



Space around me

Architectural textbook
for inquisitive children

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Dear children, use this textbook as a guide to getting to know the world around you. Draw, colour and write within it!

Dear parents, join your children in discovering and thinking about the space around us.

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Key



Fill in



Think



Draw



Measure

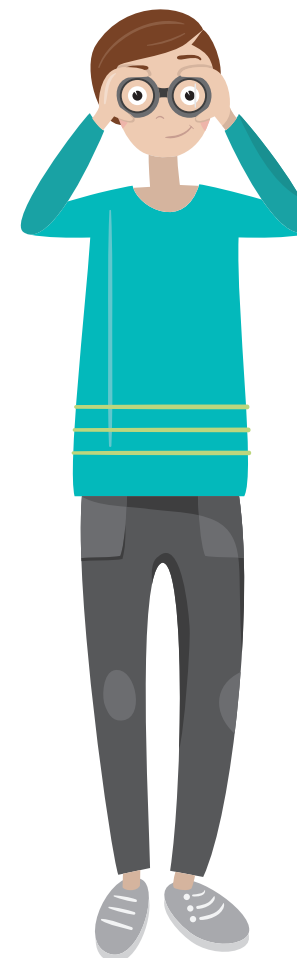


Colour

Introduction

About the textbook

This textbook has been intended for inquisitive primary school children who would like to learn how to observe and understand the built environment around us. The authors wished to familiarize the children with the notion of measure, especially of human as the measure for all things. The textbook uses spaces which are well known to children (neighbourhood and home) which are then further used to explain the topics of exterior and interior. After they have observed the familiar, children are provided with simple explanations of additional options for viewing the space. Thus, children are encouraged to creatively use the familiar and the recently acquired knowledge and to design exteriors and interiors by themselves.



Human is the measure for the built environment

MEASURE YOUR PALM!

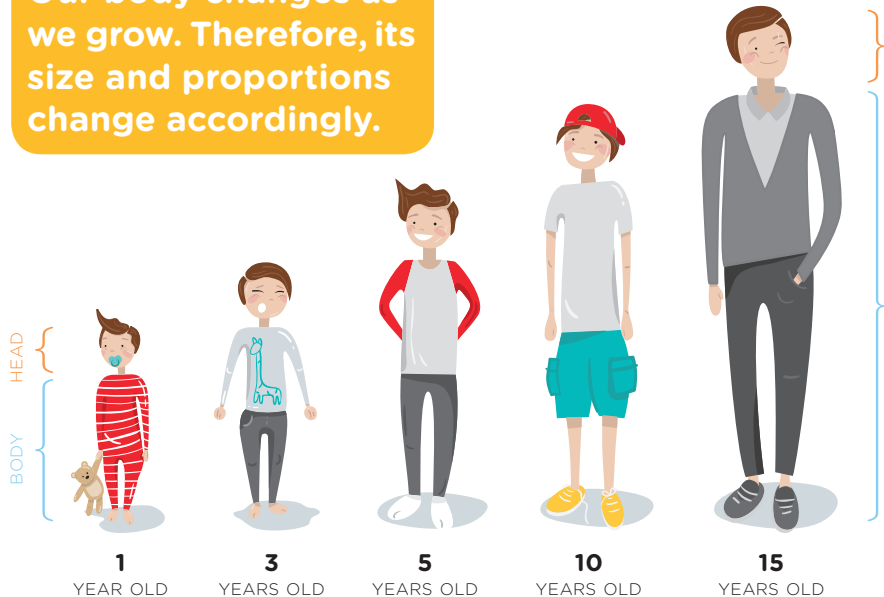
Put your palm on the paper, draw the outlines, then measure the length and width and write the numbers on the lines!



The space that surrounds us – our home, street, our neighbourhood and neighbouring streets and squares are part of a unit called the built environment - the human-made space intended for human’s needs.

Dimensions of the built environment around us result from human measurements. In order to understand where the dimensions of the space we live in stem from, let’s think about our own body and its dimensions.

Our body changes as we grow. Therefore, its size and proportions change accordingly.



LET’S CHECK THESE PROPORTIONS! WHAT IS CORRECT (C), AND WHAT INCORRECT (I)?

	YOU	ADULTS
Your spread out arms are of the same length as your height.	<input checked="" type="radio"/> <input type="radio"/>	<input checked="" type="radio"/> <input type="radio"/>
The length of your foot is the same as four widths of your palm.	<input checked="" type="radio"/> <input type="radio"/>	<input checked="" type="radio"/> <input type="radio"/>
The height of your head fits into your body six times.	<input checked="" type="radio"/> <input type="radio"/>	<input checked="" type="radio"/> <input type="radio"/>
Put your palm on your face. Are they of the same size?	<input checked="" type="radio"/> <input type="radio"/>	<input checked="" type="radio"/> <input type="radio"/>
If you put your foot on your arm will the length be the same as the length from the elbow to the fist?	<input checked="" type="radio"/> <input type="radio"/>	<input checked="" type="radio"/> <input type="radio"/>

Check if all of the above applies to your parents or some other adult.



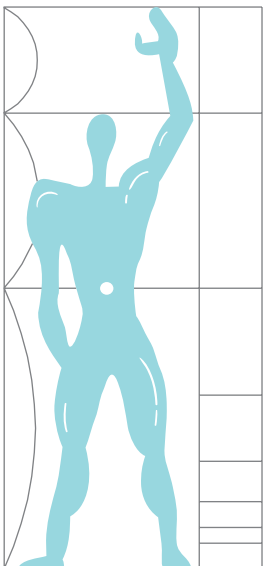
Measuring units for space also derive from human body.

Throughout history people have been using two systems of measurements: at first, the units derived from the human body (**1 thumb, 1 span, 1 foot, 1 elbow, 1 fathom...**). Later on, the metric system has been established by consent (**1 metre, 1 centimetre, 1 millimetre...**).

One of the examples of how people measured things in the past was **Orlando's Column** – a sculpture in the city of Dubrovnik, which represents a knight called Orlando. His forearm used to serve as a measurement called *Dubrovnik elbow*, and it measured 51,2 cm. This was a usual measure used by the people of Dubrovnik.



