## Introduction.

Note : This report has not been produced using AI.

May I first say thank you for the invitation to give a brief talk about our STEaM club on 19th February. My name is Frank Soutar, Chair of Netherholm Area Association.

I have been a STEM Ambassador for a number of years and it was whilst mentoring at Strathaven Academy during the STEM project in spring of 2022 that I started working with Alisdair and we agreed to start a STEM club in our local community hall in Castlemilk.

The STEM team is Myself on 3D Design and Printing, my wife Joan on Admin & Welfare, including feeding the youngsters. Joan and I are volunteers. Hazel is our Early Years Tutor and Alisdair our Science Tutor, and are both on nominal fees for time and expenses.

Funding from a variety of providers to date has enabled the purchase of Equipment, Materials, and Food for the breakfast service. The club is open to all and is free. We have both young people and adults who come to the club every 2nd Sunday, from 10:00 till noon. 4 Hours STEM activities per month.

The four activity zones are:

1. Crafting / Sketching / Model Making
2. Science – Chemistry / Physics / Technology
3. 3D Design – Sketchup / TinkerCAD / Blockbench
4. 3D Scanning & Printing – Creality Printers

## Outcomes

The club is a huge success and we now have over 50 registered members with 32-36 always turning up on club days. There is no requirement for any young person to engage in any specific activity, they are free to move between teams and have a very enjoyable time for the two hours.

## Equipment

In the IT suite we have 9 HP desktop ‘All in Ones’ supported by Kelvin College
In the hall 6 HP Laptops with added Monitors. Requiring upgrade /refurbishment.
In the Print room we have the 3D Camera & Pc, and 5/6 Filament printers.
When we have use of the main hall we can run 9 Filament Printers.
In addition, we also have 3 Resin Printers which are discussed later.
The design and print team have produced a huge collection of models of every type from carefully designed Buildings, Trees, Model Cycle Track, to Scary Monsters, and Minecraft figures. Photos in PP Presentation.

## STEM Phase 2

Our young people take to STEM like ducks to water. The abilities of our young people are easy to see. However, we have reached a stage where we need to launch STEM PHASE 2 to meet the increased expectations of our young people.

Five of our Filament printers need replaced with new technology as they are now old and troublesome. Currently available printers are more trouble free and also much faster which allows the young people to see results sooner. This is important.

Our Resin Printers however require to be fitted with extraction hoods to fully protect against vapours from the resin. These resin printers are very important as they are able to produce far more detailed models closer to engineering specifications.

An additional three laptops would also be of great benefit especially for the younger children who access the BBC education programmes, all supervised by Hazel.

A specialist tutor (probably a 3rd or 4th year University Student) to deliver a block of coding lessons will engage and significantly improve the skill sets in the Design Room.

## Outreach Work

We have now delivered workshops in three schools.
John Paul II Primary,
Castleton Primary
Braehead Primary
And soon St. Margaret Mary's Secondary.
Two more candidates would be Castlemilk High and Kings Park Secondary.

We deliver these workshops specifically to introduce and demonstrate 3D Scanning and 3D Printing. Usually this includes a team of pupils within each school who are our club members and trained in these skills. The schools really appreciate this service. However, we need proper equipment to transport and set up our printers in remote locations.

## Inclusive Specialist Furniture

Most importantly, we must invest in truly accessible furniture. I have been designing technical furniture for many years so this is not a new or difficult task for me. Young Kareem is a digital leader and we are working on developing a printer trolley which means that all ages, sizes and abilities can work with these 3D Printers. The young people will be able to reach all parts of the mechanisms much more easily than at present. There are no proprietary printer trolleys suitable for education purposes.

**Summary:**

The STEM club is at a crossroads; in order to meet the requirements of our young people we need to upgrade to STEM PHASE 2.

Additional Tutors Fees for a short-term block, 6 Sessions of Coding lessons.

Replace 5 old Filament Printers with 2 modern multi colour printers.

Safety Enclosures for 3 Resin Printers

Specialised Trolleys for all printers – quantity 6

Shipping Boxes for outreach workshops.- Quantity 4

Thank you

Frank Soutar

Joan Soutar

Alisdair & Hazel (Tutors)

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Frank Soutar

Post Grad Diploma – IT with Web Design & Multi Media- Univ. West Scotland

BSc (Hons) – Interior Design (Technical & Commercial Specialisation)

Glasgow Caledonian Univ.

HND – Furniture Construction & Design – Glasgow College of Building & Printing

Grad I.W.S.P. (Now Inst. of Management Services) Stow College.

STEM Ambassador since 2020 (including Coder Dojo Scotland)