“Machines for light and shadow”

Background	Per Kirkeby was a Danish scientist, author, artist, painter, and sculptor. He lived from 1938 to 2018. Per Kirkeby was very inspired by the nature of Greenland, The Mayas, and the ancient Greeks. He tried to make experiments by using brick to his “brick sculptures” like the Stehle, which is a brick sculpture based on a square ground floor. Per Kirkeby called his brick sculptures “Machines for light and shadow”.
Name of the object	“A Stehle”
Recommended ages	From 10 years old.
Thematic areas combined (STEAM)	Science: Reflection of light Technology: Building techniques Engineering: Construction model, which will keep standing Art: Different designs, creating shadows, patterns. Mathematics: Geometry: Square, circle, rectangle, trapezoid
Materials needed	• 1 LEGO building board e.g., 8 x 8 or 10x10 LEGO dots for every student. The example shown uses an 8x8 dot square. • 1 pencil and paper • Lego bricks: In the example shown, we used about 8-10 Lego bricks for every level, and we decided to build a Stehle in 11 layers, so about 110 Lego Bricks in different sizes. 2 dots, 4 dots, 6 dots and 8 dots. • an architectural lamp • a camera for photography • a piece of white cardboard
Instructions step by step	**Step 1**: Setting up all the materials and looking at the instructions and model

	Step 2: Deciding the size of your Stehle and drawing it. **Step 3**: The ground floor. **Step 4**: Creative building **Step 5**: Lightening up your Stehle **Step 6**: Development

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Step by step: how to build the “machine for light and shadow”

Step 1 Setting up all the materials and looking at the instructions and model

Time needed: 5 min.

Collect all the materials.

Figure 1 Ready to build?

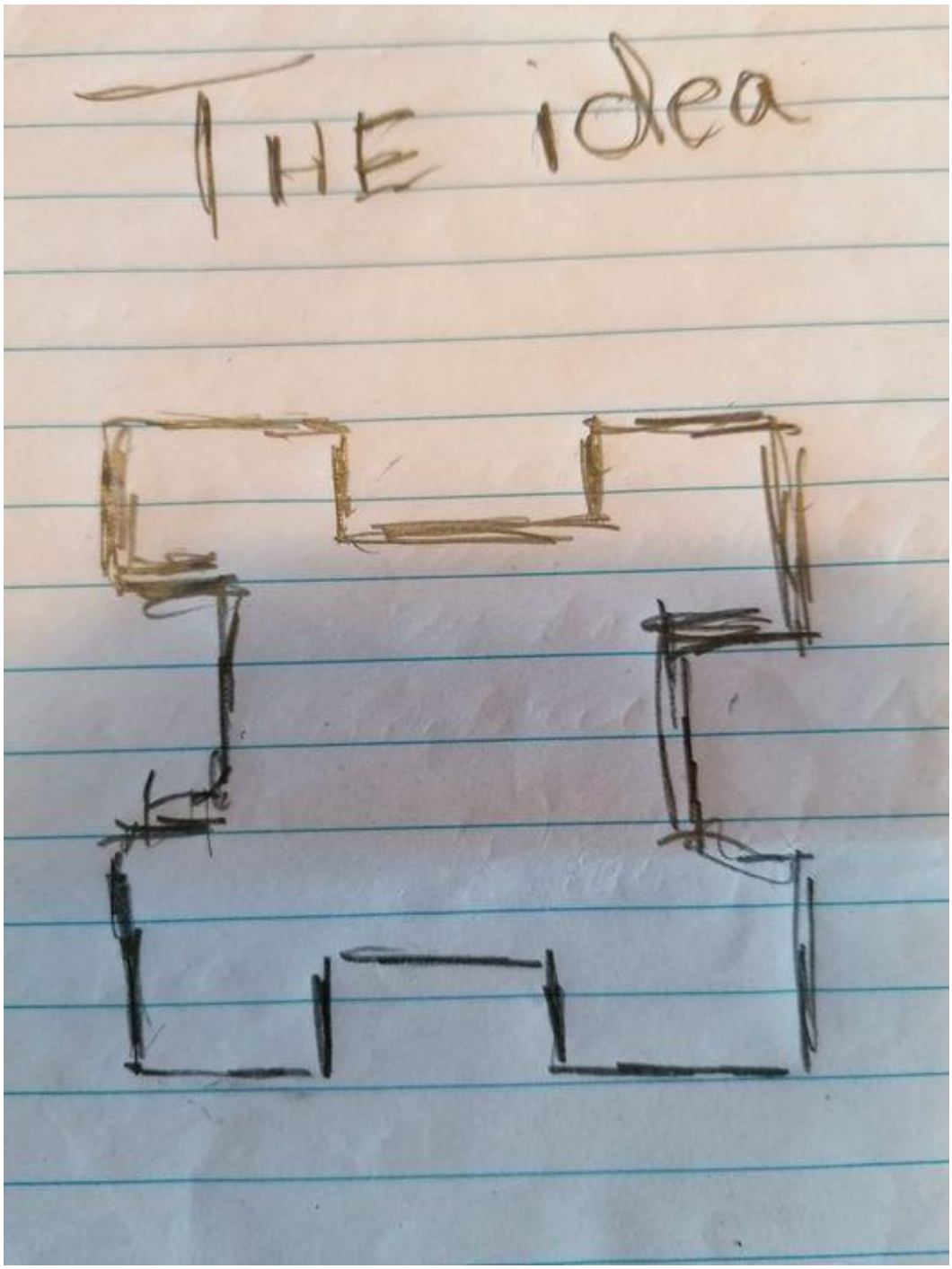
Step 2: Decide the size of your Stehle and draw it.

