Practical learning for students who become Game Changers

Bohunt School Wokingham, Arborfield, Reading

www.bohuntwokingham.com

Compiled with the help of:

Rebecca Clark, Senior Assistant Head Teacher

Jamie Andrews, Assistant Head Teacher for Teaching and Learning (since left to take up a new post)

Fiona Lennon, Subject Lead for STEM

Students in Years 10 and 11

Headlines

- Integrated STEM
- Outdoor learning
- Rethinking assessment

About the school

Bohunt School Wokingham is a mixed 11–16 school that opened in 2016. It is part of Bohunt Education Trust (BET)[1] that comprises eight schools, seven secondaries and one all-through school, all based in the South of England. Bohunt Wokingham is located in Berkshire.

Making learning whole

Across all its schools, BET aims 'to give all students an outstanding education and develop skills in the classroom and beyond – to help our young people flourish throughout their school career, and into later life.' All BET schools share a common ethos of 'Enjoy Respect Achieve' and a common purpose in creating Game Changers, students who make a difference to the world around them[2]. This vision drives the Trust's approach to its curriculum and teaching and learning, including a focus on integrated STEM, recognising that STEM 'literacy' shares an important place in the curriculum, alongside literacy, numeracy, emotional and digital literacy[3]. The integrated STEM curriculum is common to all eight BET schools. Bohunt School Liphook contributed to the research that developed the Engineering Habits of Mind (EHoM) framework[4], which has also been adopted at Bohunt Wokingham.

With so many jobs requiring STEM knowledge and skills, teachers at Bohunt Wokingham realise that in order to create Game Changers who can make a difference, integrated STEM makes sense.

> **'We want Game Changers, and to get Game Changers they've got to be able to make a difference in the modern world; to do that they need STEM.'**
> Jamie Andrews

Practical STEM learning is supported through an extensive programme of co-curricular opportunities, including Outdoor Learning, clubs, and competitions such as the Formula 1 challenge.

Embedding practical learning in the curriculum

Practical learning at Bohunt Wokingham is part of the culture of teaching and learning. The school opened in 2016, with an outdoor classroom, an amphitheatre for outdoor performances and top of the range STEM facilities.

Practical learning is encouraged in all subjects, as, for example, in Business Studies, where in employment law lessons, opportunities for debates and discussions between students are created, so rather than have a debate on zero-hour contracts, they would:

> **'Set up the room as a tribunal, so then we can teach them about employment tribunals, and also cover the content that we need to.'** Jamie Andrews

Where appropriate, project-based learning is also incorporated into the curriculum, for example, in business studies, when students create their own businesses incorporating all the knowledge that they've learned in these lessons.

Collaboration between subjects is encouraged where appropriate, but there is no prescribed model, as that would run counter to the school culture of creativity and independence.

> **'I want there to be co-curricular links across the curriculum that work, and I want it to be creative, and if I start saying you have to do it like this, I'm taking away that creativity and the innovation'** Jamie Andrews

In line with the BET focus on an integrated STEM curriculum, when Bohunt Wokingham first opened, science, maths and technology were in a single STEM faculty, but as the school has grown, maths and science and technology are now in separate faculties. However, the STEM name has been retained to encourage collaboration between the faculties and also to remind students that technology does have links with science, engineering and maths.

The last two years have been challenging for incorporating practical learning during lockdown. There is now a renewed focus to build up Key Stage 3 students' knowledge of materials and their experience of different tools and machines. This will develop their confidence for Year 9 and 10 when they start their own projects.

> **'These are less teacher-led and certainly more their own, based on their own ability in their own learning and they will be pushing those projects themselves.'** Fiona Lennon

A Game Changer Week is built into the curriculum, where the timetable is collapsed for an entire week and students take part in practical activities. Drop-down days also occur, where the timetable is suspended and a themed activity is undertaken, this year involving careers talks for Years 10 and 11.

Outdoor education plays an important role in developing students' responsibility, resilience, and independence and has a structured presence in co-curricular activities.

