

Engineering



Non Sibi Sed Aliis
'Aiming at Excellence'

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TRANS- FORM

THE ENGINEERING NEWSLETTER FOR BALSHAW'S CHURCH OF ENGLAND HIGH SCHOOL

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Dear Reader,

Welcome to our latest edition of Transform, our newsletter that rounds up just some of the Science, Technology, Engineering and Maths activities and achievements of the school year so far. We are very proud of the successes of our students in these fields, especially at a time when technology and engineering subjects are being marginalised in the curriculum reforms that the government have overseen.

You can read about the success of our students from our STEM team, Team Aftershock, who entered the Jaguar Land-Rover 4x4 Schools Technology Challenge, winning Best Rookie Team, to our very own Masterchef Precious Hall's success in the Rotary Young Chef of the Year heats. Given the importance of catering within our service economy and the value placed upon car manufacturing plant production being secured within the UK, I am delighted that we maintain our focus upon these talents at Balshaw's.

So whether it is manufacturing poppies for the Farington War Memorial with Leyland Motors, or working with BAE Systems in the 'Make it Challenge', to the development of Computational Thinking, Balshaw's continues to nurture the skills and talent that our economy and industries need. I do hope you enjoy reading about our students' STEM achievements in the following pages and check out the news section of our website to find out more about our arts, drama and sports successes.

Mr Steve Haycocks, Head Teacher



ANOTHER FIRST PRIZE FOR PRECIOUS

■ YEAR 10 FOOD TECHNOLOGY STUDENT, PRECIOUS HALL RECENTLY TOOK PART IN THE DISTRICT FINAL OF THE ROTARY CHEF OF THE YEAR COMPETITION.

Precious had previously won the Regional final in November at Runshaw College. She travelled to Lancaster and Morecambe College to compete against six other schools, producing a two course healthy meal for two people and costing under £10 in total.

During the competition two professional head chefs carried out the judging and the competitors were judged on a selection of criteria. The competitors were assessed on the presentation of their table to serve the dishes; and appearance of their dishes; the taste, their skills and the 'healthiness' of what they produced.

Precious worked really hard for 90 minutes to prepare and cook her dishes in a professional kitchen. She produced a starter of marinated sweet chilli prawns on a bed of seasoned noodles, which received rave reviews from both judges. She followed with a dish called 'Courgetti Spaghetti'. This is a modern healthy take on the popular Spaghetti Bolognese, replacing the pasta with hand spiralled courgette.

Precious came first in the competition. This was a tribute to the hard work she had shown, not just on the day, but also leading up to it. She received a certificate and vouchers for the Lakeland store which specialises in catering equipment. Precious is now heading to the North West and North Wales final which is being held in Kendal in the spring.

Congratulations Precious, and best of luck for your next round and a possible future in catering.

Mrs Holden



ZOOLAB BRING THE RAINFOREST TO BALSHAW'S!

■ ZOOLAB MADE THEIR ANNUAL VISIT TO THE YEAR 8 GEOGRAPHERS ON DECEMBER 1ST TO GIVE THEM THE OPPORTUNITY TO SEE

first-hand how creatures have adapted to their environment in the world's tropical rainforests. Year 8 have been studying rainforests this term and adaptation is an important concept that they will also apply to desert environments later in the year.

James from ZooLab brought in a huge range of creatures all of which students could get up close to. These included a tree frog, Chilean rose tarantula and a scorpion! The braver students even had the opportunity to hold a Madagascan hissing cockroach, a giant African land snail, a stick insect and an albino corn snake! The snake was not a rainforest species thankfully, as they are all too poisonous to be safely brought into school.

Mrs Brierley



MANCHESTER – THE PLACE TO GO FOR EARTH SCIENCES!

■ ON NOVEMBER 10TH A GROUP OF 30 YEAR 9 GEOGRAPHY STUDENTS

visited the University of Manchester in order to experience the fascinating world of Palaeontology and Earth Sciences. In the morning they took part in the '99% Ape?' workshop at the Manchester Museum to investigate the science of human evolution. First, the students compared the features of skulls from different species (human, chimp, dog, snake and bird), enabling them to identify distinct differences and similarities. They then conducted their own research by measuring an ancient hominid skull to decide where on the

evolutionary date line it belonged.

