Building a medieval city

Name of the object	Building a medieval city
Recommended ages (from…)	Start at 10 years old
Thematic areas combined (STEAM)	Technology (urban architecture with special vocabulary, heritage) Art (artistic technique of stencilling) Mathematics (geometry, space)
Materials needed	• Plywood or thick cardboard (A2 size) • Roll of self-adhesive squared paper or graph paper (A2 size) • Coloured paper sheets - 8 different colours (20) • Cardboard Cup (4) • Scissors, glue, tape, 50 cm ruler, felt • Hemp rope (5mm - 20m) • 3D printer • PLA
Instructions step by step	**Step 1**. Setting up all the materials and looking at the instructions and models. **Step 2**. Creation of the basic plan of the medieval city. **Step 3**. Design of the templates of the architectural elements of the medieval city. **Step 4**. Construction of the ramparts. **Step 5.** Placement of the elements on the plan. **Step 6.** Making the elements of the medieval cities in 3D volume. **Total duration: 1h**

Step by step: how to build the medieval city

Step 1

Time needed: 5 minutes.

Setting up all the materials and looking at the instructions.

All the pieces ready to use.

Step 2

Time needed: 10 minutes

A particular medieval city: the **bastides**.

How is the plan of a bastide drawn?

A large number of bastides have an unorganised plan, but a high proportion of foundations have a particularly clear plan.

There seems to have been a pattern adapted to each foundation. Indeed, more than half of the foundations were built on the intersection of two perpendicular directions which, when completed with numerous parallels, give a grid pattern.

For this activity, we will take as an example the bastide of Beaumont de Lomagne in the South-west of France.

Credit Collège Despeyroux Beaumont de Lomagne

1/ Take the plywood or thick cardboard of size A2

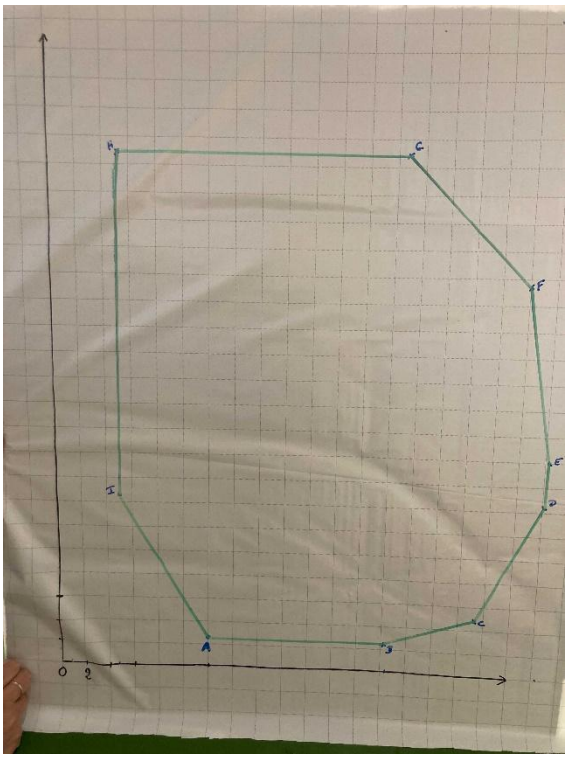
2/ Stick the self-adhesive squared sheet or the graph paper on top

3/ Draw two axes to be able to position orthonormal markers (point location).

4/ Place the following points:

A : (15; 3)
B : (33; 3)
C : (42; 6)
D : (48; 18)
E : (48; 22.5)
F : (45; 39)
G : (33; 51)
H : (6; 51)
I : (6; 18)

5/ Draw a line between the following points:



Step 3

Time needed: 25 minutes

In this step, we will design the templates for the different elements of a bastide:

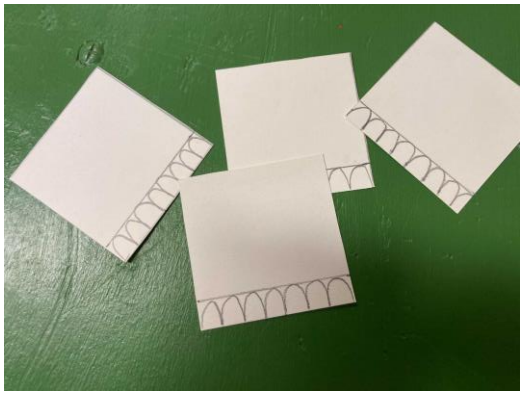
- «Moulons» - a grouping of houses
- Arcades
- Convents
- A presbytery
- Doors
- A church
- Towers
- A market hall

