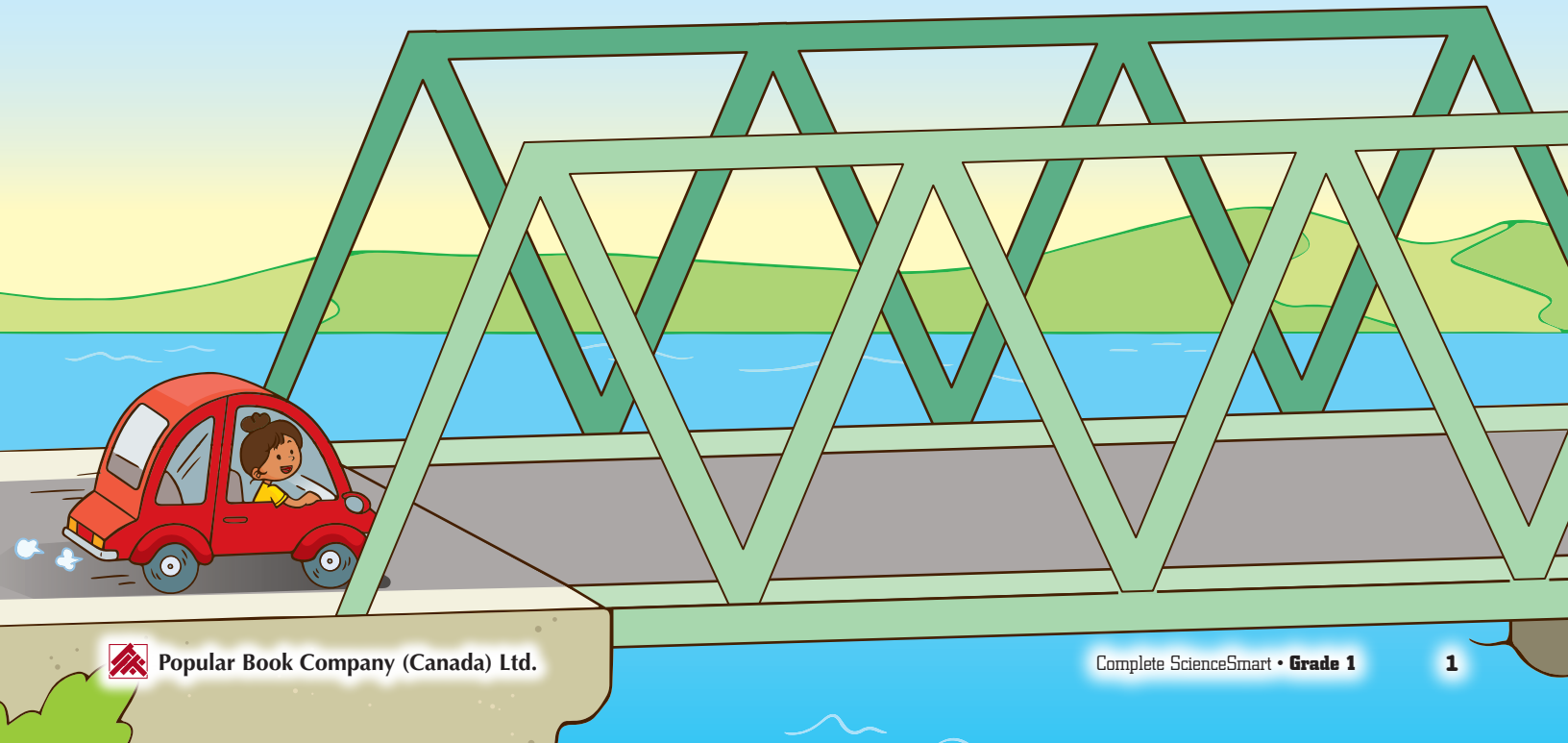
EXPLORATION 2

Bridge Competition

Understand how structures provide support.

Have you ever wondered how bridges can support all that weight of cars, trucks, and people travelling over them for so many years? Apart from having strong materials, you may already know that bridges cannot work without stable supports. Even if the supports are strong and stable, can they be placed at any location to make the bridge strong? If not, where should they be placed to make the bridge sturdy?



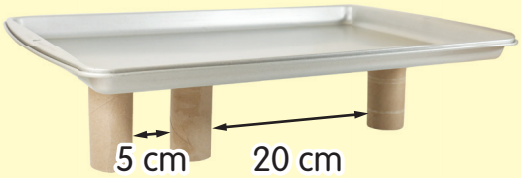
EXPLORATION 2

Bridge Competition

Conduct this experiment to see how the placement of supports affects the strength of a structure.

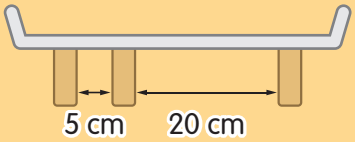
Bridge A

baking sheet + 3 toilet paper rolls



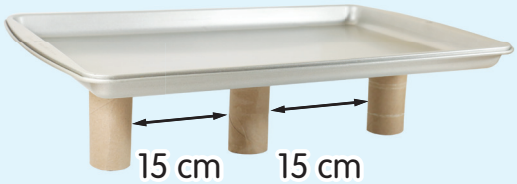
not evenly spaced

side view



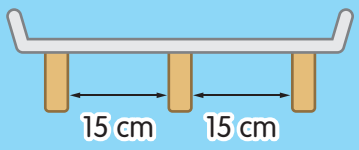
Bridge B

baking sheet + 3 toilet paper rolls



evenly spaced

side view



Build two "bridges" as shown. Then add one book at a time on Bridge A until it collapses. Add the same books to Bridge B and add more books until it collapses. You should have noticed that Bridge B could hold more books than Bridge A. The two bridges were made of the same materials (a baking sheet) and had the same number of supports (three toilet paper rolls) underneath. But the positions of the supports made them different. The supports in Bridge B were placed evenly. They provided more strength and stability to the bridge so it could be strong enough to support heavier loads.