

February Diary Entry

Paras Gonzales - Project Lead

DELIVERING ROBOTICS WITHIN THE CURRICULUM

We have developed the curriculum plans for delivery of Robotics for Year 8. We have scaffolded the learning and identified key concepts that students should be learning at KS3. At this point in time we are identifying the logistics in order to implement it within the curriculum.

Items to Consider:

- Time to disassemble the kits and ensure all items are available for students to use.
- How we can ensure all students have the opportunity to work with the robots and learn the key concepts? - limitations of having six robots as 'teaching bots'.
- Ensure teachers have the knowledge and confidence to deliver the curriculum.

Implementation:

As mentioned previously, we only have six teaching bots, so in order to make this a success, we have arranged the curriculum whereby each class will have enough time to understand the key concepts we want them to understand and work with. In D&T we have divided the project into termly units of work that accommodate the KS3 Program of Study and link to KS4 specification requirements. In order to do this and include Embedding Intelligence (using Robotics) we have decided that each term two classes in Year 8 will have the opportunity to work with the Robots. Specifically what we have considered doing is that each class will have half a term (six weeks) to work with the robots. Then the other half term they will look at additive manufacturing (3D printing/CAD skills and uses of CAM). After completion of the six weeks, the classes will swap over the unit they are working on.

Impact:

As we will be able to implement the proposed schedule above, over the Year all year 8 students will have had the opportunity to work with the Embedding Intelligence unit (yet to identify a name for the unit that encompasses all areas of new technologies).

Patrick O'Brien - Computing Specialist

This month I have worked closely with PGX and MWR in our Robotics after school session in regards to programming of the robotics. They currently are working on understanding how they can teach the programming part of the unit. Both have a grasp of basic programming and I have supported them with understanding simple coding. It's clear that they both are not confident in initially teaching the programming element but their confidence is building. Fortunately they have been supported by some computer programmers in the after school club and the club has definitely helped build their confidence. We have had CPD session where I have advised them with teaching strategies and ways to support student learning using the computers at the school. PGX and MWR suggested a suitable proposal of what programming skill students will need and should be able to do at KS3. Their ideas are on par with the minimum of what is expected of students in Computing at KS3. I have suggested that I will be able to support in some lessons (if not teaching) when the students are up to the programming section of the curriculum in order to problem solve any concerns they have.

Robotics Club - Patrick O'Brien

It's amazing to see the enthusiasm that students have had coming week after week to build, challenge themselves with different activities that they complete. Students come up with some elaborate designs and are quick to identify

Questions we are considering throughout this journey:

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problems that they will need to solve. We have a core group of students who come weekly to work on the project and are always up for the challenge of any task we set them. We now can identify clear leads in the teams. That is who is the designer, the engineer and the programmer. It's great to see that students have found their own strengths in what they are doing.

LATEST NEWS: Robotics Club Expansion

Due to popular demand, and an increasing number of students wanting to do STEM beyond the curriculum, the robotics team have decided to expand. Rather than call it Robotics Club we will be offering **STEM AFTERNOON** every week. This will be for students from KS3-KS5. We are offering the following:

- **VEX IQ Robotics** (KS3)
- **VEX EDR** (KS4)
- **Air engineers** (KS3/KS4)- Drone designing (using CAD) and game strategy -students design and stress test mini drones (3D print chassis) and assemble them. Finally compete against each other in set tasks that they will have to complete.
- **Electronic Car** (KS5)- Yr 12 and Yr 13 work on a life size electric car and work on how to increase the car's speed in preparation for competition.

The advantage of the STEM AFTERNOON is that we have six specialist teachers from all different department working as facilitators in one area and offering our expertise to all students on different tasks - we have also picked up our Physics Lead who will be working with the team. Furthermore younger students can look up to older students and see what they could, potentially do in their future at Chelsea Academy.



UPDATE ON LAST MONTH:

Our local community and the World of Work



Five students had the opportunity to visit **Lots Road Power Station** for the day and discuss with the structural engineer about the work they are currently doing. Students had the opportunity to understand how the construction of the historic building will be transformed into a new build. Furthermore understand the problems that the team encounter on a day to day basis where they have to find solutions to working in the environment they are working in. **Students will present their finding and their experience at a whole year assembly.**

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Masterclasses in Engineering @ the Royal Institute



Masterclass network



Student Working on an array of projects @ the Royal Institute

Five students have been attending **Masterclasses in Engineering @ the Royal Institute**. Students up to this point have attended three weekend sessions and are thoroughly enjoying the experience, whilst working with industry leads on different engineering problems.

Girls into Engineering/ Coding Day



We have had to postpone the Girls into Engineering Event to a later date. However we have seen this as an **opportunity to focus on the girls in STEM at our school**. The event will take place with eight Year 7 and Year 8 female students attending the session. We will have STEM ambassadors and ex Chelsea Academy female student studying engineering supporting the event.

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