

Robot Build Agile
Development (RBAD)
Training

NEW Apple Corps
Team 93

Agenda

- Purpose
- Agile Development Overview
- Scrum Framework Overview
- RBAD Overview
 - Roles
 - Artifacts
 - Kanban
 - Meetings
 - Stories



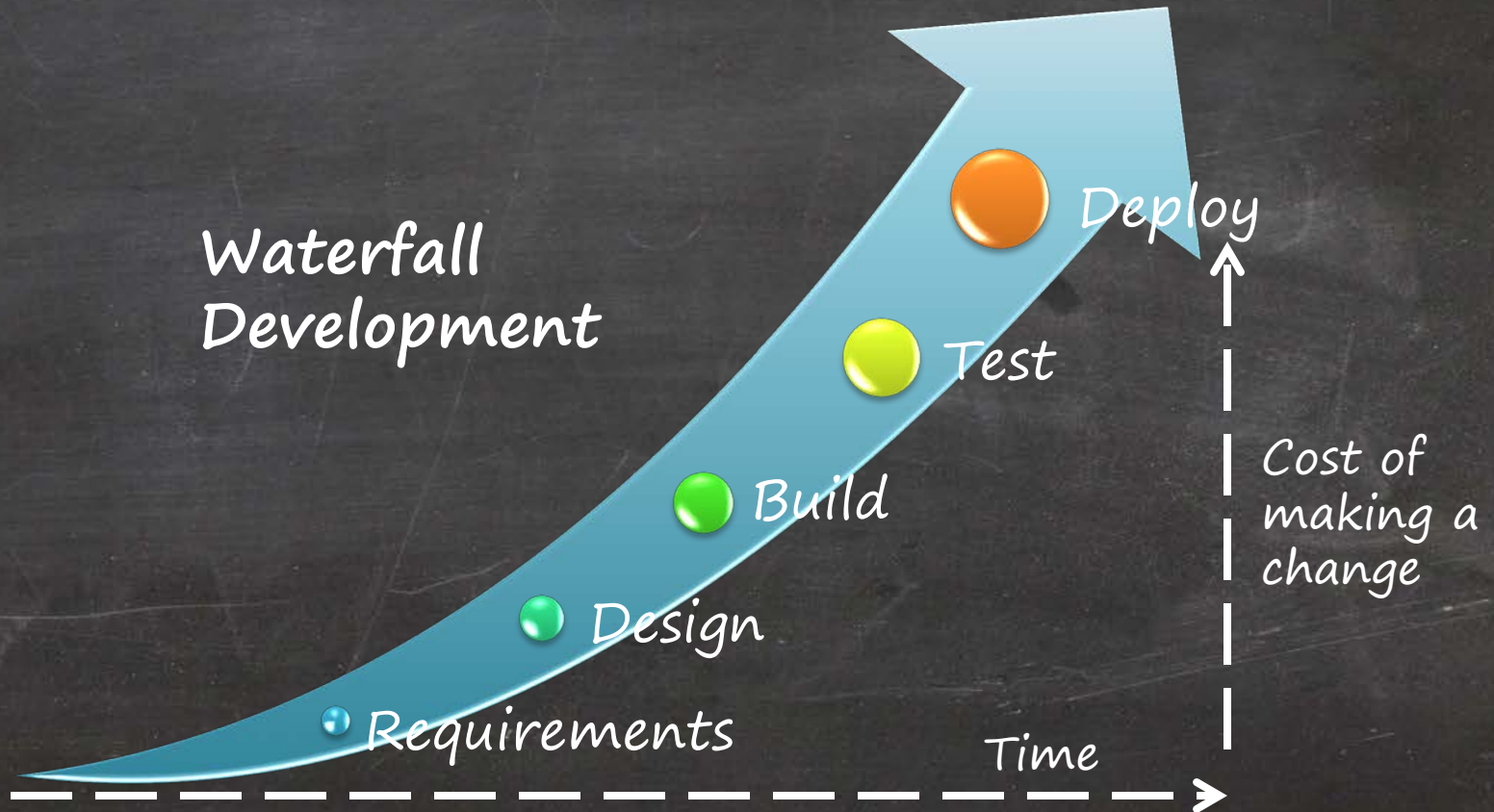
Introduction

- RBAD is not your typical framework for structuring a team or building a robot



Introduction

- Typically teams use Waterfall Development...



