

# Agile Development for FLL Teams

Team 2991 4-H S.C.R.E.A.M.

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Safe  
Cargo  
Robots  
Engaging  
Applied  
Mechanics



# Team 2991 4-H S.C.R.E.A.M.

Dawson



Jacob



# Agile Development for FLL Teams

Team 2991 4-H S.C.R.E.A.M.

# What is Agile Development?

Agile Development is a framework for collaboration, communication and tracking of tasks focused on the incremental steps needed to create and improve solutions.

# Other Agile Development Methods

- ▶ Scrum
- ▶ Kanban
- ▶ Extreme Programming
- ▶ DevOps
- ▶ AgilePM
- ▶ Design Thinking

Our  
approach  
S.C.R.E.A.M.

S.C.R.E.A.M.'s

Creative

Reliable

Easy

Agile

Method

# Why do we use Agile Development?

- ▶ Organized
- ▶ Efficient
- ▶ Inclusive
- ▶ Teamwork Focused
- ▶ Flexible



# Steps to S.C.R.E.A.M.



# What is a Backlog?

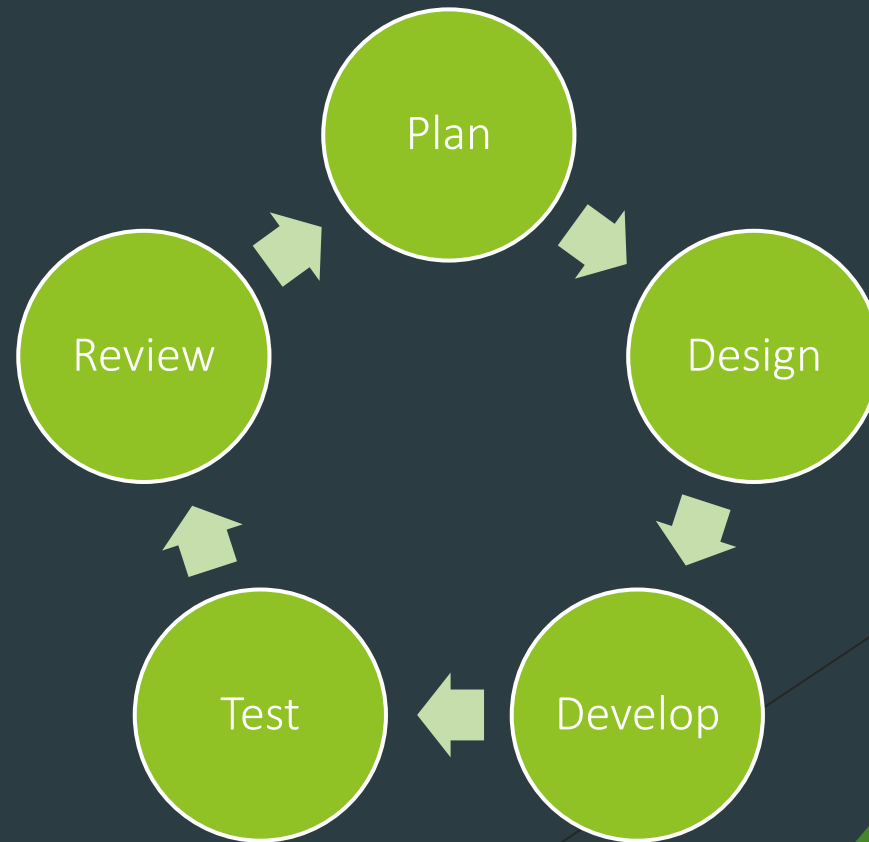
- ▶ A tool for tracking the status of tasks
- ▶ Tasks on the list are anything needed to be done for your season
- ▶ Created at the beginning of the season
- ▶ Add/Delete/Updated items at any time

Task	Status
Brainstorm Project Ideas	Completed
Brainstorm Project Solutions	Completed
Talk to Experts	Completed
Share Project Learnings	Completed
Decide Project	Completed
Gather detailed sources about Project Problem	Completed
Gather detailed sources about existing Problem solutions	Completed
Get FeedBack on Solution	Completed
Learn Project Rubric	Completed
Mission Decision Matrix	Completed
Explore Mission Solutions using manual mechanisms	Completed
Explore Mission Solutions using motorized mechanisms	Completed
Design Robot Game Prototypes	Completed
Build Robot Game Prototypes	Completed
Read Game Rulebook	Completed
Learn Robot Rubric	Completed
Learn Core Values Rubric	Completed
Explore Spike Prime vs EV3	Completed

# What is a Sprint?

- ▶ Short period of time, 1-2 weeks typically
- ▶ Focused on completing a specific set of tasks from the Backlog
- ▶ Can run multiple Sprints at the same time in parallel

## Steps in a Sprint



# Sprint: Plan

- ▶ Goals
- ▶ Tasks
- ▶ Crew
- ▶ Deadline

## Plan

---

Friday, October 22, 2021 9:25 AM

- Split into 2 crews
  - Innovation Project Crew: Z, Maisey, Jacob
  - Cargo Connect Crew: Ben, Jack, Dawson
- Each crew designs a unique robot
  - Use our decision matrix to identify which missions the robot needs to complete
  - Consider what sensors, motors, mechanisms and attachments your robot should have
- Build the robot

Deadline: Saturday October 30<sup>th</sup>

Goal: 2 independent robot designs that can be used for competition

# Sprint Plan: S.M.A.R.T. Goals

- ▶ Specific: A clear definition that everyone understands
- ▶ Measurable: Make sure you can track the progress of the goal
- ▶ Achievable: The team should have access to the resources and time needed
- ▶ Relevant: Align the goal with tasks needed, check your rubrics
- ▶ Time Bound: Have a reasonable deadline

