the work of others, in addition to published books of demonstrations, a number of societies also share resources) or by showing them a video of an example relevant to your discipline or topic (see examples here: bit.ly/SCOPE_TSSTC.)

Some definitions:

Prop - typically an object used within a theatrical context to enhance a performance or make it more realistic. In the context of science communication, a prop is an object that can enhance your science communication performance. There are almost limitless examples of possible props, including but not limited to: an artifact such as a sample of an element, a fossil or a meteor; a piece of scientific equipment, something that helps to give a sense of scale or perspective; or indeed a prop as in the traditional definition that enables you to play the role of a historic figure in science. Some examples are included at bit.ly/SCOPE_TSSTC.

Demonstration - in terms of science communication, this can be the act of showing that something exists or is true by providing evidence or a practical display of how something works. Demonstrations come in many forms, but can include experiments that reveal scientific processes or

demonstrate scientific concepts or theories; the use of a piece of equipment or machinery with explanations of how it works; or an introduction to the use of a technique or piece of equipment so that it can be repeated by others. Some examples are included at bit.ly/SCOPE_TSSTC.

Model - in terms of science communication, a model can be a 3D representation of a person or object (often at a scaled down or scaled up size), a simplified system that can be used to demonstrate something more complex, or a physical representation of something that we cannot actually see. Some examples include models that represent the intangible such as gravitational waves, blackholes or electrons; a scaled down version of a large experiment or piece of equipment such as the Large Hadron Collider or a space rocket; or an atomic model kit. Some examples are included at bit.ly/SCOPE_TSSTC.

Part Three: What are the elements of a successful prop/model/demonstration?

Ask students to work in groups to consider the elements necessary for a prop/model/demonstration to be successful. Next, ask students to share these elements as a class so that you can develop a Class Rubric. ***Hint***: Consider using Google Sheets or another collaborative online tool to build the rubric together in class. We also recommend that you choose ~8 criteria in your class rubric to avoid overwhelming students.

Some elements that you may like to encourage students to include (depending on how successful your class discussion is) could include:

Safety - Is the demonstration safe and conducted in a way that minimises risk to the demonstrator and the audience?

Concept - is the concept one that lends itself to communication through demonstration or would another mode of communication work better?

Audience - is the demonstration at the appropriate level for the assigned audience (this could be a university audience, school audience or public audience for example)?

Purpose - does the demonstration have a clear purpose and does it achieve this purpose?

Clarity - is the science topic clearly communicated? Does the demonstration increase understanding of the chosen topic?

Performance - is the presenter entertaining? Do they speak clearly and with confidence, clarity and charisma?

Engagement - is the presentation engaging? Does it hold the attention of the audience by using a technique such as storytelling, surprise or something that has a 'wow factor'?

Creativity - is the demonstration unique or new? Has the presenter tried something creative to delight the audience that hasn't been seen before?

Execution - does the demonstration work? Has it been well practiced and perfected?

Translation - is a theoretical concept clearly translated into something more tangible or relatable through a direct demonstration or one that is analogous?

Timing - is the demonstration complete in the stated time? Is it at the right pace for the audience to follow?

Learning - does the audience learn something from the demonstration?

You will create a Class Rubric based on the elements shared by your class. An example Rubric is provided here:

Part Four: Student Presentations

As part of the Homework, ask students to complete Part 1 (optional) and Part 2 (compulsory for submission before your next class) of the Worksheet. In preparation for the class presentations, create an online form (Google Forms works well) based on the Class Rubric created together with your students and provide students access to mark the presentations of others in the class.
At the close of the session share marks with students and announce the 'winning presentation(s).'

Part Five: Student Reflection

Guide students to complete Part 3 of the Worksheet. They will reflect on what they have learnt in relation to:

- principles/concepts/methods/skills that are transferable across different contexts.
- their chosen/allocated scientific topic through the development of their demonstration