To Tell a Story

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**BIOGRAPHY**

Toshi Komatsu is Director of the Fujitsu Planetarium at De Anza College. Prior to that, he spent 18 years at the Planetarium at the Lawrence Hall of Science, presenting and developing live, interactive shows. He has an A.B. in Physics and Astrophysics from the University of California, Berkeley.

**ABSTRACT**

Can just anyone tell a story (in the planetarium)? Why and when should you use stories in your programs? How do we stay focused on what is really important? I share a template for summarizing any story using the “rule of three”—the Word, the Sentence, and the Paragraph. People respond naturally to the framework of a story, and including elements of drama and knowing your audience are key components of any good story to effectively connect to and teach your audiences. Co-panelists Patty Seaton and April Whitt will expand on these concepts with examples.

**INTRODUCTION**

As planetarians, we may not think of ourselves as storytellers, but we are. As science communicators, we need to actively engage the public, and one of the best tools is storytelling. Over the millennia, humans have been conditioned to tell and to listen to stories. Story is a familiar format, and framing science into a story gives a way to package it into a comfortable medium for our audiences. However, while any story can be told, we all know not every story is told well.

I. CONNECT WITH STORY

My interest in applying storytelling to the planetarium began when I read *Connection: Hollywood Storytelling Meets Critical Thinking*, by Olson, et al. The book lays out three templates as the framework for telling compelling stories. These templates can be applied to any story—from my family trip to Europe to the mysteries of dark matter.

The key is to make a connection with your audiences to make them more receptive to learning. All good stories have a common structure that help them flow—a structure that has been refined through the ages. If you can format your story in familiar package for people, it will be much easier for them to follow you. This is especially important the more complex and abstract the topic, as is the tendency with science and astronomical concepts.

One basic rule is the rule of three. We eat breakfast, lunch, and dinner. We order Tall, Grande, or Venti. Three is a number of completion, and there are three story templates: the Word, the Sentence, and the Paragraph. These templates are very specific in form, but also very flexible in practice. When used together, they can help you focus your story.

II. THE WORD

The “Word” is a template to summarize your entire story into a single word. This is an exercise to focus your story and grab the attention of your audience. It should encapsulate not only your theme, but why anyone should care.

To help, *Connection* explains a theory of storytelling with two axes. The horizontal axis is your narrative structure, or the flow—the beginning, middle, and end. The vertical axis measures a story’s approachability. As science communicators, we often stay in the head, making presentations too cerebral and filled with jargon. It is more effective when speaking with the public to be lower on that axis, communicating from the heart or the gut. We must remember when we are talking with the public, we cannot use the same language we use with our colleagues.
It’s okay to have emotions. People relate to emotions. Of course we want to be scientifically accurate, but we need to excite the public and spark inspiration. Although science must be done objectively, we should be passionate when we communicate that science.

Consider the larger, human context for your story. Make your next show not about “exoplanets,” but about “possibilities.” Focus not on “constellations,” but on “imagination.” Present not about “gravitational waves,” but “triumph.”

III. THE SENTENCE

Next, we have the “Sentence.” This template defines the conflict, because a story doesn’t begin until something happens. Think about the last time you saw a boring movie or TV show or planetarium show. You were probably thinking, when is something going to happen? The conflict does not have to be physical; it can be a challenge on the road to discovery, but there has to be a reason for the story.

The Sentence is also referred to as the “And, But, Therefore” model because of its structure. Start with some information AND add more information BUT then something happens, THEREFORE a solution is found. In defining the conflict, this template begins to define the flow of your story.

Here is an example of a famous story, told badly:

Once upon a time, there were three bears AND they made some porridge AND they thought it was too hot AND they went for a walk AND a little girl appeared AND she knocked on the door AND…

There is a lot of information, but nothing is happening. This is more of a list than a story. Too often, science stories get stuck in an AND, AND, AND pattern. We collected data, and we collected more data, and we analyzed the data, and we concluded “X.” This has plenty of information, but no flow. It jumps from information to conclusion, but there was no conflict or challenge.

Compare with this version:

Once upon a time, there were three bears AND they went for a walk, BUT an evil little girl broke into their home—eating their food and destroying their furniture—THEREFORE they chased her away to save their home.

In this case, there is a clear conflict—the vicious girl who terrorizes the poor, innocent bear family. It is what makes the story interesting.

So, for your next exoplanet show, consider:

We have long wondered about other life in the Universe AND whether or not we are alone BUT we needed to know if planets are common or rare, THEREFORE the Kepler Mission was designed to take a statistical survey of stars.

Science is defined by the questions it asks, and those questions make for excellent sources of conflict for stories.

IV. THE PARAGRAPH

The “Paragraph” expands on the Sentence, giving additional detail to the story’s flow. It outlines one of the most common story frameworks—the Hero’s Journey—composed of these nine parts. You can fill in the blanks with the details of your story.

IN AN ORDINARY WORLD…
A FLAWED PROTAGONIST gets their life upended when
A CATALYTIC EVENT HAPPENS.
After TAKING STOCK,
THE HERO COMMITS TO ACTION.
But when THE STAKES GET RAISED,
THE HERO MUST LEARN THE LESSON in order
TO STOP THE ANTAGONIST, so the hero can
ACHIEVE THEIR GOAL.
Think of your stereotypical movie trailer narration. It begins with, “In an ordinary world…” It sets up the world or the state of the world. The protagonist is flawed, because the story should show them improving or learning. This could be a scientist in pursuit of a solution. A “catalytic event” is the thing that gets things started, and upsets the current world order. “Taking stock” is the protagonist’s assessment of how the world has changed, and then they take “action.” But (notice there is a “but” built in), then the main conflict is introduced, the thing that the hero must learn or discover or that allows the hero to grow. The antagonist does not necessarily have to be a person, but it could be the problem itself.

Here is another famous story, formatted in this template:

In a time of galactic civil war, on a quiet farm, an impatient young man gets his life upended when he finds a message from a kidnapped Princess, and meets an Old Man who tells him about “The Force.” After his family is murdered, the young man hires a cocky space pilot to help him rescue the Princess and aid the Rebel Alliance. But when the Princess’ home planet is destroyed and the young man is drawn into the enemy’s battle station, he must learn how to use “The Force” in order to destroy the enemy, so he can save the Princess and the Rebel Alliance.

With exoplanets, the journey may be the challenge of collecting precise measurements to find planets. With the Higgs-Boson, it may be the struggle to get that 5σ level of confirmation. Whatever it is, let the audience come along on the journey of scientific discovery.

Here is one more tip for storytelling. Mathematically and with your head, $2 + 2 > 4$ makes no sense. But from the gut, it means do not give your audience “4,” give them “$2 + 2$.” Make the audience think, and let them guess what comes next. They will be far more engaged if they have to work out “$2 + 2$,” rather than just being told “4.”

V. SCIENCE STORIES IN THE DOME

Keep in mind what domes are best at showing. We can show stunning, immersive visuals. Flat images are beautiful, but many of us can also show fulldome models. We also can visualize big data. Charts and graphs are terrible for the public, so make them into a story. Break them down, and tell the story of the data, not just points on a graph. And we can use our domes as time machines. Where else except in a planetarium do you have full mastery over space and time? We can go backwards or forwards, a few hours, or billions of years. Half our storytelling work is done with the tools we already have available because planetarians can not only tell, we can show.

So, what is your story? How will you tell it? I hope you will keep in mind these three templates. The Word—make a connection. The Sentence—and, but, therefore; introduce a conflict and make something happen. And the Paragraph—take your audiences on a journey of discovery.

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REFERENCES