# Sprint Plan: Tasks

Break down the goal into small tasks, steps, needed to achieve the goal

## Plan

---

Monday, October 11, 2021 1:17 PM

- Give each team member a robot kit
- Each team member chooses mission models to explore
- Take turns picking a mission model so they are fairly split
- Design a basic robot that can complete at least 1 mission

Goal: Design and program a basic robot that can complete a mission

Due Date: October 14<sup>th</sup>

# Sprint Plan: Crews

- ▶ Team members choose which crews to be on
- ▶ Some plans may not have crews, just individuals doing work
- ▶ A Sprint can have multiple crews
- ▶ Give the crew a fun name
- ▶ Crew members will have roles
- ▶ Rotate roles between Sprints so everyone gets experience

## Crew Assignments

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Thursday, October 15, 2020 4:32 PM

**Crew Members:**

Maisey, Ben, Z, Dawson

**Status Update 1 Spokesperson:**

Z

**Status Update 2 Spokesperson:**

Dawson

**Review Spokesperson:**

Ben

**Status Report Writer:**

Dawson

**Review Report Writer:**

Z

**Meeting Coordinator:**

Maisey

**Task Tracker:**

Ben

**Meeting Notetaker:**

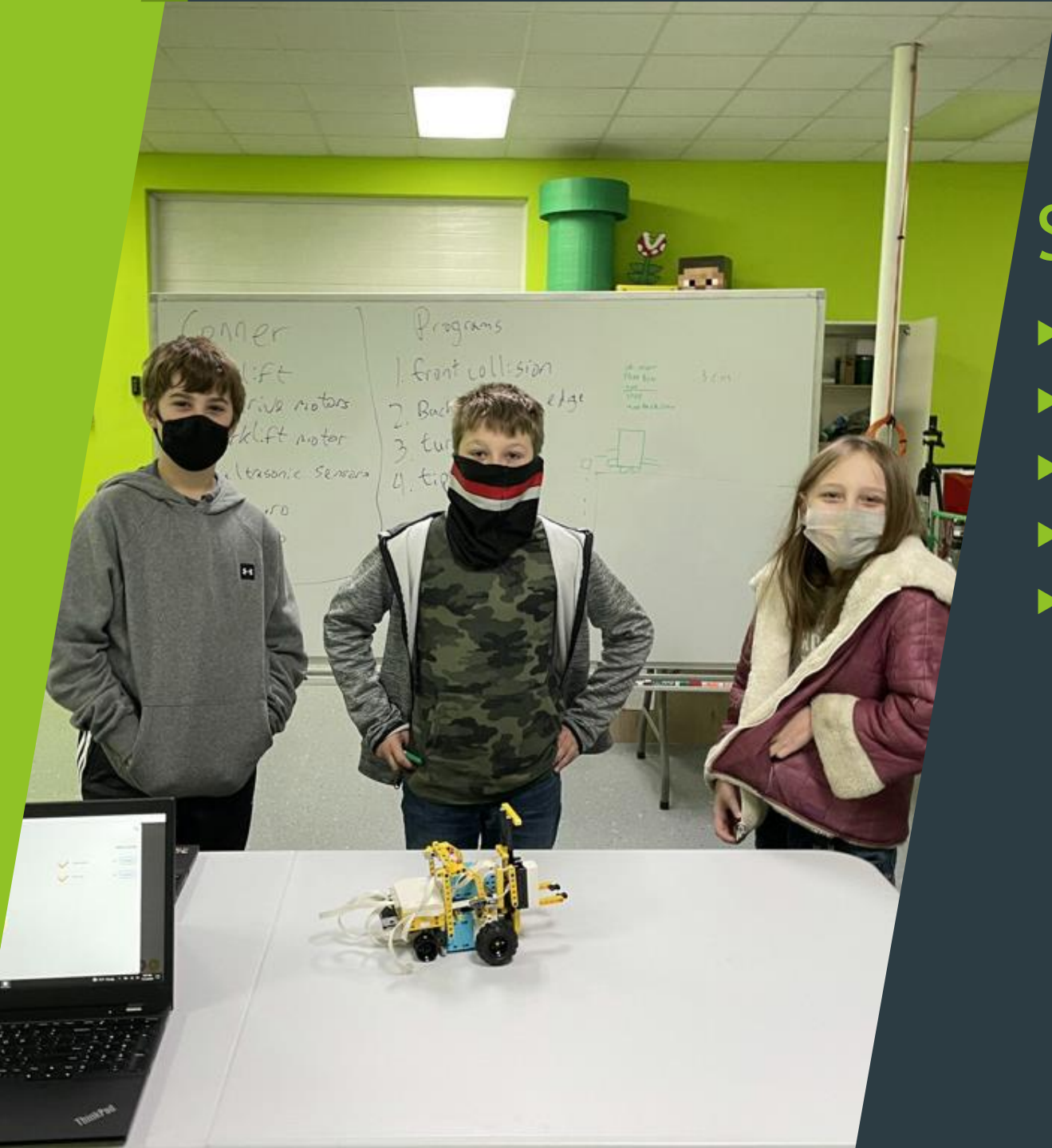
Maisey

# Sprint: Design

- ▶ Can include:
  - ▶ Brainstorming
  - ▶ Drawing
  - ▶ Writing PsuedoCode
  - ▶ Creating Outlines
  - ▶ Researching
  - ▶ Talking with Experts
  - ▶ Creating small Prototypes







# Sprint: Develop

- ▶ Build Robot
- ▶ Write Programs
- ▶ Build Project Solution
- ▶ Make Props
- ▶ Tasks that involve creation or improving creations

# Sprint: Test

Evaluate the performance of your solutions. We use a method called the Ten Times Test. Test the solution 10 times and track the results.

