PROJECT MANAGEMENT PORTFOLIO

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Eclipse

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1 | INITIATION PROCESS

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THE INITIATION PROCESS | Kick-off

Figure 1.1 shows the initial kick off meeting, 20th January. This happened via Zoom as Tom was at university whilst Evie and Javier were in school.

During the initiation timeframe, Eclipse **mapped out the project charter, deliverables and smaller tasks.** Addressing judging feedback and initial next steps, Eclipse had to establish; the **who, why, what, how, where and when** before they began. This helped the team construct the **project charter**.

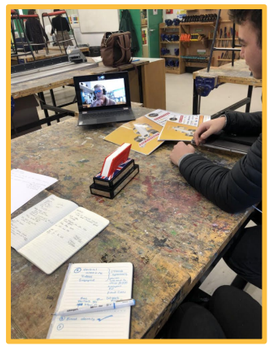


Figure 1.1 - Kick-off meeting

BASELINE GOALS | Team

Eclipse's ethos 'innovative engineering for the future' is a key driver behind all they do. With this as the forefront, a list of baseline goals was created.

- Ensuring all project elements are completed by the end of April
- Deliverables submitted before the F1® in Schools project due dates
- All work divided up equally and fairly
- Car must be compliant and adhere to the regulations set by F1® in Schools
- **(Specific)** Giving back to the community as best possible is a key goal
- **(Observational)** Be as eco conscious as possible, sustainability plays a huge role in the team's ethos
- **(Measurable)** To make sure work is to a high standard, is checked regularly for errors and talk to industry experts to improve quality of outcomes

These baseline goals are important to success and are key drivers for the team.

BASELINE GOALS | Individual

Below are the teams outlined individual goals. They value these as much as the project goals and are set to ensure all members reach their potential.

JAVIER
Team Principal

As Team Principal Javier is responsible for **ensuring all stakeholders are communicated to**, running regular meetings and status reports to manage **time, budget, quality** and both the enterprise and engineering sub projects.

- Javier is keen to put himself in the best position to **pursue a career in motorsports**. Gaining a range of skills in areas such as manufacturing, design, testing and project management. A main reason why he is their team principal because he has an interest in all the aspects of the competition.

EVIE
Enterprise Manager

As Enterprise Manager Evie's responsible for ensuring all **enterprise tasks are completed,** portfolios written and communicate with stakeholders to manufacture project deliverables.

- This competition improved Evie's **confidence, communication and presentation skills**. For the World Finals Evie is hoping to refine her skills to further prepare for future corporate jobs. Additionally, this season Evie's taking an active role in the primary STEM programme.

TOM
Engineering Manager

As Engineering Manager Tom's responsible for ensuring all **engineering tasks are completed,** portfolios written and to communicate with stakeholders manufacturing project deliverables.

- Tom has been grateful to build on his presentation and portfolio skills, but also his **complex technical skills**, on software such as CDF and Python for improving car testing. As Eclipse's Engineering Manager, Tom's knowledge and understanding has already put him steps ahead on his university course.

Figure 1.2 - Team members

DEFINING THE PROJECT | Project Charter

A project charter is needed to **ensure efficiency and organisation of the project.** It outlines the project purpose, deliverables, stakeholders, constraints and risks and was the key point of discussion in the kick off meeting.

Figure 1.3 - Project Charter

DEFINING THE PROJECT | Scope Statement

The project statement, **Figure 1.4,** outlines who Eclipse are and what their project is. It is a critical element of the initiation process that helped **define deliverables ensuring quality scheduling and project management**.

Eclipse's F1 in Schools World Finals 2023 Project	
Project Manager	Javier Gladstone Contioso **Time frame:** 20th January 2023 - September 8th 2023
Project Objective	Ensuring all deliverable are completed to the highest quality and fully submitted by the Final deadline. *Final submission - Friday 1 st September 2023 23:00 (GMT/UTC +00:00).*
Scope description	**(In Scope)** To produce a fully compliant World Finals car, to the highest quality, with the aid of a verbal presentation, pit display, enterprise portfolio, engineering drawings, renderings and an engineering portfolio. **(Out of Scope)** Ensuring we abide by our ethos 'Innovative engineering for the future' taking into account; fair delegation of tasks, excellent communication practised, efficient project management strategies implemented, giving back to the community and sponsor, being observational of team sustainability and produce high quality work that is continuously reviewed.
Acceptance Criteria	For a deliverable to be accepted, it must first receive approval from the sub-project manager, then reviewed by other two team members. Following this the deliverable will be shared with 2/3 external stakeholders and undergo final scrutinising checks alongside the relevant acceptance criteria review (see page 2) from lead teacher and Project Manager. This process ensures excellent quality on everything.
Deliverables	• Two (2) identical F1 in Schools cars • One (1) F1 in Schools display car • One (1) unfinished, un-assembled car body • One (1) digital and Two (2) physical copies of the Design & Engineering Portfolio • A set of engineering drawings Additionally, All relevant CAD data and access to CAD software and a Car Submission Checklist which must include the official F1 Model Block holographic stickers. • One (1) digital and Two (2) physical copies of the Project Management Portfolio • One (1) digital and Two (2) physical copies of Enterprise Portfolio • A Pit Display • A 10-minute Verbal Presentation Additionally, a 'Team Partnerships' declaration(s) and a Digital team logo.
Constraints	Parameters of the competition. Final submission deadline 1/08/23 . The technical regulations create constraints to the car design and dimensions. The competition rules outline the specifics on the other deliverables including dimensions of the pit display duration of our presentation and length of portfolios. Budget: £15,000 . Team Size: 3 members - Limited time at school with Tom at University and Javier working from home.

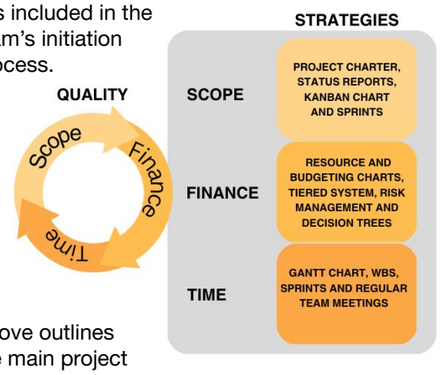
Figure 1.4 - Scope Statement

QUALITY CONTROL

Wanting to achieve the highest standard, Eclipse took into consideration the **"triple constraint"** **Figure 1.5** (scope, time and finance) that is used to ensure work is of the highest quality.

