Slideshapes

by James Robinson

Some Notes

BIG NOTE!

On some computers this will run *slow* and in this case I recommend running the "no sound" version to improve speed.

Actually, the music I would have liked for the presentation is "Thank you for sending me an angel" by Talking Heads – Do try it! It fits quite nicely. Just play it with the CD player whilst the presentation runs.

If you have any ideas for new dissections please send them to me! This thing isn't finished yet! My email address is Mr_Jackdaw@lineone.net

Why did I write slideshapes? John Bradshaw, that well-known tutor at St. Martins showed us PGCE students an animation from the 50's called "Square Dance" (or something like that!) and it inspired me to have a go myself. Not owning any animation software I set to with PowerPoint.

A few rules I had in mind:

1. The shape CANNOT slide over itself. In this way, it's like the 2d world of flatland.
2. All dissection's used must be mathematically valid, even if they've been fudged a little for the computer. (Anybody got a computer that can accurately measure the square root of 2 to infinity?)
3. All of the constructions must include nothing more than a square root in their lengths.

It should be pointed out that these rules were informal & that I did this for *fun*!

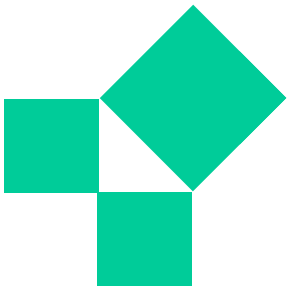
Below are a few notes on some of the episodes during the presentation. I call an episode from square to square.

Teaching notes

Obvious questions;

Names of the shapes?
Area of the whole shape? (Conservation of area)
Area of the parts?
Angles?
etc.

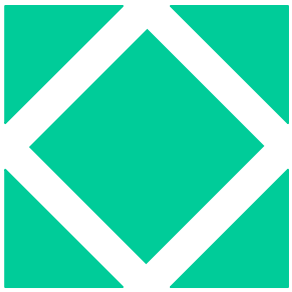
Some particular episodes beg further exploration;



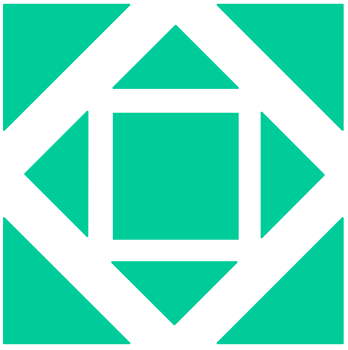
What rule is being represented here?
Is this a special case?
What are the areas of the squares?

A pre-pythagoras link?

This frame shows that pythagoras isn't only restricted to squares…



What is the total area of the triangles that have been split off the square?

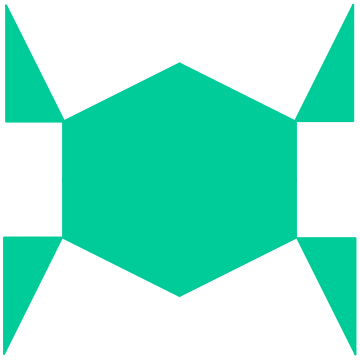


What about the total area of the next lot of triangles?

Continue this at each stage…

Any prediction of the next term?
The nth term?
What is the sum of this series?

Can you prove it using algebra?

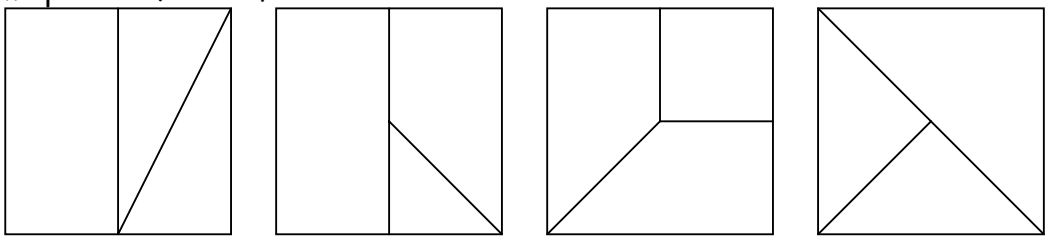


Prove that this isn't a hexagon.

What are the side lengths of this rhombus?

How is this Parallelogram constructed?

The next episode uses four tri-sections of a square based on the midpoints of a side;



These are then reformed into the full square using a different ordering of the bits. Dissection of squares can lead into the topics of area & fractions. It is quite a fun task to cut a square up and swop with a partner to see if they can rebuild it… maybe then entering the fractions?

Whatever you do I would love some feedback – I spent a lot of hours working on this and would like to know it was of some use!!! (Plus it'll give me ideas to use ☺)

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