EV3 SCHOOL CHALLENGE

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The EV3 School Challenge is an outreach program delivered by IRC's Digital Programming Team, over the space of 9 weeks, in schools throughout the Isaac Community. This program focuses on the use of Lego Mindstorms EV3 software to explore building and coding in a way that inspires and educates students across the region. Students learn to apply science, technology, engineering and math concepts (STEM). They are also encouraged to follow their imagination, learn together and solve problems through creativity.

Below you will find the 9 week session overview.

Session 1: Build Robot

In this session the students will follow instructions to create the base model for their EV3 robot. Upon completion of their robot the students will then be introduced to the coding language that will be used throughout the program

Session Length: 1.5 hours

Session Outcome: EV3 Robot base build complete

Facilitated By: IRC staff

Session 2: Build Challenges

Students will use this session to build the structures required for the challenge board. It is imperative that these pieces are built with precision to ensure that the challenges function as they are supposed to when interacting with the EV3 robot.

Session Length: 1.5 hours

Facilitated By: School - Students & Teacher

Session 3: Coding - Forward & Back

Here the students will learn to code their robot to travel forward, backward and then forward once more. This will be done to certain requirements such as distance and will involve the students learning the difference between travelling by seconds, rotations and degrees.

Session Length: 1.5 hours

Session Outcome:

- Understand 'good coding'
- Robot Care
- Importance of lining up
- How does the robot move and what options can be used in achieving this?

Facilitated By: IRC Staff

Session 4: Coding Homework & Building

In this session students will continue their coding work from the previous week, finishing up any tasks they were unable to complete previously. Following on from this they will also continue building any of the challenge pieces still needing to be constructed.

Session Length: 1.5 hours

Facilitated By: School - Students & Teachers

Session 5: Coding - Circle

Students will use this session to learn how to code their EV3 to move around turns and follow along the path of a circle.

Session Length: 1.5 hours

Session Outcome: Understand how to code the robot to move and turn in tight spaces.

Facilitated By: IRC Staff

Session 6: Coding & Challenge Introduction

This session will see students once again finish up any coding from the previous session that they may need to complete. As well as this they will watch the EV3 Lego Robotics challenge video for an overview providing insight in to what challenge they may choose to take on and code in future sessions. Once they have done this they will then set up the challenge board with all of the pieces they have constructed to make sure that everything is in line and in place as it should be.

Session Length: 1.5 hours

Facilitated By: School - Students & Teachers

Session 7: Start Challenge

After setting up the board with the challenge pieces the students will once again watch the video overview of the Lego Robotics challenges. In doing this they will together select 1 challenge task that

they will take on and code. The session will then continue with the students working on their selected challenge, planning, coding and building the necessary attachments.

Session Length: 3 - 3.5 hours

Facilitated By: IRC Staff

Session 8: Build Attachments & Plan/Develop Code

This session will be a continuation from Session 7 in the previous week. Students will follow along with their challenge plan and develop their code as well as continue building the attachments needed for their EV3 robot.

Session Length: 1.5 hours

Facilitated By: School - Students & Teachers

Session 9: Complete Challenge

This is the final week in the EV3 School Challenge program. The first hour of this session will be set aside for the students to make any last minute adjustments to their code or build that they may feel are needed. After this, each team will bring their robot to the challenge board and compete against each other to see who can complete the chosen challenge in the 1 minute time limit that has been allocated.

Session Length: 1.5 hours

Facilitated By: IRC Staff