Lesson 1   Building with Blocks

In this lesson you will learn to think about a model built with blocks. When a picture of the 3D model is shown, you can explore the model by studying several views on the computer screen. You will be able to draw the front, side and top views of the model.

1. Start Geocadabra, and select *File, New, Three dimensional, Construction box.*
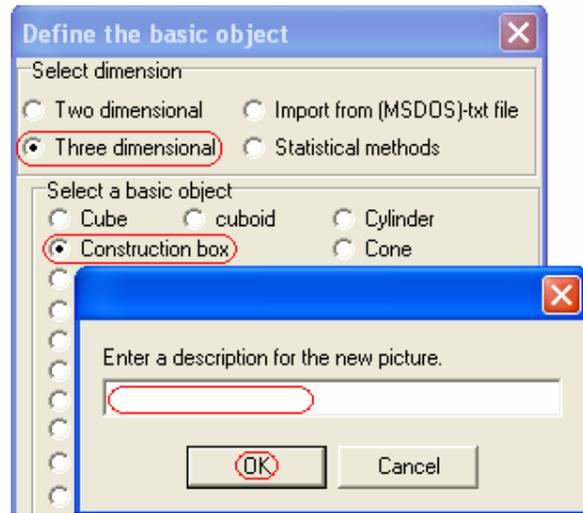
2. After *entering* a name for the picture and *clicking* [OK], the construction box control window appears.
3. Als, a 3D grid appears.
4. The buttons in the control window correspond with the fields within the grid as shown in the next picture.
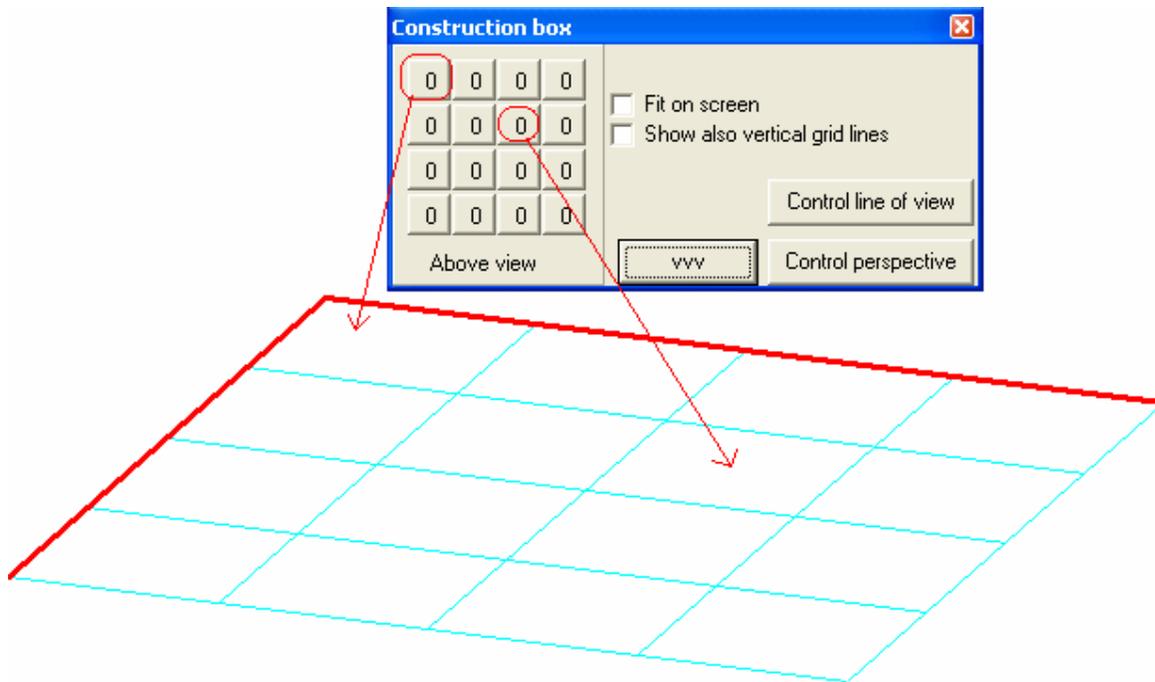
5. When you click on a numbered button the value on this button changes. Also in the corresponding grid field something happens. Describe what happens:

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6. You can also click with *the right mouse button* on a numbered button in the construction box.
   Describe what happens:

