

# Bubblz the Math Clown From Caroline Ainslie, a.k.a. Bubblz of London, England



From *Bubblz*, the Math Clown:

At the age of 42, I was struck by lightning – metaphorical lightning that is – I found out the meaning of life, the universe and everything! I realized I was a clown!

In my previous life I was an electronic engineer. I have always loved math and finally I knew what I was born to do. I use my clown to ignite enthusiasm, inspire educators, learners and parents to experience the joy and the spine-tingling excitement that I feel when I solve a math problem, when I see a beautiful shape or marvel at the moment when a child understands a concept for the first time.

Over the last four years I have performed my math shows in schools and at conferences in the UK, Denmark and Poland.

My father is from South Africa and I still have relatives there, so I've always had a dream of going there. At a math conference in England, I met Toni Beardon. She said "A Math Clown! You've got to come to South Africa!" Toni is a mathematics education specialist from Cambridge University.

There is a huge problem with math and science for the under-privileged population in South Africa because during the Apartheid era, there was a law that said the "black" and "colored" people should not learn past a certain point. It was felt that they didn't need to know much more than to add and subtract to do the jobs they were doing. The law was reprieved after 1990, when Nelson Mandela was released from prison, so the problem now is that today's teachers don't have enough mathematical and science knowledge to teach the curriculum. [Editor's note: The terms black, white and

colored are still used in South Africa to describe their population.]

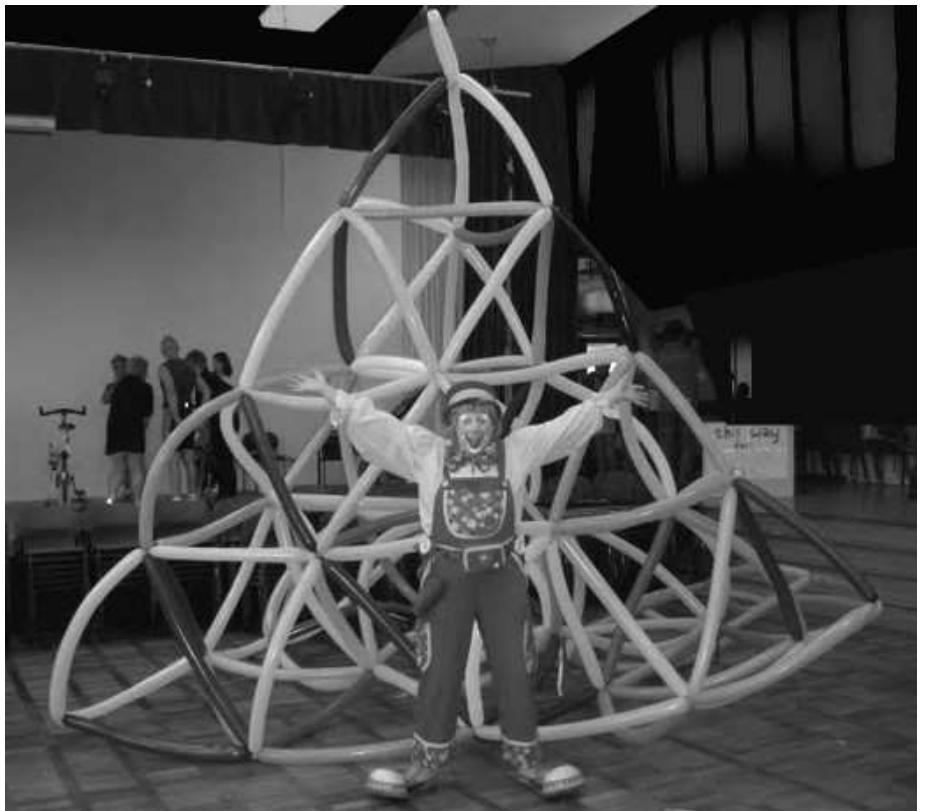
Toni's solution to this problem is to "train the trainers" by running a mathematics outreach programme for teachers based at The African Institute for Mathematical Sciences School Enrichment Centre (AIMSSEC) in Muizenberg near Cape Town. Math teachers trainers from Cambridge and other universities around the world volunteer their time at the Institute. AIMS is running a campaign for "The next Einstein might be African." They are reaching for the stars, and why not? These will be the future educators and decision makers in South Africa.

