



EMP Museum Gallery Guide for Educators

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ABOUT THE EXHIBITION

Inside this gigantic, mysterious alien spacecraft is a treasure trove of objects, images, and information from hundreds, possibly thousands of other worlds from the farthest reaches of the universe. Now this fully-automated ship—a traveler, documenter, and collector of artifacts—has come to Earth and invited us to come aboard!

Packed with more than 150 artifacts from iconic films and television shows, *Infinite Worlds of Science Fiction* invites you to experience the incredible range of storytelling found in science fiction: from *Star Trek* to H.G. Wells' *The War of the Worlds*, from big-budget *Men in Black* to the Philip K. Dick-inspired *Blade Runner* to the recent *Battlestar Galactica* series. Take a moment and listen: the soundscape for the exhibit echoes the importance of sound and music for underscoring emotional impact in these favorite films. Composed and created by Brian Phraner, the space ark hums, rumbles, sings, and propels us weightless through the infinite space of our emotional fantasies.

With unlimited imagination, boldness, and creativity, step aboard this enigmatic spacecraft and discover how science fiction allows us to break away from the confines of the tangible world. Experience the power it has to transform, motivate, and educate. And glimpse at the spectacular places born from intellect, wonder, and an unbound appreciation for the human species encountering change.

Within a dynamic and immersive space, this interactive spacecraft encourages visitors to embark on their own space adventure, discover new alien civilizations, scout for new worlds to explore from the ship's cockpit, and investigate numerous alternate universes. What secrets will you unearth?

INTRODUCTION FOR EDUCATORS

The stories in this exhibition represent hundreds of different worlds throughout the galaxy; however, the common thread running through them all is that at their heart they stimulate our imaginations and encourage us to look within ourselves and at the state of affairs on our own familiar planet Earth.

Many speculative fiction texts are used in classrooms as a way to introduce and discuss difficult topics such as race relations, environmental decay, and politics. In many ways science fiction allows us to take a more objective, outsider perspective on these issues. Stories that feature aliens, robots, and other non-humans (like *Star Trek*, *Doctor Who*, and *Battlestar Galactica*) often embody particular aspects of humanity, and their stories allow us to reflect on our own lives and better explore the human condition.

Further, the unique and awe-inspiring settings for these stories excite our appreciation for the natural universe. The wonder of these fictional worlds, the floating mountains, methane seas, and violet suns remind us that nature creates beauty in infinite combinations.

To support inquiry-based exploration of this gallery, EMP has created a wide selection of Curriculum Connections classes including: *Cartooning in Science Fiction and Fantasy*, *Creating Character: Voiceover and Recording*, *Hero's*

Journey: Fantasy/Science Fiction Role Types Through Theater. For more information on scheduling a Curriculum Connection class, visit us online at EMPMuseum.org/curriculumconnections or contact education@EMPMuseum.org.

EDUCATIONAL GOALS

The purpose of this guide is to help you engage your students in creative new ways through arts-integrated lessons focused around decoding the concepts found in *Infinite Worlds of Science Fiction*. It is our hope that through attending the exhibition and studying the associated lessons presented in this guide students will be able to achieve the following goals:

- Recognize and identify important elements of story structure such as setting, character, plot, conflict, and resolution through world building explorations.
- Be able to make inferences about stories in order to identify big ideas and main themes in works of fiction.
- Apply knowledge of world building, setting, character, and plot to better analyze multiple texts across genres and to positively impact and inspire original creative writing.

EDUCATIONAL STANDARDS

A selection of applicable standards for lessons related to the exhibition topics:

Common Core State Standards for English and Language Arts

corestandards.org/ELA-Literacy

- Key Ideas and Details:
 - Determine a theme of a story, drama, or poem from details in the text, including how characters in a story or drama respond to challenges or how the speaker in a poem reflects upon a topic; summarize the text.
 - Describe characters in a story (e.g., their traits, motivations, or feelings) and explain how their actions contribute to the sequence of events.
 - Describe in depth a character, setting, or event in a story or drama, drawing on specific details in the text (e.g., a character's thoughts, words, or actions).
 - Compare and contrast two or more characters, settings, or events in a story or drama, drawing on specific details in the text (e.g., how characters interact).
- Integration of Knowledge and Ideas:
 - Explain how specific aspects of a text's illustrations contribute to what is conveyed by the words in a story (e.g., create mood, emphasize aspects of a character or setting).