Time needed: 10 min

Try to plan how your Stehle is going to be. Try drawing it. You do not need to be that accurate. You just need to have a plan. Then discuss the size of the Stehle, the

heights. Remember the original Stehle is based on a square ground floor. Every side must have the same length.

It can be a good idea to draw the ground floor and maybe start with an easy edition.



Step 3 The ground floor

Time needed: 5 min

Build the ground floor.

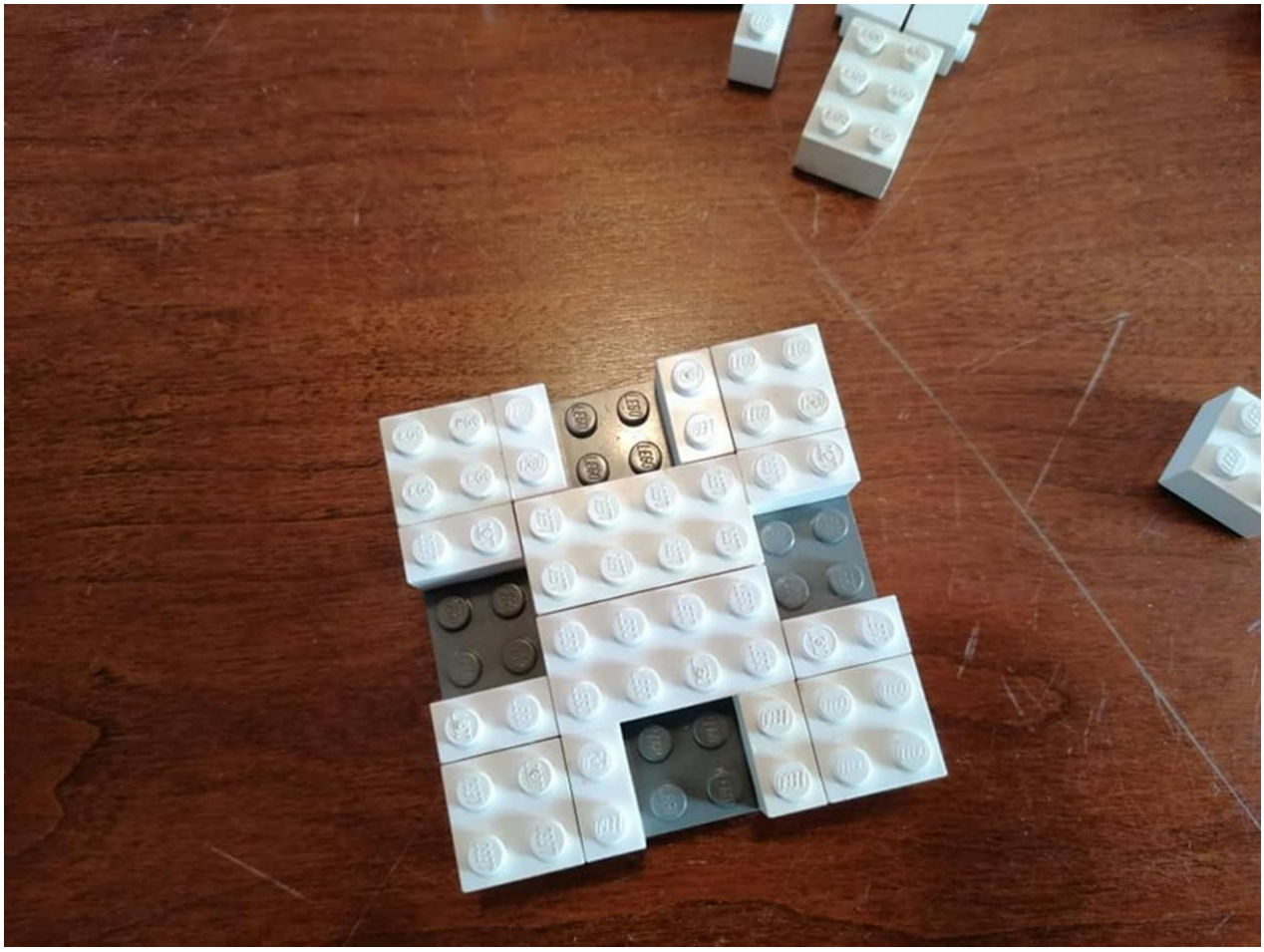