The triple constraint is an invaluable quality visual aid used to complete the project throughout the season. The quality plan outlines how to achieve this. Most methodologies make reference to the triple constraint and this is why it is included in the team's initiation process.

Figure 1.5



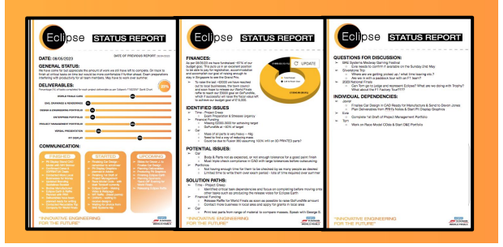
Above outlines the main project management strategies used to reach the highest quality across the deliverables.

The team adopted **agile and scrum methodologies** but found them less effective at a small scale.

Throughout the portfolio, reference is made to the techniques found to be successful and the ways in which they implemented them as part of the project.

MONITORING & CONTROLLING | PROJECT SCOPE

- To monitor progress, morale and quality across all of the deliverables the team set up status reports that were completed every Sunday evening.
- This prevented miscommunication and highlighted any areas of concern. Eclipse discussed, scope, schedule, finance, individual tasks, external communication and risks.
- Deliverables were confirmed for submission via multiple checks with the team and stakeholders.



GANTT CHART

Gantt charts have been used throughout Eclipse's journey in the competition. It is by far the most efficient way to manage a project schedule and leads to having **good governance**. The Gantt chart, **Figure 2.1,** helped Eclipse manage time effectively alongside a weekly task list, to break up large tasks into more **manageable weekly sprints**.

WEEKLY MEETING | Break Down

Every Sunday evening 20.15 (GMT) the team met with regular agenda items and additional items, agreed in advance via emails. Meetings were face to face or held via Facetime. This ensured critical tasks were met and team motivation maintained. Examples of agenda items below:

- News and updates on **sponsor communications** and project initiatives Eg. Eclipse Earth, BAE Systems visits, ROI days, ect.
- Discuss work progress - **Individual Kanban tables**
- Evaluate Gantt chart **progress**
- **Update project tracker and adjust goals** for the following week

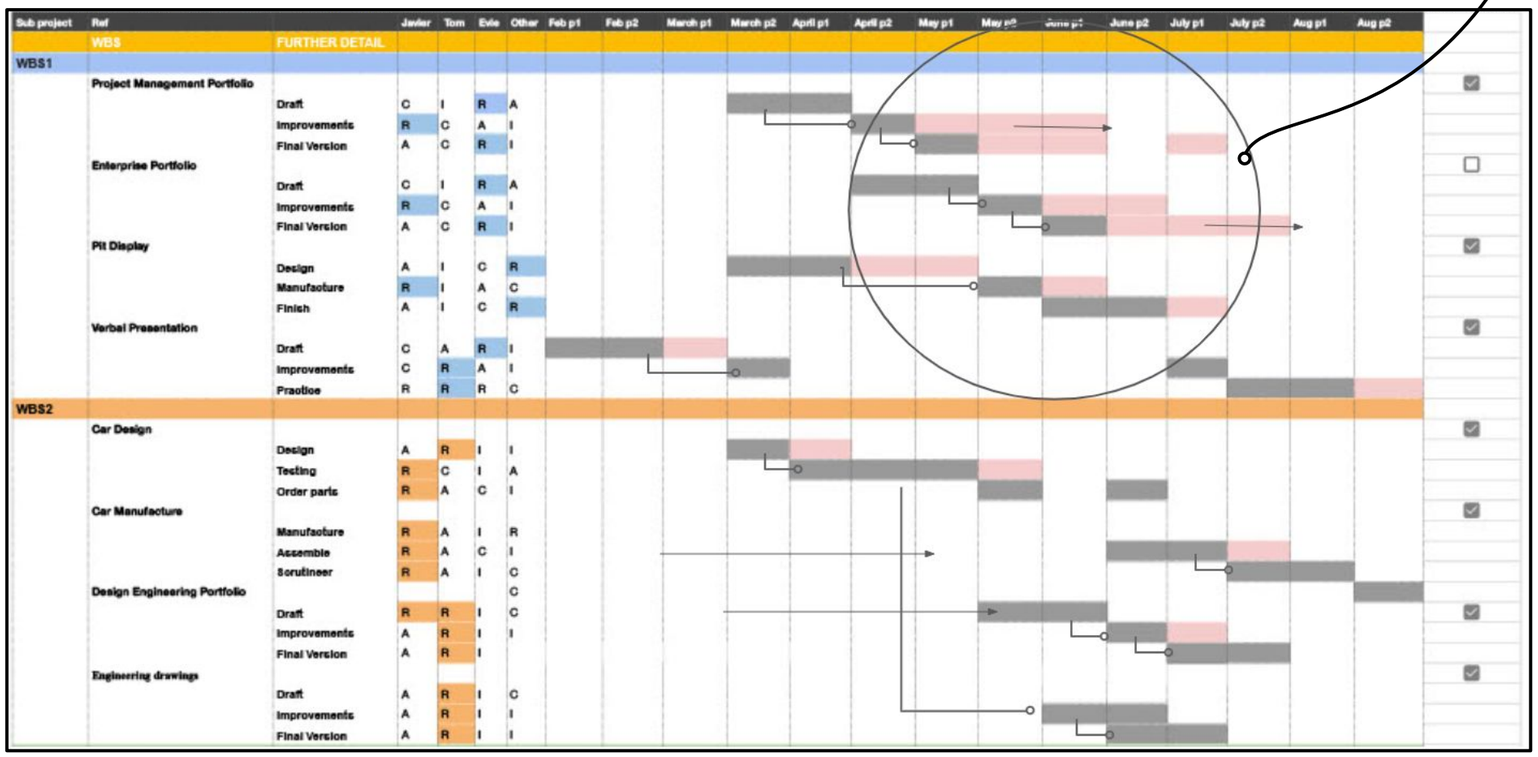


Figure 2.1 - Gantt chart

WORK BREAKDOWN STRUCTURE | Engineering and Enterprise

The work breakdown structure, is the **holistic breakdown of the deliverables** that is the foundation to all Eclipse's project management activities. Additional tasks are evidenced further in the project tracker in which the team addressed in every status meeting.

