

Draw Bridges

Materials

WeDo kits

Extra LEGO bricks

Problem

Our classroom was learning about Japan so we tried to tie this lesson to their learning of Japan. We told the kids that they had to help defend a Japanese castle from the Mongolian invaders. We posed the problem as how do we let the Japanese in, but keep the Mongolians out. And directed the students to the idea of a drawbridge. Then we talked about different types of drawbridges (a. motor is the axis of rotation, b. motor turned a crank which pulled bridge up, c. bridge that split in middle with motor on each side). We explained the advantages and disadvantages of each. One way we did this was using the door to describe torque and had students push near the axis of rotation and far from the axis to demonstrate the differences in torque between the two. Drawbridge a. is like when you push close to the axis and drawbridge b. is like when you push far away from the axis. Once the students built their drawbridge they also had to program it to go up and down.

Procedure

The students planned their design in groups first and then gave them LEGO to build. Once they finished building, they programmed.

Notes

This lesson took two class periods. Students were really creative and at times focused too much on the defending the castle instead of building a drawbridge.