

THE GIANT TRIANGLES

Giant triangles develop mathematical language and thinking



The giant triangles being used by prospective mathematics teachers studying at Goldsmiths College, London 2013

The giant triangles have an immediate visual appeal that draws people in. Students can go inside the geometric shapes they build. They naturally want to explore what they can make together. Carefully designed activities using guided discovery enable students to learn the mathematical properties of the shapes they are building. Careful questions and discussion can help develop the more abstract language and mathematical concepts that are embodied in the shapes. Size and colors aid this process by holding students' attention and

focusing discussion on specific features, such as faces or edges, that can be clearly indicated to the class by touching or pointing.

Group work

All activities with the triangles engage learners in co-operative problem solving as they are too big for one person to assemble alone. This helps students develop communication skills and an ability to organize themselves to work in groups. Four or five per group is recommended.

Which Students can benefit?

The kit can be used at any age and mathematical level from elementary up through pre-calculus. Once students can tie their shoe laces, they can use the giant triangles. Many activities can be extended to advanced topics and calculations including some proofs. The triangles, due to their practical nature, can also give students another, hands-on route to exploring mathematical patterns through shapes they build. This can help engage students who have yet to fully apply themselves in the mathematics classroom.

History

The giant triangles were first used in 1999 in a series of lessons covering the regular polyhedra, symmetry, stellation and duality, given in a Middle School, to both gifted and talented and regular students by Dr Eva Knoll, Dr Jacqueline Sack and Dr Simon Morgan. They have since been used in schools from Kindergarten



The giant triangles assembled into an endo-pentakis icosi-dodecahedron, Houston, Texas, 1999

to Grade 12 as well as in pre-service and in-service teacher education. There have been a number of publications on teaching with the triangles including in international conferences.

Practicalities

The giant triangles are custom made for each school or college. They are ready for students to use once they have been taken out of the box, and can be put away in minutes at the end of class. They can be used out of doors as well as indoors. Although we do not recommend their use on rough surfaces, they can be used on dry

grass. The triangles are made of sturdy and durable yet light-weight material. Simple rules for student behaviour will prevent damage or injury.

Activity notes for teachers

A range of activity descriptions from basic shapes to the torus and addressing topics such as symmetry, volume and number patterns can be found at triangles.teknollogy.com. Detailed descriptions and photographs show shapes built in the activities. The suggested way to teach with the triangles for each activity is widely illustrated in sample teacher-class dialogue. This includes instructions to students for guided discovery tasks, discussion questions and explanations of concepts and language. These descriptions are aimed to support the teaching of students of all levels. The website also lists publications reporting on research about the giant triangles.

*To discuss an order of triangles
or for further information please email:*

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