In the afternoon the group visited the School of Earth, Atmospheric and Environmental Sciences for a lecture on earthquakes given by Professor Ernest Rutter, one of the country's leading academics in the field of Seismology and Structural Geology. Following this, two of the University's PhD students led the group through an investigation of plate tectonics concepts. It was a wonderful opportunity for our students to get a glimpse of life in a university and get hands on experience with museum specimens not accessible to members of the public.

Mrs Brierley





BALSHAW'S CHURCH OF ENGLAND HIGH SCHOOL TO GROW SEEDS FROM SPACE!

STUDENTS AT BALSHAW'S CHURCH OF ENGLAND HIGH SCHOOL ARE PREPARING TO BECOME SPACE BIOLOGISTS AND EMBARK ON

a voyage of discovery by growing seeds that have been into space.

In September, 2kg of rocket (a type of lettuce) seeds were flown to the International Space Station (ISS) on Soyuz 44S, where they will spend several months in microgravity before returning to Earth in March 2016. The seeds have been sent as part of Rocket Science, an educational project launched by the RHS Campaign for School Gardening and the UK Space Agency.

Balshaw's Church of England High School will be one of up to 10,000 schools to receive a packet of 100 seeds from space. These will be grown alongside seeds that haven't been to space and the differences measured over seven weeks. The students won't know which seed packet contains which seeds until all results have been collected by the RHS Campaign for School Gardening and analysed by professional biostatisticians.

The out-of-this-world nationwide science experiment will

enable the students to think more about how we could preserve human life on another planet in the future, what astronauts need to survive long-term missions in space and the difficulties surrounding growing fresh food in challenging climates.

Mr Simpson, Science Teacher at Balshaw's, says: "We are very excited to be taking part in Rocket Science. This experiment is a fantastic way of teaching our students to think more scientifically and share their findings with the whole school and local community."

Rocket Science is just one educational project from a programme developed by the UK Space Agency to celebrate British ESA astronaut Tim Peake's Principia mission to the ISS and inspire young people to look into careers in STEM (Science, Technology, Engineering and Maths) subjects, including horticulture.

 Follow the project on Twitter:
[@RHSSchools](https://twitter.com/RHSSchools) [#RocketScience](https://twitter.com/RocketScience)

Mr Simpson



YEAR 7 SCIENCE CLUB TRIP TO BLACKPOOL

■ IN OCTOBER OUR YEAR 7 SCIENCE CLUB TOOK A TRIP TO BLACKPOOL. THEY VISITED THE ZOO, THE TOWER, INCLUDING THE

fabulous Tower Ballroom as seen on Strictly Come Dancing, the Dungeons and even built a replica of the Tower in LEGO.

Ben Whittle, one of the students who went on the trip, has written the following report about his experience:

“ YEAR 7 BLACKPOOL TRIP

On the 2nd October 2015, a group of 35 Year 7 students went on a school trip to Blackpool.

Firstly we visited Blackpool Tower. When we arrived we went to a workshop, where we were given LEGO pieces and asked to build a Blackpool Tower. I enjoyed the LEGO building. The room we were in had parts of the metal structure from the Tower, which was interesting to see.

After the Lego we went to the Tower Ballroom, the one Strictly Come Dancing uses, and had our lunch and watched the old people dance to chosen music.

After lunch we went to the Blackpool Tower Dungeons. We got in the elevator and walked through lots of dark scary rooms and corridors. In the rooms were lots of scary weapons, people and objects.

We got back on the coach and headed to Blackpool Zoo. I think the zoo is the best place we visited because we were able to see endangered species and other animals you would not see every day. My favourite animals were the penguins because they made me laugh when they were flapping around in the water.

We got back on the coach and went to the local Pizza Hut where we got a pizza buffet. I didn't enjoy this because I only got two slices of pizza and had to eat salad!