ORLANDO'S COLUMN



— 2,26 m

— 1,83 m

— 1,13 m

— 0,69 m

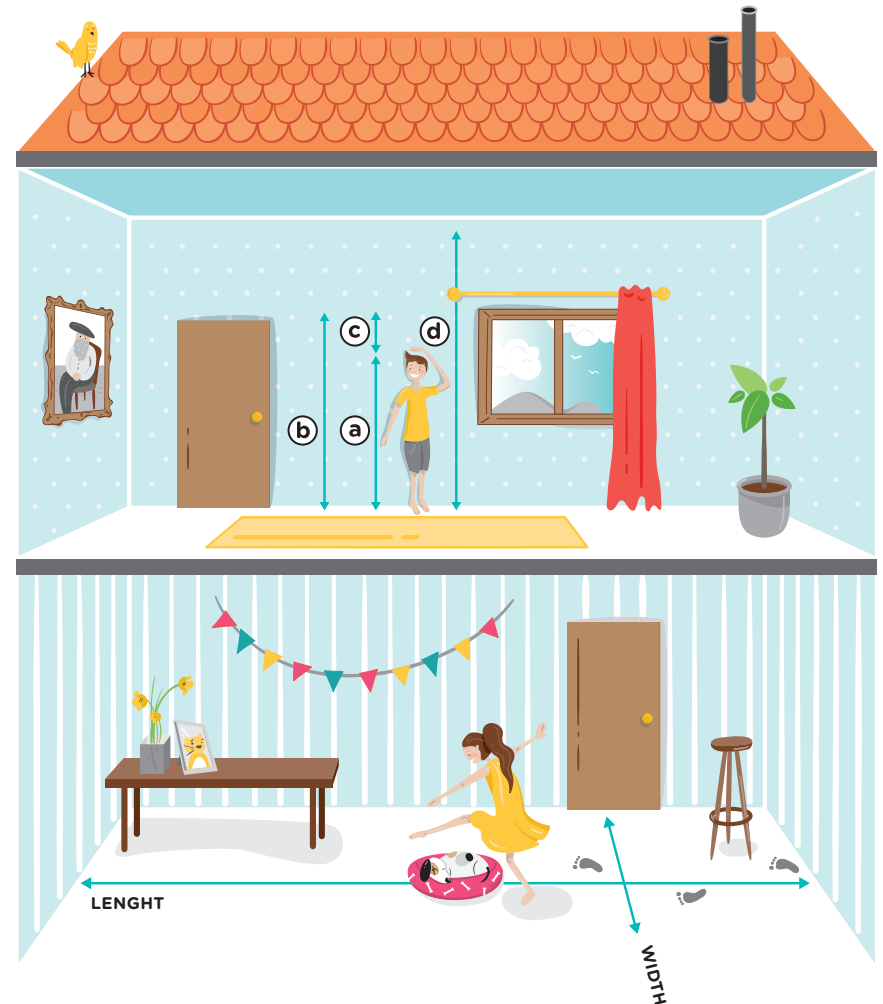
— 0,43 m

MODULOR

Having in mind that we're all different, **it was necessary to introduce standard measurements of an average human so that everyone could use the space around us.**

In the middle of the 20 century **Le Corbusier**, a famous architect, created the character called **Modulor**. That was a name given to a system of sizes and proportions based on mathematics, geometry and human body. Modulor united the metric system (m, cm, mm...) with the human one (foot, thumb, elbow...). Modulor has made it possible for the objects and spaces worldwide to be modelled on the same standard, i.e. the same size of the average man.

LET'S EXAMINE THE INTERIOR OF OUR ROOM.



How are you related to the measurements for space?

Measure the width and length of your room in steps (feet): the width of my room is feet, and the length of my room is feet.

Check the measurements of your room in relation to your height.

Measure and fill in **a)** my height
b) the height of the door
c) I am lower then the door by
d) the height of the room

Let's explore standard dimensions of furniture



The space around us has been created and built in accordance with the measures of an average adult human. This is also true for furniture used in that space. However, not everyone using the space is of average dimensions, and furniture is sometimes custom made. Therefore, for example, a tall basketball player orders a bed that is longer than the usual 200 cm so that he could stretch out on it. Even though we are adults

for the most part of our lives, we spend a significant part of it as children, and we grow into the dimensions of adults. Therefore, when we are children the common furniture in our house isn't suitable for us, so, for example, our legs don't reach the floor while we are sitting at the family table having lunch. On the other hand, the dimensions of the furniture that we use in nursery or in school (desk, chair and sink) are adjusted for children's age.



