

<p>Machines for light and shadow</p>	
<p>Respective blueprint</p>	<p>Machines for light and shadow</p>
<p>Description</p>	<p>"Machines for light and shadow" is a teaching program that makes students curious about mathematics, construction, art, and architecture through an experimental way of working.</p>
<p>Learning Objectives</p>	<ul style="list-style-type: none"> - Students learn the definition of a square - Students learn how to make a Stehle <ul style="list-style-type: none"> based on a square ground plan - The students learn to make a sketch and <ul style="list-style-type: none"> try to turn a sketch into a product - Students practice experimental work - Students learn about light and shadow

Commented [MB1]: Decide which one to use - pupils or students for the consistency of the document.

<p>Related curricular subject(s)</p>	<p>Mathematics: geometry, patterns, angles</p> <p>Visual arts: shadows</p> <p>Technology: construction</p> <p>Science: light/shadow</p>
<p>Prerequisites / preparatory actions for teachers</p>	<p>- Learn about the artist Per Kirkeby (see fact sheet below)</p> <p>If it is difficult to get enough LEGO bricks, it might be a good idea to ask students if they can bring their own LEGO bricks or if they can borrow some.</p>
<p>Prerequisites / preparatory actions for students</p>	<p>To prepare students, it may be a good idea to ask students to find different patterns in buildings and document them using photo/mobile phone cameras</p>
<p>Age of students</p>	<p>From 10 to 15 years old</p>
<p>Duration</p>	<p>1-2 hours</p>

Level of difficulty

The course can be differentiated by age or level. It is intended as an introduction to working with geometry/the square, the cube, or a column based on a square. It can be made considerably more difficult based on pupils' sketches. Therefore, it can also be used by older pupils.

Step by step description of the tasks

1: Introduction to Per Kirkeby (Fact sheet below)

PER KIRKEBY OG HIS "MACHINES OF LIGHT AND SHADOW

AN EARLY START

Per Kirkeby grew up in the shadow of the "Grundtvig's church building in Copenhagen, and from early childhood he was interested in building structures, huts and caves made of bricks.

As an adult he combined this with inspiration from nature, the Mayan Culture, patterns from the antiquity e.g., the "à la grecque pattern".

However, he is best known for his oil paintings and building sculptures which he described as "Machines for light and shadow"



Facts about Per Kirkeby 1939-2018

Danish geologist, painter,
filmmaker, graphic artist, poet, and
sculptor

He drew inspiration from



Mayan
and



He was very fond of hand-ironed
red bricks

The task can also be made very concrete in this way:

In the small town of Aars, in Vesthimmerland, there are 4 Stehles, which are placed as "gates" to the town. The Stehles are in the roundabout at the approach roads to the town. In the meantime, the town has been given a new bypass with 2 roads.

Therefore, we would like to have the students' ideas on how they should look.

Specifications:

1: The Stehle shall have a square basic shape

2: The Stehle scaffold should be able to stand on its own

2: Introduction to the square: What is a
square?

3: Decide if the lesson is a pair work or individual work

Follow the related blueprint:

4: 1st sketch is drawn from students'

preparation/photo

5: 1st building construction

6: Sun's path and angle (the lamp is placed

in relation to the construction)

Photo/video documentation of the

sun's path on the building

7: Evaluation of the construction:

8: 2nd sketch is made

9: 2nd construction is built

10: 2nd light set on construction

11: Evaluation of the construction

12: Possibly construct a 3rd version where students can use all kinds of bricks?

Assessment activities

- Is the construction based on a square?
 - Can the construction stand on its own?
 - Pattern in the construction?
 - Students' ability to vitalize the process.
2. Construction
- Progression of the construction?
 - Light penetration in the construction?