



Attacking Himeji Castle



2643 Himeji Nishi Senior High School
Toya Chomaru Taichi Nagatani Satoshi Kanai Kurumi Takemoto Kaho Shiramizu

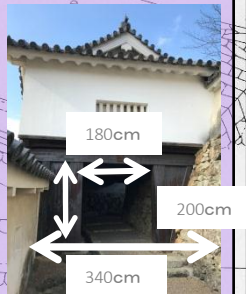
Overview

It is said Himeji Castle has a powerful defense system because of how the moats, buildings, walls, and gates are arranged. We investigated this defense system, focusing on "Ninomon Gate", which provides the strongest defense of all gates. We want to create an attraction where visitors can experience Himeji Castle's defense system.

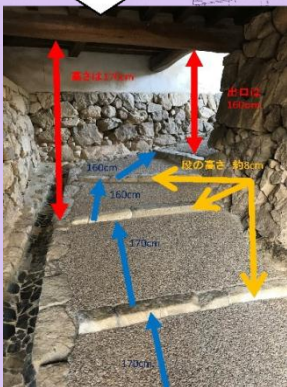


Why is the Ninomon Gate a strong defense feature?

- ① Once enemies enter, the passage width sharply becomes narrow.
- ② Covered with iron plate
- ③ Ceiling is low with varying height at different points.
- ④ Turret floorboards can be removed, and overhead attacks can be made.



ATTACKS CAN BE MADE FROM HERE!



- ⑤ Passage slope increases 2.5° with each step. ($2.5^\circ \times 8 \text{ steps} = 20^\circ$)
- ⑥ Depth of each step is 1.6 foot steps.
- ⑦ It has a sharp bent.

These had physical and mental effect on soldiers.

Was the Ninomon Gate effective in slowing soldiers down?

• Subjects carry 20kg weights each and are divided into 2 groups.

Group ① → tries to pass through the Gate
Group ② → runs on flat ground.

Group ①	Group ②
18.40s	15.64s

※On average

• Results

It made our speed slow at **about 15%**

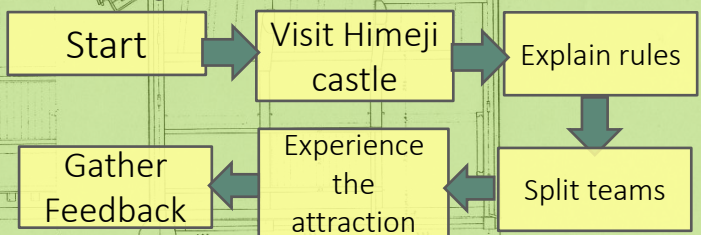
• Consideration

The structure of Ninomon Gate indeed slows enemies down!!



Our Attraction

Our attraction aims to let visitors experience and appreciate the attack and defense advantages of Ninomon gate.



- The offensive team tries to attack Castle Tower through Ninomon Gate.
- The defense team attacks enemies by making use of the structure of "Ninomon Gate"

Future Goal

If this attraction is successful, we will look to implement another attraction at whole structures

Special thanks: Himeji Center Research Into Castles And Fortifications