



# What Does a Scientist Look Like Anyway?



## Dr. Jessica Taaffe

Jessica Taaffe, a vibrant fashionista with a love for music, motherhood and faith, is also an accomplished global health microbiologist. As a first generation American, Jessica grappled early in her career with the pressure to conform to ‘respectability politics’ in the workplace—dimming her light to blend in, privileging the comfort of others. Dr. Taaffe credits finding a professional community that shared her passion for work at the intersection of science and global health with shaping her career path and helping her to find and use her authentic voice. The contributions of scientists like Dr. Jessica Taaffe in quickly understanding and responding to the COVID-19 global pandemic can not be understated. This is precisely the kind of work that Dr. Taaffe has prepared a lifetime for and she is ready to make better not despite of, but because of who she is.

Each year, 3M’s State of Science index explores global attitudes about science. Here are just a few findings unearthed about STEM equity from this year:

**87%** believe we need to do more to encourage and retain girls in STEM education

**70%** believe there are negative consequences to society if the STEM community fails to attract more women to STEM careers

The work that Dr. Taaffe does in the field of infectious disease and global health, connects to the following Next Generation Science Standards:

Framework	Corresponding Standards
<p><b>Next Generation Science Standards (NGSS)</b></p>	<p><b>HS-LS1-4. From Molecules to Organisms.</b> Use a model to illustrate the role of cellular division (mitosis) and differentiation in producing and maintaining complex organisms.</p> <p><b>HS-LS1-2. Structure and Function of Organisms.</b> Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms.</p> <p><b>HS. Interdependent Relationships in Ecosystems</b></p> <p><b>Science and Engineering Practices:</b> Use an oral and written argument supported by evidence to support or refute an explanation or a model for a phenomenon.</p> <p><b>Cross-Cutting Concepts:</b> Systems and System Models, Scale Proportion and Quantity, Cause and Effect.</p>

**Directions for Classroom Discussion:** There is a menu of classroom learning engagements below that pair with the video profile of Dr. Jessica Taaffe and furthers students’ understanding of the work of public health scientists, the nature of viruses and the dangers of conforming to dominant cultural ways of being without interrogating the impacts of marginalization.

Pedagogical Approach	Classroom Activities & Directions
<p><b>Discussion Prompts</b></p> <p><i>Prior to the Start of the Video.</i></p>	<p>Discuss prompts to engage students in understanding the field of public health and unpacking COVID-19 include:</p> <ul style="list-style-type: none"> <li>• What constitutes a public health crisis?</li> <li>• What are some aspects of life that you took for granted before the COVID-19 pandemic occurred?</li> <li>• How was the COVID-19 talked about in the media? Compare and contrast 3 different news reports.</li> <li>• How did the COVID-19 pandemic impact communities differently?</li> </ul>
<p><b>Think. Pair. Share.</b></p> <p><i>(pause video at 5:44)</i></p>	<p>Create space in the front of the classroom (or if in a virtual setting on a Jamboard) with a Likert Scale of Strongly Agree to Strongly Disagree. Repeat each statement and ask students to place themselves on the scale based on their belief around the politics of respectability. Once students have a place on the line, fold the line from the middle so that both ends meet face to face to have a discussion. Students on the ‘<i>strongly agree</i>’ end should be in front of students on the ‘<i>strongly disagree</i>’ end. Give students 2 minutes each to state their opinion and provide evidence to support it. This can open up a conversation about norms that are based on stereotypes and bias.</p> <p><b>Statement #1</b> - A “good student” is one who participates in class, completes all their work and follows all the rules in school</p> <p><b>Statement #2</b> - Pajamas are “inappropriate” clothes to wear to the grocery store</p> <p><b>Statement #3</b> - There are certain jobs that only men should do.</p>
<p><b>Classroom Activities.</b></p> <p><i>(post video)</i></p>	<p><b>Elementary /middle grades:</b> Students simulate the spread of a virus such as HIV through a population by “sharing” (but not drinking) the water in a plastic cup with several classmates. Although invisible, the water in a few of the cups has already been tainted with the “virus” (sodium carbonate). After students complete the <a href="#">Tracking a Virus activity</a>, they will be able to describe the type of work that epidemiologists do, describe what a virus is, explain how a virus replicates itself once it attaches to a host cell and describe how the immune system responds to a viral invasion.</p> <p><b>Middle/High School grades:</b> In order for students to better understand the nature of disease and their growing resistance to antibiotics, engage students in lessons from this Next Generations Storylines Unit titled <a href="#">‘Why Don’t Antibiotics Work Like They Used To?’</a>. As they develop a model to explain how bacteria populations change over time, students expand their investigations to look at whether similar population changes are occurring in a population of birds.</p>
<p><b>Additional Resources</b></p>	<ul style="list-style-type: none"> <li>• <a href="#">Predicting Infectious Disease</a> (educurious.org)</li> <li>• Resources for <a href="#">Teaching about Coronavirus</a></li> <li>• How COVID-19 <a href="#">Disproportionately Affects People of Color</a></li> </ul>