

Designing a Basketball Court



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Task

For the new Multi-Sport Complex you will be required to design a basketball court for either a professional male or female basketball player. Your blueprints and corresponding model must be proportional to all standard measurements of court lines and equipment. It is suggested that your blueprints be completed on 8 1/2" by 11" graph paper and your model, based on these blueprints, be approximately double the size. To ensure that your project portfolio has all the necessary components proceed to follow the directions below.

Useful Materials

- graphing calculator
- computer and internet access
- measuring tapes
- compass and ruler
- graph paper
- household materials for making models

Part 1 - Data Collection

Using available resources (internet, library, gym, etc.) find all standard measurements of a basketball court for either a male or female, including boundary lines, court lines, and measurements of all necessary equipment attached to the court (poles, nets, etc). Once you have all of the necessary measurements construct a table either on your calculator or in a computer spreadsheet like Excel with the following information. Indicate in the title of the table whether the measurements are for a professional female or male basketball player. Remember to include units.

Useful Websites

Description	Information Source	Actual Measurement	Measurement in Metric Units	Measurement in Centimeters	Blueprint Scale Factor	Blueprint Measurement	Model Scale Factor	Model Measurement
Height of basketball net								

If your measurements need to be converted from the Imperial System to the Metric System you can refer to the following website for assistance:

<http://www.isa-alberta.org/convert/converta.htm>

Part 2 - Designing a Blueprint

Using the information from your table, draw two blueprints of your basketball court on graphing paper: a top view and a side view. Indicate the scale factor on your blueprints.

$$\text{Scale Factor} = \frac{\text{Drawing length}}{\text{Actual length}}$$

Actual = professional standard size

Part 3 – Designing a Miniature Model

Using felts and other materials from home construct a miniature model of your basketball court based on your blueprints. Note: your model should be a scaled 3D replication of your blueprints.

Part 4 – Some Questions to Consider

Aside from your table, blueprints, and model, your project portfolio should contain additional information which is directly related to the development of your basketball court. The following questions should be answered at some point in your portfolio.

- What is the total area of the **actual** basketball court?
- If an additional two meter distance is added to the court for people to walk around what would be the new area?
- What materials, including equipment, are needed to develop the **actual** basketball court?
- What is the cost per unit of each of these materials?
- What amount of each material is needed?
- What is the total cost of this project?
- What is the approximate time frame needed to complete construction?