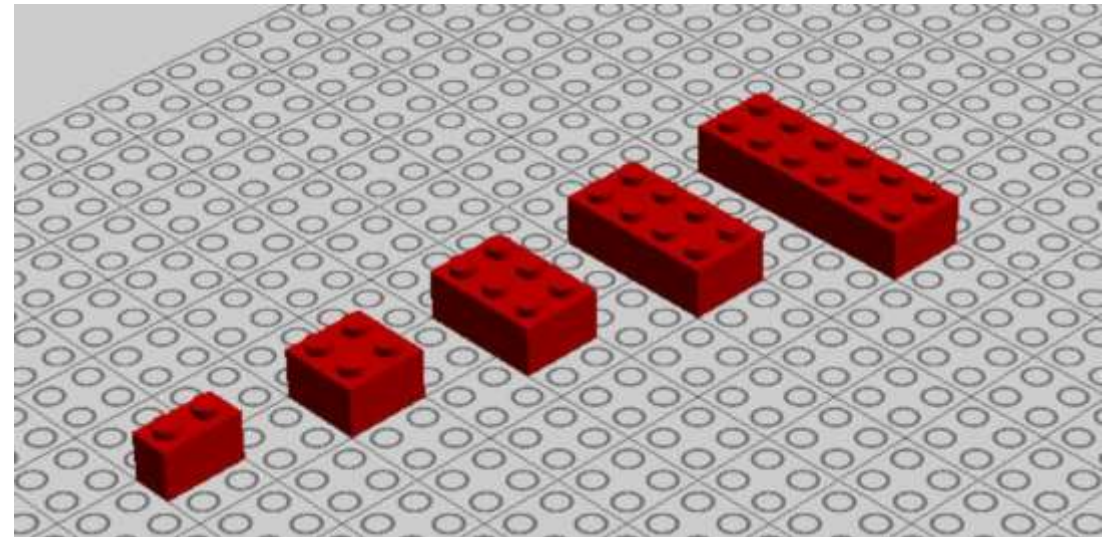


Section 1 – Day 1

The basics of building a strong wall

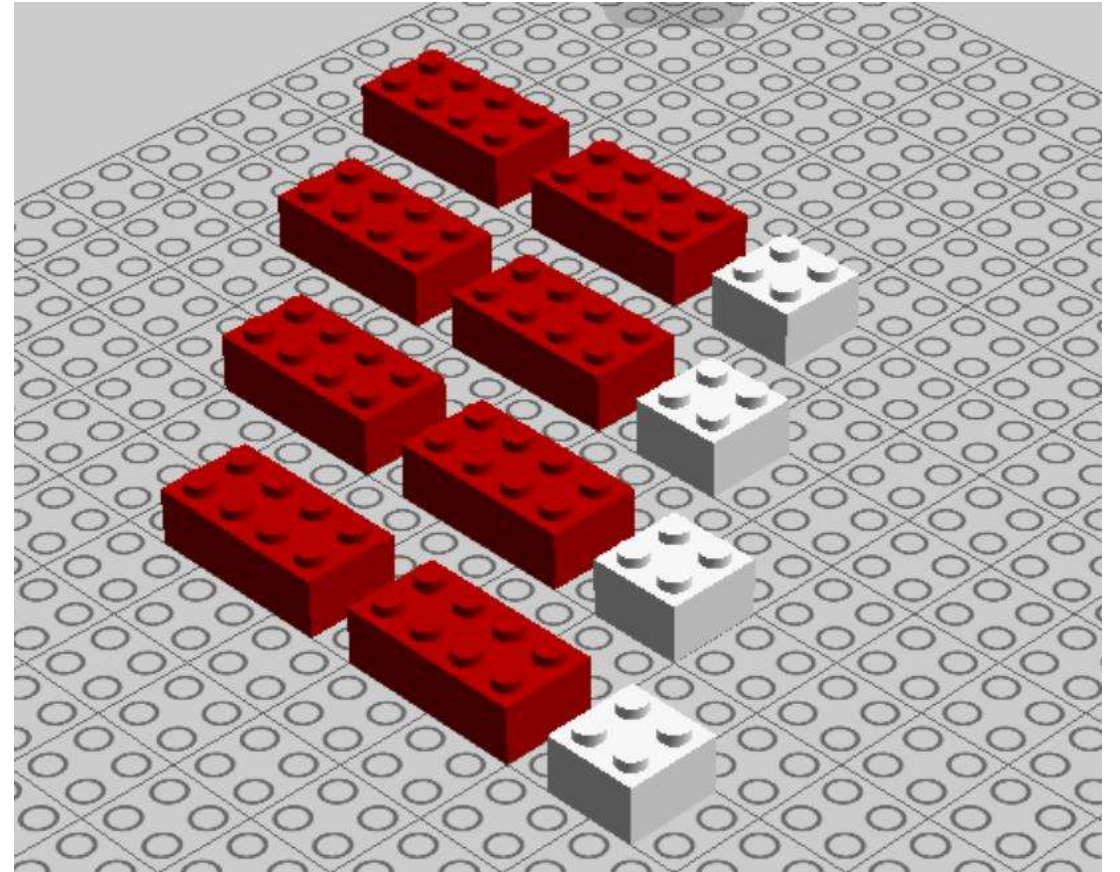
We learn how to build walls

- Duration
 - 2 sessions of 45 minutes
- Elements
 - LEGO Bricks: 1x2 (1), 2x2 (4), 2x3 (5), 2x4 (8), 2x6 (1)
- Teams of 2 students
- Skills
 - Engineering and Construction
 - Problem solving
 - Collaboration
 - Public speaking



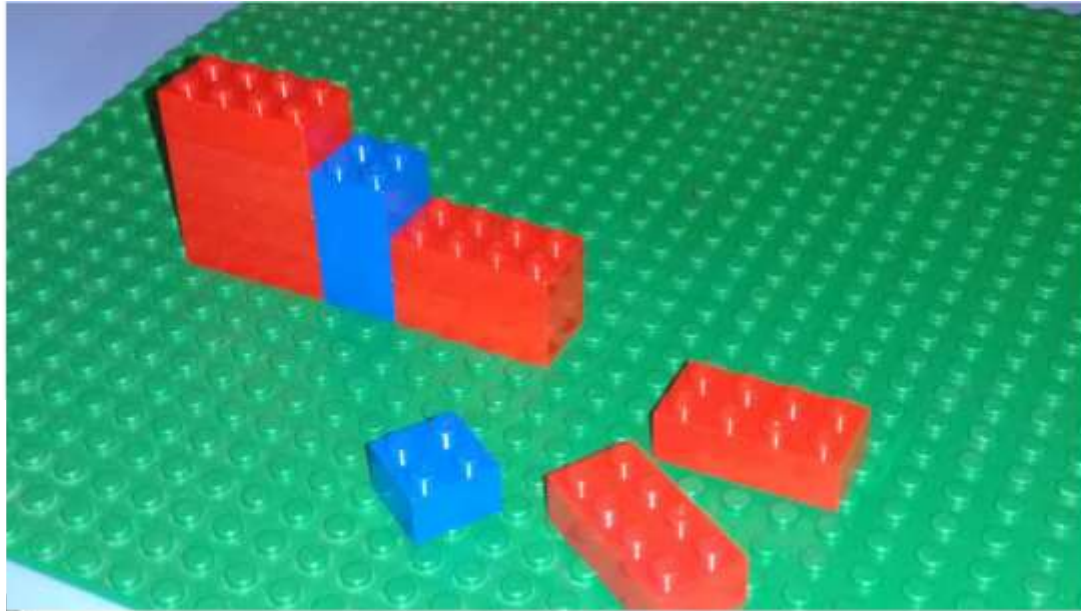
Let's build a wall

- We use
 - 8, 2x4 bricks (red)
 - 4, 2x2 bricks (white)
- We shall build a wall twice
 - Uniform colours
 - Mixed colours