We travelled back to the Tower and watched a 4D clip of the history of the tower and then we went up the tower. I felt like I was flying to the top of the tower because it was made of plastic glass. At the top we had an amazing view of Blackpool.”

By Ben Whittle

Thanks to Ben for his report.



FARINGTON WW1 MEMORIAL GARDEN

ON SEPTEMBER 27TH A MEMORIAL GARDEN WAS DEDICATED TO THE YOUNG MEN OF FARINGTON WHO GAVE THEIR LIVES IN THE defence of our country during the Great War.

The driving force behind the memorial was County Councillor Mike Otter, a Balshaw's governor, and without his hard work and tireless fund raising the memorial would not have happened. To help mark the dedication County Councillor Otter had the idea of planting an artificial poppy for every Farington soldier who died as a result of the war. He asked Balshaw's for help in making the poppies and we were happy to oblige.



Mr Melling worked with a group of Year 11 students, Henry Aspey, Emily Mayhew, Harvey Fisher and Alex Melling, to produce the 55 individually engraved poppies. Leyland Trucks helped out, in the form of apprentice Alex Hindle, who manufactured the stems for the poppies. During the dedication each poppy was planted in the memorial garden by one of the invited guests attending the event.

The memorial garden can be found in Farington Park. It serves as a fitting reminder of the young men who gave so much. The poppies will be used on special occasions such as Remembrance Day.

Mr Melling

FRIGHTENING FAIRTRADE FUN

■ THE ECO AND FAIRTRADE GROUP PULLED OUT ALL STOPS TO ADVERTISE THE 'SPOOKY' EVENT THAT WAS TO TAKE PLACE

on Thursday 22nd October 2015. The children dressed up in fancy dress Halloween costumes and made a spooky video to the song - Monster Mash. This was played on the display screens in school to advertise the event and caused a lot of interest from students. The event was promoted in assemblies by the group who also showed a video. The group were so dedicated that they stayed behind after school to design and make all the spooky goodies to sell at the event.

The Hall was decorated with spooky Halloween decorations and lights and spooky music was played throughout break. The event was very successful as we raised a wonderful £98.48 which was donated to Fairtrade. Thank you to everyone who helped and everyone who came along and contributed.

Miss Ridley



WINNERS OF CHRISTIAN SERVICE AWARD

■ WE WERE DELIGHTED TO HEAR THAT OUR NOMINEES FOR THE BLACKBURN

Diocese Christian Service Award, Lydia Thomson and Nathan McGaughey, were both chosen to receive the award which was presented to them at Blackburn Cathedral on Sunday 24th January. Lydia and Nathan were presented with the award by the Archdeacon of Lancaster, the Venerable Michael Everitt.

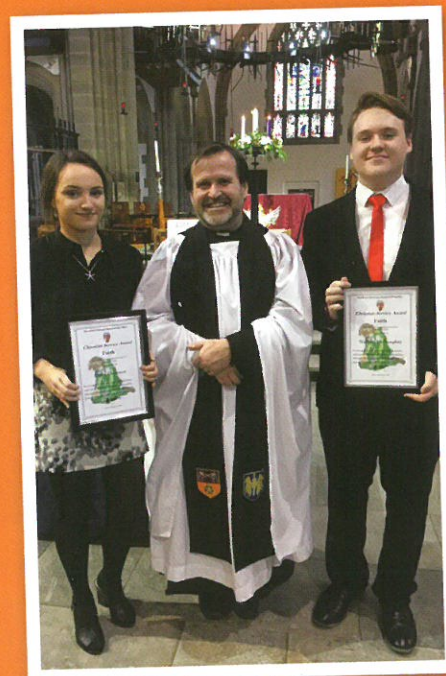
The purpose of the Christian Service Award is to recognise those young people who, through their actions towards others, the community, the Church or their School have demonstrated themselves to be of outstanding character. They act as role models, trying to reflect the way of Christ in their own lives.

The award highlights the importance of

the teaching of Christ as a fundamental aspect to leading a good life. In the 21st century multimedia society young people are pulled in all directions. The core values of the Christian community are often sullied. Our young people can be easily influenced towards the secular through the media, as they experience emotional changes and the responsibility of becoming adults. This award gives an opportunity to reward those young people who, through their conduct and commitment, act as a beacon and witness to their School, Church, Organisation or Community.

