Maya's Mysteries

"With faces joyous and beaming with light, associate with your neighbor." —Bahá'u'lláh

COURAGE TO CONNECT

I was excited when a new girl moved in across the street. I suggested inviting her over. But my friend Zoe didn't want to. The new girl is African American, and Zoe, who's white, said we wouldn't have anything in common. I felt mad and sad.

Still, I didn't give up. I made cookies and took them to the neighbors. And guess what? The new girl, Kiara, is really friendly and has two supercute dogs! We walked the dogs and stopped at Zoe's house to include her. Zoe was hesitant at first, until we discovered that we all like building robots. Kiara's going to join the robotics club with us!

It just took a tiny change—believing that strangers can be friends, and knocking on their door. It was like building a bridge between people. Speaking of bridges, Kiara showed me this cool experiment. Check it out!

BUILD A BRIDGE

You'll Need: Four 3" x 5" (7.6 x 12.7 cm) index cards • two same-sized markers • ruler • pencil • scissors • tape • 50 pennies

1. Look at the photos in Steps 2–5. Which bridge do you expect to hold the most pennies, and why?

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2. Tape markers to a table, so the space between them is 3¾" (9.5 cm). Set the single index card on top. Add pennies one at a time until the card touches the table. How many pennies did it hold? _____

3. Cut another card into three 1" x 5" (2.5 x 12.7 cm) pieces. Set three strips on top of each other. Add pennies. How many did it hold? _____

4. Cut another card in thirds, and tape them together. Add pennies. How many did it hold? _____

5. For the fourth card, fold up a 1" (2.5 cm) portion on each side to make a channel. Add pennies. How many did it hold? _____

6. Which bridge worked best? Why do you think so?

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HOW IT WORKS: The coins cause stresses (internal forces) that squeeze together the top of the bridge and stretch out the bottom. If stresses get too intense, the bridge is stretched or squeezed so much that it fails. By folding up the sides, you increase the distance between the top and bottom of the bridge. That reduces the stresses so it can hold more coins. That's why I-beams are used in real bridges!