Introduction

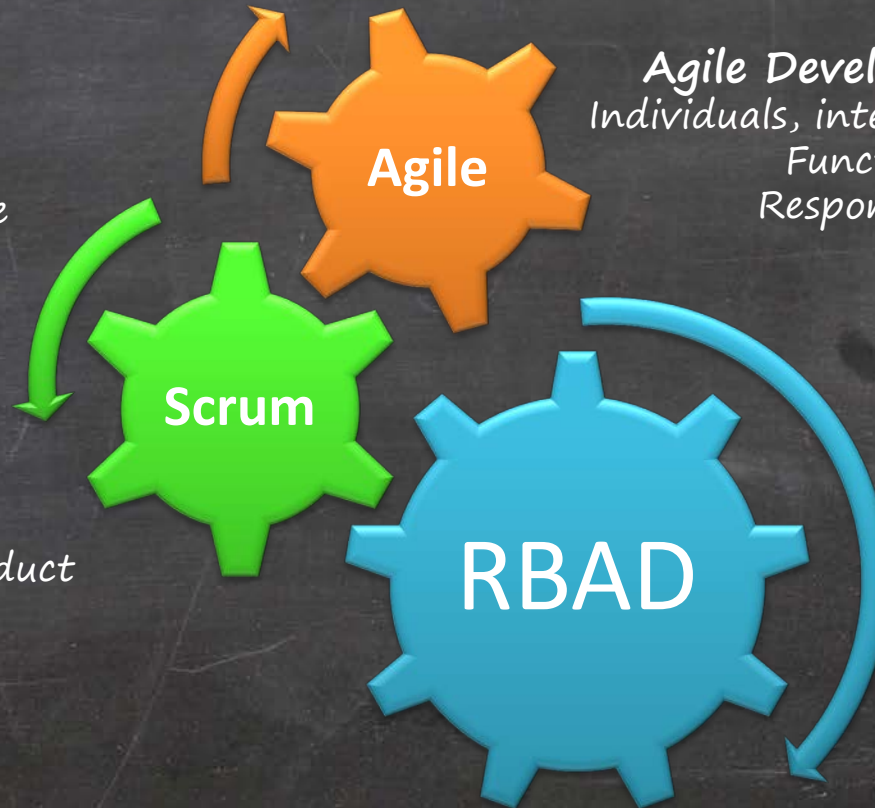
- Building a robot in 6 weeks is a complex project!
- We believe RBAD's structure:
 - Encourages accountability
 - Positions functional groups that work on the robot to build a higher performing robot
 - Positions functional groups that don't directly work on the robot for success
 - Is more respectful to the team



The Inspiration for RBAD

Scrum Framework

- Implementation of Agile
- Structure of roles, meetings, rules, and artifacts
- Uses fixed length iterations to build potentially shippable product after each iteration



Agile Development Philosophy
Individuals, interaction, & collaboration
Functional product
Responding to change

Robot Build Agile Development

- Adaptation of Scrum
- A framework for a robotics team's planning, task management, and communication to increase build season success