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7. Now try to create this creation on the screen:
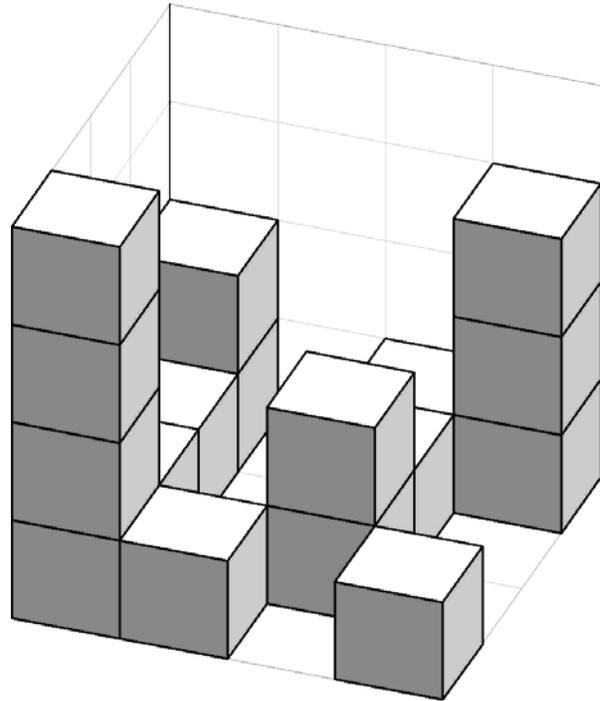
8. Write (on the buttons) which numbers are now present in the control box:
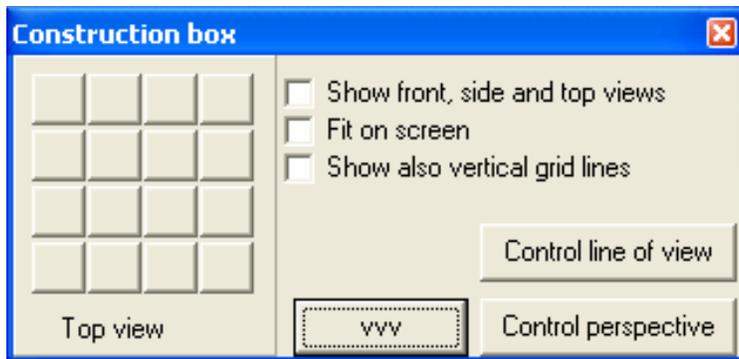
9. Now we consider three different views for the building.
   The **front** view is what you see when your eyes are **in front** of the building.
   The **right or left side** view is what you see when your eyes are **on the right or left side** of the building.
   The **top** view is what you see when your eyes are **above** the building.

10. Look at this picture and try to understand these three views.
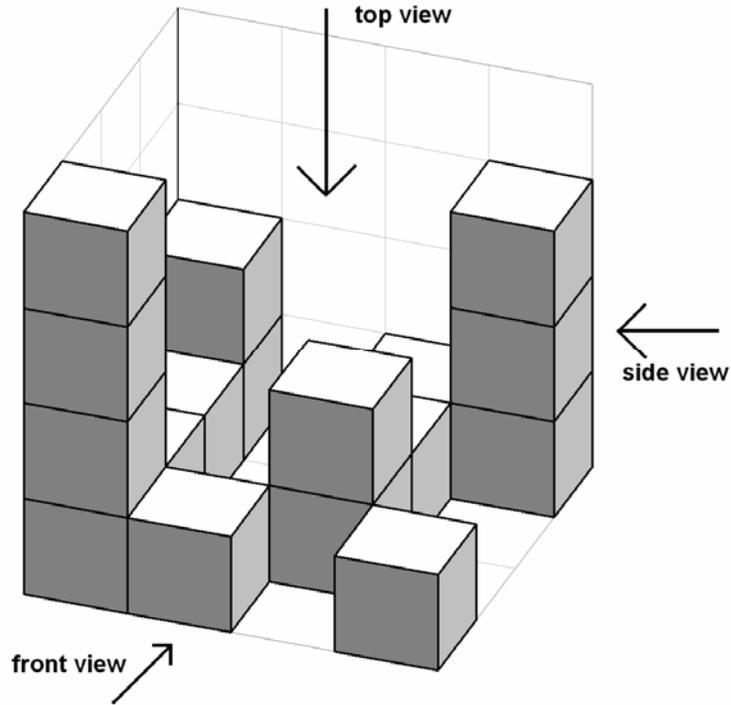
11. Which colour do you see when you are in front of the building?

   ………………………..

12. Which colour do you see when you are on the right side of the building?

   ……………………….

13. Which colour do you see when you are above the building?

   ……………………….

