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**Gerbrand Hagmolen of ten Have\*** (G.HagmolenOfTenHave@math.uu.nl), Gruttomeen 36,  
3844 ZD Harderwijk, the Netherlands. *Exploring the theory of the rainbow*. Preliminary report.

I will present two teaching aids, which can help students explore the mathematical theory of the rainbow. An interactive computer demo (in Cabri) enables the student to investigate the path of rays of light in a raindrop for different indices of refraction. Then the student can experiment with a spotlight, a cardboard screen and a spherical bottle filled with water as a three-dimensional model of the raindrop. This experiment is based on an idea of Marcel G. Minnaert (1893-1970) of Utrecht. From here it is a small step to the explanation of the rainbow. The teaching aids are part of my M.Sc. work in mathematics education, and they can be used at early undergraduate level and in the mathematics and physics curriculum of the final year of the Dutch highschools. (Received September 15, 2000)