Date	Changes Made	Correct Runs	Total runs
11/11	None; Original Code	8	10
11/12	Removed Unnecessary Wait Block	10	10

# Sprint: Review

## Status Reports

- ▶ Status of a Sprint is given at the beginning of each team meeting
- ▶ Includes; work completed, next steps and challenges

### Bullet Train Status

Friday, October 22, 2021 9:22 AM

#### Work Completed Summary:

One person is killed by forklift accidents every three days in the US. The main types of accidents are rollovers, dropping of cargo, and impacts of pedestrians. The causes are lack of training, slick work environment, harsh weather, too much weight, drunken driving, and lack of attention.

#### Next Steps:

Researching more

#### Challenges:

We could not find many things that we were supposed to research.

## Review Reports

- ▶ Reviews are done at the end of a Sprint
- ▶ Includes; summary, next steps and feedback

#### Summary:

In all we ready the robot for the state competition by improving accuracy and adding another mission, the other side of bridge.

#### Next Steps:

Practice robot runs more

#### Feedback:

Platoon truck accuracy

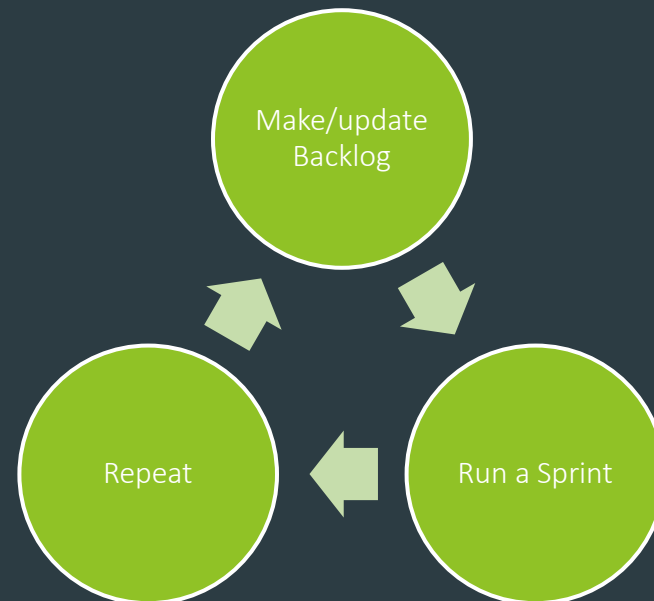
# Backlog: Managing

- ▶ At the end of a Sprint update Backlog
- ▶ You can update the Backlog items status any time
- ▶ Add/Remove/Modify existing items at any time
- ▶ Use the Backlog to create goals for the next Sprint
- ▶ Incomplete items from a Sprint can be used for the next Sprint

Tasks	Status
Increase Robot Game score	
Review Rubrics	
Improve areas identified in Rubrics	
New Robot for Alliance matches	In Progress
Create videos of mission completion	
Kid Fest	
Banner	
Project Outreach	
Create non <u>lego</u> project POC	
Improve scripts	
Improve posters	
Improve props	
Print new notebook sections	
Improve notebook pictures	
Meet with forklift trainer	
Improve pit display	
Create giveaways	
Create Agile Development presentation	In Progress
Social outreach	
Brainstorm Pit Display ideas	In Progress

# Repeat

- ▶ Repeat running Sprints and updating the Backlog until you have finished your Backlog
- ▶ Run multiple Sprints at the same time. For example, a Project Design Sprint and a Robot Build Sprint can be done at the same time
- ▶ Parallel Sprints can have different deadlines and different crews
- ▶ Team members can be on multiple crews



# Team Meeting Agenda

1. Check For Challenge Updates
2. General News
3. Sprint Status Reports
4. Sprint Review Reports
5. Update Backlog
6. Create New Sprint Plans
7. Crew Work



# Agile Examples: Tools

## Microsoft Teams

The screenshot shows the Microsoft Teams interface. On the left is a sidebar with navigation options: Activity, Chat, Teams, Calendar, Calls, Files, Tasks by Planner, OneNote, and Apps. The main area displays a chat conversation in a 'General' channel. The chat history includes:

- Coach Jeremy** (Wednesday 10:28 AM): Added a new tab at the top of this channel. Here's a link. (Link: Triangle Display)
- Coach Jeremy** (Wednesday 10:35 AM): FLL SCREAMers you can use this PowerPoint presentation to layout each of the sides of the two triangle displays for Razorback.
- Dawson C** (Wednesday 1:28 PM): I just realized. how are we going to get the sickers. if they are at the office by richland i can go get them but not sure if they are. (3 replies from Jeffrey, Dawson, and Jennifer)
- Dawson C** (Yesterday 7:48 AM): If you could pick up the stickers that would be great.
- Maisey E** (Wednesday 7:26 PM): Scheduled a meeting. (Meeting ended: 28m 3s)

A 'New conversation' button is visible at the bottom of the chat area.