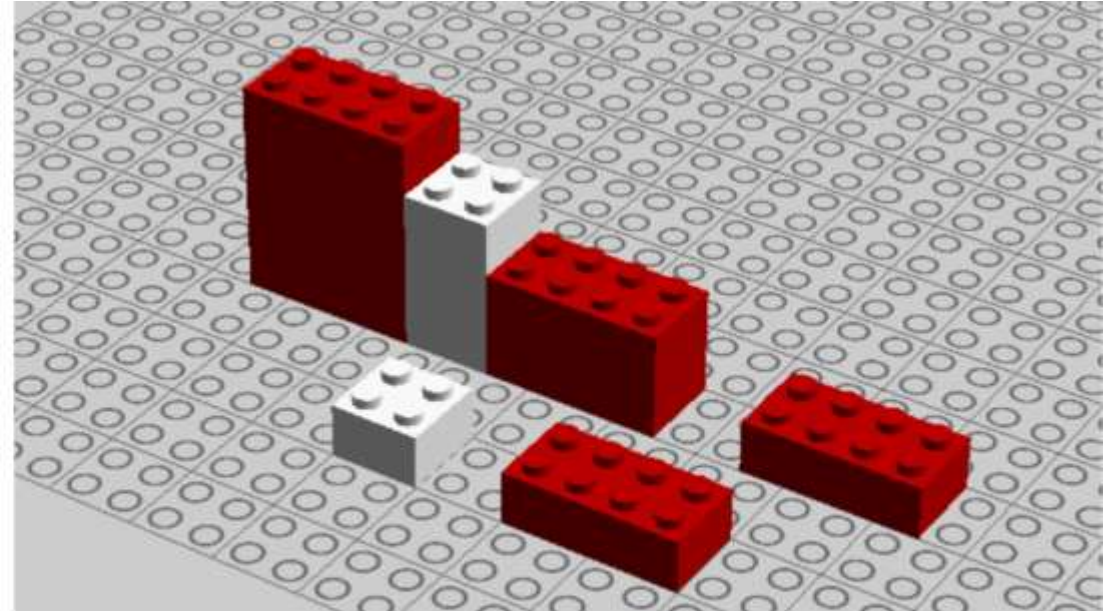


Uniform colour wall

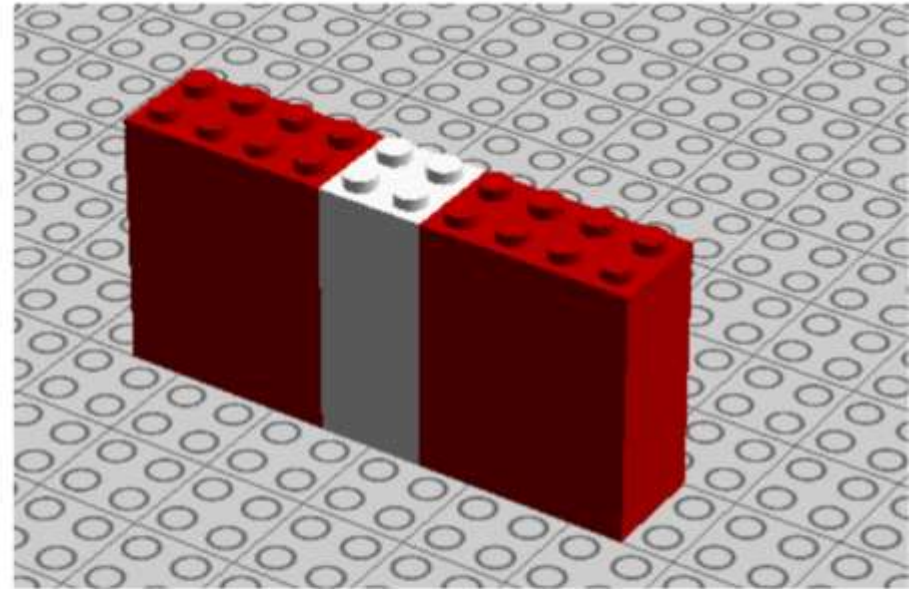
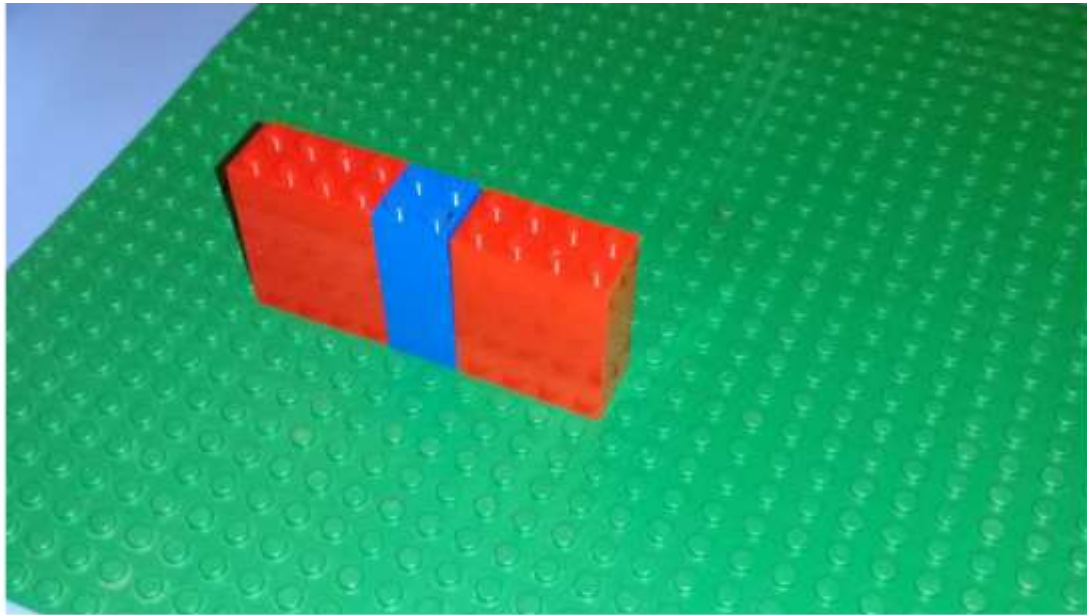
Stack the same colours one above the other