INTRODUCTION TO WORLD BUILDING

When writing fiction, your setting describes the time and location in which your narrative takes place. The world around your characters creates a backdrop for their actions, and sets the mood of the story. In the genre of science fiction and fantasy, setting is particularly important because you are taking the reader outside the familiar. Things we take for granted like gravity, the types of animals in the world, the color of sky, or the number of moons we have may be different in your fictional world. The more unusual these details are, likely the more explanation they will require.

Infinite Worlds of Science Fiction currently features approximately 20 different worlds made famous by science fiction literature and film. Earth is featured several times as it a common setting of science fiction. Each instance of Earth is from a different time period and under unique and fantastic circumstances. Below is a list of the worlds currently being showcased:

World	Book/Film	World	Book/Film
Arrakis	<i>Dune</i>	Klendathu	<i>Starship Troopers</i>
Cybertron	<i>Transformers</i>	Kobol	<i>Battlestar Galactica</i>
Earth, 2015	<i>Back to the Future</i>	LV-426	<i>Alien</i>
Earth, 2019	<i>Blade Runner</i>	Mars	<i>Mars Attacks</i>
Earth, 2263	<i>The Fifth Element</i>	Mondas	<i>Doctor Who</i>
Earth, 1984–1995	<i>Terminator</i>	New York City, 1984	<i>Ghostbusters</i>
Earth, 2001	<i>2001: A Space Odyssey</i>	Qo’noS	<i>Star Trek</i>
Fatu-Krey	<i>Galaxy Quest</i>	Skaro	<i>Doctor Who</i>
Giedi Prime	<i>Dune</i>	Tatooine	<i>Star Wars</i>

To help you with world building in the genre of science fiction and fantasy, we have created a handout to help students get started. You can find this worksheet as well as other additional resources on pages 8–12 of this guide.

SUGGESTED SUBJECT AREA EXPLORATIONS

The following activity ideas are meant to help you better integrate the content and themes found in *Infinite Worlds of Science Fiction* into your classroom lessons and support a variety of diverse learning styles (visual, aural, kinesthetic, tactile, socio-emotional, naturalist). Many of these activities could be used as pre/post-visit tie-ins to a museum visit. Each activity is followed by suggested subject area connections.

Fictional Geography/Fantasy Map: Using either students’ own stories or a book being studied in class, have students create a map that represents places found in the story. Have students include all necessary elements such as compass rose, key, scale, etc. Encourage students to use their knowledge of earth biospheres and their relation to each other: oceans, mountains, rivers, lakes, marsh, meadows, forests, plains, and the placement of cities. Think of creative ways to visually depict differences in terrain acted on by diverse natural and physical forces. (English/Language Arts, Environmental Studies, Visual Arts)

Setting the Scene: Compare and contrast the setting of two different fictional stories. These could be stories from a book read in class, or famous stories from popular culture. Discuss the differences in the setting and how these affect the characters' lives and choices. How would the events of the story be different if certain aspects of the setting were changed? Invite students to draw these settings, using a variety of media to compose and record (on iPhone or iPad) a soundscape—music or ambient sounds—which emphasizes qualities, or the size, scale, and life presence of each setting. (English/Language Arts, Visual Arts, Music, Theatre/Dance)

Otherworldly Issues: Look at a popular science fiction genre story in your class. Discuss the main themes, and how these can be taken as social commentary on current day issues. Some examples of sci-fi stories as allegory include *Godzilla* tapping into Japanese post-war anxieties, *Invasion of the Body Snatchers* as commentary on red scare McCarthyism, *Planet of the Apes* and race relations, and numerous examples can also be found in *Star Trek* episodes such as “Measure of a Man,” “I Borg,” and “Devil in the Dark.” (History, Social Studies)