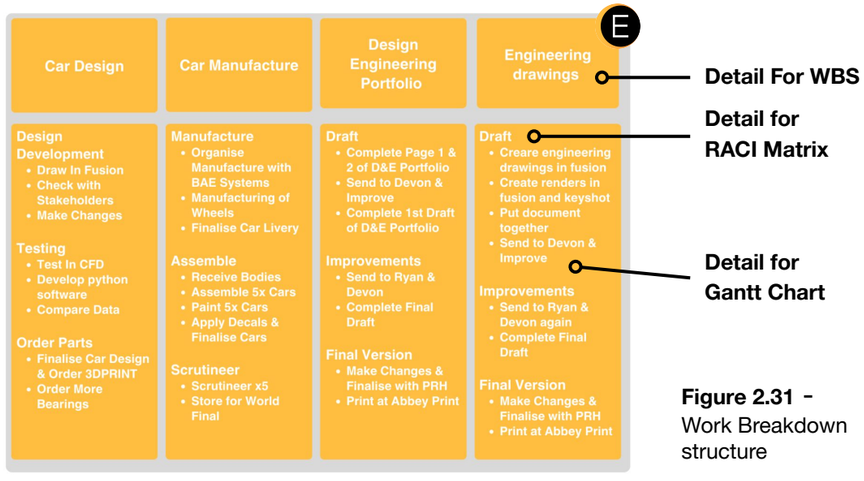
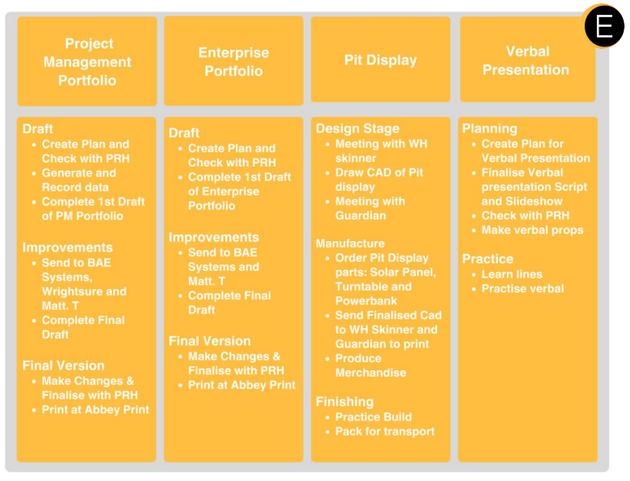


Figure 2.31 - Work Breakdown structure



RISK MANAGEMENT | Monitoring and Controlling

Evidenced in the Gantt chart are areas where **the team experienced project creep.** By establishing a risk management schedule the impact of this was reduced. It was vital that the team did not exceed the critical path deadlines or it would lead to delays in future taks. To mitigate this weekly meetings took place.

TIME ESTIMATIONS | S-Curve Graph

Inspired by the Formula One team, Williams, Eclipse **tracked progress using a graph**. This was discussed in weekly meetings and plotted accordingly.

ECLIPSE CALENDAR

To ensure Eclipse stayed organised the team regularly updated the shared calendar with all events and key meetings.

The use of Google Drive organised the work and shared information through the project tracker, calendar and folder.

- Meetings with sponsors maintaining partners
- Primary STEM days
- Promoting STEM, Women in Engineering, F1® in Schools events
- Team Status meetings
- F1® in Schools World Finals

Figure 2.2.1 - Eclipse calendar key

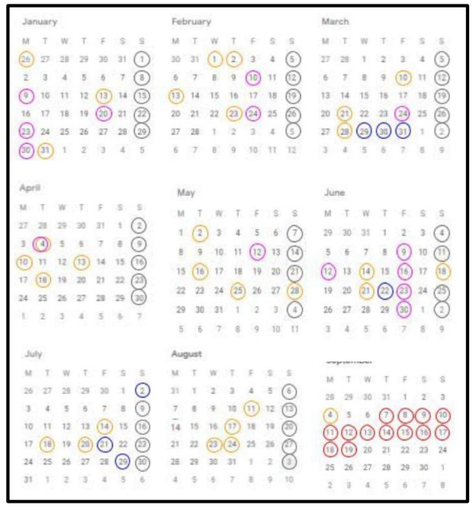
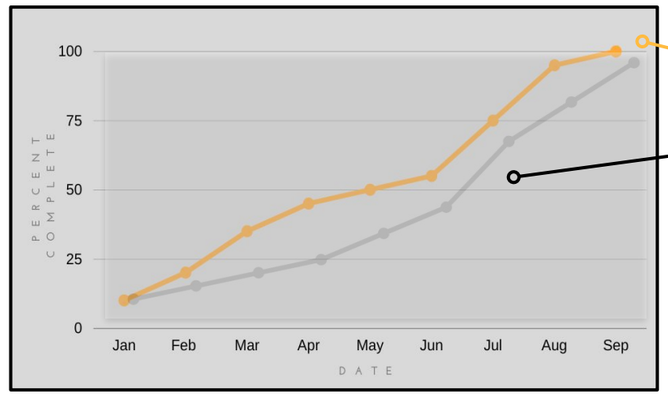


Figure 2.2.2 - Eclipse World Finals Calendar

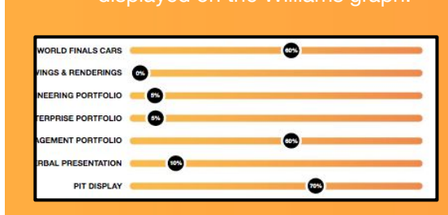


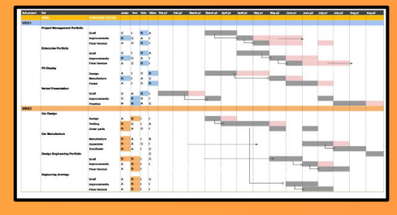
By comparing Eclipse's graph against that of a Formula One team it was interesting to see how the teams compared.

Figure 2.3 - Williams graph

MONITORING & CONTROLLING | PROJECT SCHEDULE

- During weekly status reports the team kept track of project creep by updating the Gantt chart, marking critical paths and highlighting any major project creep. Progress was tracked using an adjustable percentage scale which was later displayed on the Williams graph.





3 | BUDGET & RESOURCE MANAGEMENT

Eclipse

INITIAL MEETING | Budget Plan

As Team Principal, Javier monitored Eclipse's ordering. The team used the school's finance software to track expenditures. For the 2022/23 season, Eclipse approximate **expenditure was £20,000** (at the time this document was written).

Last season this figure was £10,000 but the team competed in 2 virtual competitions and the World Finals took place in the UK. Therefore they did not need to spend on flights and were allowed to source their own accommodation. To ensure maximum quality across the deliverables this season, Eclipse decided to outsource work to external partners to meet the **quality acceptance criteria** whilst trying to reducing costs.