Put 2x2 bricks in the middle

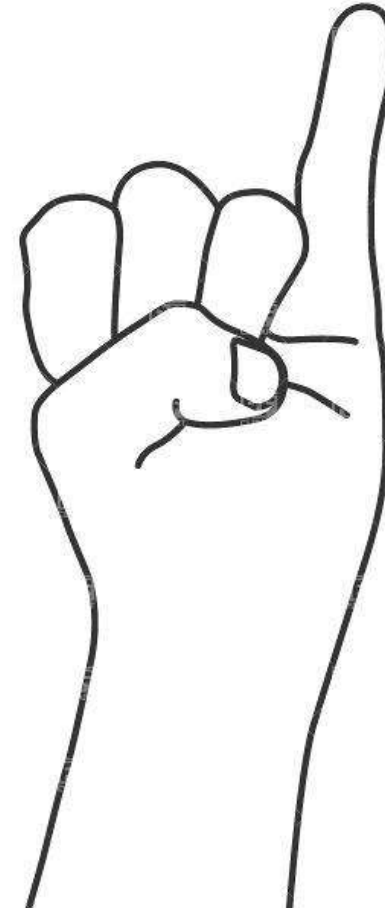


Uniform colour wall



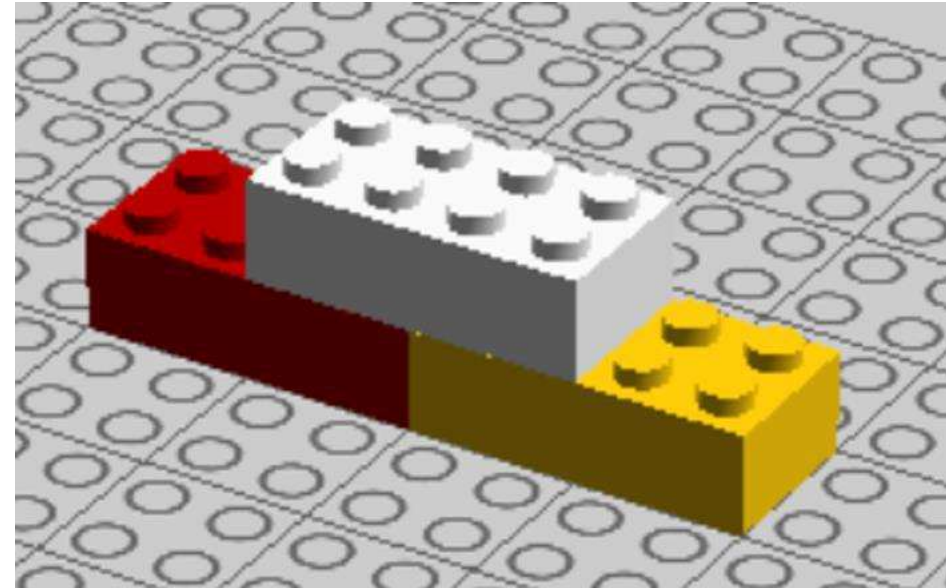
Strength test - 1

- Try to knock down the wall you have just built
- Push the wall with your little finger



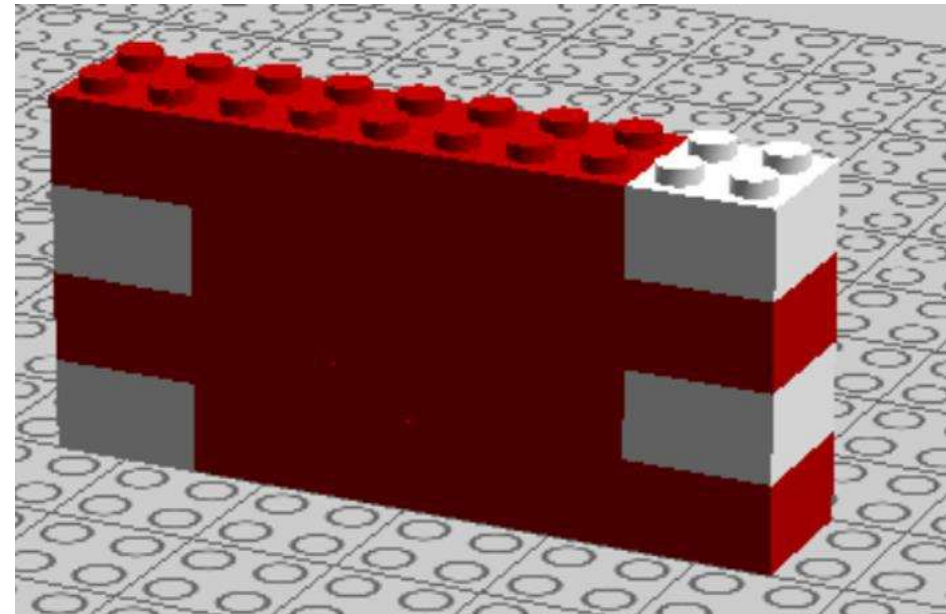
Build a wall with overlapping bricks

- Overlapping
 - Every brick must be placed on two others



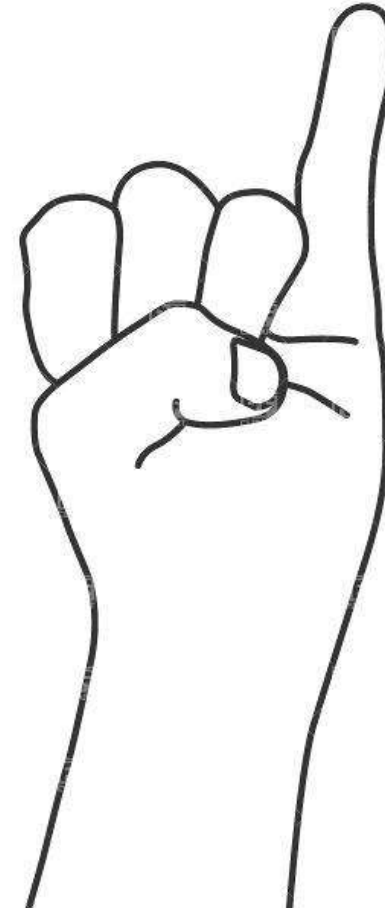
Build a wall with overlapping bricks

- Build the wall from the beginning
- In every layer we use:
 - 2 bricks 2x4
 - 1 brick 2x2
- The 2x2 bricks should be placed alternately at the edge of each layer