> **'Before the students even start here, we tell parents that it is our expectation that all of Year 7 and 8 attend their annual outdoor education... and our numbers who do DofE is higher than the national figure.'** Jamie Andrews

A range of BET resources highlight the importance of wellbeing in outdoor education[5]. Even during lockdown periods, once a fortnight, a drop-down day would be focused on getting students out of the house with their family, depending on restrictions in place at the time. The physical activity was all about developing resilience and keeping students motivated.

Learning for the real world

It is important to ensure that students realise the purpose behind the Bohunt's focus on STEM. Practical learning ensures that they have opportunities to realise the significance of STEM learning.

Students working with materials in technology, enhances their understanding of maths, as they physically work how much material they need.

> **'I'm actually getting them to measure it out, working it out, with a piece of paper, a pencil and sorting it all out... that sort of stuff is so valuable, compared to being in the classroom with a calculator, and it makes so much difference.'** Fiona Lennon

Practical learning in technology impresses on students how important it is to be comfortable with not getting things right first time. Where making mistakes and improving one's work are part of the learning culture.

> **'It allows them to actually make mistakes, to resolve those mistakes, to solve problems, to have confidence and to be creative. There are so many different things that they get from practical, but the confidence they gain I think is fundamental to me. When you see what they actually achieve, and they see what they can do on their own, it's incredible.'** Fiona Lennon

Bohunt students understand that STEM is important outside school and are familiar with the term being used in school.

> **'It's just something we're hearing so much in the news, and just in general, we've been hearing a lot about STEM goals and using STEM in schools, things like that. It's just become very standard.'** Year 11 student

However, with other subjects, it is sometimes less easy for students to see how content might apply in the real world.

> **'Some subjects, you haven't really seen how they apply it, because it's not talked about as much nowadays as compared to STEM and science and all the new innovations'** Year 11 student

Students are quite clear about the value of practical learning in general.

> **'Give kids hands-on experience in terms of the actual things**

that look to be applicable to daily life and things that they might actually encounter, rather than it being fundamentally theory based. It also helps them remember content in a fun, easy and efficient way, to being able to do well in your exams and to go on to do perhaps future coursework as well.'
Year 10 student

Bohunt promotes STEM in Years 7 and 8 to build parents' understanding of the subject and showcase Year 11 students' work through exhibitions, listening to students' views all the time.

'We do a lot of pupil voice in terms of the projects that we do. We're very quick at adapting, evaluating what we're doing and making it better and having more innovation in our projects'
Fiona Lennon

Using a full range of teaching methods

Teachers use carefully chosen strategies to include practical learning. BET INSET days each year provide valuable opportunities for teachers from all BET schools to mix together and for all subjects to discuss the curriculum. A recent theme was enjoyment through practical learning, with keynote presentations stressing how important it was to revisit the school vision in the aftermath of the pandemic.

'I'm going right back to the why, so that we can recover from what we've lost due to Covid. We're going to ban the excuse that because of Covid we can't, and we're actually going to say, well, that's gone, now what can we do'
Jamie Andrews

Cultivating learner agency

Turning students into Game Changers requires a curriculum that allows them to apply their knowledge, which in turn, fosters their skills and dispositions. This growth mindset ethos would not be achieved without practical learning.

'We promote things like resilience, independence, collaboration and creativity. Their confidence to execute those skills doesn't happen without practical based learning.' Jamie Andrews

Students in Years 10 and 11 recognise that practical learning plays an important role in their learning. For a start, practical learning retains students' interest in learning.

'I feel that it makes you develop more of an interest, because you're doing more things what might be applicable to your daily life.' Year 10 student

But practical learning is more than just fun. Students recognise the importance of technology in developing skills for the future.

'As our world is obviously evolving at quite a rapid rate, in order to keep up with that, creativity is one of our core skills that we require, in order to help us to break those technological bounds.' Year 10 student

Collaborating in class creates a sense of belonging and wellbeing in students.