Figure 2 The picture shows the ground floor of the planned Stehle

Step 4: Creative building

Time needed: 20 min

Build the rest of the Stehle to a suitable height (or the height you think is the right one). Consider a pattern made of bricks… or the possibility of holes through the building. The shown Stehle has a height of 11 layers of Lego Bricks.

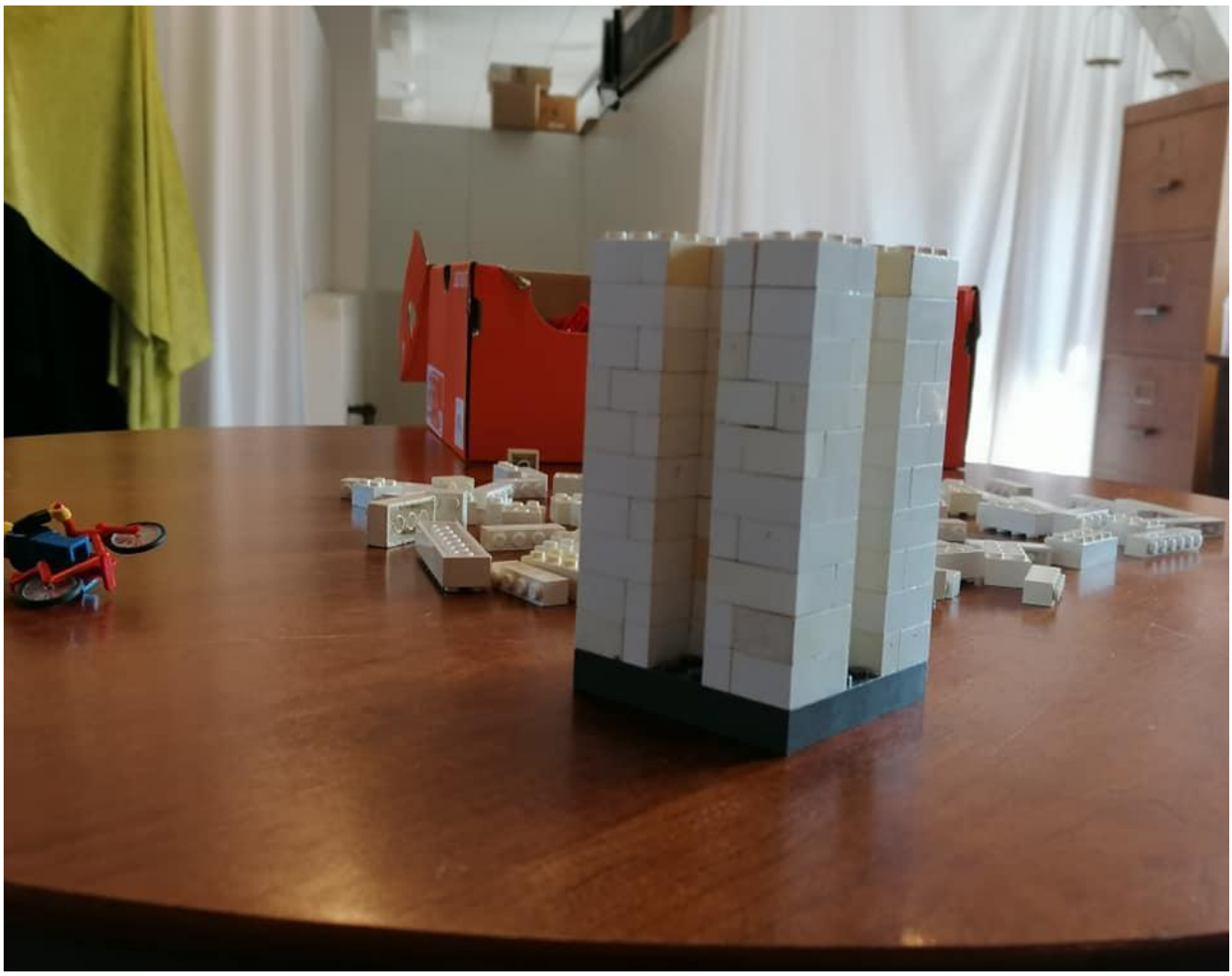


Figure 3 The result of the planned Stehle - Maybe the top should be different? Do you have a solution?