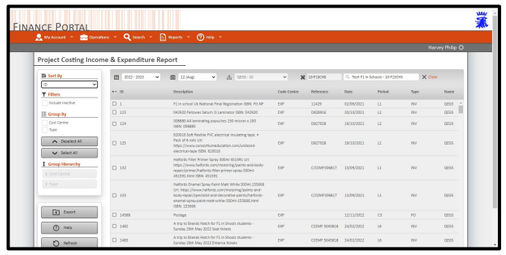


Figure 3.1 - Finance system

BUDGETING | Critical Expenses

Below, the team listed initial estimates of potential expenditure.

Enterprise

Item	Expense
Pit Display	£700
More Uniform	£300
Portfolio Printing	£30
Primary stem costs	£700

£1730

Engineering

Item	Expense
Wheels	N/A partnership
Body	N/A partnership
3D print parts	N/A partnership
Bearings	£40

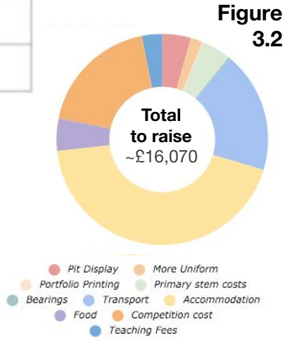
£40

Other

Item	Expense
Transport	£3000
Accommodation	£7000
Food	£800
Competition cost	£3000
Teaching Fees	£500

£14,300

Figure 3.2



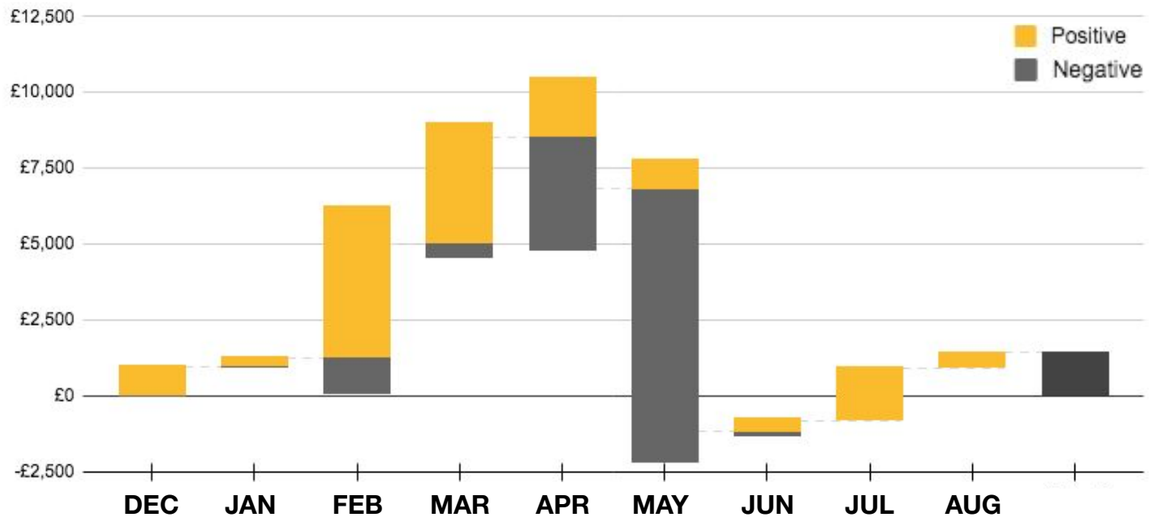
MANAGING OVER EXPENDITURE

By being **diligent** in **searching for the best prices** and willing to **negotiate,** over **expenditure was minimised**. For specific items, Eclipse tried to **negotiate reduced deals** wherever possible, such as with 3DPRINTUK where Eclipse managed to agree a manufacturing deal. **Figure 3.2** shows the initial estimation on expenditure.

ITM vs. OTM | World Finals Journey

Figure 3.3 shows the income (ITM) and expenditure (OTM) of Eclipse over their journey to the World Finals:

Figure 3.3 - ITM & OTM



MONEY IN | ITM - In The Money

Eclipse needed 'ITM' to be able to purchase resources for the project, as well as to access competition fees and trip costs.

Eclipse have been fortunate enough to gain a number of sponsors throughout their time in the competition, not only through **financial aid** but through **manufacturing aid and advice**. This is shown in the table **Figure 3.4** & identified in the chart **Figure 3.3**.

ITM TOTAL £16,129

OTM TOTAL £15,365

Figure 3.4

PARTNERS	TYPE	DETAILS
BAE SYSTEMS	PLATINUM (Financial, Services & Advisory)	£5,000.00 (Manufacturing Aid, Advice and Financial Support)
Poly-Tek	GOLD (Financial)	£2,000.00 (Financial Support)
Rotary Club of Canterbury	GOLD (Financial & Advisory)	£1,500.00 (Advice and Financial Support)
Autodesk	GOLD (Financial & Services)	£1,500.00 (Financial Support)
Singapore Airlines	GOLD (Financial & Services)	£1,000.00 (Financial Support and In-Kind Partnership)
Dedicate Recruitment	GOLD (Financial)	£1,000.00 (Financial Support)
Ansys	GOLD (Services)	Software (In-Kind Partnership)
KeyShot	GOLD (Services)	Software (In-Kind Partnership)
Faversham Municipal Charities	GOLD (Financial)	£1,000.00 (Financial Support)
Ceres	SILVER (Financial & Advisory)	£500.00 (Advice and Financial Support)
WH Skinner	SILVER (Services)	Manufacturing (In-Kind Partnership - Pit Display)
Guardian Displays	SILVER (Services)	Manufacturing (In-Kind Partnership - Pit Display)
Wrightsure Insurance	SILVER (Financial)	£500.00 (Financial Support)
3DPRINTUK	BRONZE (Services)	Manufacturing (In-Kind Partnership - Car)
Carter Bearings	BRONZE (Services)	Manufacturing (In-Kind Partnership - Car)
Scalextric	SPONSOR (Services)	£150.00 (In-Kind and Financial Support)
OHAUS	BRONZE (Services)	Manufacturing (In-Kind Partnership - Car)
SLS Select Education	BRONZE (Financial)	£150.00 (Financial Support)

MONEY OUT | OUTREACH

Eclipse **invested 15% of money into the community**. This including buying resources for the Primary STEM project, supporting initiatives within Green Group or purchasing equipment to be used in the technology department. Photos (Right) evidence some examples of this initiative in action,

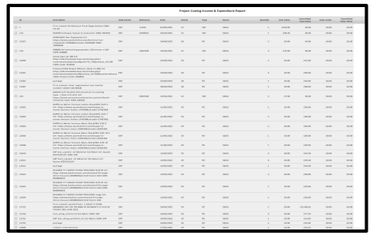


Figure 3.5 - Budgeting system

MONEY OUT | OTM - Out The Money

Figure 3.6 shows the actual expenditure (OTM) of Eclipse before the World Finals. This allows ~£763 for food and amenities when in Singapore.