Congratulations to Lydia and Nathan on living the Christian values that are at the core of education at Balshaw's Church of England High School.

Mr Melling





BLETCHLEY PARK EDUCATIONAL VISIT

■ DURING THE SUMMER OF 2015, MR MORT, MISS LOCKHART, MISS CHISHOLM AND MRS ELLIOTT TOOK A GROUP OF

students from Year 9 and Year 10 on an educational visit to Bletchley Park, near Milton Keynes in Buckinghamshire. Bletchley Park was a top-secret HQ used by Codebreakers during World War 2 and it is said that the war ended 2 years early due to the work done by the Codebreakers.

During WW2 around 9,000 people worked in round-the-clock shifts at Bletchley Park and all of them, mainly women, had to sign the Official Secrets Act. The existence of the park only came to light in the 1970s and it is often referred to as 'Britain's Best Kept Secret'.

On arriving at the Park, the group embarked on a tour of the grounds and were informed of interesting facts about how Bletchley Park was used during WW2 to intercept and break coded messages from the Nazi Regime. They also learned about how the Enigma machine was used to do this.

Following the guided tour half the students then went on a tour of the exhibits, including the Codebreaking Huts and Blocks, whilst the other half of the group went to an interactive workshop on 'Codes and Ciphers'. In the workshop, students learned how the Enigma machine decoded messages which could be one of 159 quintillion (that's 158,962,555,217,826,360,000) possible outcomes! After lunch, the groups swapped over and toured the exhibits whilst the others took part in the workshop.



At the end of the afternoon, students had some time to visit the shop to buy souvenirs. Both students and teachers had a fantastic day and wished they could have stayed there longer to find out more about the Park!

Mr Mort



TEAM AFTERSHOCK TRIUMPH

■ CONGRATULATIONS TO OUR TALENTED STEM GROUP, WHO WON 'BEST ROOKIE TEAM' ON TUESDAY 23RD FEBRUARY 2016, AT THE

regional finals of the Land Rover 4x4 in Schools Technology Challenge.

The competition, held at Jaguar Land Rover Halewood, was no walk in the park as the Balshaw's STEM group faced tough competition against schools from all over the North of England. 'Team Aftershock' have been busy over the past year designing, manufacturing, testing and creating a portfolio of work detailing their 4x4 vehicle, whose aim is to provide disaster relief to earthquake-stricken areas.

'Team Aftershock' arrived on the day with their vehicle built to specific Land Rover criteria. They delivered an excellent presentation about their ideas and engineering processes used. The team also had to navigate a very tricky off road course with the 4x4 vehicle to ensure it could emulate the performance of an actual Land Rover vehicle. It was fully equipped with a buzzer that sounded when the gradient was steeper than 25° and headlights that lit when it entered a dark environment.

The judging panel awarded Balshaw's 'Best Rookie Team' and invited us to compete in the National Finals at Silverstone; the heart of British motor racing. The team are now re-evaluating their model and working very hard to make improvements, their eye firmly set on the main prize of National Winners!



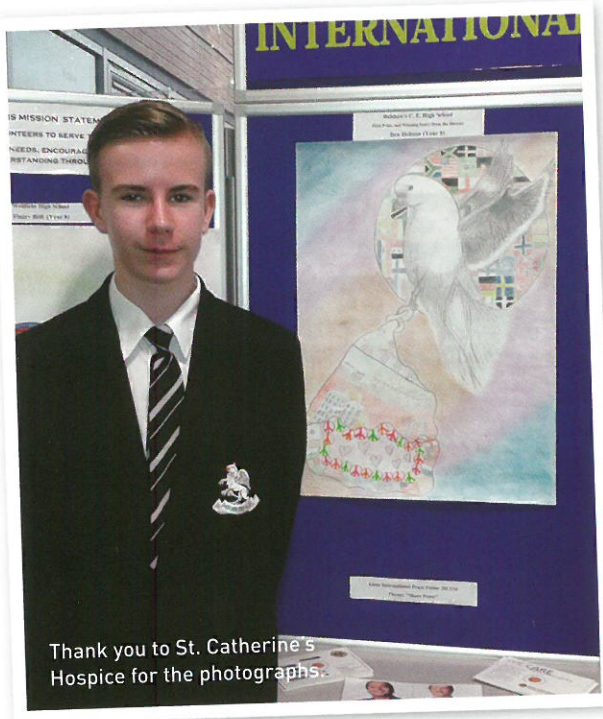
Well done to everyone who took part and we look forward to hearing how you get on in the next stage.