The screenshot shows the Microsoft Teams interface with a task board view in a 'General' channel. The task board is organized into two columns: 'Robot' and 'Project'. The 'Robot' column has 32 completed tasks, and the 'Project' column has 22 completed tasks. The tasks are listed as follows:

- Robot Column:**
  - Robot Sprint-8 (Completed by Jack E on 01/25)
  - Robot Sprint-9
    - Assign Roles
    - Schedule Meetings
    - Write Status Report 1
    - Write Status Report 2
    - Write Review Report
    - Speed up existing programs
    - Improve Cargo Plane reliability
    - Add 1 or 2 missions to increase total score
    - Practice Robot Runs

- Project Column:**
- Project Sprint-8 (Completed by Coach Jeremy on ...)
- Project Presentation Sprint-2 (Completed by Coach Jeremy on ...)
- Presentation Sprint-1--Project (Completed by Coach Jeremy on ...)
- Submit Project Solution Ideas

# Agile Example: Tools

The screenshot shows the Microsoft Teams interface. On the left is a navigation pane with 'Your teams' including '4-H SCREAM', 'S.C.R.E.A.M. FLL', and 'Robot Design'. The 'Robot Design' team is selected, showing a list of channels: 'General', 'Agenda Items', 'Budget Items', 'CADDyshack', 'Outreach', 'Programmers Corner', 'Research', '2 hidden channels', 'Coaches Corner', and 'Testing Channel'. The main chat area shows a conversation in the 'Robot Design' channel. The chat history includes messages from Maisey E. (4/8 8:02 PM) with a file 'M-O.lisp', Zedekiah A. (Monday 6:08 PM) who 'Scheduled a meeting', Ben E. (Wednesday 6:01 PM) with a file 'driving M.O.lisp', Dawson C. (Wednesday 7:12 PM) with a file 'driving M.O (1).lisp', and Ben E. (Yesterday 6:19 PM) with a file 'driving M.O (2).lisp'. A 'New conversation' button is at the bottom.

The screenshot shows the Microsoft Calendar interface in a weekly view for April 2022. The calendar grid spans from Sunday, April 3rd to Saturday, April 9th. Meetings are scheduled as follows:

- Monday, April 4th:** '4-H S.C.R.E.A.M. Team meeting' (Coach Jeremy) from 5 PM to 6 PM.
- Tuesday, April 5th:** 'S.C.R.E.A.M. Team Meeting' (Coach Jeremy) from 5 PM to 6 PM; 'Cancelled-FLL Weekly Meeting' (Coach Jeremy) from 6 PM to 7 PM; 'Cancelled-FLL Challenge Bi-Weekly Meeting' (Coach Jeremy) from 7 PM to 8 PM.
- Wednesday, April 6th:** 'Information' (Zedekiah A.) from 12 PM to 1 PM; 'agile development' (Zedekiah A.) from 2 PM to 3 PM; 'robot alliance' (Ben E.) from 3 PM to 4 PM; 'agile development' (Zedekiah A.) from 4 PM to 5 PM.
- Thursday, April 7th:** 'agile development' (Maisey E.) from 3 PM to 4 PM; '4-H S.C.R.E.A.M. Team meeting' (Coach Jeremy) from 5 PM to 6 PM; 'Cancelled-FLL Challenge Bi-Weekly Meeting' (Coach Jeremy) from 6 PM to 7 PM; 'S.C.R.E.A.M. Team Meeting' (Coach Jeremy) from 7 PM to 8 PM.
- Friday, April 8th:** 'Cancelled-FLL Team Meeting' (Coach Jeremy) from 5 PM to 6 PM; 'Cancelled-FLL Challenge Bi-Weekly Meeting' (Coach Jeremy) from 6 PM to 7 PM; 'S.C.R.E.A.M. Team Meeting' (Coach Jeremy) from 7 PM to 8 PM.



# Agile Example: Tools

## ► Microsoft OneNote

The screenshot shows the Microsoft OneNote application interface. The top ribbon includes Home, Insert, Draw, View, and Tell me. The left sidebar shows a navigation pane with a search bar and a list of sections under 'Cargo Connect - OneNote'. The main content area displays a document titled 'Script V3' with the following structure:


- Script V3 (Wednesday, March 30, 2022 5:11 PM)
- Introductions (Coach Jeremy)
  - Greetings, we are team 2991, 4-H S.C.R.E.A.M. We are a 4-H FLL team from Decatur Illinois. Our team started about 9 years ago and I began coaching the team 3 years ago. To help me today we have some of our team members. (Introduce each person, years on team and maybe age?)
  - They had an amazing season this year, winning the Champions Award at their State Championship as well as getting the Robot Performance Award. Today we wanted to take the opportunity to share with you a method of working as a team we use called Agile Development
- What is agile development (Maisey)
  - What is Agile Development? Agile Development provides a team a framework for collaboration, communication and tracking of tasks that focuses on the incremental steps needed to create and improve solutions. Agile Development has been gaining popularity over the past 20 years in many industries and includes methods such as Scrum, Kanban, Extreme programming, and many more. To help our FLL and FTC teams we developed our own lightweight method based on existing approaches that we call SCREAM. SCREAM stands for SCREAM's Creative Reliable Easy Agile Method. During our presentation we will teach you how to use this method as well as show some examples of how we used it this season and the tools we used.
- Why we use agile development (Z)
  - Like many teams during the Replay season, we had to work virtually. Initially we met virtually using a Zoom like virtual meeting and tried to work together in the same manner as we did in person. While trying to work virtually we were struggling and needed to change how we worked together. To improve our ability to work online we started learning new ways and tools we can use to organize our work. Shifting to an agile development style approach helped us get back on track for the season and drastically improved our organization. However this is not limited to just working remotely, we continue to use Agile Development in person because of how much it improved our teamwork. Using Agile Development will help teams with keeping track of progress, organize their work, improve teamwork and communication. It can also help teams who are struggling with being productive by setting goals and periods of time they need to be completed and shares work across the team.
- Teaching: How to use SCREAM (Ben)
  - Using SCREAM is really easy. To use SCREAM you have to follow these 3 steps. Step 1: make/update your backlog. Step 2: run a sprint. Step 3: Repeat. If you keep doing these steps eventually all the work will get done.
- Teaching: Backlog Creation (Ben)
  - But what exactly is a backlog, or a sprint? A backlog is the main list of tasks that need completed.