Eclipse used **tracking software** to monitor money coming in and out through the school.

Figure 3.5 displays an example of the software implemented for Eclipse.

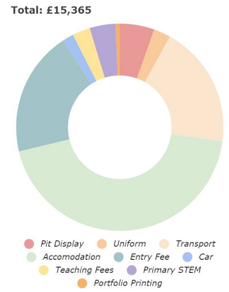
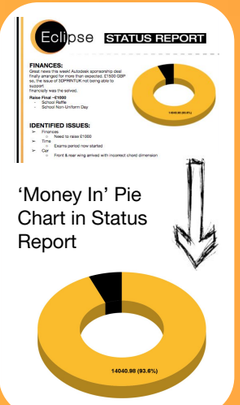


Figure 3.6 - OTM

MONITORING & CONTROLLING | RESOURCES & FINANCE



'Money In' Pie Chart in Status Report

In the weekly status reports the team tracked Money In to ensure they were meeting critical targets.

Examples are included in the monitoring and controlling page.

To monitor OTM and ensure it was justified, an ordering system was enforced.

Eclipse had to be careful that all money going out of the account was double checked. Simple decision trees (below) were used.

Eclipse

ROLES & RESPONSIBILITIES

Excellent team dynamics are important as it improves communication, inevitably leading to higher quality and more efficient task completion. Below breaks down each team member's key responsibilities:

JAVIER
Team Principal

Job Role: Team Principal
Responsibilities / Deliverables

- Overseeing sub projects e.g Eclipse Earth
- Organising regular meetings and status reports
- Communicating with stakeholders
- Pit display development
- Graphic design

Insights: White | **Inventive, Passionate, Formal, Team Player**

Figure 4.1 - Personality profiling

EVIE
Enterprise Manager

Job Role: Enterprise Manager
Responsibilities / Deliverables

- Project management portfolio
- Enterprise portfolio
- Human Resources (HR) manager
- Verbal presentation

Insights: Blue | **Determined, Sincere, Thoughtful**

Figure 4.2 - Team Dynamics

JAVIER
Team Principal

TOM
Engineering Manager

Job Role: Engineering Manager
Responsibilities / Deliverables

- Car development (testing)
- Car manufacturing
- Design and engineering portfolio
- Engineering drawings & renderings

Insights: Yellow | **Approachable, Team Oriented, Confident**

TOM
Engineering Manager

EVIE
Enterprise Manager

TASK ALLOCATIONS

Eclipse considered deliverables to be assigned to each person, **analysing the team members' strengths and weaknesses** including personalities, skillset and equipment. For example, Tom has a powerful computer so can run engineering simulations faster than anyone else. Javier has great Adobe Illustrator skills so did all the graphic design, etc.

For the World Finals there was a 40%, 30%, 30% split between Javier, Tom and Evie respectively. This work breakdown structure (WBS) laid the foundation for the Gantt Chart and RACI matrix.

TASK ALLOCATIONS | Personality Profiling BAE SYSTEMS

Eclipse's Platinum Sponsor, BAE Systems, introduced the **personality test 'Insights'** to Eclipse. **Figure 4.1** shows the teams personality colours. It was used to **develop the team dynamic, which proved to be very successful**. The system works by a colour representing a person's personality trait. A team formed of people of each colour provides the perfect balance, with each weakness being another's strength. The personality traits seen above under the team members' job roles.

CONSTRAINTS

Eclipse found **project constraints** both individually and as a team. To ensure the project schedule was carried out smoothly, the following risks were **managed by Evie, Eclipse's HR Manager:**

1. Exam Pressure / Balancing Study and F1® in Schools
2. Ensuring equal levels of motivation and effort are sustained
3. Allowing plenty of time to complete allocated parts of the project

Figure 4.3 - RACI Matrix

Sub project	Ref		Javier	Tom	Evie	Other Stakeholders
	WBS	FURTHER DETAIL				
WBS1						
	Project Management Portfolio		A	I	R	C
		Draft	C	I	R	A
		Improvements	R	C	A	I
		Final Version	A	C	R	I
	Enterprise Portfolio		A	I	R	C
		Draft	C	I	R	A
		Improvements	R	C	A	I
		Final Version	A	C	R	I
	Pit Display		R	I	A	C
		Design	A	I	C	R
		Manufacture	R	I	A	C
		Finish	A	I	C	R
	Verbal Presentation		C	A	R	I
		Draft	C	A	R	I
		Improvements	C	R	A	I
		Practice	R	R	R	C
WBS2						
	Car Design		A	R	I	C
		Design	A	R	I	I
		Testing	R	C	I	A
		Order parts	R	A	C	I
	Car Manufacture		R	A	I	R
		Manufacture	R	A	I	R
		Assemble	R	A	C	I
		Scrutineer	R	A	I	C
	Design Engineering Portfolio		R	R	I	C
		Draft	R	R	I	C
		Improvements	A	R	I	C
		Final Version	A	R	I	I
	Engineering drawings		R	R	I	I
		Draft	A	R	I	C
		Improvements	A	R	I	I
		Final Version	A	R	I	I
WBS3						
	Fundraising		R	C	A	I
	Newsletter		R	A	C	I
		Term 4	R	C	A	I
		Term 5	R	C	A	I
		Term 6	R	C	A	I
	Social media		R	A	C	I
	Events and Marketing		R	C	A	I

RACI Matrix

To display and organise job roles Eclipse used a RACI Matrix, **Figure 4.3**

(R) Responsible	(C) Consulted
(A) Accountable	(I) Informed

From the RACI Matrix you can gauge understanding of **team members' specialities and dependencies.** Establishing clear job roles ensures it becomes easier to complete sprints more efficiently.

The Work Breakdown Structure (WBS), second column of **Figure 4.3** shows how Eclipse divided up the workload of the project to make tasks more manageable.