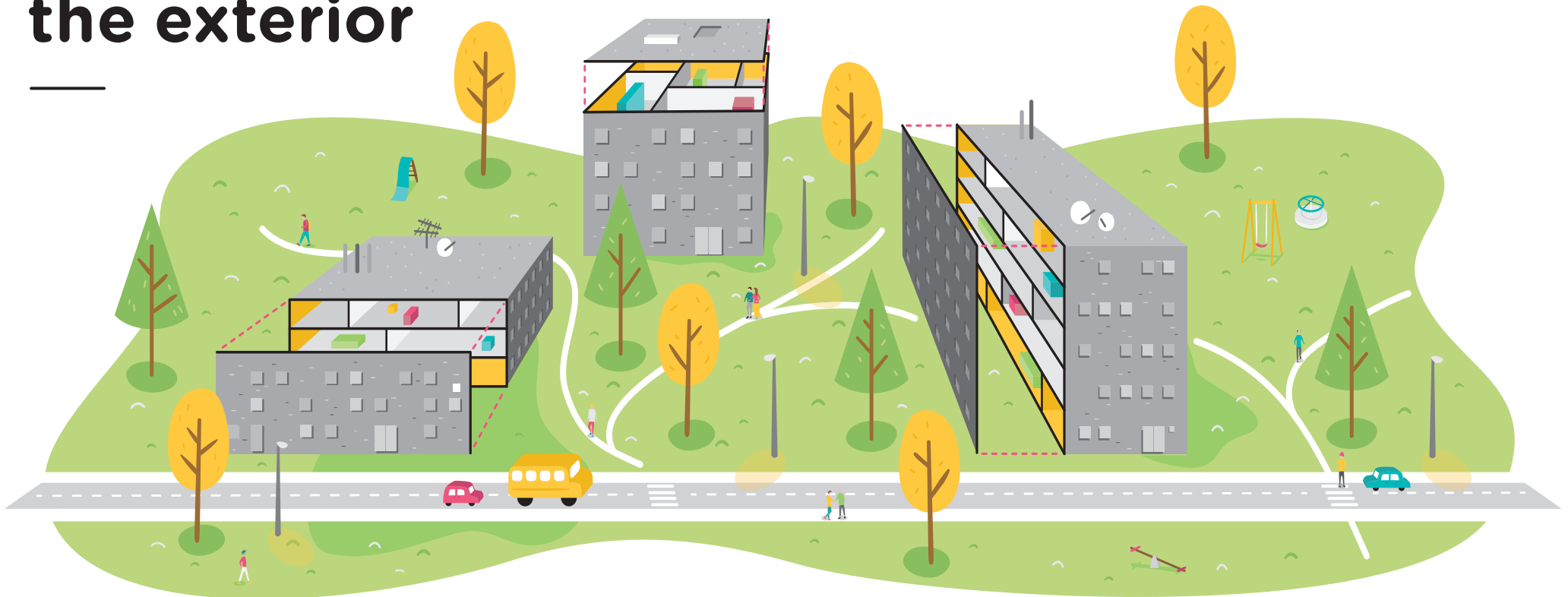
CHECK WHAT ARE THE STANDARD MEASURES AND ARE YOU COMFORTABLE USING THEM.

MEASURE THE HEIGHT:	GOOD MEASURE	TOO HIGH	TOO LOW
a) chair	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b) table	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c) kitchen cabinet	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d) counter	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e) highest shelf	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Getting to know the interior and the exterior



THINK ABOUT THE INTERIORS AND EXTERIORS YOU OFTEN USE. Try to define their character, are they cheerful, serious or simple?



Built environment around us can be divided into **exterior and interior**. Exterior or the outside area is everything that we see when we are outside of a building, and the interior is what we see when we enter a building.

Interiors that we spend time in are determined by horizontal planes (floors and ceilings) and vertical

planes (walls) and they have width, length and height. Interior is defined by the dimensions of the internal spaces of buildings. Each interior has width, length and height. Therefore, the interior is completely defined by built environment. Design of space is a result of activities taking place within it, and its users also contribute to its furnishing.

The shell around the building which divides internal from external space is called **façade**. It protects internal spaces, and it also forms the exterior. For example, façades of the buildings around a square create the boundaries of that square.

The exterior is determined by the layout of surrounding buildings, but it also stretches

upwards, beyond their edges. Exterior areas can be made of natural (grass, stone, water) or artificial (asphalt, concrete, rubber) materials. The exterior generally has neutral design and it can be used in different ways. Its character results from the elements we see, but also from sound, smell, touch, and sometimes even taste.

The interior around me

THINK ABOUT THE INTERIOR OF YOUR HOME

The house/building where I live has floors,
and the apartment I live in is on the floor.

On my floor/in my house there are apartments,
and in the whole building/house there are a total of
 apartments.

My home has rooms, and these are:

The biggest room in my home is , and the
smallest one is . The brightest room in my
home is , and the darkest one is .

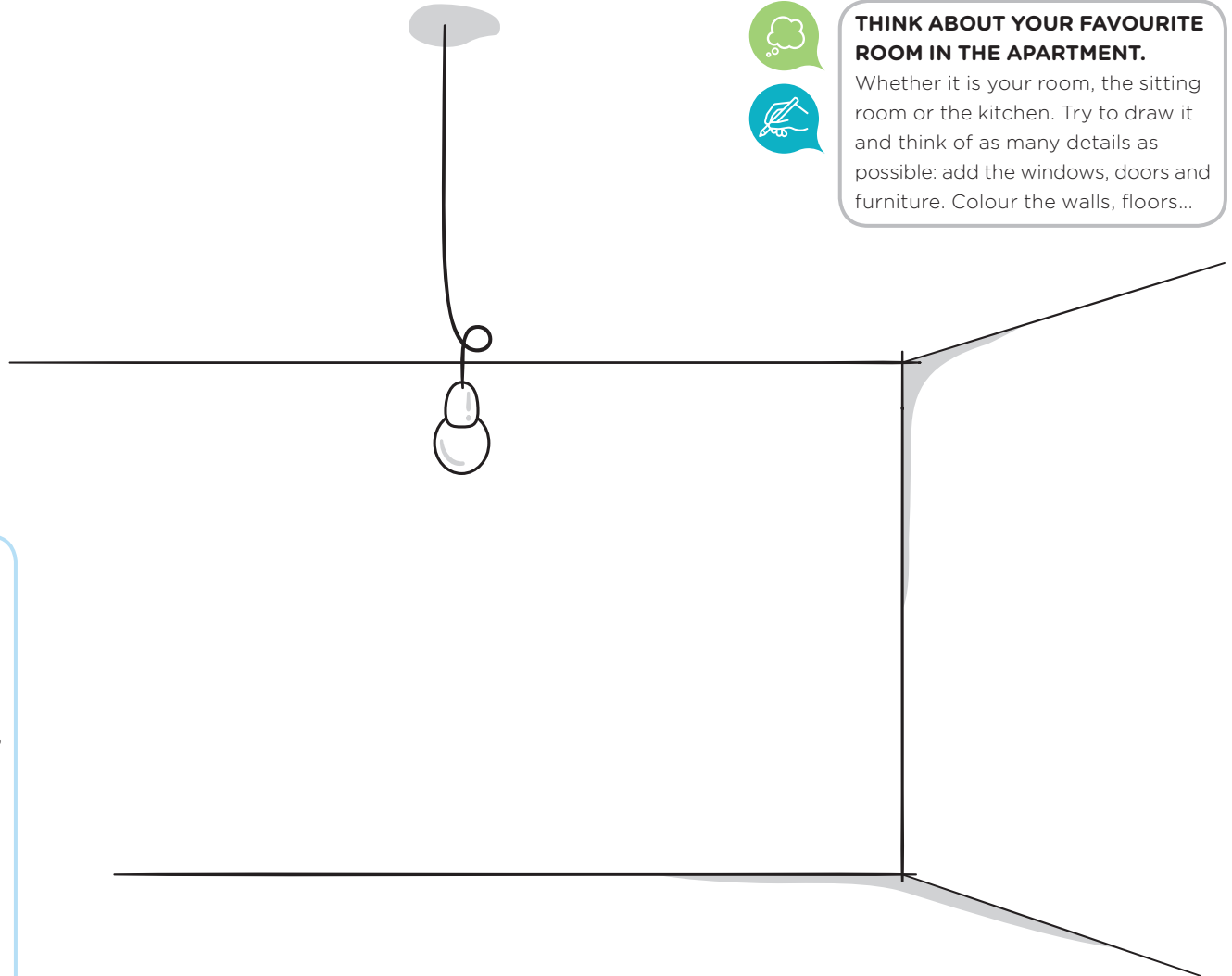
My favourite room is , and it is close
to .

