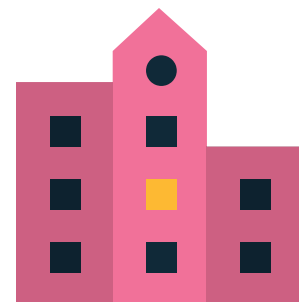




SCIENCE CAREER  
ADVENTURES

**Jasmine the Structural Engineer:  
Forces on the Playground**

# Meet Jasmine!

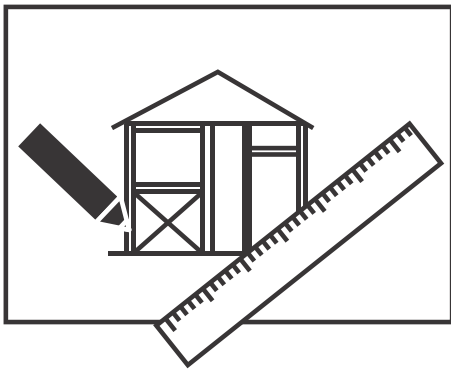


**Hi! My name is Jasmine, and I'm a structural engineer. A structural engineer designs buildings and structures, like bridges and playgrounds. Structural engineers make sure that structures are safe for people to use.**

# Why I Became a Structural Engineer



**When I was a kid, I loved drawing. As an engineer, you draw what buildings look like. Some engineers draw their designs on an iPad.**



**I also liked math class. As an engineer, you use a lot of math. You get to decide the shapes and sizes of buildings.**



# What I am Working On



**Today, I am designing a swing set for a playground! As a structural engineer, it's my job to decide on the shape of the swing set. I have to make sure that the swing will move when someone pushes it.**

# Unbalanced and Balanced Forces

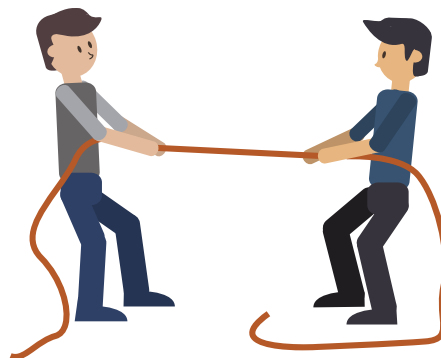
Before I design a swing, I need to understand force. Force is a push or a pull on an object. There are two types of force.

## Unbalanced Force



An unbalanced force causes objects to change motion. This happens when the size of the two forces is not equal. There is more force on one side of the swing. This causes the swing to move!

## Balanced Force



A balanced force doesn't cause an object to change motion. This happens when the size of the two forces are equal. There is the same amount of force on both sides of the rope!

# Share Your Opinion!



**Is a swing set  
more fun when  
the forces are  
balanced or  
unbalanced?**

# Swing Set Design

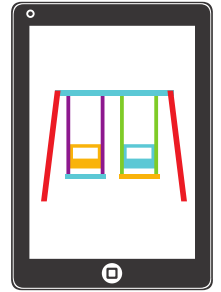


The swing set is more fun when the forces are unbalanced. When someone pushes from one side, the forces are unbalanced and the swing moves.

# Day in the Life

**10:00 AM**

I draw a swing set on my iPad. I remember that the swing set will need an unbalanced force in order to move!



**12:00 PM**

I have a meeting with other structural engineers. They look at my swing set design. Structural engineers always give each other feedback.



**2:00 PM**

Time for a smoothie break! Engineers take breaks during the day to relax.



**4:00 PM**

Time to start another design! I want to build a seesaw for the playground.