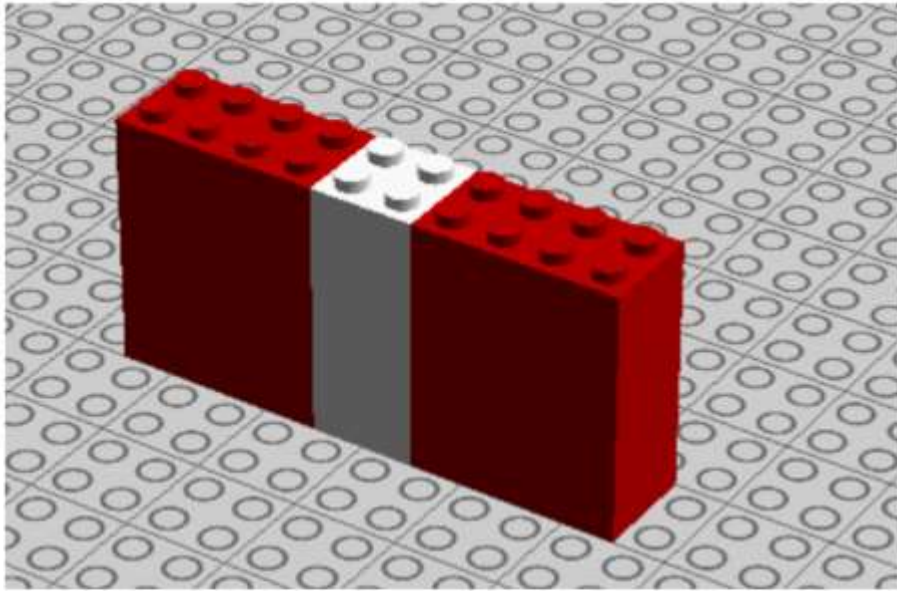
Strength test - 2

- Try to knock down the wall you have just built
- Push the wall with your little finger

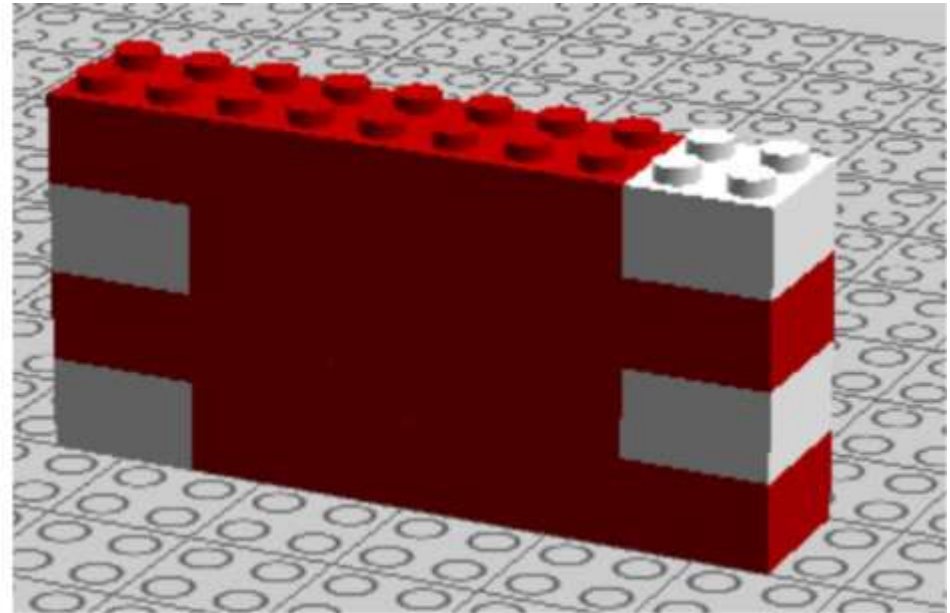


Compare – Which wall is stronger?

Uniform colours



Overlapping colours

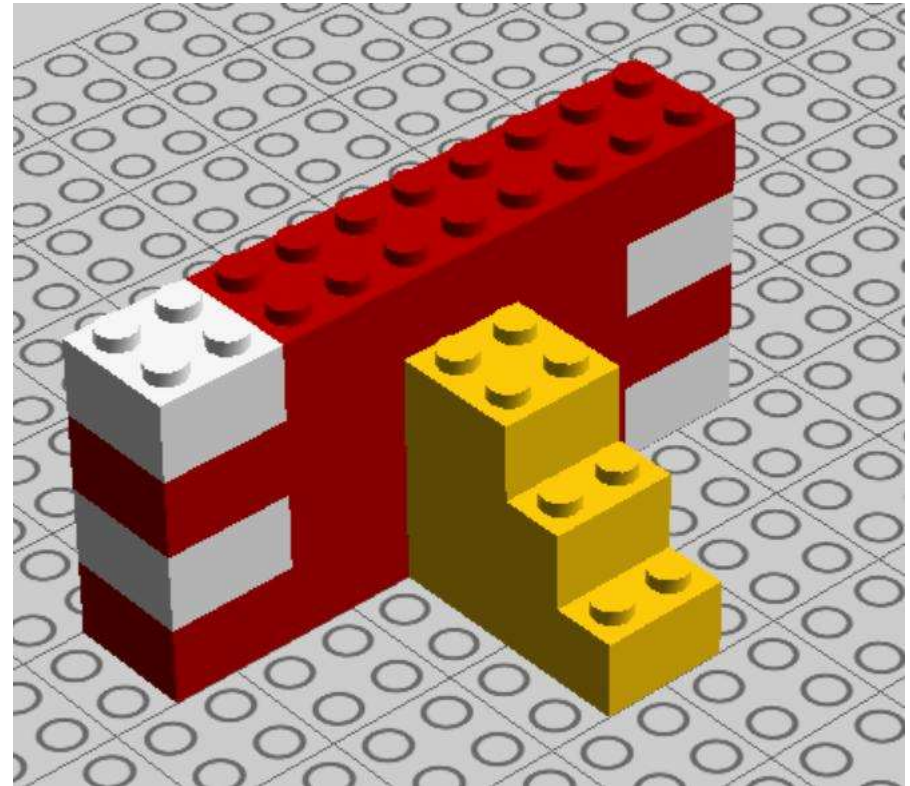


Section 2 – Day 1

We strengthen our wall

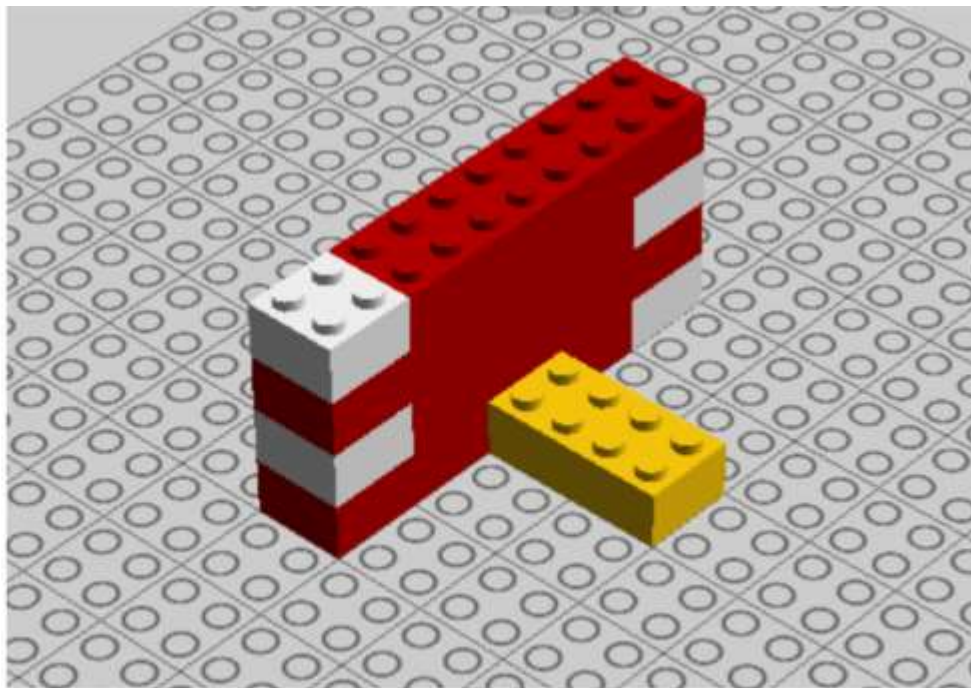
Build a brace to support our wall

- Keep the construction of the overlapping colours wall
- At the back, add a brace construction using:
 - 1, 2x4 brick
 - 1, 2x3 brick
 - 1, 2x2 brick