Robomotion: View a variety of existing robot designs, such as the ATLAS and Legged Squad Support System (LS3), paying particular attention to how they move. Have students break into groups and assign a variety of different terrain types. Using robotics kit such as LEGO or VEX Robotics, have students work to create a robot suitable for traversing this terrain. Test robots on a variety of surfaces. (Science, Technology)

Envisioning Extraterrestrial Life: In support of your lessons surrounding “Space Systems: Stars and the Solar System,” (NGSS Gr. 1, 5, MS, and HS) discuss with your class how the orbit and size of planets in the solar system affect the climate and atmosphere. Have students choose a planet to study. As part of their research, have them write a paragraph about what adaptations life has to make to live on this planet and include a sketch of what a lifeform from this planet would look like. Consider what “languages” might be present in these lifeforms, and how they would communicate with each other. After exploring your ideas via written narrative, try creating a recorded, fictional documentary about the planet using iPads and GarageBand in multiple tracks, working in collaborative pairs. (Science, Visual Arts, Language Arts, Social Studies, Technology)

SELECTED EXHIBITION WALKTHROUGH

The following artifacts are highlighted as prime examples of the themes and ideas presented in the exhibition, also highlighted are several discussion questions to help start conversations with your students in the gallery.

ARTIFACT SPOTLIGHT: JAWA COSTUME, STAR WARS™ EPISODE I THE PHANTOM MENACE (1999)

The planet Tatooine features prominently in one of the most widely known science fictions stories in popular culture, *Star Wars™*. The mysterious hooded race known as Jawas scavenge the landscape looking for technology to be repaired and resold. The desert planet of Tatooine is reminiscent of the Wild West in many ways; its features include outlaws, homesteaders, and seedy saloons. The rundown, lived-in look designed for this location is in stark contrast to the often sleek and sterile future portrayed in many other films.

Discussion questions:

- What adaptations have beings (both human and alien) living on Tatooine made to make the environment more hospitable?
- Do you think people like living on Tatooine? If not, why do you think they stay there?

Fantastic Facts:

- This Jawa costume was designed by Trisha Biggar, costume designer for all three of the *Star Wars*[™] prequels, and is based on John Mollo's designs from the original 1977 film *Star Wars* film.
- Though their faces are never seen on screen, they have been described in *Star Wars* resource materials to be gaunt, rodent-like creatures, with shrunken faces and yellow eyes.

ARTIFACT SPOTLIGHT: MARTIAN WAR MACHINE, *THE WAR OF THE WORLDS* (1953)

Mars was the first planet humans could clearly observe with telescopes and has long drawn our imaginative powers to speculate on what conditions would be like there, and what sort of beings might live there. In both Eastern and Western cultures Mars has long been associated with war and violence.

The 1953 film, *The War of the Worlds*, is a loose adaptation of the H. G. Wells novel bearing the same name. The plot involves large meteorite spaceships crashing into Earth, unleashing manta-ray shaped Martian war machines. The Martians are eventually defeated by the smallest of Earth's lifeforms: viruses and bacteria.

Discussion Questions:

- What does it say about humanity that we so readily imagine outsiders as hostile?
- If life exists on Mars, what do you think it would look like?

Fantastic Facts:

- *War of the Worlds* film director George Pal planned to add legs to the war machines using visual effects, but the process didn't work as planned. He decided to leave the war machines legless, resulting in their signature floating motion.
- *The War of the Worlds* (1953) is one of five film adaptations of the 1898 novel.

ARTIFACT SPOTLIGHT: PROTON PACK FROM THE FILM *GHOSTBUSTERS II* (1989)

The proton pack is an iconic symbol of the *Ghostbusters* film series, one of the most popular science fiction cult classic films of all time. In the film, *Ghostbusters* and its sequel, when the barrier between reality and the supernatural opens, New York is invaded by ghosts, spooks, and ancient deities. Humans remain helpless until the invention of high-tech tools that can combat and contain these forces from the beyond.

