Kuniko Yamamoto

Flynn Student Matinee Series Study Guide

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About the Artist

Kuniko Yamamoto (pronounced KOO-nee-ko Yah-mah-MO-toe) is an artist and educator from Japan who has performed her original shows throughout the United States for over 20 years, from the Kennedy Center to Epcot Disney, and in hundreds of schools across the country. Her performances invite audiences into myths and stories from ancient and modern Japan, told through traditional Japanese music, handcrafted masks, illusion, and origami. She began her performance journey in Osaka, where she grew up studying traditional dance, music, and theater. She went on to study in the United States under master mime and educator Tony Montanaro. In addition to performance, she is passionate about teaching origami and introducing young people and educators to the ways origami connects to math and technology. Her performances celebrate Japanese traditions and promote cross-cultural connection and understanding. In 2017 she established Origami Air, an art studio that brings origami and storytelling into K-12 classrooms. On their website, you can find origami tutorial videos, storytelling video clips, and more information about how origami can teach us about math and technology!

Kuniko with her masks and flutes!

About the Show: Origami Tales

In this show, you'll see Kuniko create all kinds of amazing objects through **origami**, the traditional Japanese art of paper folding. From flowers to a six-foot-long dragon, you'll be amazed at the beauty and magic that can be made simply with paper. Throughout the show, you'll hear stories from ancient Japan, animated through Kuniko's incredible origami skills. This show also includes audience participation, so come ready to help Kuniko tell her stories.

Origami made by Kuniko!

Want to learn how to make your own origami art? Follow this link for step-by-step instructions for how to make a swan, a wallet, and a house – all from just a sheet of paper

Read on later in this packet to learn more about the amazing art of origami!

Can you tell what kind of creature Kuniko made out of origami in this photo?

Context: Japan

Japan is a country in Asia that lies off the mainland in the Pacific Ocean. It's an **archipelago**, which means a string of islands. The four main islands are called Honshu, Hokkaido, Kyushu and Shikoku – and there are nearly 4,000 smaller islands that make up Japan, too. The country is covered with mountains. Mount Fuji, a cone-shaped volcano, is the tallest and most famous Japanese mountain and is considered sacred by many Japanese people.

Mount Fuji

The entirety of Japan is roughly the size of California and has a population of over 120 million people. To compare that to the United States, across all 50 states the U.S. has a population of about 290 million people. As you can imagine, this makes Japan a crowded country considering its size! The population density is about 10 times that of the United States.

The Japanese Flag

The Japanese flag is white with a large red spot in the middle, signifying the rising sun. Japan has an extensive public transportation system with subways, local trains, and high-speed bullet trains which transport people all over the country. Rice and seafood make up a large portion of the Japanese diet.

A **kimono** is a traditional type of Japanese garment that wraps in front and is tied with a sash called an obi. Until the 19th century the kimono was a typical clothing item worn throughout the country, but nowadays the kimono is only worn on holidays and special occasions.

Try saying "hello" in Japanese: **konnichiwa** (pronounced KON-nee-chi-wa)!

Kuniko wearing a kimono

Rakugoka Katsura Kaishi performing in 2021. He holds a fan, one of very few props used in this form of storytelling.

Japan has a rich history of storytelling and performance. **Rakugo** is one form of traditional Japanese storytelling, developed for the entertainment of ordinary citizens (rather than nobles) during Japan's Edo Period (1603-1868). Storytellers, or **rakugoka**, deliver stories in the form of **monologue** – meaning one person speaking to an audience. Storytellers wear kimonos and play the roles of many different characters in a story, acting it out without complex props, scenery, or costumes. The storyteller has nothing but a fan and a handcloth, which are used in many ways to represent different props and settings. This means the storytelling is dependent on the skill of the performer to inspire the imagination of the audience.

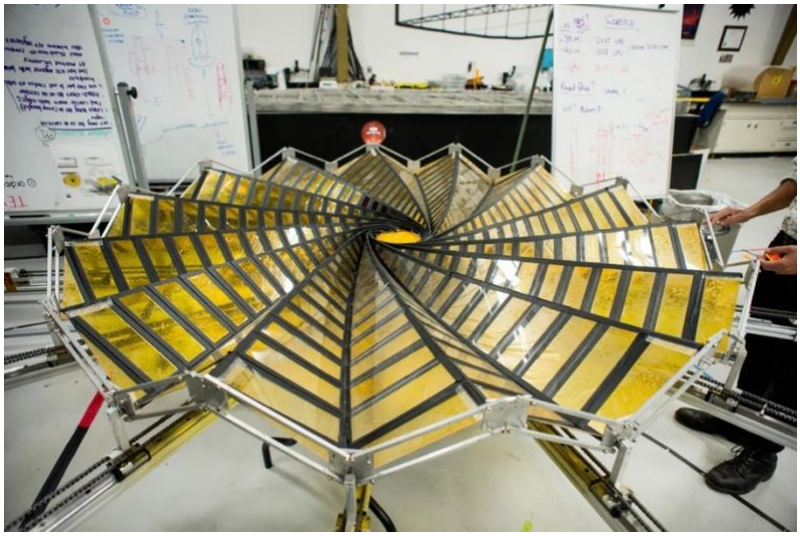
What is Origami?

