Weekly News

Issue 24
1st December 2014

A Message From Our Principal

Dear families and friends of OBA,

With us being in the final week of November, the short Autumn days are well underway. It is therefore always comforting to know that our Academy continues to shine throughout the darker months.

As I mentioned in our last newsletter, we are preparing for our production of 'Oliver' which takes place on the 7th – 11th December. Tickets are now on sale for a the bargain price of £3 from our main reception. These Christmas shows are always incredible, so I urge you to join us for a real treat.

Congratulations go to Tom Crombleholme who achieved the prestigious gold level award in the Senior Maths Challenge for 16-19 year olds. This is a fantastic achievement and demonstrates Tom's real flair and passion for Maths.

Please look out for flyers and adverts for our Christmas Market that takes place on Wednesday, 16th December from 4 – 7.30pm at the front of our new building. This will feature stalls, refreshments, carol and music performances – all with a real festive Yuletide atmosphere.

Thank you and I wish you a peaceful December.

Best wishes

Mr. M Wyss - Academy Principal

Oliver Tickets: Now On Sale

Tickets for this year's OBA production of Oliver have now gone on sale and are selling fast!

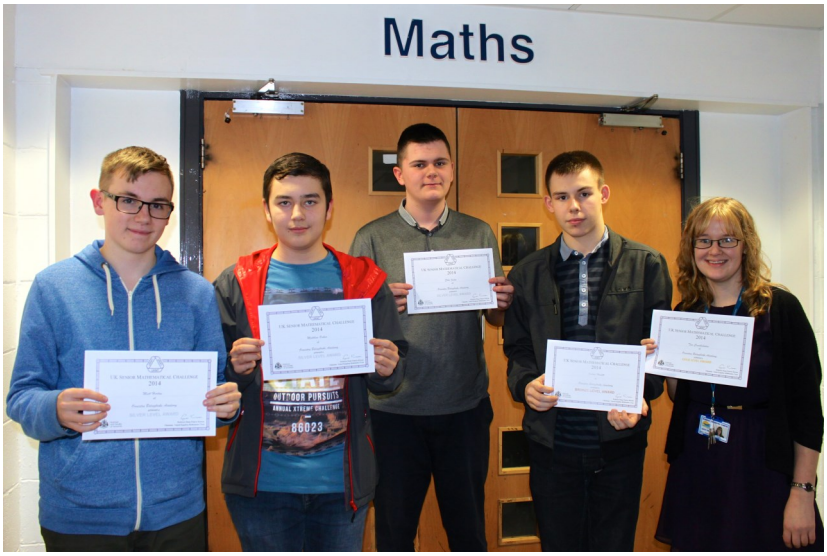
Staff and pupils have been working tirelessly in rehearsals to make sure that this year's show is the biggest and best ever!

It is an all singing, all dancing show which guarantees to entertain both young and old, so certainly it isn't to be missed. The show also provides a fantastic opportunity to come and have a look at the amazing work done by several of our faculties including; Performing Arts, Dance, Music, Art and Technology.

As usual our pupils will also be joined on stage each evening by some very special guests from our local primary schools, whose performances would even put a smile on the face of Joe Fagin himself.

Running from Monday 8th -Thursday 11th December tickets for the show can now be purchased from student reception and main reception at a cost of £3 per ticket.

VI Form Maths Pupils Excel In Maths Challenge



OBA's Sixth Form Maths pupils took part in the Senior Maths Challenge on 6th November set by the UK Mathematics Trust and after receiving their results last week discovered they had done a fantastic job on the tricky 90 minute multiple choice test, designed to really test pupils, with marks being taken away for wrong answers!

The test is taken by pupils aged 16-19 all over the country, with only the top performing students receiving awards. This year 5 OBA pupils were awarded for their outstanding efforts; Josh Hewitt received a Bronze Award, Ellis Judge, Matt Horton and Matty Oakes received Silver Awards and Tom Cromblehome received the top Gold Award. Tom will now go on to face the Senior Maths Kangaroo on 28th November. Congratulations to all pupils who took part and good luck to Tom as he progresses in the competition.

How Would You Do In The Maths Challenge?

Below are some of the questions from this year's senior maths challenge. Would you be able to get the correct answers? Remember, no calculators. Answers can be found at: http://www.ukmt.org.uk/individual-competitions/senior-challenge/

25. Figure 1 shows a tile in the form of a trapezium, where $\alpha = 83\frac{1}{3}°$. Several copies of the tile are placed together to form a symmetrical pattern, part of which is shown in Figure 2. The outer border of the complete pattern is a regular 'star polygon'. Figure 3 shows an example of a regular 'star polygon'.

Figure 1  Figure 2  Figure 3 

How many tiles are there in the complete pattern?

A 48 B 54 C 60 D 66 E 72

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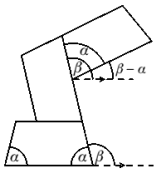
24. Which of the following is smallest?

A $10-3\sqrt{11}$ B $8-3\sqrt{7}$ C $5-2\sqrt{6}$ D $9-4\sqrt{5}$ E $7-4\sqrt{3}$

1494 ©UKMT

25. B Let the supplementary angle to α be β. Let tile 1 on the outside of the star polygon be horizontal. Counting anti-clockwise around the star polygon, tile 3 has an angle of elevation from the horizontal of $\beta - \alpha = 96\frac{2}{3}° - 83\frac{1}{3}° = 13\frac{1}{3}°$. As $360° \div 13\frac{1}{3}° = 27$, we need 27 pairs of tiles to complete one revolution. So there are 54 tiles in the complete pattern.



24. A Each of the five expressions can be written in the form $\sqrt{x} - \sqrt{x-1}$, where x is in turn 100, 64, 25, 81 and 49. As $(\sqrt{x} - \sqrt{x-1})(\sqrt{x} + \sqrt{x-1}) = x - (x-1) = 1$, we can write $\left(\sqrt{x} - \sqrt{x-1}\right) = \frac{1}{(\sqrt{x} + \sqrt{x-1})}$. Since $(\sqrt{x} + \sqrt{x-1})$ increases with x, then $(\sqrt{x} - \sqrt{x-1})$ must decrease with x. Therefore, of the given expressions, the one corresponding to the largest value of x is the smallest. This is $\sqrt{100} - \sqrt{99}$ which is $10 - 3\sqrt{11}$.