As technology like personal computers and early mobile phones became more common in the '80s, filmmakers found imaginative uses for handheld devices. In this optimistic era, there was no problem technology couldn't solve, even taking on very non-scientific beings like ghosts.

Discussion Questions:

- What are some of the most famous examples of technology in science fiction movies and what problems do they help solve?
- What real world technology can you think of that may have been inspired by science fiction?

Fantastic Facts:

- The proton pack is actually a "stunt" version. It's built to be light and easy to carry for action shots when the actors are running, etc. If you look closely you can see it's made of foam—not a great material for actual particle accelerators. It's also not very detailed because it was never meant to be seen up close. For close-ups, a much more detailed and fragile prop would have been used.
- *Ghostbusters* was originally titled "Ghost Smashers" during the first draft of the script.
- To help generate interest in the film, during its trailers an actual 1-800 number (1-800-555-2368) was created, leading the caller to an automated message recorded by the film's stars. Purportedly, the number received thousands of calls a day and was shut down.

ARTIFACT SPOTLIGHT: IMPERIAL DALEK COSTUME FROM THE *DOCTOR WHO* EPISODE "REMEMBRANCE OF THE DALEKS" (1988)

The Daleks are one of the most famous alien races featured in the British science fiction series *Doctor Who*. *Doctor Who* is the currently the longest running science fiction TV series ever; it even holds the official Guinness World Record title. First aired in 1963, it has seen a large increase in popularity since it started up again in 2005 after a hiatus from episodic television since 1989.

The Daleks are an antagonistic alien race from the planet Skaro that desire nothing more than to exterminate others. The Daleks are regarded as one of the Doctor's greatest foes. The origin story of the Daleks involves two peoples, the Thals and Kaleds, who waged war on each other for centuries, until chemical and nuclear weapons turned Skaro into a lifeless wasteland. A Kaled scientist hoped to save his people by mutating them and placing them in armored machines, creating a new race called the Daleks. Created by writer Terry Nation in 1963, the story of Skaro's endless war reflects the fears of the cold war and of the devastating weapons of mass destruction it birthed. In Nation's story, war turns even individuals into war machines.

Discussion Questions:

- Why do you think alien races featured in science fiction stories are often portrayed as hostile?
- Describe any instances where aliens turned out to simply be misunderstood, or even friendly.

Fantastic Facts:

- On-screen, the Daleks appear to be remote-controlled, motorized machines; in reality an actor would crouch inside the Dalek and push it around. So technically this is a costume. It has wheels on casters hidden below its hem line. Sometimes the actors would even write their names inside the Daleks.

ARTIFACT SPOTLIGHT: THE JACK GAUGHAN COLLECTION

Jack Gaughan was known to many as “the hardest working science fiction artist of the 20th century.” From the 1940s until his untimely death in 1985, Gaughan (pronounced “gone”) created hundreds of book and magazine cover paintings and thousands of interior illustrations. He was known to create as many as nine finished illustrations in a day. From 1969 to 1974 he served as art director for *Galaxy* magazine and supplied the majority of the magazine’s artwork during that time. The Jack Gaughan Award for best emerging illustrator is named in his honor.

Jack Gaughan vigilantly kept all of his sketchbooks as well as many preliminary illustrations, paintings, and proofs. He also saved invoices, accounting ledgers, and other correspondence. Taken together, this archive shows us both the work and the working life of a busy artist during the height of the science fiction paperback era. EMP is now the permanent home of this archive, thanks to the generosity of Jack Gaughan’s family.

Discussion Questions:

- In comic, film, or TV adaptations of famous science fiction stories, has there even been a visual representation that didn’t match up with what you imagined reading the book? In what way did they differ?
- Describe some examples of your favorite book covers. What do you like about them?
- What elements are most important to include in a book cover?