Through the window, I can see:



THINK ABOUT YOUR FAVOURITE ROOM IN THE APARTMENT.

Whether it is your room, the sitting room or the kitchen. Try to draw it and think of as many details as possible: add the windows, doors and furniture. Colour the walls, floors...



Look at the interior



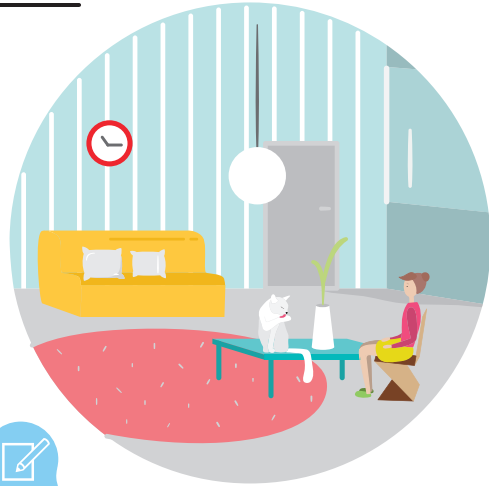
FIND THE DIFFERENCES AND FILL IN THE NUMBER:

home ☐ classroom ☐ gym ☐ library ☐



Every day, we spend time in different interiors, depending on our daily activities. Some of the basic internal spaces in which we spend our time are: our home, apartment or house, classroom, gym... **Think:** do you think the spaces you spend time in have different characteristics? We will help you understand them better.

Think about the interior



1 HOME (our apartment or house) is where we are with our families. Each member of the household has his or her place there.



3 LIBRARY is a public, closed space in which we read or borrow books.



4 CLASSROOM is the place where we study in a group of peers.



2 SCHOOL GYM is a place where we do sports, watch competitions, shows...



Which of these spaces has the least furniture, and why?

Which of these spaces is simultaneously used by the largest, and which one by the smallest number of people?

Do you know the other users of these spaces and who are they:

home
classroom
school gym
library

Which of these is your favourite and what do you like about it?

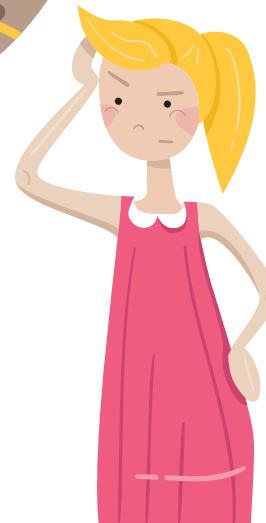
Think about your home, classroom, gym and library and fill in the blanks.

Which one has the greatest width and depth, and which the smallest, and why?

Which one is the highest, and which one is the lowest?

Why is it necessary for one space to be higher than the other?

Which one of these spaces has the most windows, and which one the least and why?



Observe in the interior



Pick one room in your apartment. Look around to see what is in there, what creates the atmosphere.

The room that I picked is . It is used by me and by:
In this room, I most often (sleep, play...)



How many doors does it have?
Do any of them lead to a balcony?

How many windows does it have?
Is there enough light?

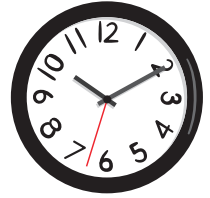
Which pieces of furniture are there?

Sketch the pieces of furniture you like the most.



What objects can be found on the walls? Tick them:

- | | |
|--|--|
| <input type="checkbox"/> clock | <input type="checkbox"/> poster |
| <input type="checkbox"/> decorative object | <input type="checkbox"/> family photo |
| <input type="checkbox"/> schedule | <input type="checkbox"/> painting / poster |



Which materials do you see in the room and what was made of them?

glass

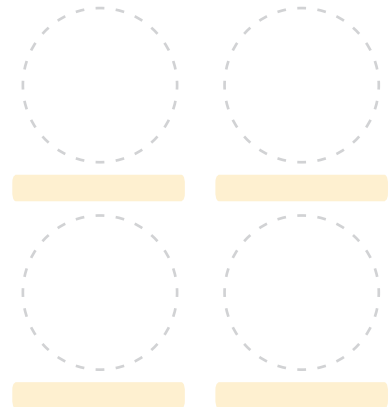
wood

metal

fabric

Is there anything hanging from the ceiling? Sketch the objects on the walls and those hanging from the ceiling.

Create the palette of colours used in your room and list the objects in those colours.

