Can you map?

We have seen many maps in our textbooks. Maps of the state, country & world. We can also make maps on a smaller scale, as you have learned in Geography (Class 6, Chapter 4). Many mobile phones have an application called "Google Maps" in them. This app shows map of locality, when you zoom in and can show map of the whole world when you zoom out.

Have you drawn your own maps anytime?

Are you familiar with these ideas?
- Ratio and proportions
- Cartesian coordinate system

Materials Required
Graph paper, plain paper, rulers of different size, measuring tape used for running races, mobile phone (optional)

Task 1
Joseph wanted to invite his friends to his home for a birthday party. He gave following instructions to his friends:

Our school gate faces East. As you come out of the gate on the Gandhi road, turn left. At second road crossing, there is a grocery shop on the left. Turn right there on Ambedkar road. You will see Ganesh temple on your right after about 5 minutes of walking. At the temple, turn towards south on Kalam road. Turn left on Vivekananda lane, after crossing the bridge on the river. My house is on the right just after a playground.

1. Can you draw map as per these instructions? Assume all roads to be straight.

2. Make a group of 4-5 of your friends. Compare the maps you have drawn. Discuss with each other and draw a common map on which everyone agrees.

3. Which of the following statements are true?
   a) The school and grocery shop are on same side of Ambedkar road.
                                                    True / False / Can't be said

   b) The school and grocery shop are on same side of Gandhi road.
                                                    True / False / Can't be said

   c) The school and temple are on same side of Gandhi road.   True / False / Can't be said

   d) The temple and grocery shop are on same side of Ambedkar road.
                                                    True / False / Can't be said

   e) The school and Joseph's home are on same side of the river.
                                                    True / False / Can't be said

   f) The temple is to the west of the grocery store.   True / False / Can't be said

   g) Ground is to the west of Joseph's home.   True / False / Can't be said

Task 2
Now we will use our map drawing skills to draw a map of school premises. In the first task, we did not use any measurements of lengths. In this task, we will draw a 'scaled map' of the school boundary. That means each length in your map should be in same proportion as the actual distances.

Let us do this step by step.

1. What should be our ratio of actual measurement versus length on the map?

_____

2. Based on the scaling ratio you have chosen, complete following table:

Actual length	Length on the graph paper
1 meter	
7 meter	
65 meter	
	1 millimeter

3. What is the length of the biggest ruler in your school? _____

4. What is the length of the measuring tape which your sports teacher has? _____

5. Use these measuring devices to measure length and breadth of your classroom.

6. What will be size of your classroom on the graph paper? _____

7. Can you use same devices to measure the distance from your classroom door to the school gate? Is it easy or tedious? _____

8. People have been measuring lengths using many types of units. Some of the units are accepted in formal documents. They denote exact measurement. Then there are some units which were considered formal in old times, but are used less frequently these days. Lastly, there are units which people use to approximately denote length. These are not meant to be exact, but give some idea about length / distance. List different length units you know under these three categories.

Current Formal Units	Old Formal Units	Informal Units

Let us use an informal unit to make our task easy. We will approximate the distance between any two points as number of steps needed by one of you to go from one point to another.

10. Take the measuring tape from your sports teacher and lay it on ground / in a corridor. Walk normally from one end of the tape to another. Count how many steps you need to cover the distance. Ask few of your friends to repeat the experiment.

Length of the measuring tape = _____

Repetition No.	Number of steps	Repetition No.	Number of steps
1		4	
2		5	
3		6	

If there is a wide variation, let students find out 4-5 participants who take roughly similar number of steps.

Average length of each step =_____

Task 3

Now we use this approximate unit and graph paper to make an actual map. You have found 5 of your friends who roughly cover same length in each step. Start measuring different lengths within school premises and plot them on the graph paper. You can divide work among yourselves with different people measuring different distances. Following questions will give you some ideas about what all lengths you have to measure. The list is not complete. Think along these lines and draw a scaled map of the school premises.

How many steps you have to walk
a) from one corner of the compound to the school gate?

b) from school gate to the school building?

c) to cover the length of the school building?

d) to cover the breadth of school building?

e) from one end of school building to your classroom?

f) from school building to the playground?

Lastly, if you have already completed learning unit on shadows, you already know cardinal directions (East, South, West, North). Mark them on your map.

Task 4

Let us play a game of seeking hidden treasure. Hide an object somewhere in the school premises and mark its position on the map you have drawn. Now give this map to your friend who doesn't know location of the hidden object and ask him/her to find the object using the map.

Reference and Further Readings

1. Here you will find detailed information about measuring horizontal distances
http://www.fao.org/fishery/static/FAO_Training/FAO_Training/General/x6707e/x6707e02.htm
2. Pacing used by hikers to measure distances.
https://sectionhiker.com/pacing-and-estimating-distance-by-blake-miller/