Agile Overview

Values

Individuals &
interactions

over

Processes &
tools

Working **robot**
functionality

over

Comprehensive
documentation

Team
collaboration

over

Team
negotiation

Responding to
change

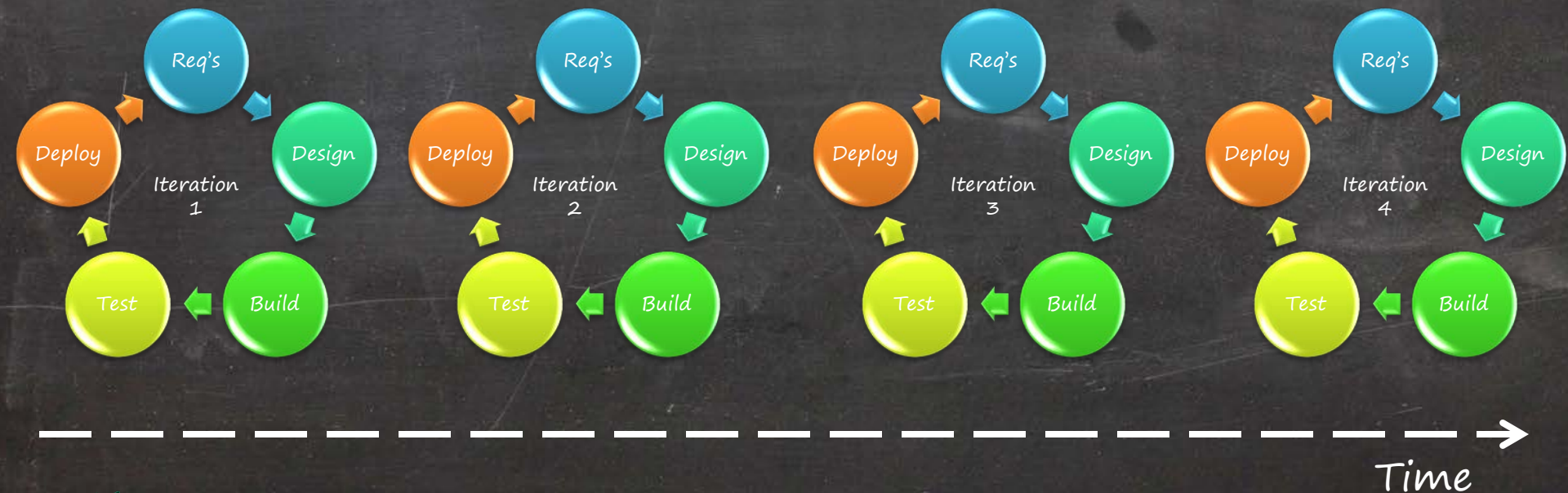
over

Following a
plan

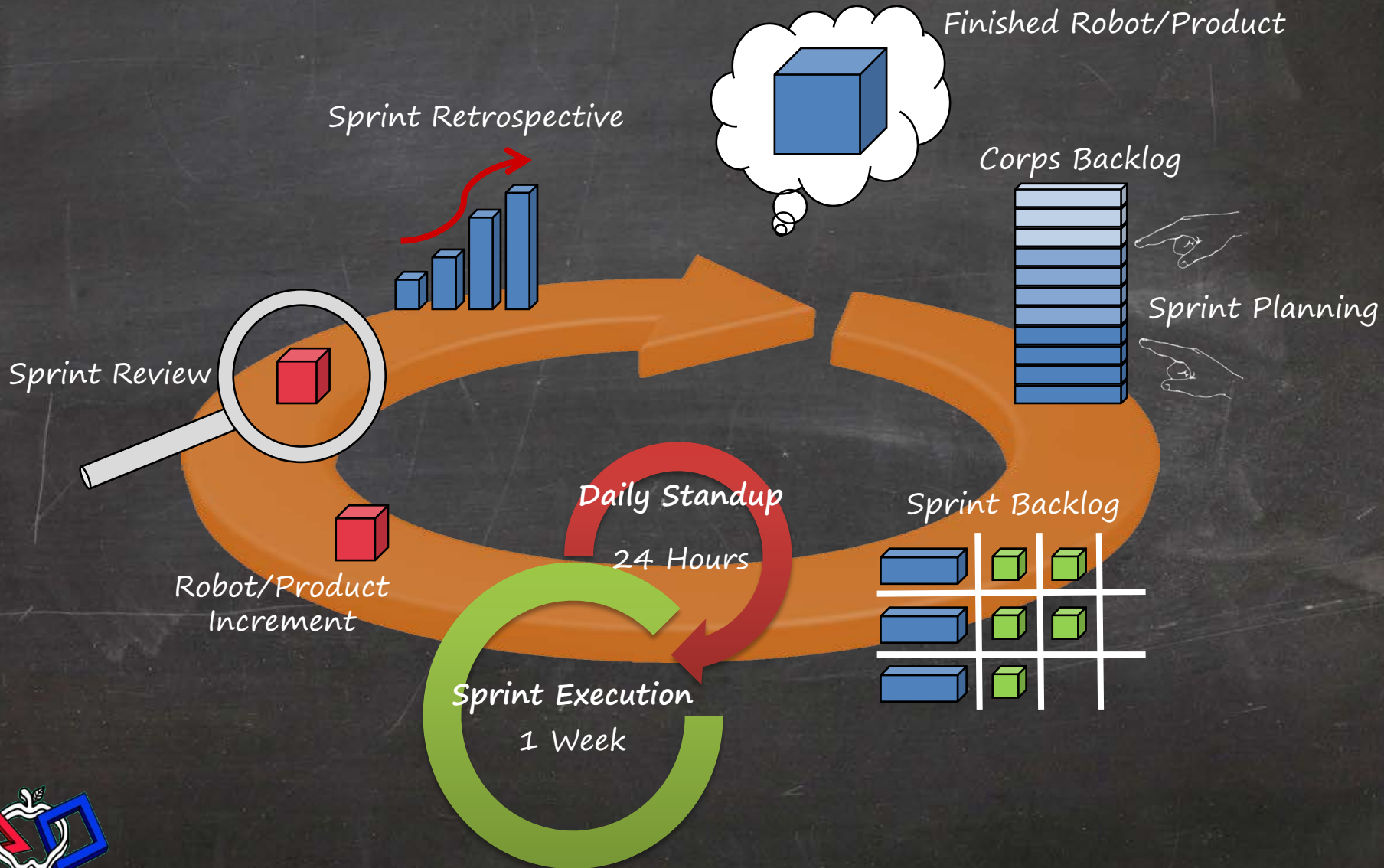


Scrum Framework

- Uses fixed length iterations to build potentially shippable product after each iteration