The screenshot shows the Microsoft Teams application interface during a meeting. The top bar includes Activity, Teams, and a search bar. The left sidebar shows a list of teams, including '4-H SCREAM' and 'S.C.R.E.A.M. FLL'. The main content area displays a meeting in progress with a OneNote document shared in the chat. The document is titled 'Maple - Research Notes' and contains the following text:

Empty containers are clogging up the docks so there is no room to unload new ones because it is cheaper to make new containers than to pay to ship them back. Truck drivers have a bad image so no one wants to be a truck driver along with other problems such as never seeing family and having to sleep in their vehicles instead of their homes. A lot of times they don't even buy a house. The problem with this problem is the fact that the cause is linked to a lot more specific things such as other countries do not want to pay to ship the empty containers back. And not having enough truck drivers to pick up the cargo from ports.

Final description:  
Other countries do not want to pay to have their empty containers shipped back because it is cheaper to make new ones so the cargo ports are full of empty containers.

Recycle containers to make other metal products



# Agile Example: Tools

## ► PowerPoint

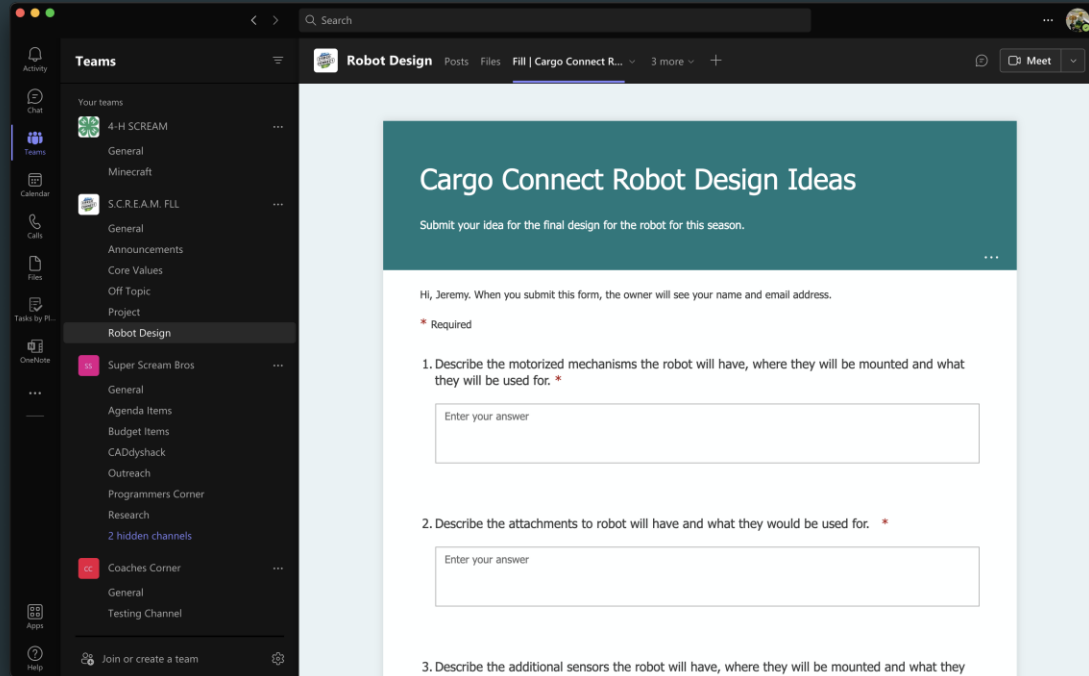
The screenshot shows a Microsoft Teams interface with a PowerPoint presentation open. The Teams sidebar on the left lists various channels and apps. The PowerPoint slide, titled 'Forklift safety Project', is displayed in the main window. The slide content includes:

- Problems We Researched:** air travel emissions, truck accidents, shortage of truck drivers, overcrowded docks, forklift accidents.
- Our Problem: Forklift Safety:** 85 deaths, 95,000 injuries, 1 in 10 forklifts have an accident each year, 855,900 forklifts in the US.
- Conner's Old Cab:** Conners cab is our spike prime robot we used for testing code, we made it look like a forklift.
- Our Solution: Sonic gyro:** A diagram of a forklift with sensors (Ultrasonic x 2, gyro) and weather light sensors. Text explains: 'This is the brain that controls things like speed and brakes and forklift height', 'Weather light sensors, these are used to see if it is dark or raining so we change max speed', 'We are going to use magnets to attach the sensors', 'These programs see how dark it is and see what weather conditions there are so it can change the speed', 'This program detects ledges when the forklifts back up', 'These detect when the forklift starts to tip and lowers the forklift accordingly'.
- Existing Solutions:** Flashing lights, Beeping, corner mirrors, seat belts.
- Benefits of our Solution:** Easily attachable to existing forklifts, Improves forklift itself, not only the environment, Prevents most common accidents, tipping, falling off ledges and collisions, Cost-effective.
- Outputs:** Forklift height, Slowing down, Braking, Backing up, Light, Sound.
- Conner's Cab:** We added a color sensor and coded weather procedures into our robot from suggestions from our experts.
- Meeting with experts:** Caterpillar logistics trainer manager and a certified power industrial trainer, licensed safety specialist and forklift operator.

