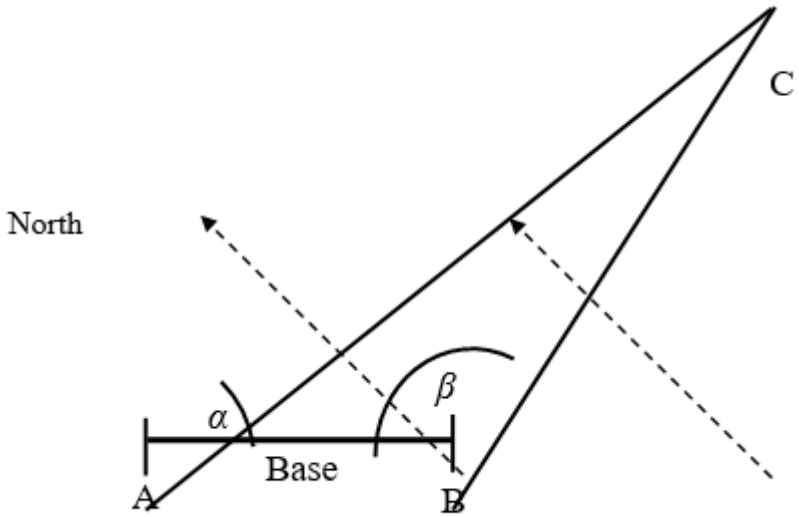
Activity name	Expected duration	Difficulty of the activity	Age of children for which the activity is suitable	Tools and material used	Objective of the activity
Practical Exercise 1:	1 lesson	medium	14 – 15 years	wooden metre, table or laboratory stand, tape measure	Introduction to the term parallax
Practical Exercise 2:	2 lessons	higher	12 – 14 years	tape measure, compass, drawing supplies, calculator	Introduction to methods of measuring distance in space
Practical Exercise 3:	1 lesson	medium	12 – 14 years	–	Introduction to scales for distances in the Solar System
Practical Exercise 4:	1 lesson	medium	12 – 14 years	–	Introduction to scales of planets in the Solar System

Practical Exercise 2: MEASUREMENT OF DISTANCE

In this exercise you will try to measure the distance of an object similar to how distances are measured in astronomy. Choose a clearly visible object, such as a town hall tower, a tall chimney, etc. You will need a tape measure and a compass for measuring (in the worst case, a compass in a mobile phone will be sufficient).

1. Define the measurement base (points A and B in Figure 3). It should not be too small - if you estimate that the object is in the order of kilometres, the base should be in hundreds of meters. The smaller the base, the worse the measurement accuracy. It is good to choose e.g. a turn or a crossing of streets as one of the points, so that the measurement can be verified by means of a satellite map.

Note: The easiest way to define the base is by stepping: Use a tape measure to measure the length of ten steps. Calculate the length of one step in metres and you can use this conversion to determine the length of the base in metres.



2. Use the compass at point A to determine where the north is. Then measure at what angle α you can see the object whose distance you want to measure (see Fig. 3).

3. In the same way determine the north and the angle β at point B.

4. With the known base length |AB| and with the angles α and β according to the *asa* theorem, construct a triangle ABC, where the point C corresponds to the object whose distance you want to determine. The image should be drawn e.g. at a scale of 1:500 and the distance of the object can be measured in the ABC triangle.

5. Open a suitable online map (example is given in the Figure) and verify:

   a. the length of the base,

   b. the distance of the object.

Example of measurement of distance using an aeronautical chart: