

Weston Road High School

– Stem Leaders Qualification

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The SLQ is a qualification designed by the Centre for Science Education, Sheffield Hallam University, building on in-depth research into the development of youngsters' Personal Capabilities. www.personalcapabilities.co.uk/slq

**STEM Leaders
Qualification**

slq

The school

The Weston Road Academy is a Specialist Mathematics and Computing school. It is an 11–18 academy with approximately 850 pupils on roll. It is situated on the edge of Stafford and serves an eastern sector of the town as well as several villages. It has a truly comprehensive intake with over a hundred pupils on our SEN register.

Weston Road is progressive and ambitious; it is a lively, stimulating place to teach and enjoys a very good reputation locally. Key Stage 2 SAT results indicate that the year groups coming through Key Stage 3 are slightly above average ability.



The project

The SLQ is an opportunity for pupils to demonstrate, and gain credit for, a much broader range of skills than would normally be assessed by exam. They don't always get a chance to learn these skills in the classroom but through SLQ they can learn them in a purposeful environment in the context of STEM. STEM is an important employment area providing a great variety of interesting and challenging jobs.



My initial feelings involved excitement and some concern about the Technology, Engineering and Mathematics aspects of delivering the course as my specialism is Biology. However, I soon realised that no teacher could run it in isolation and I would act as a facilitator involving outside agencies and other specialists.

I launched the SLQ at a leadership enrichment morning for 20 Year 8 G+T pupils. The launch involved looking at the traits and skills of a good leader.

“ I wrote a report to the Leadership Team and proposed we met once every three weeks for a double period. This would allow more time and, most importantly, continuity. Once this was accepted a timetable was organised and we progressed at a more suitable pace. By this stage, I had nine students so I launched the course with the next year group and began to run the two groups together.”

Pupils identified people whom they felt were good leaders and then looked at how those skills can be used in different scenarios. The session culminated in a spaghetti tower building team activity and group presentation which were video recorded.

Following this, pupils were invited to a weekly lunchtime club but it soon became clear that this would not work in the long term. Different pupils would turn up each week resulting in a lack of continuity. This meant that we weren't able to plan anything and it was impossible to keep track of progress. Some of the pupils refused to give up a lunchtime while others were so committed to their other interests that they missed sessions due to rehearsals and other clubs. Something needed to change!

My first cohort have already finished and, within the second group, some have finished. I also have two further groups who are working their way through the course. Each group starts in either Year 8 or 9 and it is anticipated that they will take 18 months to complete the units before they enter Year 11.

The current groups were chosen differently. G+T doesn't automatically mean an interest in Science and there are many pupils who would engage with SLQ but who are not on the G+T register. I asked STEM subject teachers to identify pupils who they felt would benefit and drew up a list. Retention, motivation and level of interest have been far greater with these groups.

SLQ activities

I decide on the activities for each session according to opportunities that arise. I have tried to involve outside agencies as much as possible to broaden the range of projects pupils carry out. Some contacts are through school or STEM workshops and meetings and some are personal. The following is a selection and summary of those carried out.

Personal skills evaluation

Each pupil completes a self-evaluation form and asks two others to do the same. From this, targets for the course are set.

Staffordshire STEM Centre

Pupils learnt how to programme Lego® robots to turn corners and climb ramps. This was a very popular activity and pupils videoed their progress. They spent a number of sessions using MoviePlus X3 to create a video presentation which was shown to the rest of the class. Each group was given feedback on their presentation which they used as the basis of their personal evaluation.

Aston University 'Formula One student'

Pupils made small elastic band geared cars which they costed up and raced. A poster describing their ideas and use of resources formed the evidence of achievement.

STEM Ambassador

I gave a talk on the breadth and importance of STEM careers. Pupils then researched and wrote about an aspect of STEM careers that they had come into contact with in their life.

Staffordshire University

Science undergraduates at Staffordshire University have to complete a compulsory work experience unit and many choose to work in schools. Our student organised a successful forensics problem solving activity. Pupils worked their way around a crime scene and a number of practical stations to solve the crime. The focus of the project was Unit 2 (Practising leadership skills) and pupils evaluated their performance as leaders.

Sci-tastic primary science days

Pupils completed Unit 7 by working in groups to plan, organise and run science activities for year 5 pupils from feeder schools. There was so much interest that we increased the number of sessions and still had to turn one school away. Pupils kept a log book of how they carried out the project which formed their evidence alongside my observation records.

Within school activities

These included a mini-raft design and build, osmosis in chips and a SOHCAHTOA learn-and-peer-teach activity. Learning about osmosis a year early meant that during year 10 biology pupils were able to carry out an extension practical investigating plasmolysis.

Smaller scale activities have included creating posters about the benefits of learning with others; problem solving dilemmas and teaching peers a chosen skill then evaluating their performance based on feedback.



The outcomes

I have thought hard about the impact of SLQ at Weston Road and come to the conclusion that it largely only affects those directly involved, but that this effect is very significant. All of the pupils who completed the course enjoyed it and were very motivated to gain the award.

Sessions are active and noisy! I try to design activities that are engaging so they each have an impact in their own right. I incorporate discussion, peer feedback and a variety of evidence gathering methods. I am often asked in the corridor 'What are we doing in STEM next Miss?' This is exactly how it should be.

There has been an enormous impact on me personally and professionally. I believe very strongly in the principles of the SLQ. I am working with exciting pupils who enjoy science and the challenge of something completely different. They are learning skills and producing work that demonstrates their abilities and potential as adults in the world of work. I feel very privileged to be able to support pupils as they develop important life and employment skills.

Periodically I ask pupils directly about the SLQ and the impact it has on them.

The following are quotes from 2 different cohorts:

“ I have learnt lots of skills that can be used later on in life such as interviewing and an insight into jobs like forensics...of the skills that you do gain, leadership is one that is not really covered in the normal curriculum and is perhaps one of the most important for a job. ”

David

“ I've (surprisingly) enjoyed working as part of a team and working/communicating with people I otherwise wouldn't. ”

Roxy

“ I have really enjoyed the activities I've participated in in STEM, especially when we surveyed a false crime scene. I've learnt lots about leadership, science and other subjects. ”

Bryony

“ I have enjoyed the first part of STEM and feel it has improved my confidence. ”

Heather

From the school's perspective, success can be measured by the number of pupils obtaining the qualification and my first cohort passed easily. I was required to send off one whole unit for 4 pupils and we received very positive feedback from the moderator. I chose the 'Sci-tastic' reports because it was a distinct piece of work and showed evidence of the variety of tasks and skills involved in the project. Other success indicators are attendance and pupils completing work independently.



Key insights

I would strongly advise training on BTEC before beginning the course. I had no experience of BTEC and have had to make many changes to my practice in order to be more effective. The first activities that I designed included criteria from more than one unit. This method was far too bitty and complicated, particularly when it came to sending work off for moderation. I now choose an activity and embed it into a unit along with supporting tasks. Every piece of work is in a plastic wallet and has a front sheet for pupils to tick off each task so I can clearly see their progress.

The biggest issue for my methodology is the pupil's poor organisation. They sometimes forget to turn up to sessions, or bring in work or arrange to meet and carry out task between sessions and then fail to appear. The course places a strong emphasis on the 10 Personal Capabilities (Bianchi 2002) and I encourage the pupils to consider them as part of each activity in order to develop these skills. I have found that it is important to be strict with deadlines both from both a logistical and pupil developmental point of view.

I have reached a point where the systems I have in place from selection to development and organisation of the projects and sessions are robust and sustainable. I will continue with my two current groups until they finish (hopefully by July 2013) and then take on two more groups and repeat much of what I have done before but responding to new opportunities as they arise.

The future

I would like to utilise school resources more, in particular the Mathematics and Technology departments. Staff time is clearly an issue here and I will need to be creative. Fortunately, the new Head of Technology is keen to be involved.

Other future projects include a Leaders Award for STEM and organising a science related activity within school possibly linked to Higher Education.

I am also keen to make links with a local STEM-related businesses and arrange an activity day based around their products. This would give pupils the opportunity to be 'engineers for a day' and carry out a design and build type project.

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To find out more about the STEM Leaders Qualification contact the
Centre for Science Education, Sheffield Hallam University on 0114 2254870.

www.shu.ac.uk/research/cse

Bianchi L (2002) Teachers' experiences of the teaching of Personal Capabilities in the Science Curriculum' PhD Thesis, Sheffield Hallam University.