Origami is the art of paper folding. In Japanese, *ori* means to fold and *gami* means paper. It's unknown exactly where and when origami began, but Japan started importing paper from China in the 6th century, at which point paper folding began to spread throughout the country. (China invented paper in the 1st century!) Paper was a precious resource in those days – unlike in our world today, where we take for granted how much paper we have access to! Until the 12th century, paper was only used for the most important writings and ceremonial purposes.

When you think of origami, is there a particular shape that comes to mind first? The first example of representational origami – paper folded to create the appearance of a recognizable object in the world – were a pair of male and female paper butterflies (*mecho* and *ocho*). The paper crane is the image that many people associate with origami, which became popular throughout Japan by the 17th century. Today, thousands of paper cranes decorate shrines and temples at Hiroshima to symbolize prayers for peace.

Thousands of colorful origami cranes at the Hiroshima Peace Memorial Park

A single sheet of paper can be folded in different ways to create many different objects. Check out this short video from Kuniko, in which she shows some of the magic of storytelling with origami!

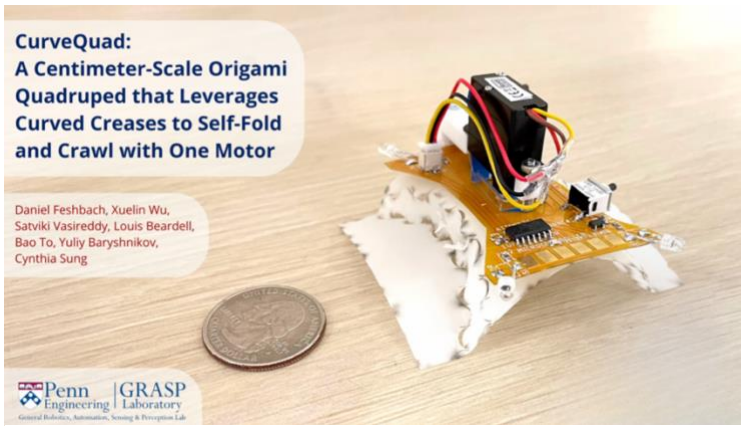


One of NASA's current origami-inspired projects: the Starshade

Origami Today

In addition to beautiful works of art, origami has many other surprising and incredible applications! Origami has been used in the development of car airbags, medical procedures, and even space exploration.

In order to effectively take off and get into space, rockets have to be relatively small. This means scientists need a way to fit large structures inside rockets, which has led them to use the same folding principles from origami. The solar array wings on the International Space Station and the Mars Phoenix lander both use origami technology to be able to fold down into a size that could fit on the rockets that carried them into space. Check out this short video to learn more about origami in space.



Engineers explore using origami in robot design

And that's not all – engineers have even invented an origami robot! This robot begins as a small stationary sheet of parts, with a magnet at its center. When activated by heat, it folds itself into a shape that enables it to carry out programmable tasks including moving in specific paths and patterns, carrying things, and clearing obstacles. When its programmed tasks are finished, this robot can even recycle itself by dissolving into liquid! As Shuhei Miyashita, a postdoc student at the Massachusetts Institute of Technology puts it in this short video, "This is the first robotic device that creates a full life cycle, from its birth to its death." These tiny robots could even be useful as a less invasive option in some medical procedures: it could be ingested by a person and then activated once in the body to assist in healing processes, after which it could be removed from the body.

Click this image to learn more about origami and math with Kuniko

What exactly is it about origami that allows it to be used for such incredible purposes? Well, **origami is all about math**! Every fold creates different angles, shapes, and sides. Origami is an amazing tool for learning about geometry and fractions – you can learn more about the connection between origami and math from Kuniko's tutorial video here!

Reflection Questions:

Here are some example questions to prompt deeper engagement from your students, both before and after the show:

Before the Show:

- Have you ever been to a theater before? What are some ways an audience is expected to behave in a theater that are different from how you behave in other places you go for entertainment, like a movie theater?
- When you think about Japan and Japanese culture, what comes to mind?
- When you think of origami, is there a particular shape that comes to mind?
- If you could design your own origami art to represent something in your life, what would it look like?

After the Show:

- How did the show make you feel? Was there a specific moment when it caused an emotional reaction in you? How did it do that? What did the show make you think about?
- If you were to write a review of the show, what would you say? What stood out to you? Would you recommend it to other people? Why?
- What origami from the show did you find most amazing or surprising? Why?
- What did you learn about Japan or Japanese culture that you didn't know before the show?

Resources

- History of Origami & Origami in Future Technologies
- PBS video: Origami: Art, Engineering, or Both?
- Origami Guides (House, Wallet, Swan)
- Japan Facts (National Geographic Kids)
- Kids Web Japan
- "Rakugo" (The Art of Storytelling)
- How NASA Engineers Use Origami to Design Future Spacecraft
- Robot Origami
- Origami & Math Fractions Tutorial
- Space Origami: Make your Own Starshade (NASA)
- Folding the Future: The Rise of Origami-Inspired Robots (Penn Engineering)