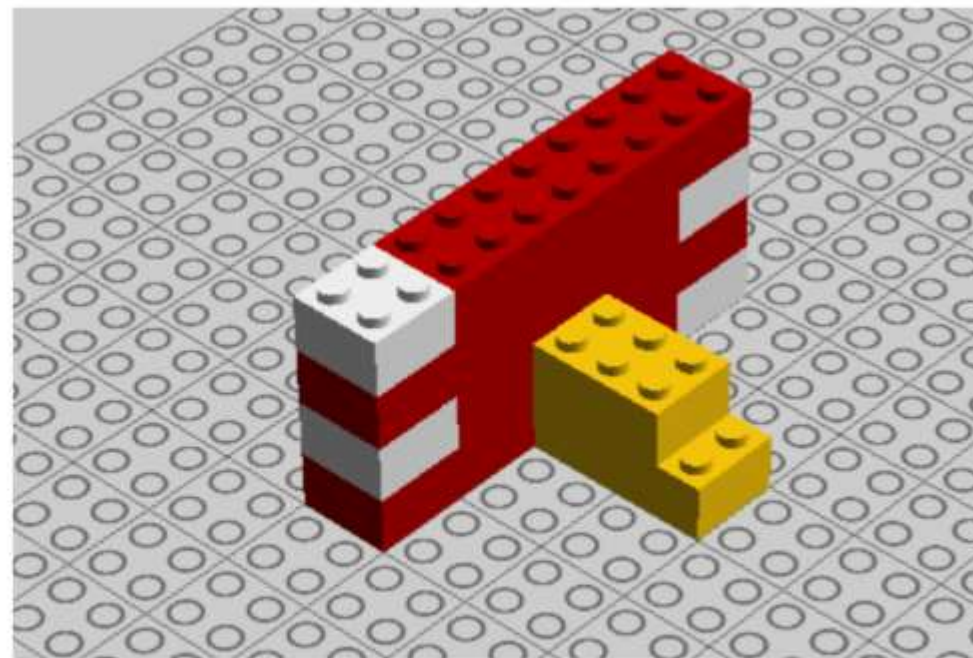


Construction of the wall's brace

Layer 1

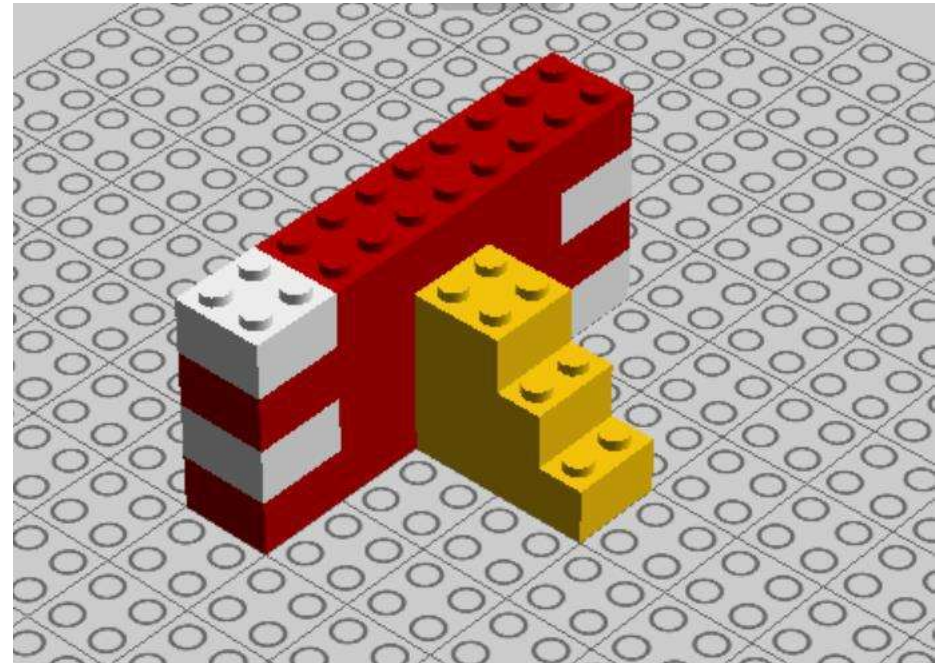


Layer 2



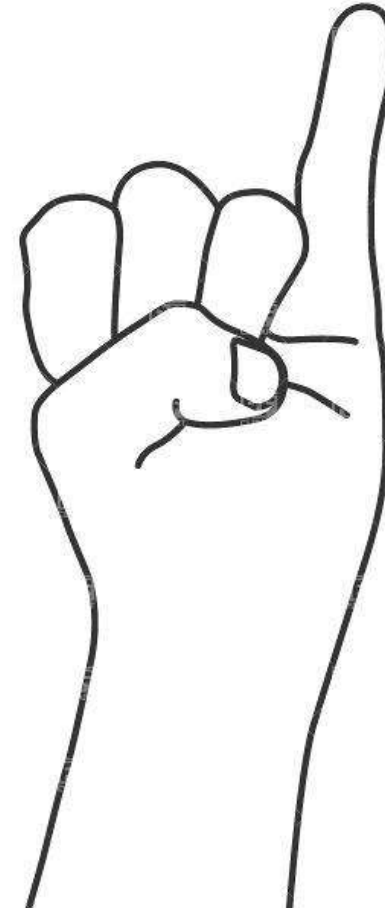
Construction of the wall's brace

- Layer 3
- Final shape



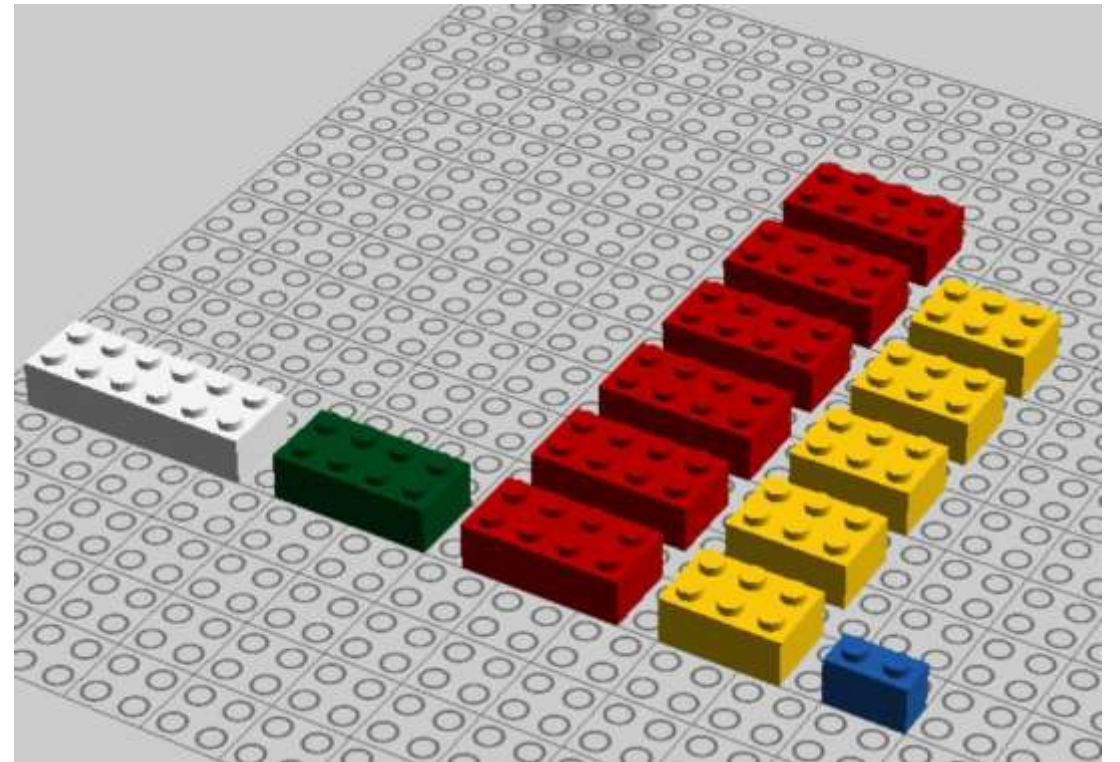
Strength test - 3

- Try to knock down the wall you have just built
