

## Advanced Challenge Problems

Advanced challenge problems are more involved than regular challenge problems and are designed to be given as take home problems. They can also be given as group projects. One example is #55, The Polyhedron Challenge. I used this with all levels of students in a wide variety of math courses. It involves research, designing an 'educational poster', creating 3-dimensional models, and presenting work to the class. Students at all levels enjoyed the project. Another project is #32, The Binomial Divider. There are some real nice connections to higher level math hidden here, as you can probably guess from the name. Some require special devices. For example, #37 requires what I called 'constant velocity vehicles'. I just used some toy, battery operated cars. I used this for my general algebra 1 class to reinforce the concept of slope relative to linear functions. It worked very well. I believe that the 'challenge problem' experience is every bit as important as the traditional math curriculum. What I am sharing with you are problems that I developed/used over my 43 year career as a math teacher. Some of the ideas came as a result of something I experienced at a teacher conference (NCTM for example) I attended. Others, I created in order to reinforce a specific concept that I thought needed more attention. Some of the ideas came from students. These problems are suitable for students who are taking math courses up through algebra 2. There is a wide range of difficulty levels. Enjoy