14. How many blocks do you need to build this building?

   ………………

15. Look at the screen and use the **wooden blocks** to make this building on the **grid on paper**.

16. Study the wooden block building that you have made together with the structure at 10.

17. Draw the front view in the grid.
    Use the correct colour.
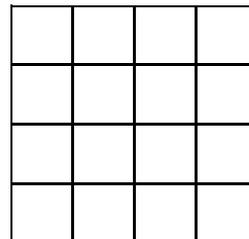
18. Draw the side view in the grid.
    Use the correct colour.
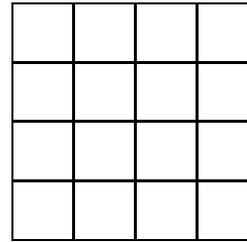
19. Draw the top view in the grid.
    Use the correct colour.
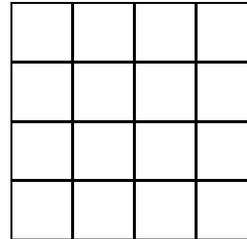
20. Check the box next to the text
    W S*how front, side and top views*
    in the control window.
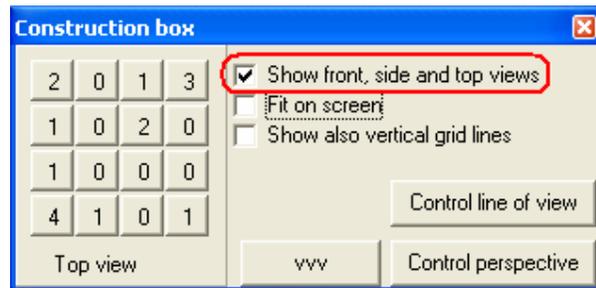
21. Describe what happens:

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22. Check the box next to the text
    W *Fit on screen*
    in the control window.
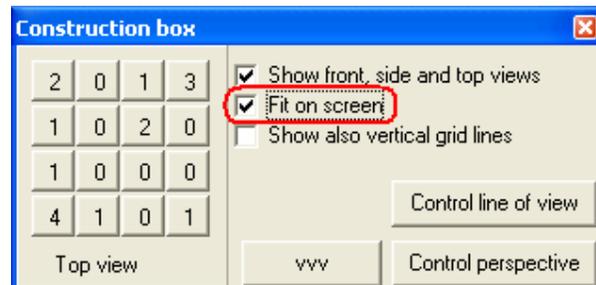
23. Describe what happens:

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24. Check the box next to the text
    W *Show also vertical grid lines*
    in the control window.
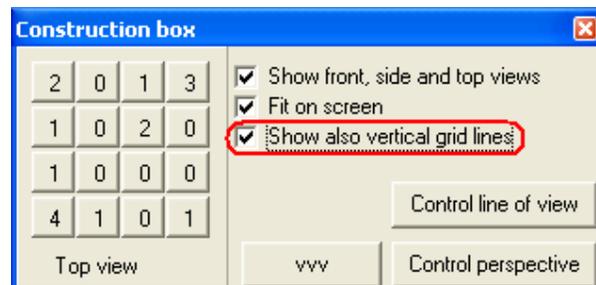
25. Describe what happens:

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26. Click (with the **left** mouse button) on the
    Control line of view button in the control window.
    Under the picture on the screen a line of text appears.
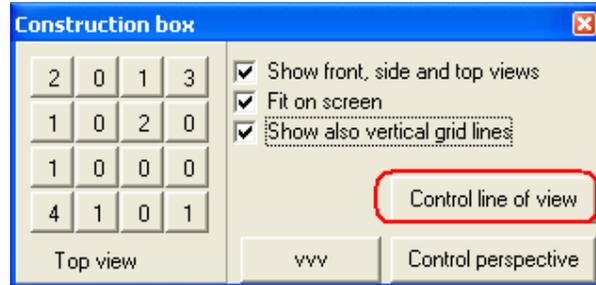
27. Read and try to understand this text.

Keep left mouse button down while dragging the mouse to change the line of view.

28. Position the mouse arrow in the middle of the screen without pressing any of the mouse buttons.
29. While holding down the left mouse button, move with the mouse.
30. Release the left mouse button.
31. Describe what happens:

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32. The actions in 28, 29 and 30 are called "**dragging** with the mouse".

33. Repeat these steps from 28 to 30 several times to get used to dragging with the mouse.

34. Try to find out what the colour is on the **underside** of each block.

    This colour is ………..

35. Try to find out what the colour is on the **left side** of each block.

    This colour is ……..…

36. Click again (with the **left** mouse button) on the *Control line of view* in the control window.
    Describe what happens:

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End of lesson 1