

INTRODUCTION

This resource file is an attempt to promote the learning of geometry through the use of dynamic geometry computer software. Cabri II is used as a **tool** for students to construct their **own** mathematics. Through activities of geometrical construction and investigations, students are led to discover important geometric theorems and properties at their own paces. Students are initiated into a concept through guided geometrical constructions on the computer screen. Investigation and exploration begin via “drag-mode geometry” that is characteristic of dynamical geometry software. After some guided activities, students are ready to express their findings in their own words and formulate conjectures. They are asked to prove their discovered results when possible. This fosters the internalization of the mathematical knowledge gained. Further activities are given to apply what students have learned in a new (or modified) situation. Thus after students have gone through a sequence of worksheets, they complete a cycle of a learning process. In this way, mathematical knowledge is being discovered by students themselves rather than “transmitted” symbolically by the teacher. Students come away with a higher level of mathematical awareness and criticism. The teacher does not really teach in the traditional sense but acts as a guide or a facilitator. His/Her role is to maintain students’ interest in working out the tasks and provide technical assistance in using the software and hardware properly. Once a while, the teacher needs to summarize students’ findings and provide explanations or clarifications when necessary. Two to three students are assigned to a computer. They work as a group to establish a cooperative learning environment.

The resource file is divided into three units. Students are introduced to Cabri II prior to the use of the worksheets. They need not however be experienced users. Only rudimentary familiarity with commands to do basic constructions, to create macro, to trace out locus and to animate is enough to perform the tasks. Unit one is about standard plane Euclidean geometry. Unit two introduces the ellipse, and hence the other conic sections, as the locus of certain geometric construction. Unit three explores the properties of reflection as an example of geometric transformations.

During the second term of the 1997 – 98 school year, all the units were tried out with a form 4 science class. Evaluation of each unit is attached at the end of that unit. There is also a collection of students’ comment on using Cabri II as a tool for learning mathematics at the end of the file. These comments were made after students have gone through Unit 2.