Mr Fletcher

PEACE POSTER SUCCESS

■ EVERY YEAR BALSHAW'S STUDENTS SUBMIT ENTRIES FOR THE LEYLAND AND CUERDEN VALLEY LIONS POSTER

competition. Our fabulous entries have been on display at the Leyland Civic Centre during the first week of February.



Thank you to St. Catherine's Hospice for the photographs.

One of our entries was chosen as the District winner for the fifth time over the last ten years, so congratulations to Ben Dobson who created the winning poster. Well done to Katie Collier and Saffron Gilbert-Whaite who received prizes for their posters.

Here is a message from Derek Westall, who is the President of the Leyland & Cuerden Valley Lions:

“Leyland & Cuerden Valley Lions have arranged for a selection of the Peace Posters produced by Balshaw's students to be displayed at Leyland Civic Centre during the first week in February. Once again an entry from Balshaw's has been chosen as the District winner, the fifth time in the past ten years, which is a remarkable achievement. We always award prizes to the entrants placed first, second and third from the large numbers of posters entered by Balshaw's. These will be presented by the Mayor of South Ribble, Councillor Mary Green at 4.00pm on Wednesday 3rd February.

We are grateful to you and to the Art Department for the continued support of this competition.

Regards

Derek Westall

President - Leyland & Cuerden Valley Lions

YEAR 7 STEM WEEK

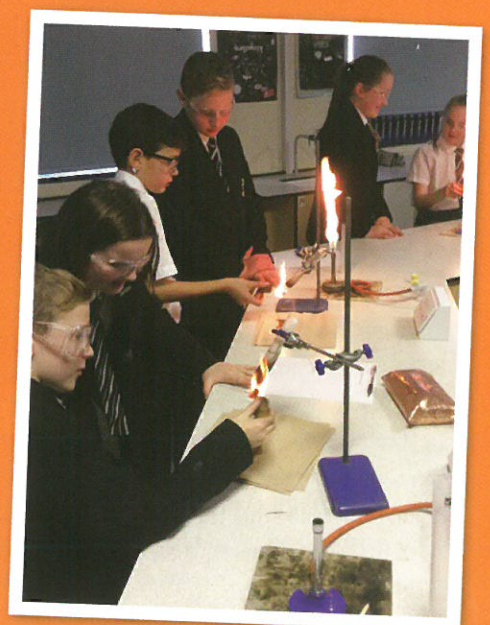
■ DURING THE WEEK BEGINNING 30TH NOVEMBER YEAR 7 EXPERIENCED A

range of themed STEM (Science, Technology, Engineering and Maths) lessons. The theme was on how STEM makes Christmas special and how STEM brings light, sound and enjoyment to the festive period. Mr Melling introduced the week during an assembly on the Monday morning and he talked about how STEM adds to the Christmas message. During the week students collected answers to a Maths STEM puzzle and the winner

was awarded a prize for getting all the answers correct. In Technology lessons students made tree decorations, present boxes, textile hangings, flashing snowmen and festive decorated biscuits. In Science students linked into the energy in Christmas food and sleigh design.

A fun time was had by all and the students gained an understanding of how STEM makes Christmas a brighter, louder, tastier and more fun time of the year.

Mr Melling





YEAR 9 SPACE STEM WEEK

IN THE SUMMER OF 2015 YEAR 9 STUDENTS HAD AN OUT OF THIS WORLD EXPERIENCE WHEN THEY WERE INVOLVED IN SPACE WEEK.