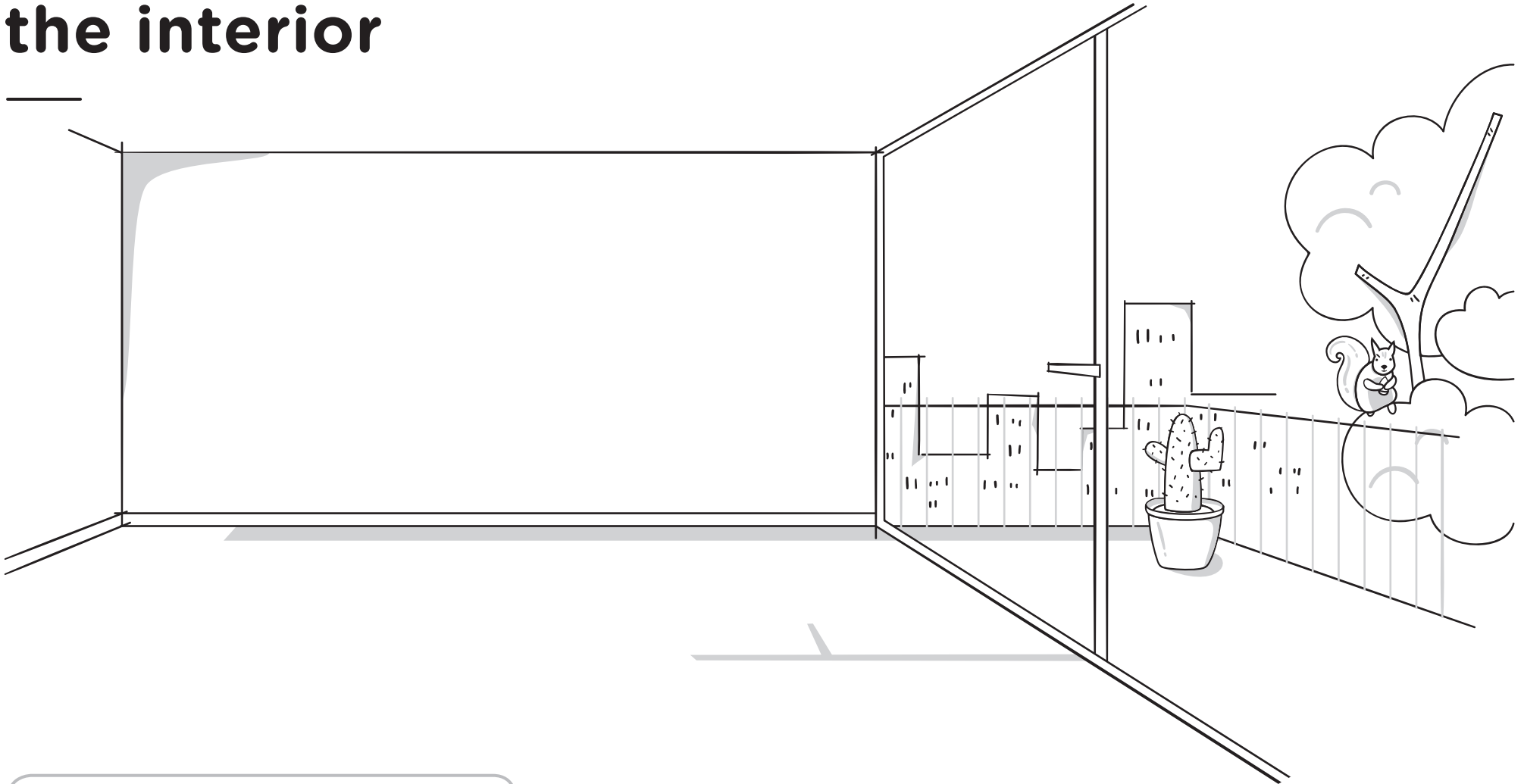


What do you think about the room you have just described? How do you feel in it? Do you think there may be something missing?

Design the furnishing of the interior



Advice of an architect: think about how could this room be used in different ways, with company or on your own, and how could the other members of your household (parents or siblings) use it.



Here is a scene from the interior of an apartment. Think about which room is it, which activities could take place there, how to furnish it? What is on the balcony?



I designed the furnishing of:

The exterior around me

THINK ABOUT THE EXTERIOR OR THE EXTERNAL SPACE WHICH SURROUNDS YOU

The street (or square) that I live in is called:
 and my apartment building/house is on number .

Next to my building/house there are: (garden, yard...)
.

In my street, there are: pavement, bike, path, lawn, bushes, trees, park, road, .

My street is a part of a neighbourhood called
u gradu .

There are the following interesting buildings close to my home:
.

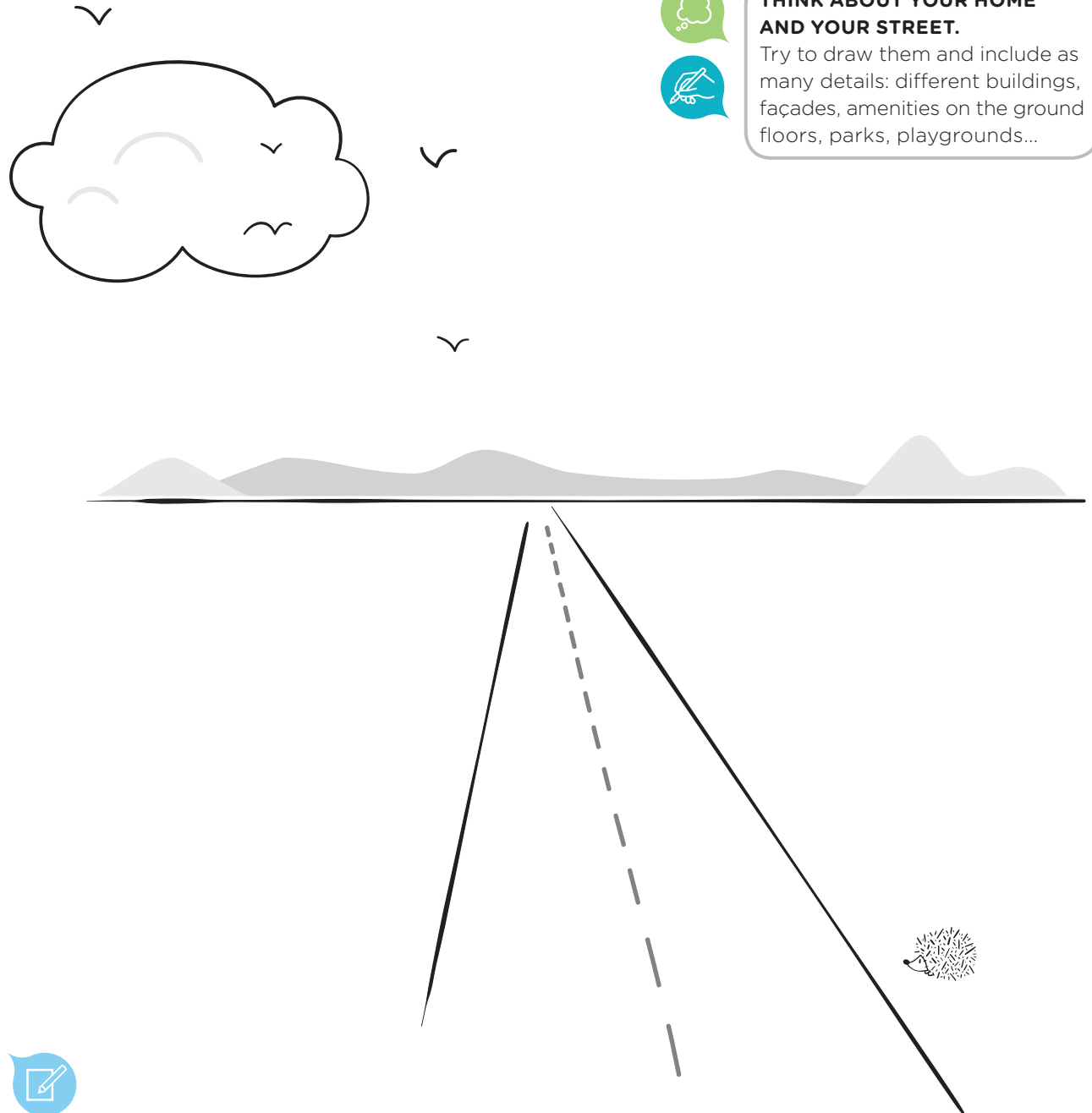
I visit every day, and I also like going to . I meet my friends at , and my parents like going to .

