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Engineering

Constructioneering an Animal Bridge!

Do you know what an engineer does? An engineer is someone who plans, designs, and builds! They can create something super small like a computer chip to something large as a tall skyscraper! When it comes to buildings, an engineer works collaboratively with other professionals on the job to make sure these structures are long-lasting and safe for people like you and me!

Civil engineers are engineers that design structures like buildings and bridges. With this activity, we will be creating a bridge that will support your animal friends and keep them safe!

Supplies

Animal toy (optional: gluing a washer for stability)
Pieces of Cardstock/Notecards/Paper
Popsicle Sticks
Clothespins
Cups
Modeling Clay/Playdoh

Challenge

How can you engineer the best bridge to support your animal friend?

1. Ask your engineer: *What is a bridge? What is it supposed to do?*
2. Spread out your materials and present them to your young engineer. Have them make observations on the different materials present. *Which is hard? Soft? Can any of these bend?*
3. Tell your engineer that they will be making a bridge. Present the animal toy and let them know the bridge has to be strong enough to support them. Allow your young engineer to hold the animal. *Does it feel heavy? Light?*
4. The very first step is to plan! Have your engineer draw/sketch a sturdy bridge and list what materials they want to use.
5. Once a plan has been approved, start building! Have your young engineer practice their fine motor skills and try putting the bridge together on their own. Remind them that bridges take a long time to create and it's okay if it takes a while.
6. Once construction is complete, make observations on the bridge. *What shapes do you see? Where do you think is the strongest point, if any?*
7. Testing phase! Once ready, place the animal friend on the bridge and see what happens! *Did it work perfectly to plan?*
8. Allow an opportunity for changes and improvements! Below are images of common and efficient bridge structures. Share the image to spark any inspiration. Have your young engineer make any observations regarding shapes and bases.

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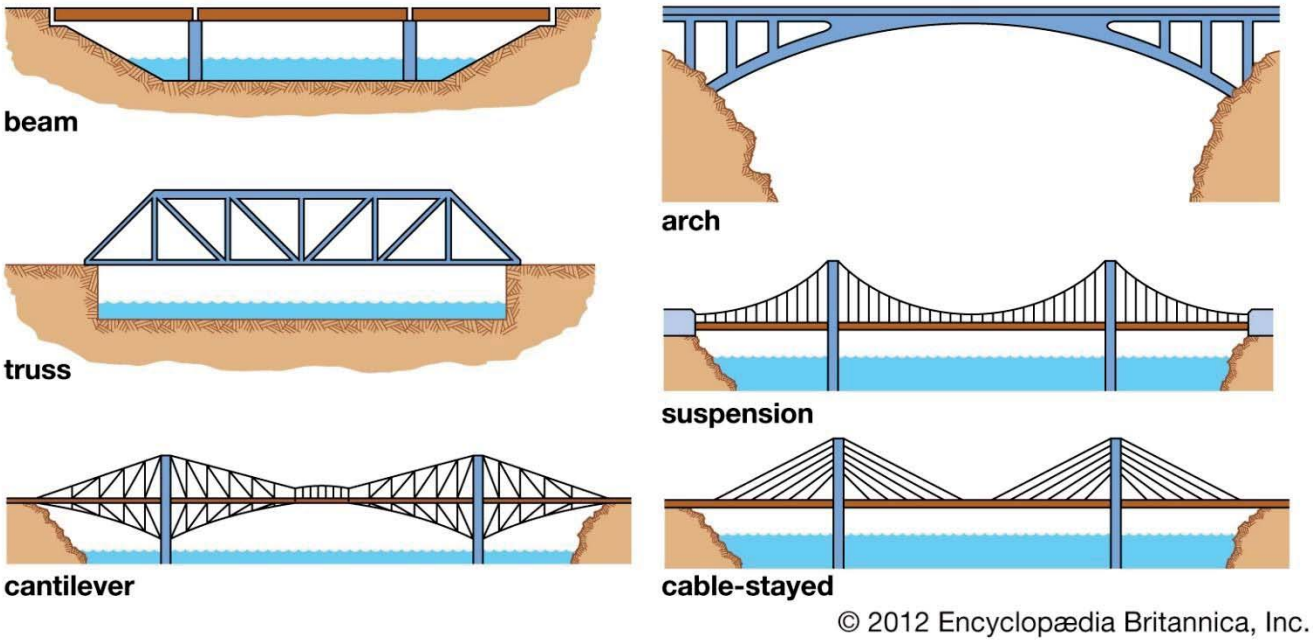
9. If your young engineer was successful in their animal bridge design, give them an additional challenge: How many animal friends can you place on the bridge before it collapses? See how much weight it can withstand and change your design as needed.

Questions

1. Why does a bridge have to be able to withstand a lot of weight?
2. If you were to design a dream bridge, what would it look like? What makes it special/efficient?
3. Are there any shapes that help add support to your bridge? Which ones?
4. When testing, why is it okay to fail? How can it help improve your bridge?
5. How can you improve your bridge to make it even stronger?

Common Bridge Structures Examples



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