

# Scientific Storytelling

## Unit 6 Overview

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# Unit 6 Scientific Storytelling

In this Unit, students create their own films about solutions to climate change and submit their films to the Green Ninja Film Festival. The art of scientific storytelling is supported by a study of human sensory response and human emotions. Through the Unit, students are also guided through the story creation process and develop practical filmmaking experience.

## Introduction

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### CHALLENGE

Tell a story that will change the world.



### PHENOMENA

See how humans respond to sounds and images.



### SCIENCE METHODS

Create an effective way to communicate a science message.



### CULMINATING EXPERIENCE

Submit a short film about climate change solutions to a film festival.

## NGSS Mapping

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26 LESSONS

### PERFORMANCE EXPECTATIONS

- ESS3-5 Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century.
- LS1-8 Gather and synthesize information that sensory receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories.

### SCIENCE & ENGINEERING PRACTICES

- Obtaining, Evaluating, and Communicating Information
- Asking Questions and Defining Problems

### DISCIPLINARY CORE IDEAS

- ESS3.D Global Climate Change
- LS1.D Information Processing

### CROSSCUTTING CONCEPTS

- Cause and Effect
- Stability and Change



# Background

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**Sensory Response:** Knowing how different inputs affect people is key for effective communication and inspiring change. Particular smells, images, and textures can cause particular reactions or changes in the emotional states of humans. A picture can suddenly make us laugh or make us sad; a smell can trigger a childhood memory or a feeling. Students who understand how organisms react to different stimuli can evaluate data and information more effectively to make educated decisions that could affect their personal and professional lives. In addition, students develop their communication skills as they study sensory response phenomena such as the psychological and emotional impact of images in environmental advocacy.

**Storytelling:** Storytelling has been used throughout human history as an important means of transferring information. Research also suggests that parts of the brain, including memory function, are particularly well suited to the structure of story as a means for promoting comprehension and retention. Thus, the use of stories over time has been an essential part of culture and the transfer of ideas and knowledge. Storytelling is also used as an effective instructional strategy, since it can help students recall the prerequisite learning and help promote collaboration among students. Storytelling is now becoming an accepted method of communication, not only within fictional settings, but also within professional contexts such as science communication. Students who develop skills and expertise in telling stories, especially when communicating science with non-experts, may have a better chance of being heard, understood, and believed by the general public.

Today, digital storytelling integrates recent technologies, including various media and software, to help “ordinary” people tell stories using digital tools. Studies have shown that the visual elements associated with digital storytelling can both attract student interest and improve student learning through improving student motivation and self-confidence and by helping them organize their knowledge. Digital storytelling has also been used to help bridge the digital divide among underserved populations.

## Research Evaluation

Students evaluate how organisms (humans) respond to different sensory inputs (eyesight, hearing, smells, textures, tastes, etc.). They conduct a research project that gives them the opportunity to create media that help them evaluate human response before they create their films. This research project also helps students get to know their audience through data collection and analysis. In addition, students review information, such as research papers, that focuses on the study of media and its effect and/or influence on its audiences. Students go through age-, or reading-level-, appropriate literature or other sources (such as media, visual displays, and data) to assess the information’s credibility, accuracy, and possible bias.



# Green Ninja Connections

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## Storytelling

Students are given the opportunity to create their own Green Ninja-inspired films guided by instruction in storytelling and filmmaking. The use of the Green Ninja character and storyline provides students with a foundation for storytelling and filmmaking. However, students are asked to create two stories, one using the Green Ninja storyline and the other not. This encourages students to be more creative and feel comfortable having an established character they can use if necessary.

## The Green Ninja Film Festival

The subject area for entry into the Green Ninja Film Festival (GNFF) is solutions to climate change. In addition, film entries must present digital portfolios that include justification of the underlying science of the films and audience analyses. These elements put the science of climate change at front and center, while also giving students full freedom to use their imaginations to design the types of films they think will be impactful to their audiences.

A panel of judges will select the films to screen at the GNFF. Classrooms and schools are encouraged to host their own film festivals so that student films can be publically screened for the parents and friends of the filmmakers. Prizes will be awarded to the films selected for public screening.