The slide footer indicates 'Slide 1 of 1' and 'English (U.S.)'. The bottom right corner of the Teams window shows 'Give Feedback to Microsoft', 'Notes', and a zoom level of '23%'.

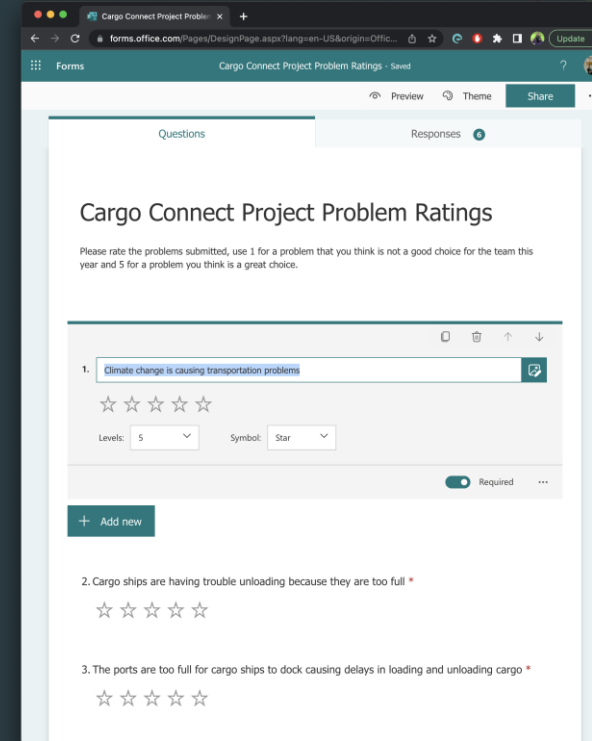
# Agile Example: Tools

## ► Microsoft Forms



The screenshot shows a Microsoft Teams interface. On the left is a sidebar with a list of teams and channels. The main area displays a form titled "Cargo Connect Robot Design Ideas" with the instruction "Submit your idea for the final design for the robot for this season." Below the title, there is a message: "Hi, Jeremy. When you submit this form, the owner will see your name and email address." The form contains three numbered questions, each with a text input field:

1. Describe the motorized mechanisms the robot will have, where they will be mounted and what they will be used for. \*
2. Describe the attachments to robot will have and what they would be used for. \*
3. Describe the additional sensors the robot will have, where they will be mounted and what they



The screenshot shows a Microsoft Forms survey titled "Cargo Connect Project Problem Ratings" with the instruction: "Please rate the problems submitted, use 1 for a problem that you think is not a good choice for the team this year and 5 for a problem you think is a great choice." The survey includes three questions, each with a star rating system:

1. Climate change is causing transportation problems. Rating: 5 stars.
2. Cargo ships are having trouble unloading because they are too full \*. Rating: 5 stars.
3. The ports are too full for cargo ships to dock causing delays in loading and unloading cargo \*. Rating: 5 stars.

# Agile Example: Backlog

## Qualifier Backlog

Saturday, September 11, 2021 5:07 PM

Task	Status
Brainstorm Project Ideas	Completed
Brainstorm Project Solutions	Completed
Talk to Experts	Completed
Share Project Learnings	Completed
Decide Project	Completed
Gather detailed sources about Project Problem	Completed
Gather detailed sources about existing Problem solutions	Completed
Get Feedback on Solution	Completed
Learn Project Rubric	Completed
Mission Decision Matrix	Completed
Explore Mission Solutions using manual mechanisms	Completed
Explore Mission Solutions using motorized mechanisms	Completed
Design Robot Game Prototypes	Completed
Build Robot Game Prototypes	Completed
Read Game Rulebook	Completed
Learn Robot Rubric	Completed
Learn Core Values Rubric	Completed
Explore Spike Prime vs EV3	Completed
Choose Coding Language	Completed
Learn how judging will work	Completed
T-shirt design	Completed
Team name	Completed
Connect with other teams	Completed
Name the chicken	Completed
Make mistakes and learn from them	Completed
Build Project Robot	Completed
Program Project Robot	Completed
Drive Crew <a href="#">MyBlocks</a>	Completed
Robot Run Programs	Completed
Robot Run Strategies	Completed
Design Solution	Completed
Create a Project Presentation	Completed
Create a Robot Design Presentation	Completed
Name your Project Solution	Completed
Name the Forklift	Completed
Test and Document Testing	Completed
Document Changes to Robot	Completed
Name the Robot	Eve

## State Backlog

Monday, December 06, 2021 10:37 AM

Tasks	Status
Improve Project Description	Complete
Share Project with FTC	Complete
Share Project with Expert	Complete
Improve Project from Feedback	In Progress
Design method to attach Project to Forklift	Complete
Improve Project Script	Complete
Improve Project Poster	In Progress
Agile Development Poster	In progress
Get 500 points in Robot Run	Complete
Improve Unload Cargo Plane reliability	Complete
Reinforce back of robot	Complete
Improve Accident Avoidance attachment	Complete
Practice Robot Runs more	In Progress
Create Gyro Drive Backwards code	complete
Add menu to Robot Run code	complete
Speed up Robot Run	Complete
Add Missions to Robot Run	Complete
Practice Scripts	In Progress
Practice Judging questions	In Progress
Create Table of Contents	In Progress
Create a Cover Page	In Progress
Estimate Project Cost	Complete
Document Code	In Progress