'Sometimes in group work, you have more interaction, you have more, sort of, coordination with your class, it also builds chemistry, so you just feel more, sort of, happy in lessons, I guess.'
Year 10 student

Collaboration also helps students encourage each other to improve their work when things do not work out as expected.

'Interaction really comes into play when you ask the other person, Oh, what did you do which I haven't? What can we do in order to help make my practical and your practical really stand out? So that sense of interaction really comes into its own there.'
Year 10 student

Successfully completing a practical project develops students' confidence for dealing with different subsequent tasks.

'It really gives you that extra drive and motivation to finish something complicated because you've done it in the past and you clearly have the ability to produce it.'
Year 10 student

Finishing something well also gives students a feeling of pride and accomplishment.

'When you finish a practical, you get that sense of self-satisfaction because you know what you've learned in the classroom and then you're able to apply it by using the machinery, but then, when you're done, you get a physical object that's basically like a trophy, saying I did that.'
Year 10 student

Students feel that being in an authentic practical environment helps them learn how to behave when they move into jobs or professional environments.

'It definitely does make you feel different, almost as if you're in a professional environment. So rather than sat in a classroom learning things, if you're actually doing something hands-on, it starts giving you a flavour of real life, when you're actually in a professional environment, doing hands-on work'
Year 11 student

Importantly, this can help them identify relevant career paths more clearly.

'With the practical application, it shows what you're going to do

and how you can have a physical application of the subject, say in a career. It gives you that bit more experience and reassures you that what you're doing is, or isn't, the right thing for you.'
Year 10 student

Tracking learner progression

It is challenging to track students' progression and the development of their skills and dispositions. The impact of practical learning on students' development through Bohunt from Year 7 onwards is monitored through conversations with students at intervals. Mr Andrews acknowledges that while some of this evidence may be anecdotal, the impact of the Bohunt curriculum is 'proven visibly by what we see around the place'. He believes that 'the impact has been that students are leaving us much more well-rounded'.

The drive within BET to teach STEM lessons by linking theory to real-world, cross-curricular activities, and the subsequent rise in students taking maths and sciences at A level, has been highlighted by *Tes* magazine in an interview with Phil Avery, Director of Education and Georgette Ayling, Headteacher at Bohunt Horsham. They believe that practical, applied learning in STEM subjects increases student motivation to engage with the subjects. They also credit it with increasing the level of disadvantaged students' science capital, that 'wider understanding of how science can be applied in a variety of different careers'.[6]

However, with current accountability measures it can be difficult to strike a balance between providing an innovative practical curriculum and demonstrating student achievement. Consequently, BET senior leaders are challenging the 'high stakes assessment' that dominates the English education system. BET is a member of the Rethinking Assessment group[7] that is leading a high-profile argument for change to the national assessment system in England. The group is proposing that all school learners should develop a learner profile to record all their strengths, not just exam results. Neil Strowger, BET Trust Leader, made the case in *The Telegraph* for using e-portfolios as a more equitable and effective method of assessment during the pandemic when public exams were disrupted.[8]

However, the best advocates for change are the students themselves. Nowhere is this seen more strikingly than in BET student Issy's passionate appeal for rethinking GCSEs. Issy argues that with their narrowly prescribed, academic content, and lack of room for integrating ideas, young people are denied the opportunity to understand the world, develop empathy for societal problems and be better prepared for solving them[9].

BOHUNT
WOKINGHAM

Endnotes

1. www.bohunttrust.co.uk
2. www.bohunttrust.co.uk/game-changers-video
3. www.bohuntwokingham.com/curriculum/curriculum-overview
4. https://raeng.org.uk/media/51llpcve/thinking-like-an-engineer-summary_report.pdf
5. www.bohuntwokingham.com/outdoor-education
6. www.tes.com/magazine/teaching-learning/secondary/best-way-teach-stem
7. www.rethinkingassessment.com
8. www.bohunttrust.co.uk/news/neil-strowger-writes-in-the-telegraph
9. www.bohunttrust.co.uk/news/bohunt-sixth-form-student-activist-writes-for-rethinking-assessment