I wish there was also a
 close-by.



THINK ABOUT YOUR HOME AND YOUR STREET.

Try to draw them and include as many details: different buildings, façades, amenities on the ground floors, parks, playgrounds...



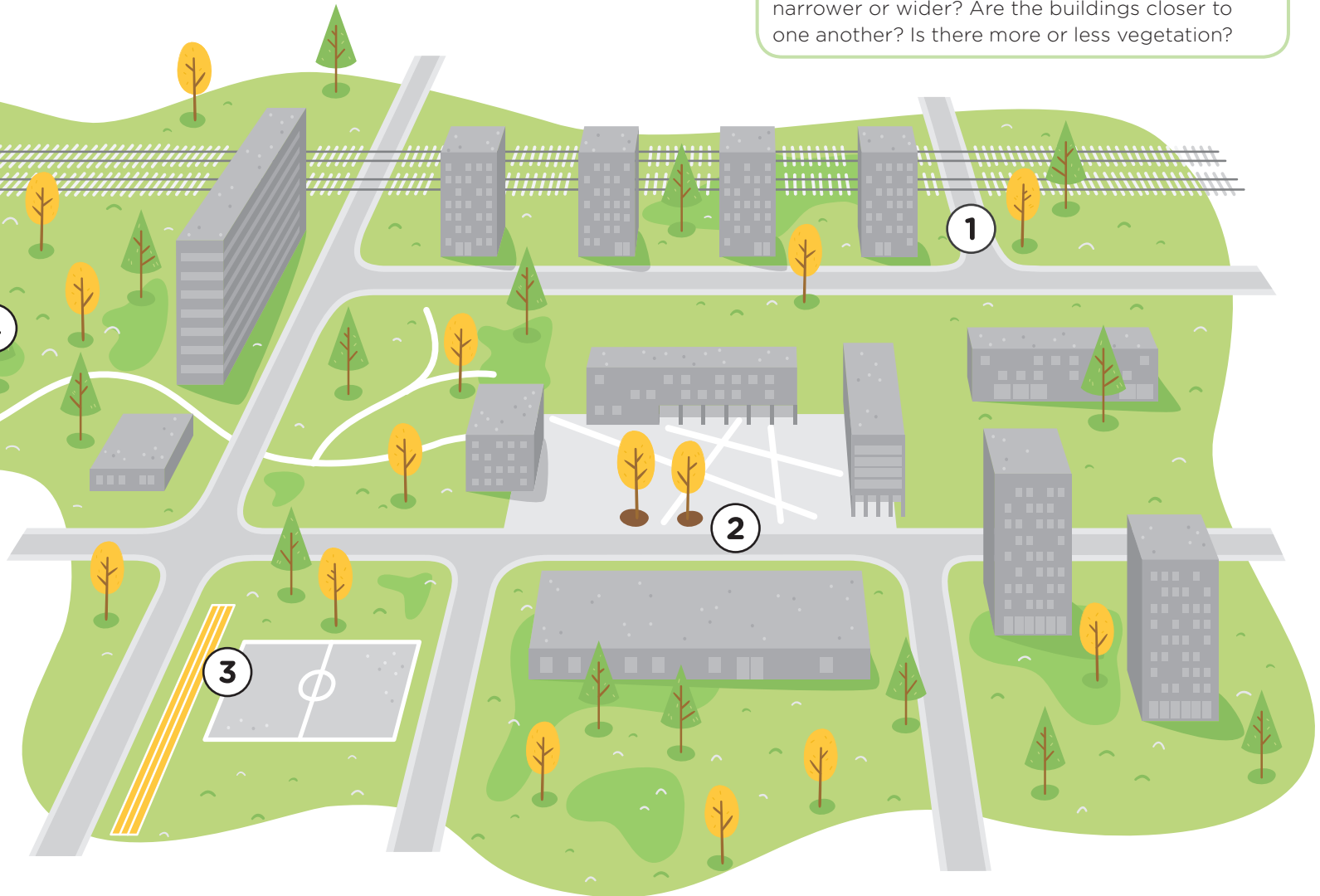
Look at the exterior



Think about your part of the city, and how does it differ from the one in the picture? Are the streets narrower or wider? Are the buildings closer to one another? Is there more or less vegetation?