# Agile Example: Sprint Plan

## Plan

Sunday, October 03, 2021 12:47 PM

Goal: Research and improve your problem ideas or introduce new ones

Deadline: October 4th

Group Type: Individual

Helpful Resources: <https://firstinspiresst01.blob.core.windows.net/first-forward/fll-challenge/fll-challenge-cargo-connect-multimedia-resources.pdf>

### Tasks

- Research possible problems to use for our project this year
- You can choose from one of the 4 identified categories if you want but it is not required. The 4 categories are Efficiency, Safety, Access and Connections
- You can choose from one of the 6 types of transportation but that is also not required. The types of transportation are Air, Space, Water, Road, Pipeline and Rail.
- On October 4<sup>th</sup> present your ideas to the team
- Document your ideas in OneNote

## Plan

Monday, October 11, 2021 1:17 PM

- Give each team member a robot kit
- Each team member chooses mission models to explore
- Take turns picking a mission model so they are fairly split
- Design a basic robot that can complete at least 1 mission

Goal: Design and program a basic robot that can complete a mission

Due Date: October 14<sup>th</sup>

## Plan

Thursday, October 07, 2021 7:35 PM

- Split into 3 Crews
  - Maple Crew: Jack, Ben
  - Sycamore Crew: Dawson, Jacob
  - Palm Crew: Z, Maisey
- Assign Project Topics
  - Maple Crew: Cargo Ships loading and unloading delays because ship ports are full
  - Sycamore Crew: Forklift accidents causing injuries and death
  - Palm Crew: Truck driver shortage causing shipment delays
- Assign Roles
  - Meeting Coordinator
  - Task Tracker
  - Status Report Writer
  - Status Report Spokesperson
  - Review Writer
  - Review Spokesperson
- Meet with Crew virtually multiple times
- Research project topic to get more details about the cause of the problems
- Document your research

Goal: To research your project topic to get more details on the causes of the problem as well as statistics of how much the problem is impacting things such as people, shipment delays etc. Find and document multiple sources of information

Due Date: October 14th

# Agile Example: Sprint Crew

## Maple - Crew Assignments

Thursday, October 07, 2021 7:44 PM

**Crew Members:** Ben, Jack

**Status Update 1 Spokesperson:** Jack

**Review Spokesperson:** Ben

**Status Report Writer:** ben

**Review Report Writer:** ben

**Meeting Coordinator:** Jack

**Task Tracker:** jack

## Sycamore - Crew Assignments

Thursday, October 07, 2021 7:44 PM

**Crew Members:**

Jacob Knuppel, Dawson Cadwell

**Status Update 1 Spokesperson:**

Jacob

**Review Spokesperson:**

Dawson

**Summary Report Writer:**

Dawson

**Review Report Writer:**

Jacob

**Meeting Coordinator:**

Dawson

**Task Tracker:**

Jacob

## Palm - Crew Assignments

Thursday, October 07, 2021 7:44 PM

**Crew Members:** Maisey Elven

Z

**Status Update 1 Spokesperson:** Maisey Elven

**Review Spokesperson:** Z

**Summary Report Writer:** Z

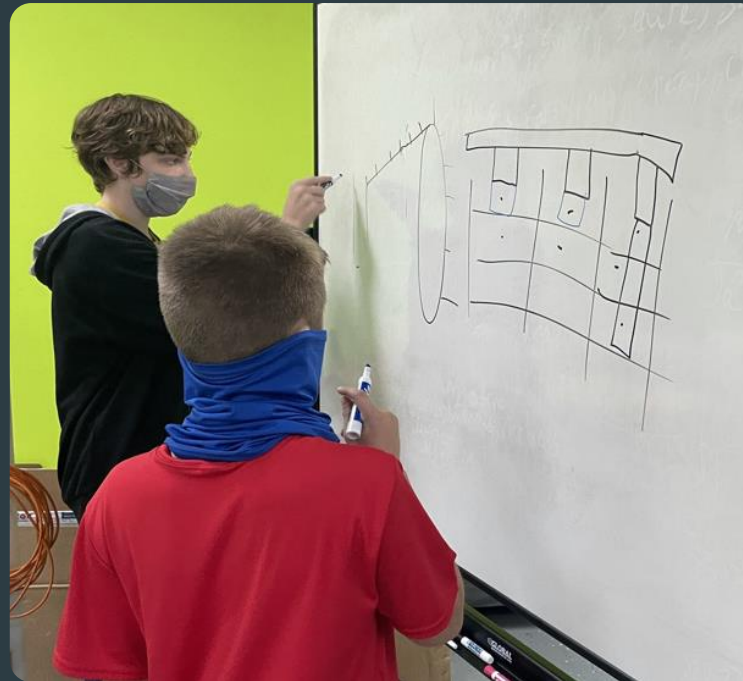
**Review Report Writer:** Maisey Elven

**Meeting Coordinator:**

Z

**Task Tracker:** Maisey Elven

# Agile Example: Sprint Design



1. Describe the motorized mechanisms the robot will have, where they will be mounted and what they will be used for. \*

The conveyor for cargo connect load cargo air drop innovation project and home delivery. And the chute stick for train tracks air drop bridge switch engine unload cargo plane unload cargo ship and maybe large delivery, the conveyor would be to the front and left side and the chute stick will be to the right.

2. Describe the attachments to robot will have and what they would be used for. \*

A 2 stick attachment that is similar to my cargo plane attachment for sorting center.