- Push the wall with your little finger
- Is the wall now stronger?



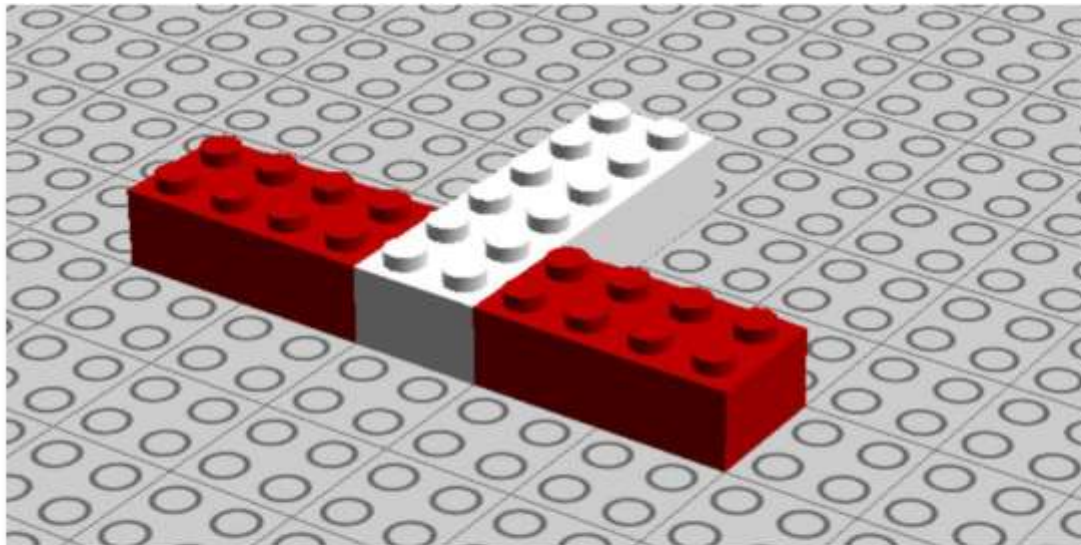
Wall construction with embodied brace

- Let's build a wall from the beginning
- This time we shall embody the brace in the wall construction
 - Bricks
 - 1x 2x6
 - 7x 2x4
 - 5x 2x3
 - 1x 1x2