The RACI matrix helped structure thought processes, **directing individual skills and shows team inter-connectivity**.

EXAMPLES

Responsible external stakeholders evidenced on communications page

Javier is the strongest at marketing and graphics in the team so was responsible for these tasks, supporting Evie and Tom in ensuring quality on their deliverables

Often one team member was in charge of an entire deliverable to ensure continuity and maximize depth of knowledge.

Javier was in charge of these elements and they were discussed in the weekly status reports

MONITORING & CONTROLLING | ROLES

- By discussing individual dependencies during the status reports, the team were able to maintain a fair division of tasks. Evie was still at school, Javier was on a gap year, Tom at University 150 miles away, so the team and to ensure tasks were shared as fairly as possible. If anyone was struggling, the team could distribute dependencies to support each other.

INDIVIDUAL DEPENDENCIES:

- Javier
  - Finalise Car Design in CAD Ready for Manufacture & Send to Devon Jones
  - Plan Deliverables from PRH's Notes & Start Pit Display Graphics
- Evie
  - Complete 1st Draft of Project Management Portfolio
- Tom
  - Work on Race Model COde & Start D&E Portfolio

5 | TEAM & STAKEHOLDER COMMUNICATION

Eclipse

RECOGNISING STAKEHOLDERS

Stakeholders are comprised of **team members, mentors, sponsors and manufacturing partners**, ensuring good communication was vital to the success of partnerships.

INTERNAL PARTNER | Communication

Internally, regular communication was enforced via Zoom meetings and phone based group chats. Regularly the team discussed upcoming events, scope progress and asking for support to help each other achieve their sprint tasks. The team ensured all email chains were shared with every team member to **avoid any miscommunication**.
As a Google school the team used Google Drive folders and organised information in the cloud software meaning **anyone could access files anytime, anywhere**.

EXTERNAL PARTNER | Communication

Early in the project, Eclipse identified they could not **complete all deliverables** by themselves. **Increase in resources** and improvement in quality were beneficial subfactors of working with **stakeholders and partners**. Eclipse had access to a high quality workshop internally, however the standards in industry were far greater. It was vital that all stakeholders were communicated with well and this page outlines how this was achieved successfully.

CONTACTING PARTNERS

It is hard to gain a relationship with a new stakeholder as there is the risk that they may not contact you back following initial reach out to them.

To contact companies professionally and improve the chances of contact, Eclipse formed a 3 stage plan. **Figure 5.1**, shows the team's strategy.

To be a successful team, **Eclipse needed to accumulate partnerships in 3 different ways:**

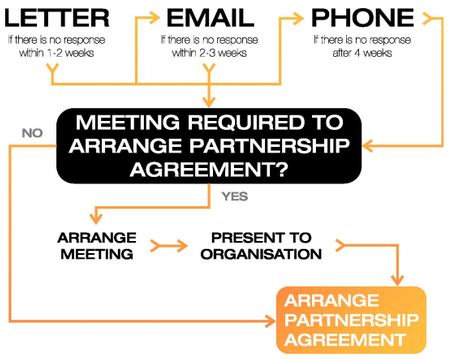


Figure 5.1 - Contacting potential sponsors

1. **Financial** - to **increase purchasing power** for materials, travel expenses and entry fees
2. **Services** - to **improve the quality of deliverables** such as team uniforms, the pit display and cars
3. **Advisory** - to support **achieving the project scope** to the best of Eclipse's ability

Sponsorship is important for companies as it helps **increase credibility, improve public image and build prestige whilst maintaining corporate social responsibility.**
Throughout Eclipse's journey there have been a number of unsuccessful partner arrangements but that is inevitable in any profession. Fortunately for the team, there have also been **many successful partnerships** and they are listed below, **Figure 5.2**.

Contacted Businesses	Contacted	Response	Follow-Up	Decision	Other Details
Go Fund Me				1,540.98	£1540.98 Withdrawn on 26/04/2023. Automatically withdraws monthly until cancellation.
BAE SYSTEMS	☑	☑	☐	£5,000.00	Platinum Partner (Manufacturing, Advice and Financial Aid)
Poly-Tek	☑	☑	☐	£2,000.00	Gold Partner (Financial)
Rotary Club of Canterbury	☑	☑	☐	£600.00 > £400.00	Gold Partner (Advice, Financial)
Singapore Airlines	☑	☑	☑	Reduced Prices	Gold Partner (Financial - Discounted Flights) - Flight Cost (£2918.24) - £1000 Discounted
Dedicate Recruitment	☑	☑	☐	£1,000.00	Gold Partner (Below Poly-Tek / Rotary)
Faversham Municipal Charities	☑	☑	☐	£1,000.00	Gold Partner (But No Logo Anywhere)
Wrightsure Insurance	☑	☑	☐	£500.00	Gold Partner (Lowest)
KeyShot	☑	☑	☐	Software	Gold Partner (Software)
Ansys	☑	☑	☑	Software	Gold Partner (Software)
3DPRINTUK	☑	☑	☐	Free Manufacturing > £500 TBC	They want to arrange a sponsorship package with us and organise a visit to their offices later on in the Summer!! Very very likely.
WH Skinner	☑	☑	☐	At Cost Deal	Silver Partner (Advice, Manufacturing)
Guardian Displays	☑	☑	☐	Free Deal	Silver Partner (Advice, Manufacturing)
Carter Bearings	☑	☑	☐	Reduced Prices	Bronze Partner (Bearing Discount - Financial)
Scalextric	☑	☑	☑	Set Donation	Sponsor (Donated Scalextric Set)
UCL	☑	☑	☐	Manufacturing (Bodies)	Bottom Level
OHAUS	☑	☑	☐	£150.00	Joint Bronze Partners (Bronze) Not paid...
SLS Education	☑	☑	☐		
Ceres	☑	☑	☑	£2,500 (IDEAL)	Ceres Power interested in sponsoring Eclipse, have replied positively. Want to meet to discuss sponsorship with us and opportunity to present.
Wilder Sportswear (Prescu)	☑	☑	☑	Discount of Order	Happy to discount order - finding out how much. Would be a sponsor.
Autodesk	☑	☑	☑		£1,000.00 offered by Matt Bell. Now being followed up with two other Autodesk Education employees. Email sent to both. Completely ignored.
Lenovo	☑	☑	☑		Johnathon White and Sarah Martin from Lenovo very interested in making this happen, they want to sponsor Eclipse. Email sent to both.
Ford Britain Trust	☑	☑	☐		Have replied - response in April.
Vitta Group	☑	☑	☐		Contacted Regarding Free Force-Time Sensor. Offer to discount it significantly.
CASIO	☑	☑	☐		Head of HR at Casio said they'd pass it on to their Calculators Team
Quinn Estates	☑	☑	☐		Need to follow-up through Mr Anderson - partnership likely from speaking to employees - supports lots of local projects
Leonardo	☑	☑	☐		Similar to BAE Systems, hopeful on this one, found good emails by phoning up. Fecthed Up again.
Rotary Club of Faversham	☑	☑	☑		Partnership Possible & Waiting for Decision.
WeyPC	☑	☐	☐	?	Contacted Regarding Giveaway
Foundations Estate Agents	☑	☐	☐	?	Local Companies - Family Known
Haas Automation	☑	☐	☐	?	Sponsored F1 in Schools Teams Before
Babcock International	☑	☐	☐	?	Sponsored F1 in Schools Teams Before
Magger	☑	☐	☐	?	Sponsored F1 in Schools Teams Before
Vodafone	☑	☐	☐	?	Sponsored F1 in Schools Teams Before
Silverstone	☑	☐	☐	?	Sponsored F1 in Schools Teams Before
Nissan	☑	☑	☐	?	Partnership Unlikely but IAN GREEN - Head of Verbals for last 7 years agreed to help Eclipse with presentation etc.