3. Describe the additional sensors the robot will have, where they will be mounted and what they will be used for. \*

2 color sensors on the front of the robot for color lineups

4. What missions will the robot be able to solve well? \*

Cargo connect air drop innovation project unload cargo plane unload cargo ship train tracks bridge sorting center switch engine home delivery large delivery load cargo

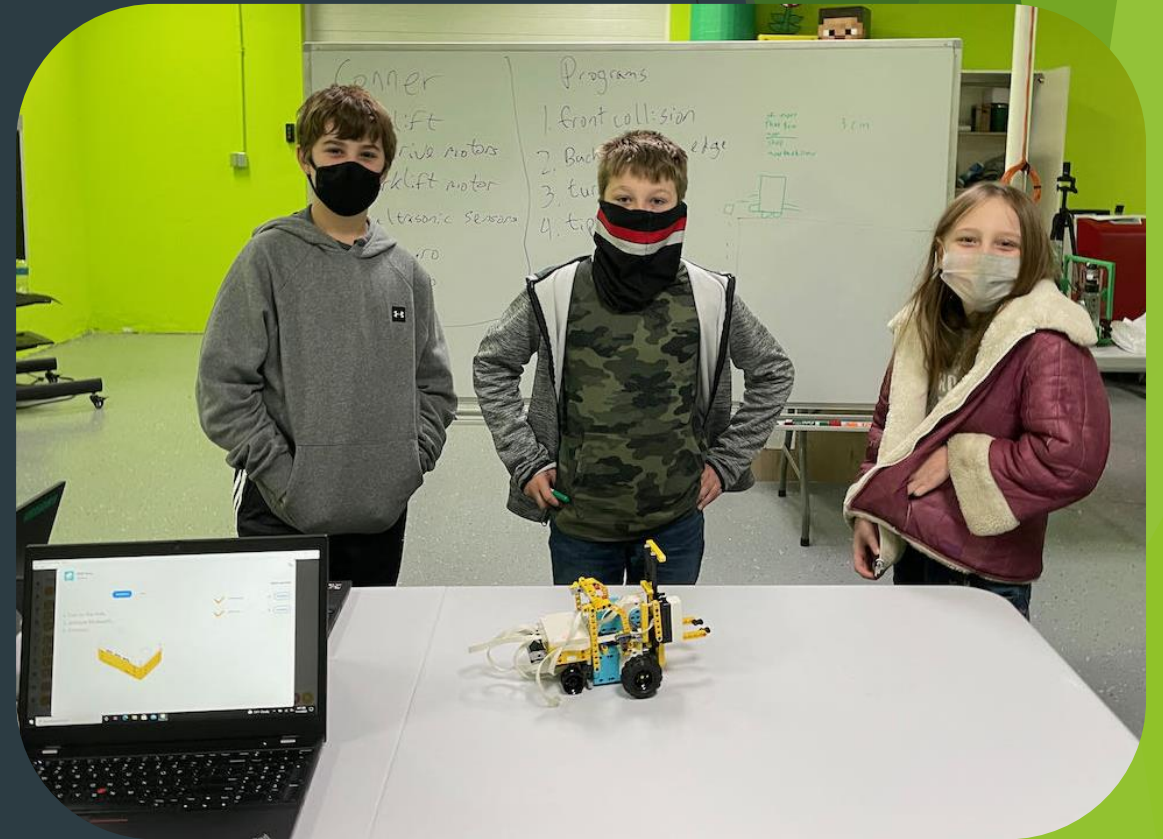
5. What missions do you think this robot will have a difficult time solving and why? \*

Large delivery because it's going to be a bit heavy and sorting center cause it's pretty hard and might not be reliable

6. Provide any additional details about the design that the team should know about.

It will have only 5 ports used so if we need to add a sensor or motor we can

# Agile Example: Sprint Develop





# Agile Example: Sprint Test

## (Project) Forward Tip

Monday, November 15, 2021 5:32 PM

Date	Changes Made	Correct Runs	Total Runs
11/16	Original Code	9	10
11/16	Altered Stop to coast	10	10

## Cargo Dropper

Thursday, November 11, 2021 4:54 PM

Date	Change	Results
11/11		7/10
11/11	Shortened and lowered back	10/10

## Sorting center

Wednesday, November 17, 2021

1 good  
2 good  
3 good  
4 good  
5 good  
6 good  
7good  
8 good  
9 good  
10 good

10 out of 10

# Agile Example: Sprint Review

## Maple - Status Report

Thursday, October 07, 2021 7:41 PM

### Work Completed Status:

We have researched more and talked to experts. Still need to narrow it down to a specific problem

### Next Steps:

We are not sure yet

### Challenges:

The problem of the docks being full is caused by other more specific problems the two main ones we have found are other countries do not want to pay for there empty containers to be shipped back and there are not enough truck drivers to pick up there cargo.

## Palm - Review Report

Thursday, October 07, 2021 7:42 PM

**Summary:** we've researched a couple problems about truck driver shortage we've found a ton of stuff about safety problems, delays, bad payment time and away from family .one of our problems is one that I got from my uncle it is, that there are not a lot of drivers on the road. And another one is that part of the problem is that a lot of semie people quit because they don't see their family's or sometimes even make family's because they live in there semies and this is also a problem because a lot of people know about this so not a lot of people want to be a semie driver.

**couple Next Steps:** finding extra research for problem and Start researching solutions.

**Feedback:** none

# Questions?

- ▶ Download the presentation and templates from <http://4hscream.org>
- ▶ QR Code for the presentation