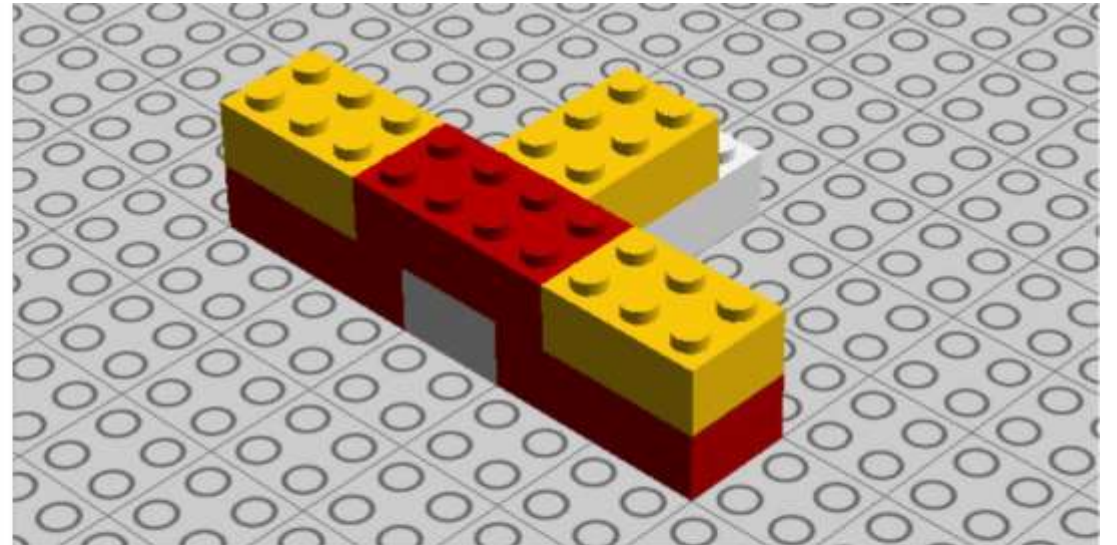


Wall construction with embodied brace

Layer 1

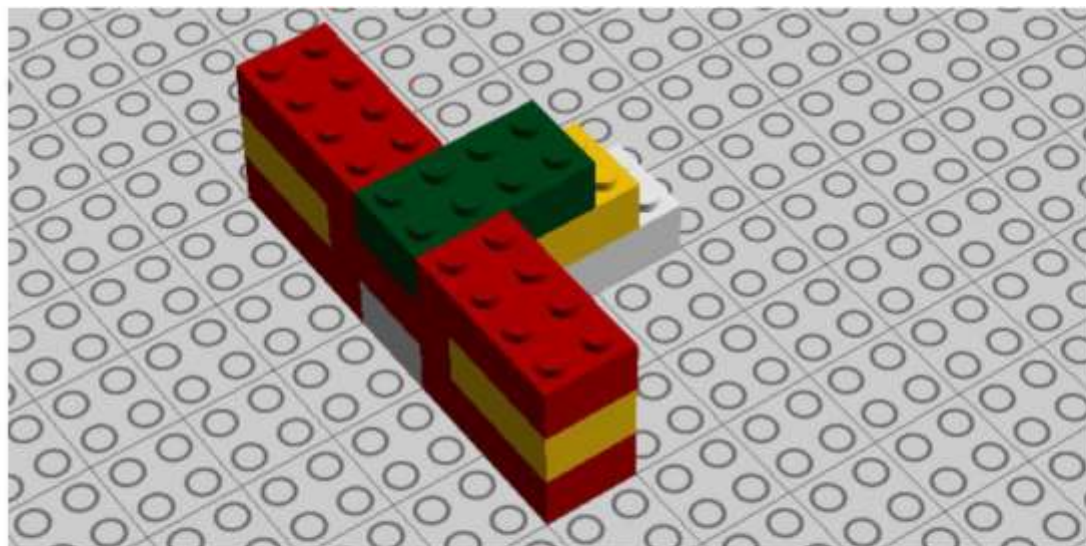


Layer 2

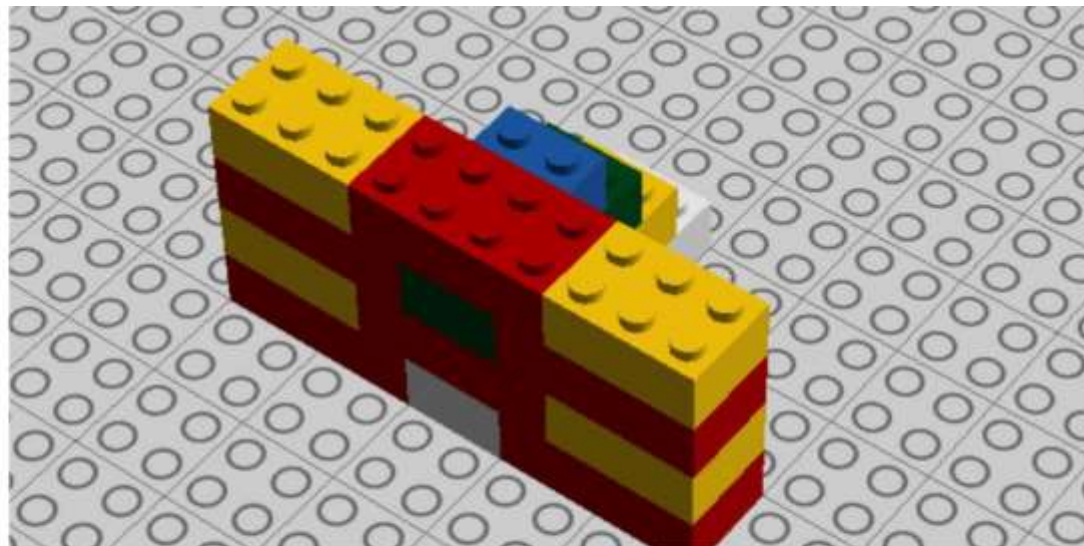


Wall construction with embodied brace

Layer 3

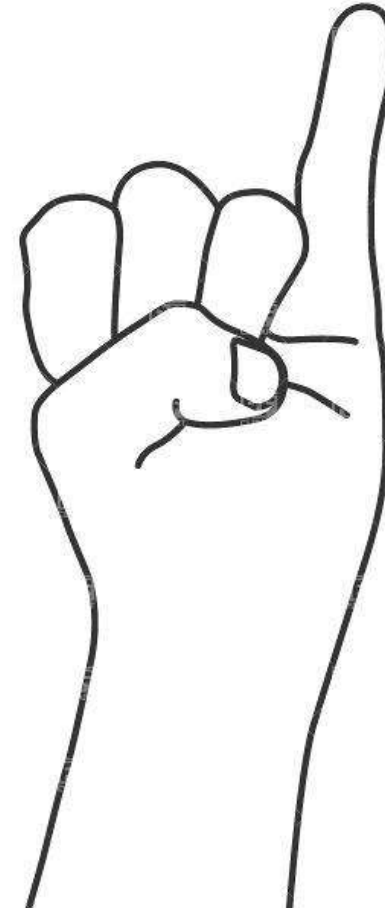


Layer 4 - Final



Strength test- 4

- Try to knock down the wall you have just built
- Push the wall with your little finger
- Did you manage to knock the wall down?