Fantastic Facts:

- Working from his home studio in a large house in upstate New York (self-described as being “bat-infested”) Gaughan painted and drew for many notable authors including Ursula K. Le Guin, Frank Herbert, Andre Norton, and Robert Heinlein.
- Graphic artists who design book covers are not always able to read through the entire manuscript before designing the cover. Instead many times artists will talk with publishers and authors to distill what the experience of reading of the book is like.

ADDITIONAL RESOURCES

The below resources are provided to help you research and plan lessons related to the exhibition, costume design, and character archetypes.

Barlow, Wayne Douglas. *Barlowe's Guide to Extraterrestrials*. Workman Publishing, 1987. Print.

Illustrated guide book detailing many of the most famous extraterrestrials from science fiction literature. Nominated for a Hugo award, this book contains over 150 color illustrations as well as a pull-out chart showing comparative sizes of the featured aliens and humans.

Card, Orson Scott. *How to Write Science Fiction & Fantasy*. Writer's Digest Books, 2001. Print.

This guide book for writing science fiction and fantasy discusses elements of story structure, world building, and tips for integrating technology and magic into your work. Additionally it provides information on the life of professional writers as well as suggestions for authors on how to get published.

Fantasy: Worlds of Myth and Magic, Educators Gallery Guide. Web.

There are many strong similarities between science fiction and fantasy literature. Learn more about EMP's ongoing exhibition, *Fantasy: Worlds of Myth and Magic* with our educator gallery guide. In addition to lesson ideas and curriculum connections, this guide discusses the history of the fantasy genre as well as archetypal characters often found in both sci-fi and fantasy stories. EMPmuseum.org/galleryguides

Five Elements of a Story: Flocabulary Hip-Hop Song. Web.

Flocabulary creates educational hip-hop videos, interactive activities, and online assessments for students in grades K-12. This song covers the five main elements of a story: setting, plot, characters, conflict, and theme. With a catchy chorus that's hard to forget, this "five elements of a short story" rap will get you and your students hooked. flocabulary.com/fivethings/

Infinite Worlds of Science Fiction, official exhibition website. Web.

Keep up to date on the newest science fiction programming at EMP, view additional images, and learn more about the Infinite Worlds exhibition. <http://empmuseum.org/infinitemeworlds>

VanderMeer, Jeff. *Wonderbook: The Illustrated Guide to Creating Imaginative Fiction Paperback*. Harry N. Abrams, 2013. Print.

Fun and beautifully illustrated guide to writing fiction and world building. Aimed both at aspiring and intermediate-level writers, *Wonderbook* includes helpful sidebars and essays from some of the biggest names in fantasy today, such as George R. R. Martin, Lev Grossman, Neil Gaiman, Michael Moorcock, Catherynne M. Valente, and Karen Joy Fowler.

Write Out of this World: Science Fiction and Fantasy Short Story Contest. Web.

Write Out of This World is an annual writing contest held by EMP. As a museum devoted to music, science fiction, and popular culture, our goal for the contest is to encourage young writers and provide an outlet for their creativity. Open to students in grades 3-12, submissions are judged by a panel of experts including EMP curators, professional writers, and Seattle community leaders. The story submission period is open each year from October through January. Learn more at EMPmuseum.com/writeoutofthisworld.

STORY WRITING VOCABULARY

A selection of definitions of terms related to fiction writing and world building from the McGraw Hill Online Learning Institute. The full list can be found at:

highered.mheducation.com/sites/0072405228/student_view0/drama_glossary.html

Allegory: A symbolic narrative in which the surface details imply a secondary meaning.

Antagonist: A character or force against which another character struggles.

Catastrophe: The action at the end of a tragedy that initiates the denouement or falling action of a play.

Catharsis: The purging of the feelings of pity and fear that, according to Aristotle, occur in the audience of tragic drama. The audience experiences catharsis at the end of the play, following the catastrophe.

Character: An imaginary person that inhabits a literary work.

Climax: The turning point of the action in the plot of a play or story.

Complication: An intensification of the conflict in a story or play.