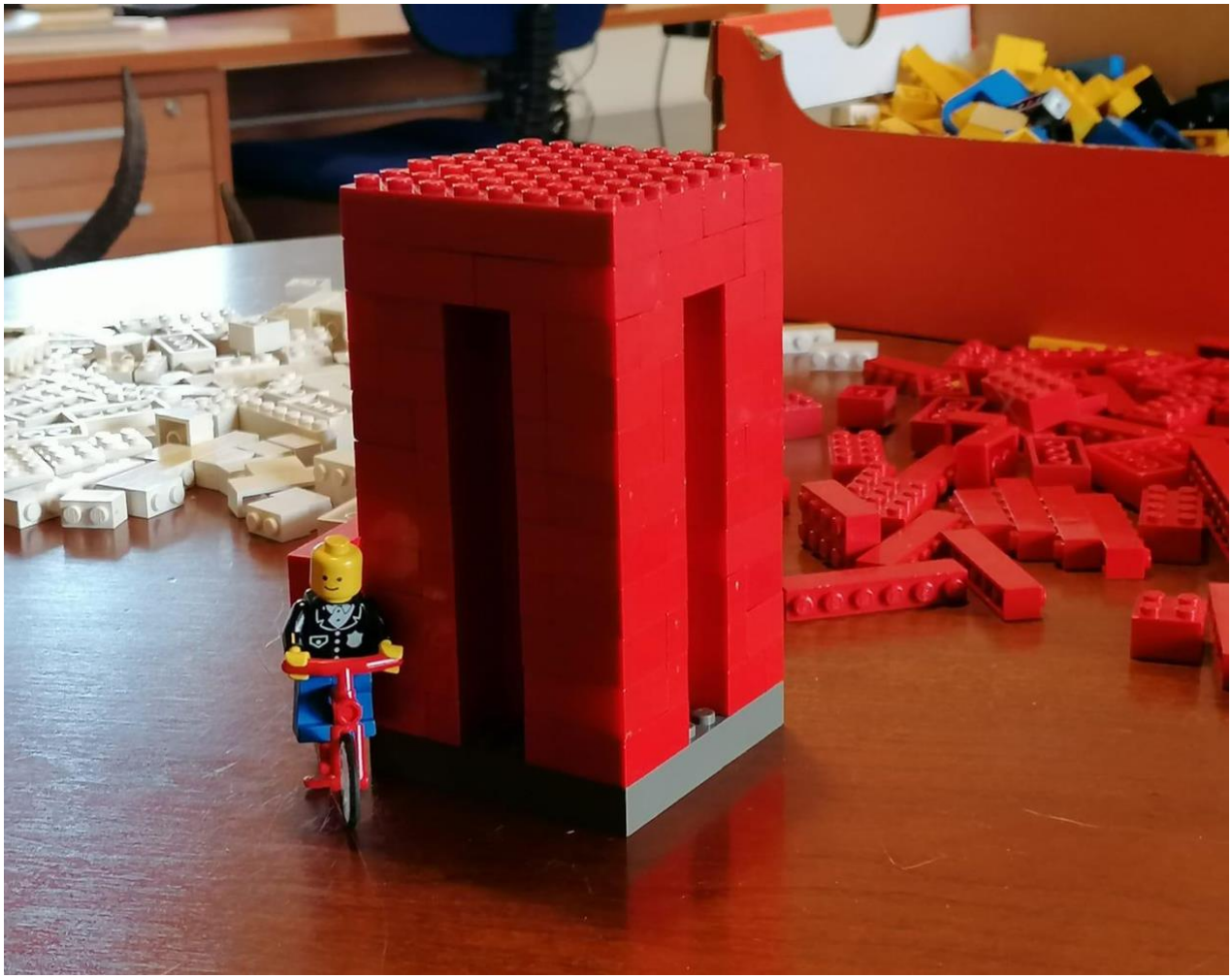


Figure 4 A top solution?

Step 5 Develop

Time needed: ??

Try turning on the lamp and moving it to show the movement of the sun.
Evaluate: Is the Stehle as you wish? If you could build another, what would you change?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Step 6: Inspiration.

Here are other examples of Per Kirkeby's "Building Sculptures":

“Muren” “The Wall “in Aars, Denmark:

Vesthimmerlands Museum, Aars, Denmark

Vindanars Temple (Temple of the winds), Goteborg, Sweden

Gruvtorget, Höganäs, Sweden