The outside space that surrounds us, i.e. the exterior, is an organized unit. The buildings accommodate different functions (living, museums, schools, factories), and the open spaces between them make up pavements, streets, squares and parks. The exterior is designed and organized to fulfil the needs of large number of people, i.e. it can be used in different ways.

External spaces of a city can be different, but if they can be used freely it gives them added value. They can be large and receive a significant number of people (the main square of a city) or they can be smaller and more intimate (children's playground in the neighbourhood).



The picture shows one part of a city, an organized unit, which contains different buildings and external spaces.



FIND THE FOLLOWING IN THE PICTURE:

square ● street ● park ● playground ●

Think about the exterior



1 **PARK** is a part of the city or a settlement containing groomed vegetation, and it is used for relaxation, walking and recreation.



3 **STREET** is a public surface meant for pedestrians, bicycles, automobiles and trams.



4 **PLAYGROUND** is a public space used for recreation, play or competitions.



2 **SQUARE** is a public, open and organized space, intended for gathering and socializing. A square and the buildings that surround it host a number of public activities.

Think about your street, nearby square, favourite park and playground and fill in the blanks.

Which of these spaces is the biggest, and which one the smallest?

How do you spend time in these spaces?

street

square

playground

park

Which of those are only pass-through spaces, and where do people stay and spend some time?

Which of these spaces has the most, and which has the least equipment and what is the equipment for?

Which of these spaces are simultaneously used by the largest number of people and which by the lowest?

How are these spaces used, and are they used differently during the day and during the night, or during summer and during winter? Try to describe some situations: In summer, when it is hot, it is pleasant to be in

Used both in summer and in winter

When it rains

At night

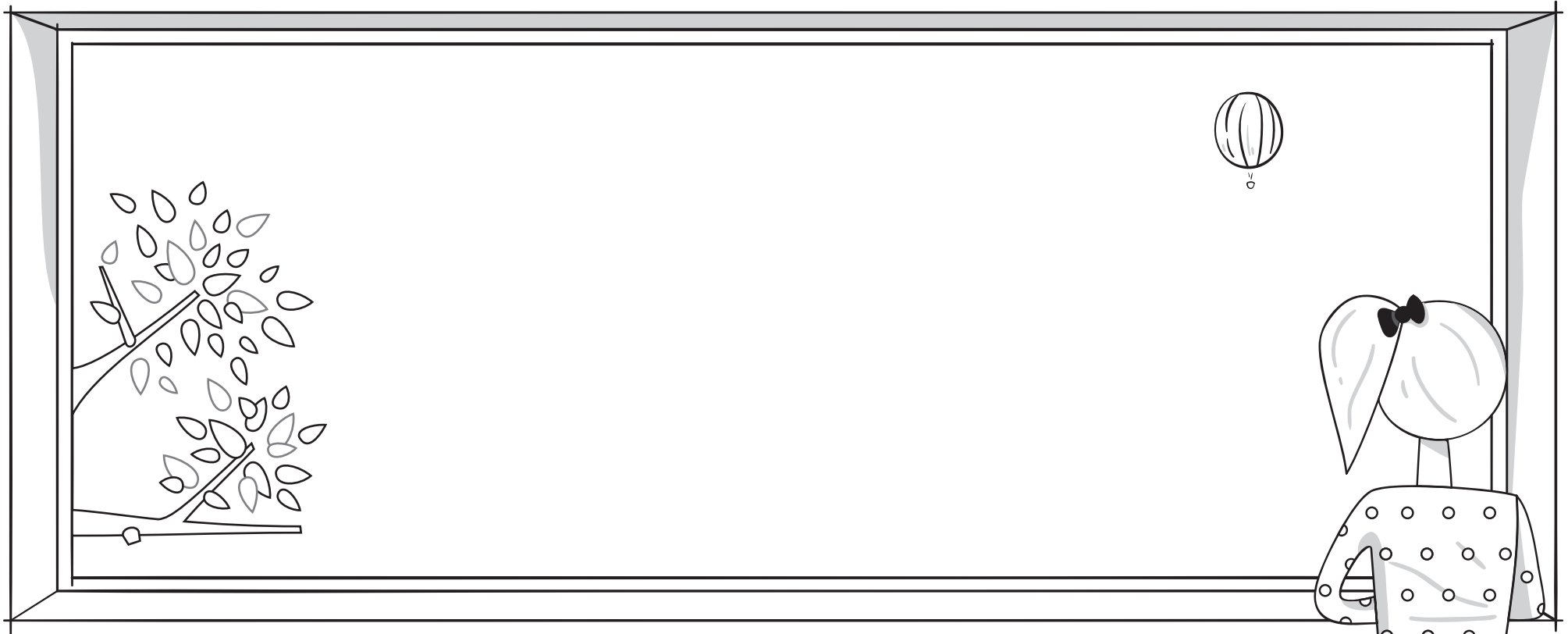
Which of these do you like the most and what is it that you like about it?

Observe in the exterior



What I like the best in my neighbourhood is

My neighbourhood lacks



Sit in front of a window and look at your neighbourhood: how are some buildings positioned in relation to one another, what kind of pedestrian and motor traffic is there between them, where are the green areas?