Conflict: A struggle between opposing forces in a story or play, usually resolved by the end of the work.

Deus Ex Machina: Latin phrase means, literally, "a god from the machine." The phrase refers to the use of artificial means to resolve the plot of a play.

Dialogue: The conversation of characters in a literary work.

Exposition: The first stage of a fictional or dramatic plot, in which necessary background information is provided.

Falling action: In the plot of a story or play, the action following the climax of the work that moves it towards its resolution.

Foreshadowing: Hints of what is to come in the action of a play or a story.

Plot: The unified structure of incidents in a literary work.

Point of View: The angle of vision from which a story is narrated.

Protagonist: The main character of a literary work.

Resolution: The sorting out or unraveling of a plot at the end of a play, novel, or story.

Reversal: The point at which the action of the plot turns in an unexpected direction for the protagonist.

Rising action: A set of conflicts and crises that constitute the part of a play's or story's plot leading up to the climax.

Setting: The time and place of a literary work that establish its context.

Theme: The idea of a literary work abstracted from its details of language, character, and action.

ACTIVITY SHEET: WORLD BUILDING BRAINSTORM

The following questions are designed to help you develop a unique setting for your science fiction/fantasy story. Imagine what you might see, hear, touch, taste, and smell to help bring your world to life.

List several things that are unique about the land and water forms/geography of your world:

- 1)
- 2)
- 3)

List several lifeforms, including creatures or plants that only exist in this world. Include unique sounds they would make:

- 1)
- 2)
- 3)

List several descriptions of structures/buildings/homes that only exist in this world:

- 1)
- 2)
- 3)

List several important events in the history of this world:

- 1)
- 2)
- 3)

List several descriptions of clothing and personal ornaments worn in this world:

- 1)
- 2)
- 3)

List several descriptions of technology and/or magic in your world:

- 1)
- 2)
- 3)

List several kinds of music and instruments that exist here:

- 1)
- 2)
- 3)

Describe what type(s) of government exist in this world:

- 1)
- 2)
- 3)

Who are the leading figures of this world who everyone looks up to?

- 1)
- 2)
- 3)

Who are the trouble makers/evil beings?

- 1)
- 2)
- 3)

ACTIVITY SHEET: WORLD BUILDING BRAINSTORM

If you are looking for ideas, perhaps mix and match several items from the list below:

<p>Technology/Magic:</p> <ul style="list-style-type: none"> • Wooden spaceships • Intelligent swords • Time machines • Warp speed • Magic abilities unique to each person • Spells that require you to lose memories to cast 	<p>Geography:</p> <ul style="list-style-type: none"> • Floating mountains • Underground cities • Multiple moons • Never-ending oceans • Planets that are flat • High/low gravity • Caves that disappear • Carnivorous water 	<p>Creatures/Plants:</p> <ul style="list-style-type: none"> • Giant earth worms • Skyscraper-sized trees • Sentient plants • Friendly dragons • Talking animals • Poisonous spores • Love potion flowers
<p>Historical Events:</p> <ul style="list-style-type: none"> • World peace • Giant asteroid impact • Encounter with extraterrestrial life • Global warming • Reappearance of magic 	<p>Government:</p> <ul style="list-style-type: none"> • City states • Small groups of settlers • Monarchy • Diplomatic Senate • Planetary alliance 	<p>Social Interaction:</p> <ul style="list-style-type: none"> • First contact with extraterrestrials • Survival under harsh conditions • Limited natural resources • Forced collaboration to achieve goals

Potential follow-up activities:

- Draw a map of your new world, including color and realistic details.
- Record an introduction to a fictional documentary about your world.
- 3D print an example of the technology found in your world.
- Write and record the starting scene or final scene of a radio drama in your world.
- Create three set designs for a film or theatre production of your world.
- Choreograph a fight of beings or objects in a major conflict.
- Write a poem or song that tells an important lesson or story from this world.
- Create a peace dance from this world.
- Create a collaborative mural as a class project of your imagined worlds.