Templates for «Moulons» - a grouping of houses

- Cut out 16 squares of 6x6 from a sheet of coloured paper

Arcade templates - a grouping of houses with an arcade

- Cut out 4 squares of 6x6 cm from a sheet of coloured paper
- 1 cm from one edge, draw a line
- On the smallest part, draw arches



Templates for convents

- Cut out 2 rectangles of 3x6 cm from a sheet of coloured paper

Template for the presbytery

- Cut out 1 rectangle of 1.5x6 cm from a sheet of coloured paper

Door templates

- Cut out 4 rectangles of 1.5x4.5 cm from a sheet of coloured paper

Template for the church

- Cut out 1 rectangle of 3x6 cm from a sheet of coloured paper

Template for the hall

- Cut out 1 square of 6x6 cm from a sheet of coloured paper

Towers

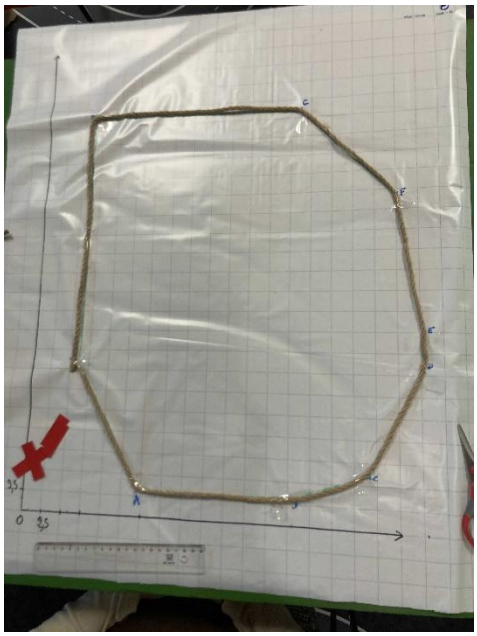
- Take 4 cardboard cups

Step 4

Time needed: 5 minutes

A bastide was often surrounded by ramparts. We are going to symbolise them with the hemp rope.

- Cut the rope and place it on the lines drawn in step 2. You can tape or glue it.



Step 5

Time needed: 15 minutes

Place the different elements according to the coordinates of the bottom left vertex on the orthonormal reference frame.

>> Coordinates of the bottom left of the 15 «Moulons»:
(15; 6)
(22.5; 6)
(15; 13.5)
(30; 13.5)
(7.5; 21)
(37.5; 21)
(7.5; 28.5)
(15; 28.5)
(30; 28.5)
(37; 28.5)
(7.5; 36)
(30; 36)
(7.5; 43.5)
(15; 43.5)
(22.5; 43.5)

>> Coordinates of the bottom left of the 4 arcades:
(22.5; 13.5)
(15; 21)
(30; 21)
(22.5; 28.5)

>> Coordinates of the bottom left of the 3 convents:
(10.5; 13.5)
(37.5; 13.5)

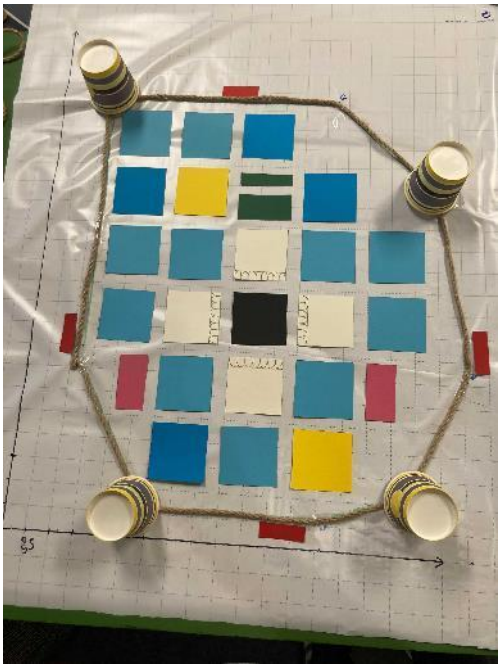
>> Coordinates of the bottom left of the presbytery:
(22.5; 40)

>> Coordinates of the bottom left of the 4 doors:
(3.5; 21)
(48.5; 21)
(26; 1)
(19.5; 51.5)

>> Coordinates of the bottom left of the church:
(22.5; 36)

>> Coordinates of the bottom left of the hall:
(22.5; 21)

>> Coordinates of the bottom left of the 4 towers
To the points: A; C; F; H



Step 6

To go further, it is possible to design elements in volume thanks to a 3D printer: the church, the hall, the «moulons», etc. in order to position them directly on the plan.

Resources

https://tourisme.malomagne.com/a-voir-a-faire/villages-pittoresques/bastide-beaumont-de-lomagne/

http://www.fermat-science.com