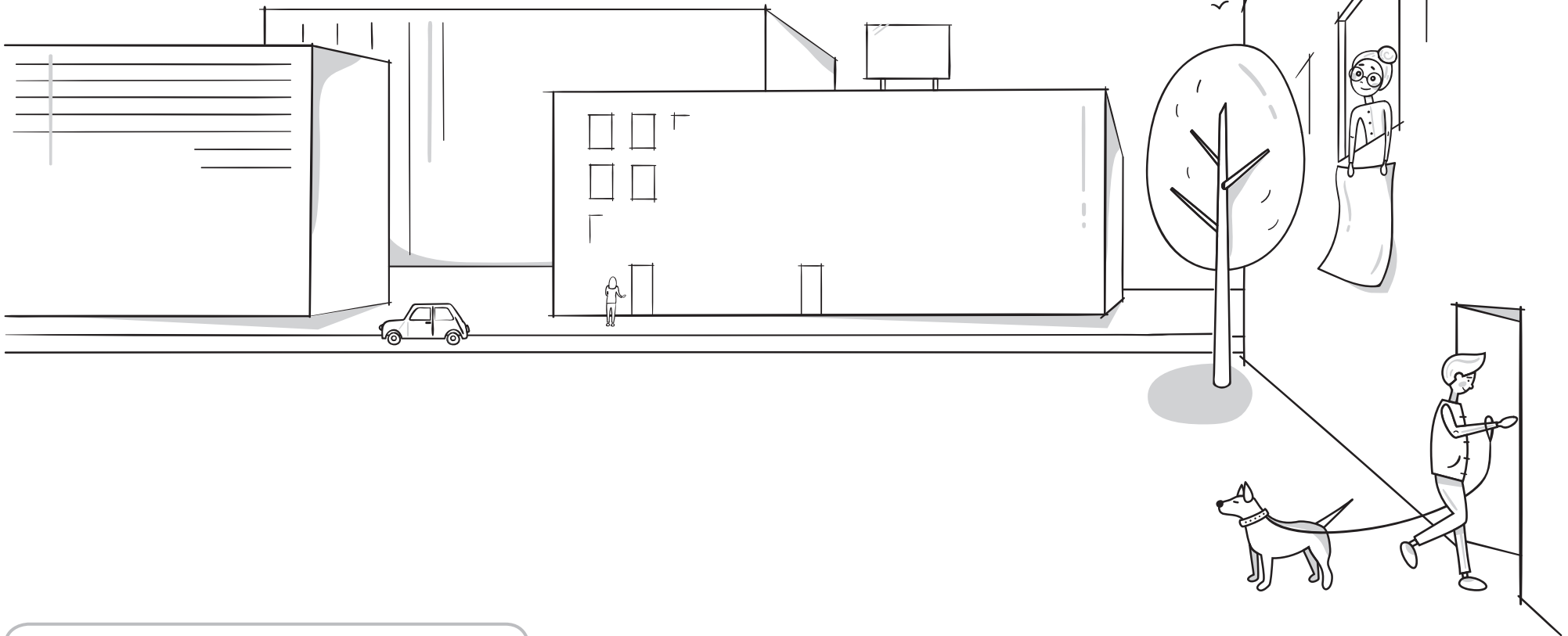
Draw what you see: vegetation, buildings, streets. Pay attention to the size of buildings and their relation to one another, and to the position of the streets, squares and vegetation in relation to these buildings.



Design the furnishing of the exterior



Advice of an architect: think who will use your space and to organize this space in different ways. Make sure that each of its parts is accessible to everyone.



There is a picture of an exterior in front of you. Think what could it be (a square, a park...) and use the blank surface within the picture to design and sketch its contents: vegetation, equipment... Find a name for your park, square or playground.



I have designed the furnishing of

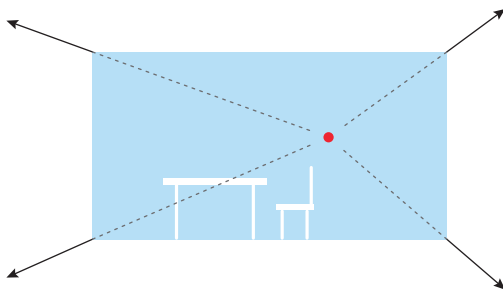
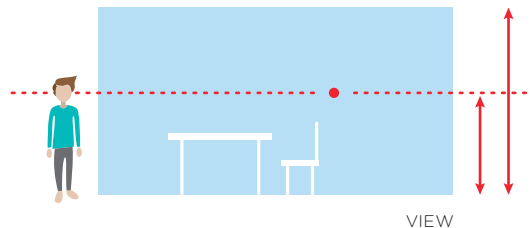
And finally...



Try to draw a wardrobe and a bed in a room as it was shown in the *picture*.

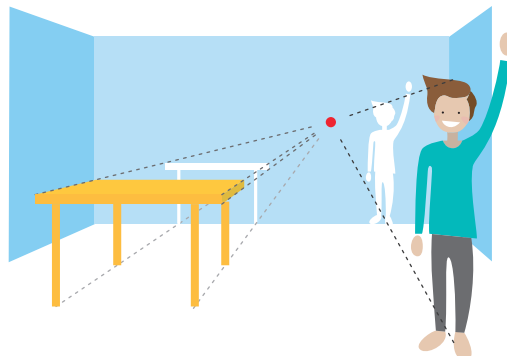
Learn how to represent space – it could be done by using a perspective with a single point of view. In this kind of representation the objects become smaller as the distance increases. Thus, vertical lines remain vertical, horizontal lines remain horizontal, and side lines meet in one point – point of view.

1 First determine the point of view on the level of your eyes (make sure you determine it correctly in relation to the height of the room).



2 Then draw the lines from it into all corners of the rectangle to mark the sides.

3 Draw furniture (you can determine yourself how far are the desk and the chair from the plane with the point of view). Use the same method to draw the people, windows and the door or other parts of the room...



The space around you belongs to all of its users, so it belongs to you too. Therefore, think for a minute about the spaces that you often use:

Your home – Do you take care of your space and its tidiness? Could you make some parts of your home more comfortable and more beautiful? Maybe by making a painting for a wall?

Park and playground – Are there enough external spaces for play and socializing close-by? Do they contain enough vegetation? Are they accessible to people with movement disorders? Could you make some of the external play areas more comfortable and beautiful? Maybe if you and your friends drew a large picture in coloured chalk?

Impressum

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Society of Architects' (DAZ) Young
Architects Department, and has
been a result the work of a group of
architects and space enthusiasts:
Tatjana Liktar Elez, Ivana Lukenda,
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and Maja Dražina, who aimed at
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Before the textbook was published,
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all participants of the workshops.

*Dedicated to Marta, Bartol, Lola,
Saša, to other inquisitive kids
and the ones who will follow!*

Af



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University of Zagreb
Faculty of Architecture



Croatian Society
of Architects

Croatian Chamber
of Architects