Figure 5.2 - List of partners and working relationship

STAKEHOLDER REGISTER

The creation of a stakeholder register, **Figure 5.3**, was essential in the stakeholder communications process. Below is a copy of the team's register, identifying partners and the lead person of contact. This table links from the register and Gantt Chart/RACI matrix. To the right are examples of communication with stakeholders.

Figure 5.3 - Stakeholder Register

Partner	Contacts	Email Address
BAE SYSTEMS	Gemma Fabian	~~gemma.fabian@baesystems.com~~
	Dan Palmer	~~dan.palmer@baesystems.com~~
	Sean Holbrook	~~sean.holbrook@baesystems.com~~
	Devon Jones	~~devon.jones8@baesystems.com~~
Poly-Tek	Stuart Plumb	info@poly-tek.co.uk (Stuart Plumb)
Rotary Club of Canterbury	Brian Dobinson	brainjdobinson@gmail.com
	Mary McGeary	
	Julie Reza	
Dedicate Recruitment	Dan Nevitt	dan@dedicaterecruitment.co.uk
	Liz Nevitt	liz@dedicaterecruitment.co.uk
Wrightsure Insurance	Ron Powell	ronp@wrightsure.com
WH Skinner	Meg Illari	meg@whskinner.co.uk
	Claire Halligan	sales@whskinner.co.uk (Claire)
Guardian Displays	Anthony Booty	anthony.booty@gdisplay.co.uk
	Hannah Woods	hannah.woods@gdisplay.co.uk
3DPRINTUK	Connor	hello@3dprint-uk.co.uk (Connor)
Ceres	Mark Hamilton	mark.hamilton@cerespower.com
	Tim Li	tim.li@cerespower.com
	Caroline Hargrove	caroline.hargrove@cerespower.com
	William Ingram	William.Ingram@cerespower.com
Faversham Municipal Charities	Carolyn Flanagan	carolyn.flanagan@fmc2010.org.uk
	Micheal Gates	
	Margaret Gates	
Autodesk	Herbert Bickelmann	Herbert.Bickelmann@autodesk.com
	Simon Leigh	simon.leigh@autodesk.com
	Lauren Ryland	lauren.ryland@autodesk.com
Singapore Airlines	Melodie Szapiro	Melodie_Szapiro@singaporeair.com.sg
Scalextric	Simon Owen	Simon.Owen@hornby.com
Carter Bearings	Mel Meader	mel@carterbearings.co.uk

BAE SYSTEMS

Helped to design and manufacture the car wheels by exploring material possibilities and manufacturing techniques. Experiment with titanium axles and carbon fibre 3D Printing.

Calls with Devon Jones, aerodynamicist, to reduce the car's energy losses via aerodynamic friction. Devon also advised Eclipse how to improve the quality of their design engineering portfolio.

BAE Systems', Gemma was the link to organising the 'Connect day'

The team worked with Dan Palmer to organise supporting the Medway Gaming Festival and giving presentations to BAE Systems staff

Visits to 3D Print UK for factory tour and to collect parts for cars

Visits to WH Skinner to discuss Pit display design/manufacture

Organising Eclipse Earth with Ceres

Meeting with news team at KMFM to promote STEM in the local community.

Meeting to explain partnership agreement with Singapore Airlines.

COMMUNICATION WITH PARTNERS

- All emails came from an **Eclipse account to ensure continuity.**
- Used software specific to each company improved communication
- Used a **Kanban table to ensure communication tasks were met**
- During meetings ensure the email inbox was empty or understood.
- Using the Gantt chart the team could plan ahead and **ensure sufficient time for collaboration with partners**.

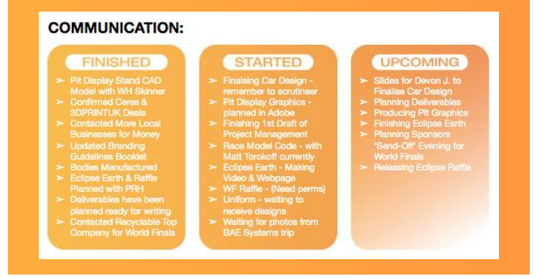
Figure 5.4 - Newsletter

REPORTING TO STAKEHOLDERS

To keep all sponsors/partners up to date **Eclipse sent out regular newsletters** every school term **(Figure 5.4),** to update them the progress and give big announcements. There were regular meetings online and face to face as well as sponsors tagged in online posts. To celebrate finishing the competition **Eclipse will hold an event with all partners** prior to leaving for the World Finals.

MONITORING & CONTROLLING | COMMUNICATION

- During status reports, Eclipse updated their Kanban table to improve communications.



6 | RISK MANAGEMENT, MONITORING & CONTROLLING

Eclipse

RISK IDENTIFICATION

As part of quality management, it was important to **identify the risks** Eclipse would endure during the F1® in Schools World Finals campaign. Risks are identified and then as a team discussed how to reduce them. On reflection the team was able to conclude the level of success with managing the identified risks.

