Measuring Using Scale 测量模型比例

English Name 英文名字: _____ Grade and Class 年级班级:____-___

Being able to measure the size of a scale diagram is a very important skill for Engineers, Designers and Construction workers. Architectural Drawings are printed at scale. Using a ruler you can make a measurement on the diagram, and using the provided scale calculate the actual size in real life.

对工程师、设计家和建筑工人来说，掌握测量模型图大小是一项极其重要的技能。 建筑绘图是按照比例打印出来的，先用直尺测量图中各项长度，再运用比例公式计算出实际大小。

There are many common scale ratios for Architecture and Engineering. These common ratios have specialized rulers. You might have seen a specialized ruler for measuring scale before. These rulers are triangular and have 6 different commonly used scale measurements on the ruler.

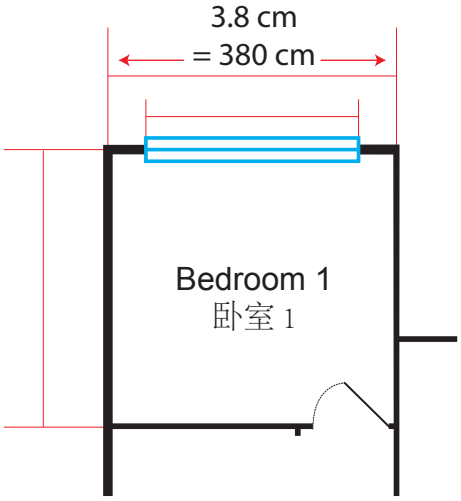
在建筑和工程学中有许多常见的比例，这些比例需要特殊的尺来测量。你可能曾经见过一类尺是测量比例的，这类尺是三角形状且上面标注有六种不同的常见比例。

For class we will use very basic scales that can be measured and calculated using a common ruler with centimetres.

在我们课上，我们将学习最基本的比例，可以用普通的直尺测量并计算出来的。

Important measurements are indicated by two red lines extending up away from a wall or window. A third line which is perpendicular connects the other two lines. Look at the example below. Bedroom 1 has had one measurement completed. The distance between the two measurement lines is 3.8 cm, which is equivalent to 380 cm at scale..