Science, Technology, Engineering and Maths (the STEM subjects) led the way by offering a whole range of lessons based on the exploration of space. Other subject areas also joined in with MFL in particular embracing the opportunity.

Mr Melling started off the week with an uplifting assembly on why we chose to go into space. The students watched President Kennedy's famous 'We choose to go to the Moon, not because it's easy, but because it's hard' speech that he gave shortly before he was assassinated.

In Science students discovered what it would take to live in space if we decided to colonise Mars. Topics such as how food could be grown and how waste could be dealt with were covered. Students made models of the Mars base to explore how the base may look.

In Technology students either;

- Tasted dehydrated space food for themselves and compared it to food on earth.
- Designed and mocked-up a Mars 1 mission badge that could be used on the first manned Mars mission.
- Designed a space suit that astronauts could wear using hi-tech materials such as Kevlar and carbon fibre.
- Investigated rockets and how they can be made to fly in straight lines while in the Earth's atmosphere. Students worked in groups to build rockets that were 'launched' on the school playing field.
- Designed and modelled tools that could be used by astronauts while on space walks.



In Maths students were presented with a whole range of different mathematical challenges. They calculated how much they would weigh on different planets due to the difference in gravity.

Overall the week was a huge success and thanks must go to hard working students and staff who prepared such wonderful experiences. Thanks should also go to Marc Green of NIS, one of our industrial partners, for his advice and the loan of a selection of valuable equipment.

Mr Melling

UK BEBRAS COMPUTATIONAL THINKING CHALLENGE

■ DURING THE WEEK OF THE 9TH NOVEMBER 2015, YEAR 9 STUDENTS TOOK PART IN THE UK BEBRAS COMPUTATIONAL THINKING CHALLENGE.

The Bebras Computational Thinking Challenge (BCTC) introduces computer science to students and is designed to get them excited about computing. The BCTC is a problem solving contest with a focus on computational and logical thinking. Over 55,000 students took part in the competition throughout the UK this year!

Computational thinking involves using a set of problem-solving skills and techniques that software engineers use to write programs and apps. Examples of these techniques would include the ability to break down complex tasks into simpler components, algorithm design, pattern recognition, pattern generalisation and abstraction. Questions are inspired by topics in computer science, but only require some basic reasoning ability. Students had to answer up to 15 questions in a 40 minute time period. The questions have varying degrees of difficulty and the points awarded reflect this.

This year, 174 students in Year 9 at Balshaw's took part in the competition and the 'Best In School' joint winners were Josh Shepherd, Hollie Walmsley and Teri Williams with 173 points each. These students received a 'Best in School' Certificate and a prize from the ICT & Computing Department. The top 25% of students received a 'Certificate of Distinction', those in the top 50% received a 'Certificate of Merit' and everyone else who entered the competition received a 'Certificate of Participation'. Well done to everyone who took part.



Mr Mort

BALSHAW'S TRIUMPH AT THE BAE SYSTEMS 'MAKE IT CHALLENGE'

■ SIXTEEN LOCAL SCHOOLS FROM ACROSS LANCASHIRE TOOK PART IN THE BAE SYSTEMS 'MAKE IT CHALLENGE' AT

Ribby Hall Village near Kirkham. Each team was asked to set up their own mini-manufacturing company and to create an unmanned rescue and emergency vehicle for use in a range of different situations.

Each team had to find solutions for a variety of problems and was awarded marks for their solutions and teamwork skills. At the end of the day all the teams gave a two minute timed presentation to some of the top managers at BAE Systems and were then questioned over their choices and decisions.

Fortunately for Balshaw's our Year 9 students didn't lose their cool and came away with first prize and received the 2016 North West trophy. They will now go on to represent the School in the Northern final in September 2016. Many



congratulations to our winning Year 9 students: Eddie Bishop, Adam Butler, Josh Shepherd, Ben Clarkson, Lilly Tarmey, Amaani Hafiz, Hollie Walmsley and Ellen Fazakerley.

 You can find more information on Twitter by entering [#futureofmfg](#)

Mr Wood