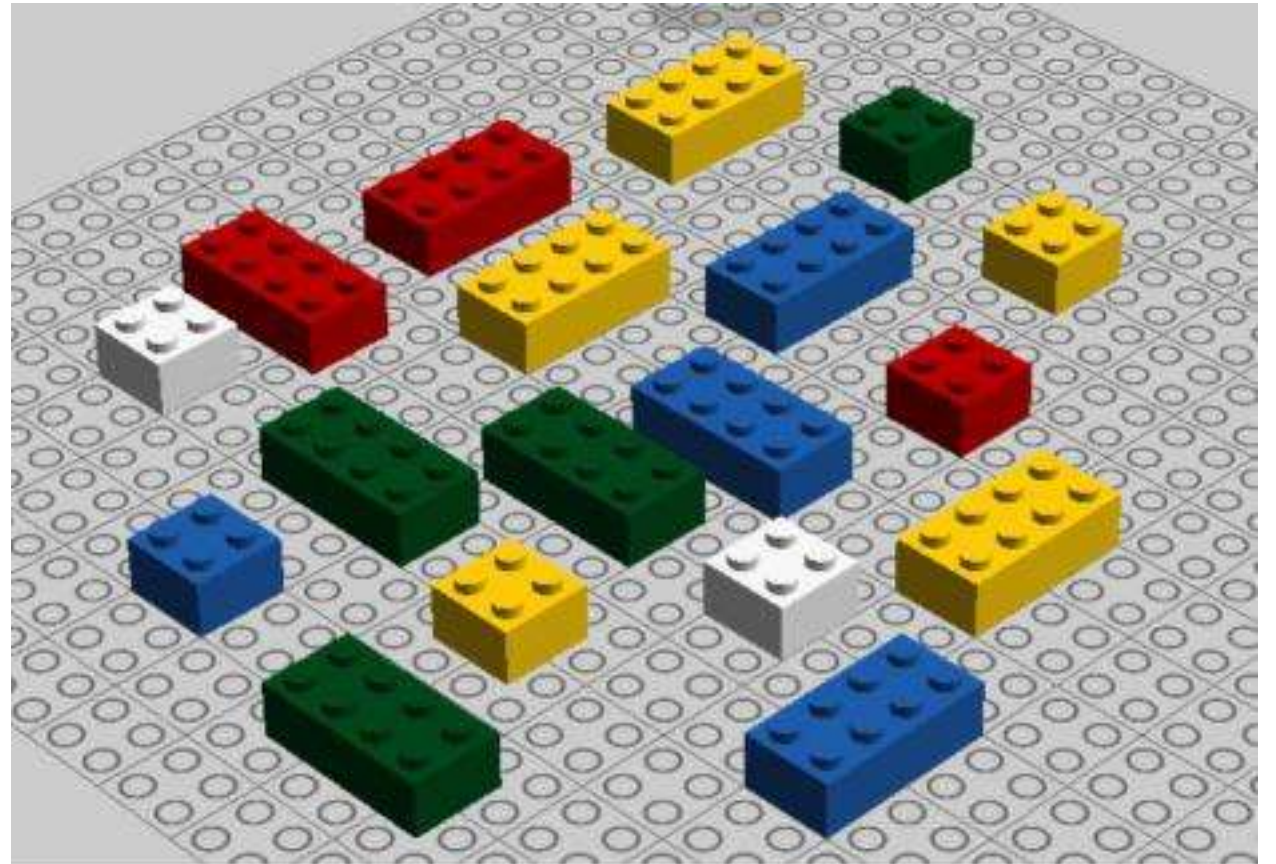


Section 3 – Day 2

Practice

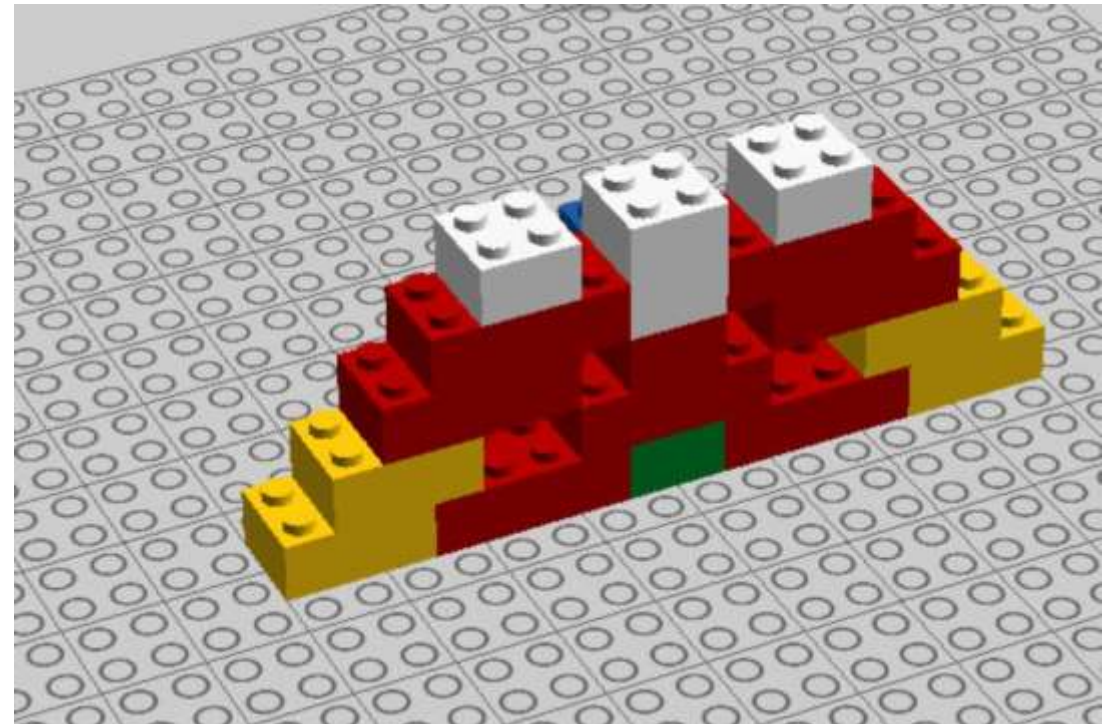
Elements

- 50 bricks 2x4 of various colours
- 25 bricks 2x2 of various colours



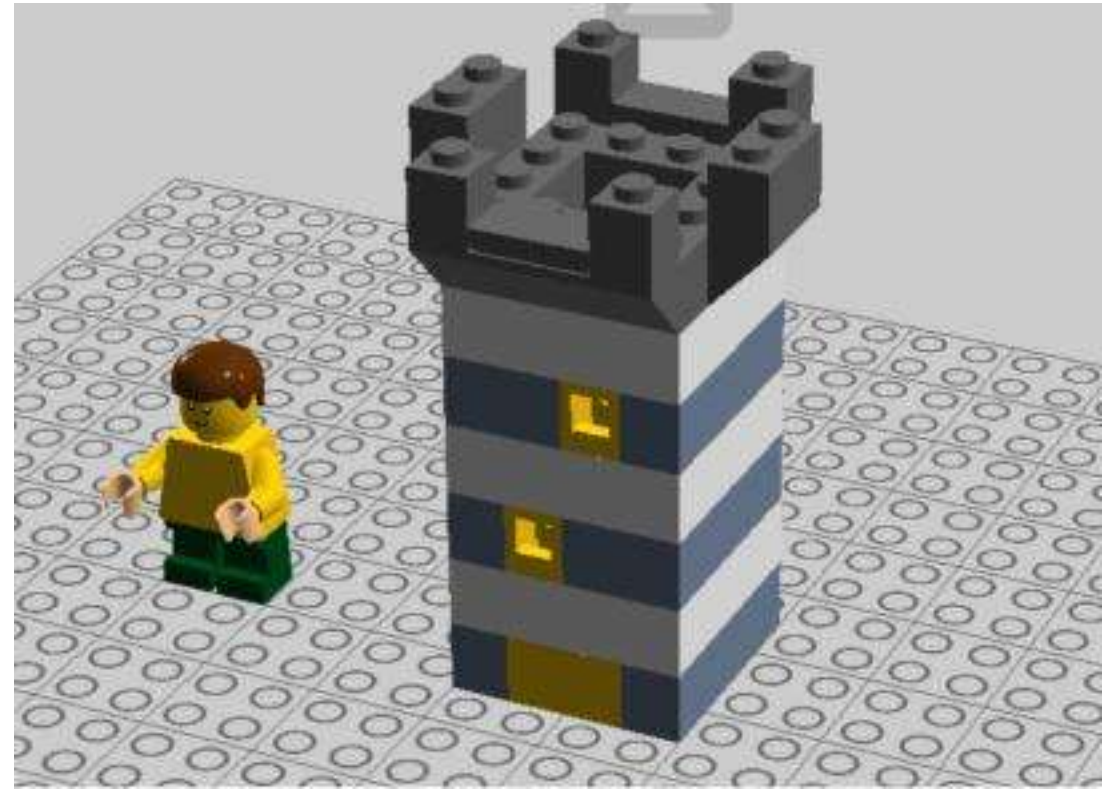
Practice 1

- Build a wall with embrasures.



Practice 2

- The new tower guarding the kingdom's treasure is ready.
- The King asked you to build a protective wall around the new tower



Practice 3

- The old, abandoned factory is very close to the neighbourhood's park
- The mayor asked you to design a wall that will separate the park from the factory.
- Can you design a wall, piece of art?