下图中重要的测量已由两条红色的线段表示出来，第三条垂直的线将这两条线连接起来。如图中卧室1的其中一边测量数据是3.8厘米，在实际生活中相当于380厘米。



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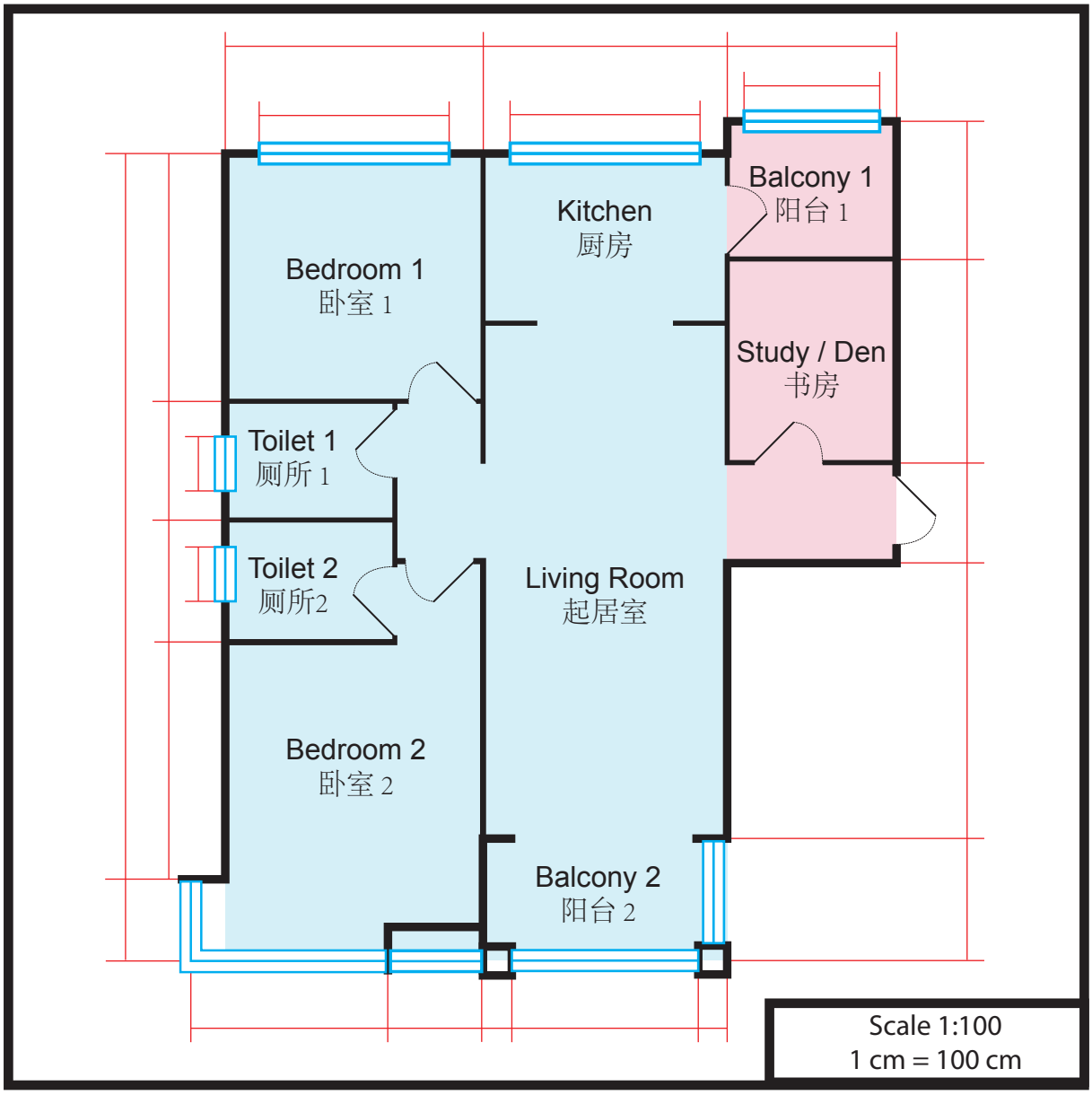
The following Architectural Diagram is at a scale of 1:100. Therefore, 1cm on the diagram is equivalent to 100 cm in real life.

下面的建筑绘图的比例是 1:100，即图中1厘米相等于现实中的100厘米。

Determine the the dimensions of all the indicated measurements.

测量图中所有标注出来的红色线段长度。



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Complete the chart below based on your measurements. Length is considered to be the longer of the two dimensions of a room. Width is considered to be the shorter dimension of the room. Once you have completed the columns for Length and Width calculate the area of each room.

根据你所测量的数据结果完成下表。其中长度指一个房间比较长的那一边而宽度是比较短的那一边。当长度和宽度完成之后计算出每一个房间的面积大小。

	Length 长度	**Width 宽度**	**Area 面积**
Balcony 1 阳台1			Area = Length x Width
Balcony 2 阳台2			
Bedroom 1 卧室1			
Bedroom 2 卧室2			
Kitchen 厨房			
Living Room 起居室			
Toilet 1 厕所1			
Toilet 2 厕所2			

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Estimations | 估算

The ability to quickly estimate the area of a space is an important skill for engineers and construction workers. Estimations are used to quickly calculate the approximate amount of supplies that will be needed when completing construction.

对工程师和建筑工人来说快速估算空间面积大小是一个非常重要的技能。想要完成一项工程常常要进行估算以便了解到底需要多少材料。

Measuring each room and calculating the area of each room individually is too time consuming. Estimates are done quickly by dividing the space into simpler shapes. Look at the example. The apartment is divided into two easy to calculate sections. One section is indicated in red and the other in blue.

测量每一个房间的长宽度和计算面积是很耗时的，所有常把整个空间划分为几个小的部分再进行估算。如例，这个公寓就被划分为两个容易计算的部分，一个部分用红色表示，另一部分用蓝色表示。

Calculate the area of the two main sections of the apartment and add the two areas together. Your formula will look like this example:

分别计算两部分的面积，最后再把两个结果加在一起就是这个公寓的面积了。公式如下：

Estimated Area = (Length 1 X Width 1) + (Length 2 X Width 2)
估算面积 = （长度1 X 宽度1）+（长度2 X 宽度2）