Scope creep is an effect of work 'piling up' if deadlines are not met, this is something Eclipse had faced in previous campaigns due to miscommunication within the team. **Risks impact; restheirces, timings and scope.**

Figure 6.1 is the simple strategy followed to strengthen response to potential failure in tasks and sprints. **Agile philosophies** combined with Eclipse's own, formed a system that worked effectively for the team. They identified the biggest risks below from previous experience and feedback from competition judging.

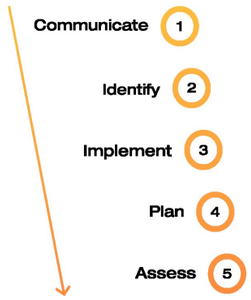


Figure 6.1 - Agile

RISK HEAT MAP | Previous Experience

Below is a risk heat map (**Figure 6.2**), **to identify the biggest shortfalls** and areas to spend the most time and effort preventing. It is associated with **scope, time, restheirces, and finance.**

Figure 6.2 - Risk Heat Map

RISK MANAGEMENT	SEVERITY 1	2	3	4	5
IMPACT 1		(7)			
2	(2)			(8)	
3		(3)	(10)	(11)	(9)
4				(6)	(5)
5			(4)	(1)	

Scope
- (1) Losing Files
- (2) Not Meeting Baseline Goals
- (3) Ensuring High Standard Work
- (4) Mental Health Impact

Time
- (5) Exam Clash
- (6) Project Creep
- (7) Lack of meetings due to busy schedules

Resources
- (8) Lack of Communication from Providers
- (9) Late Deliveries
- (10) Machine Malfunctions

Finance
- (11) Lack of Funds & Budget from Sponsors

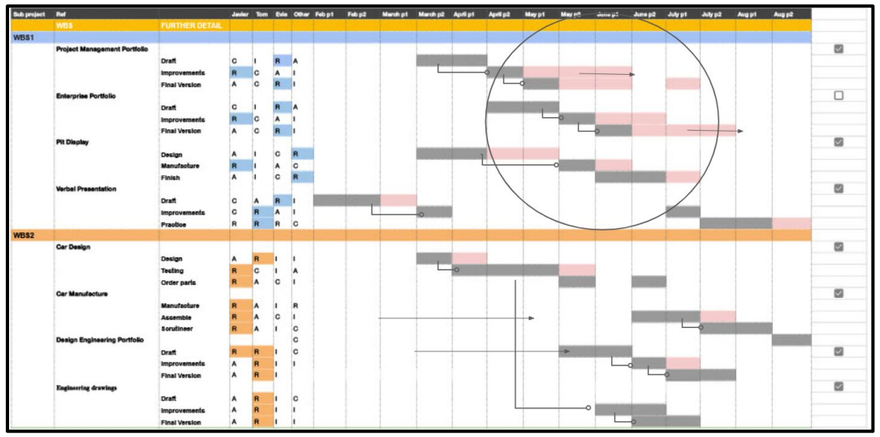
RISK PATHWAYS | Critical

Using the heat map, Eclipse **identified key risks and strategies to prevent them**.

Figure 6.3 - Risk pathways

RISK MANAGEMENT

Inevitably Eclipse faced some risks with the lead to the World Finals. The main risk faced was project creep, but by identifying this as quickly as possible during meetings the team were able to **reorganise workloads and ensure they met deliverable targets**.



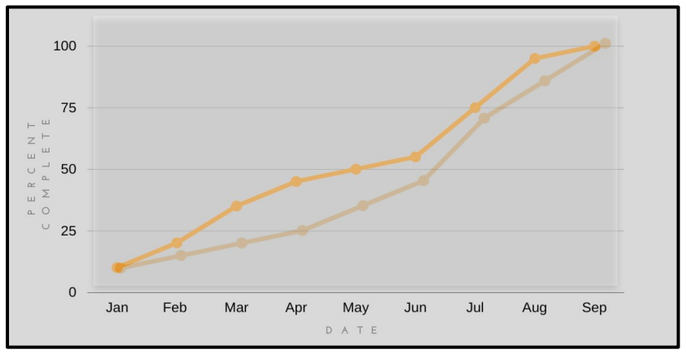


Figure 6.5 - Time Graphs

The graph above aligns with the team's Gantt chart.

- ➔ There were blocks where tasks overran the predicted time frame. Often this was as a result of wanting quality outcomes and overchecking before sending to be manufactured. This potentially compromised other areas.
- ➔ A level exams caused more delays/interruption than expected.

Fortunately for the team, **all stakeholders ensured manufacture deadlines were met** leaving adequate time to assemble, test and package.

- ➔ A great example of risk management planning was the 3D printed parts. **There had been a slight problem with the tolerances of printed outcomes** so these had to go back to be reprinted. However because there was risks of this factored in, it didn't affect overall gantt performance targets.

The time spent on organizing ITM was more consuming than expected. This took time away from focusing on other deliverables. **Critical tasks were split across other team members** if one was struggling. This helped to ensure all deliverables were met.

- ➔ Limited progress on portfolios and deliverables could be made at the start of the World Finals campaign as the **team were left waiting for regulations to be released**. The team used this time to implement an effective project management system, refine social media and campaign for further funding and collaborations.

Following the graphs above you can see that although the timeline wasn't perfectly followed, **due to factoring in time for risks, the team were still able to meet deadlines**, whilst ensuring high quality and achieve the baseline goals.

MONITORING & CONTROLLING | Project Evaluation

- Monitoring and controlling has been fundamental to the team's actions and success in the competition. As a team Eclipse have implemented a plethora of project management strategies to ensure all of the deliverables were completed on time and to the highest standards.

QUALITY CONTROL | Acceptance Criteria

- On each draft completion of a portfolio, Eclipse assessed the work against the F1® in Schools marking criteria. The team then sent portfolios to partners for feedback and marked against an acceptance criteria sheet. Below shows example of the sheets used by the team and the partners.

STATUS REPORT

Throughout the team's monitoring and controlling they ensured each team member completed status reports. An example can be seen in **Figure 6.6**. The team always ensured they stayed on task, allowing for regular checks against the Gantt chart and created reminders for communication with stakeholders. The weekly team meetings ensured these took place and were always an agenda item.

BASELINE GOALS

Baseline goals were at the centre of all actions and discussed in every status meeting. As a team nearly all baseline goals were met, alongside individual goals as well.

EVALUATION

There was a lot of risk in this campaign with Tom being at university in Southampton, Javier on a gap year and Evie still studying for her A levels at school. The team are proud of their efforts, especially as being a team of three, more roles had to be undertaken with less opportunities to delegate deliverables compared to much larger sized teams in the competition.

Figure 6.6