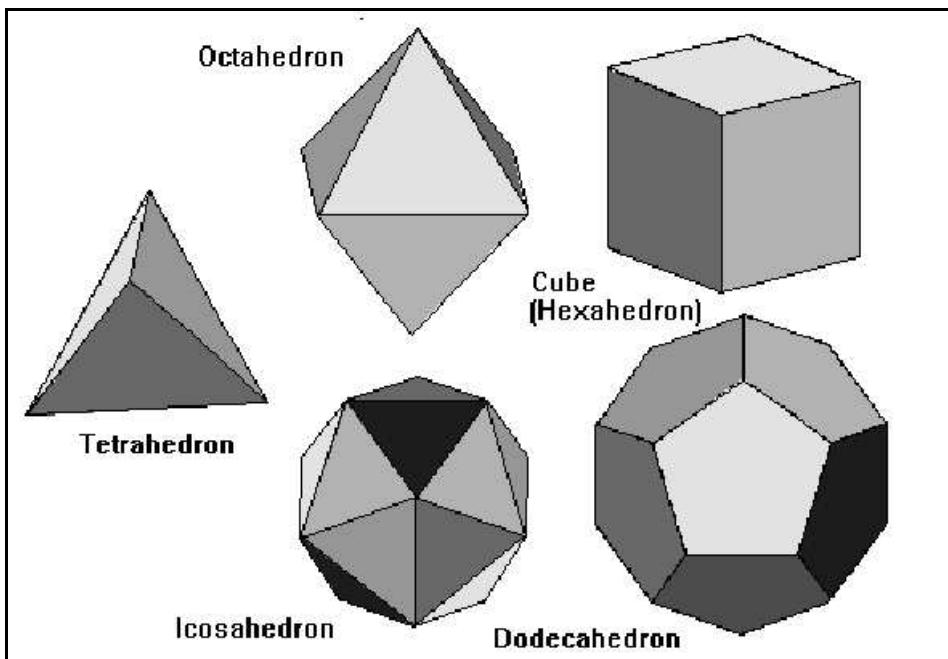
In September, I went to Johannesburg and Cape Town and visited townships, shelters, schools and hospital schools. I performed at the Science Centers in Cape Town and Johannesburg. They bussed in "learners" and "educators" which is what they actually call the students and teachers. I think it is brilliant to call the students "learners" as it's telling them "It's your job to be a learner." The township learners were mostly between the ages of 13 and 16. The kind of audience that would be really challenging in the UK, but in South Africa, they just loved it.

My math show uses some unexpected props: Soap bubbles and giant balloons. The young learners I perform for, can't help but gasp at the size of the bubbles and want to come up and climb inside the giant balloon shapes that they help build which are often bigger than they are. The nature of my props keeps audiences transfixed on the activities which are based around measurement and shape (geometry). It's called the Shape and Space Show.

Below we created is a giant tetrahedron, a Sierpinski tetrahedron. It's a fractal; take four tetrahedrons to make a larger one, four of those makes a even bigger one. You can get bigger to infinity and smaller to infinity. It's all about scale and the concept of infinity. In mathematics, you can express infinity and keep going forever, whereas in the "real" world you often can't. It's the concept of mathematics where there is no barrier, no end. Visualizing this is important - the mental agility to be able to visualize these concepts is something the South African children in particular, struggle with. It's metaphorical, but in a different way than what they are used to seeing and imagining in nature.

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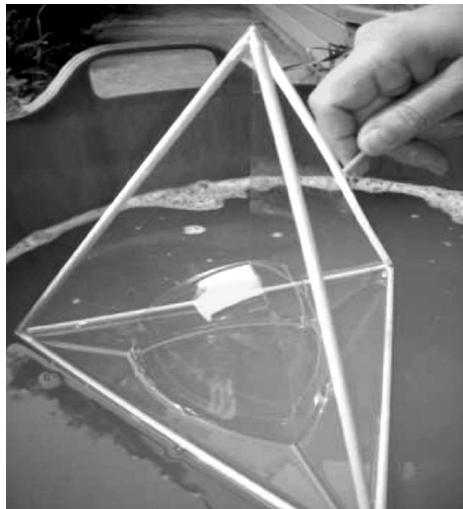




### **The Platonic Solids**

The sessions are intended to be a trigger for teachers to run with, using the “follow up packs,” in which we use cardboard boxes, string or anything they can get locally so they can go back to their local schools and reinforce what they learned in the show.

Bubbles are formed inside frameworks like the Platonic Solids above. The illustration below is made out of bendy straws and string together, to make a tetrahedron. It is then submerged into a bucket of soapy water. A description of a group activity is to the right.



**What shape is the freed bubble?**  
**Answer: A Sphere.**

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### **Group Activities**

[This is from the Post Workshop Book – a 65 page study outline ]

Provide groups with a bucket of soapy water and one shape.

Ask: What can you see?

How many edges does the soap film have?

How many faces does the soap film have?

What do you think will happen when you dip it again half way?

What shape is the bubble?

What are the differences between the bubble and the frame?

What are the similarities between the bubble and the frame?

Pass your shape to the next group and try a new shape. Ask the same questions.

What do you think will happen if you pop all the soap films so that the bubble inside is free to float away?

What shape is the freed bubble?

Do the cube last as it is the most spectacular.

#### **Bubble Formula ~ Ratio: 1:1:5**

1 part glycerine  
1 part dawn or Joy  
5 parts water for stage, 10 if using outside or smaller place.

Shobi has replace the bubble solution in her bubble bears with this formula and, can bounce a bubbles on her sleeve.

### **Boy in a Bubble**



Above Bubblz pulls a giant bubble over a child. In one shelter I did every child who wanted to be in a bubble.

From Shobi: I know we can't do this in a hospital, but haven't you always wanted to know how to do this? I have, so here it is. I tried it on my neighborhood kids first. It works.

Inflate two 260 balloons leaving 1½ inches un-inflated on the end. Double tie them together making one continuous circle.

So with the big circle you need a big bucket of bubble solution. Fold the balloons like a banana and slide it long ways through the bubble solution and gently open it out so you have a big loop of bubble film. Put it 6 inches over the child and at the last minute, lift it up 6 inches or so in the air, then gently whoosh it down so the air goes under the soap and forms a bubble that can go over the child carefully not touching the child or yourself, it will pop. See photo above.

### **AIMSSEC**

Teachers that train at AIMSSEC do not pay a penny towards transport, tuition or living expenses while on the 10 day residential course. Further training is carried out long distance, with the help of mentors.

AIMSSEC is always fund-raising to cover the cost of each bursary (less than \$650 per teacher). Google aimssec and select the GivenGain.com pages to make a donation if you are feeling called to help this truly worthy cause.