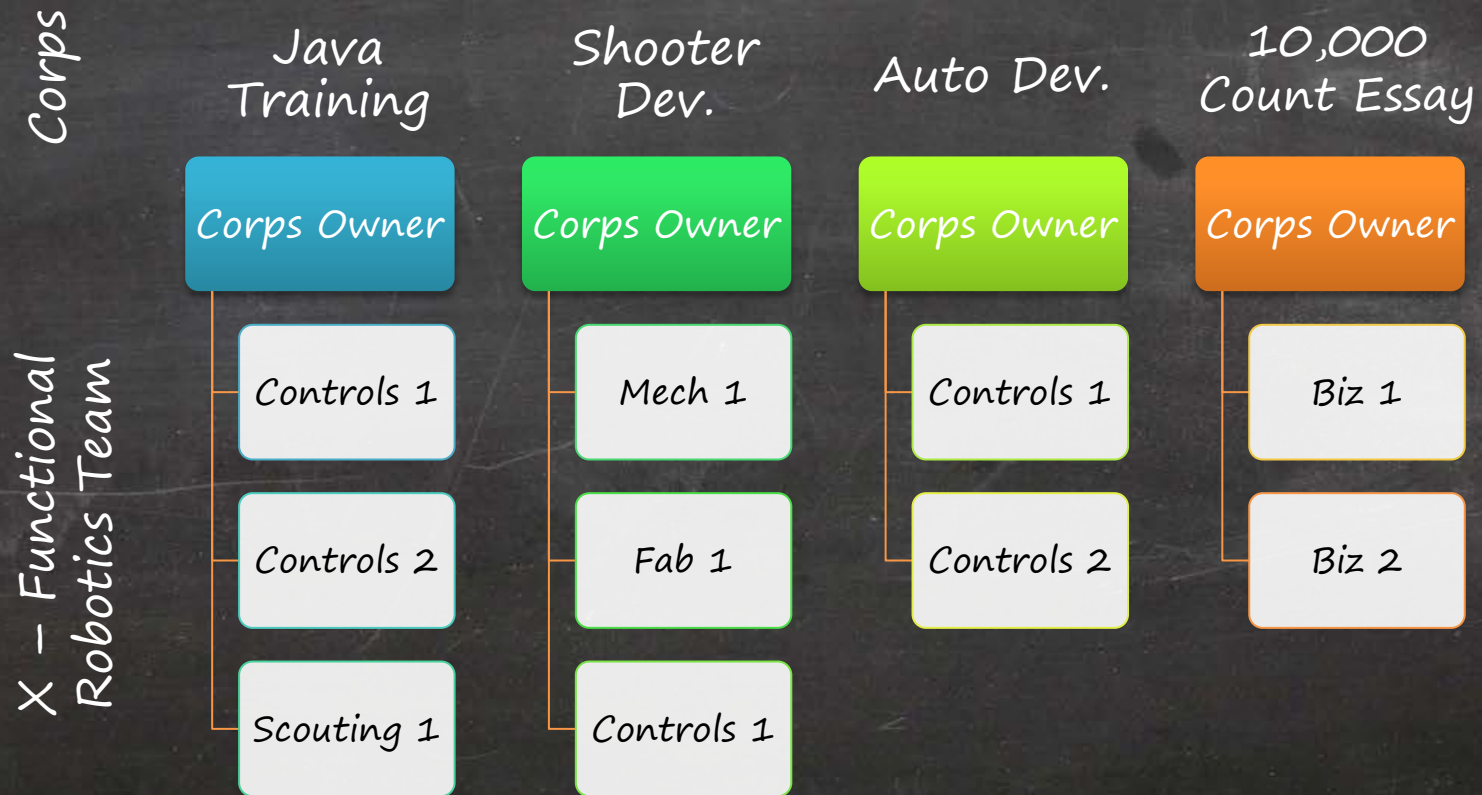


RBAD Overview



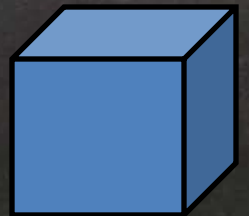
RBAD Roles – Corps Owner (CO)

- Major parts of robot functionality and projects are divided into corps
 - Each of these corps has a corps owner
 - Single authority responsible for breaking down functionality/projects into smaller tasks for the robotics team to do and the order in which to work on them



RBAD Roles – Corps Owner (CO)

- Grooms the corps backlog
- Facilitates corps's planning, review, and retrospective meetings
- Collaborates with the robotics team & other corps owners
- Helps remove impediments the team has with getting their tasks complete
- Suggested that CO's are mentors to start, then responsible students take over these roles
- Full time job during build! Likely will not be able to contribute to very much design work during build



RBAD Roles

RBAD Master (RM)

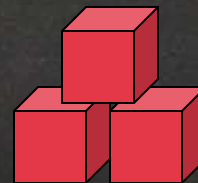
- Focuses on helping everyone understand and embrace the RBAD framework
- Acts as a coach to both the robotics team and the Corps Owners
- Provides process leadership, helping each corps develop their own high performance, organization-specific RBAD approach



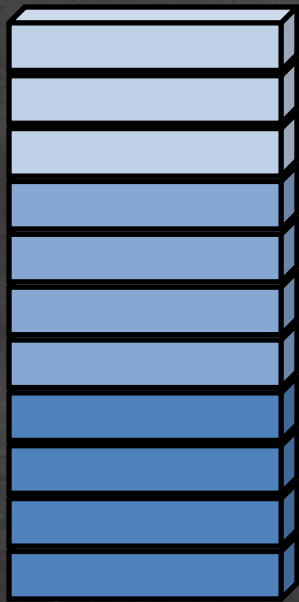
Robotics Team (RT)

- A diverse, cross-functional collection of people responsible for designing, building, and testing the robot and other team projects
- Delivers the value requested by the Corps Owner

The Robotics Team



RBAD Artifacts



Features

Corps Backlog

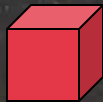
- List of features required to complete a feature of the robot or a project
- Constantly being groomed by the Corps Owner
 - Adding, removing, refining
 - Prioritizing

Sprint Backlog (To Do)

- Work is performed in iterations called sprints (RBAD = 1 week)
- Features that will be worked on and completed by the end of the sprint

Robot/Product Increment

- Every sprint produces an addition to the robot, ideally it's functional
- Not just for the robot! Could be a media project or a draft of a Chairmen's essay



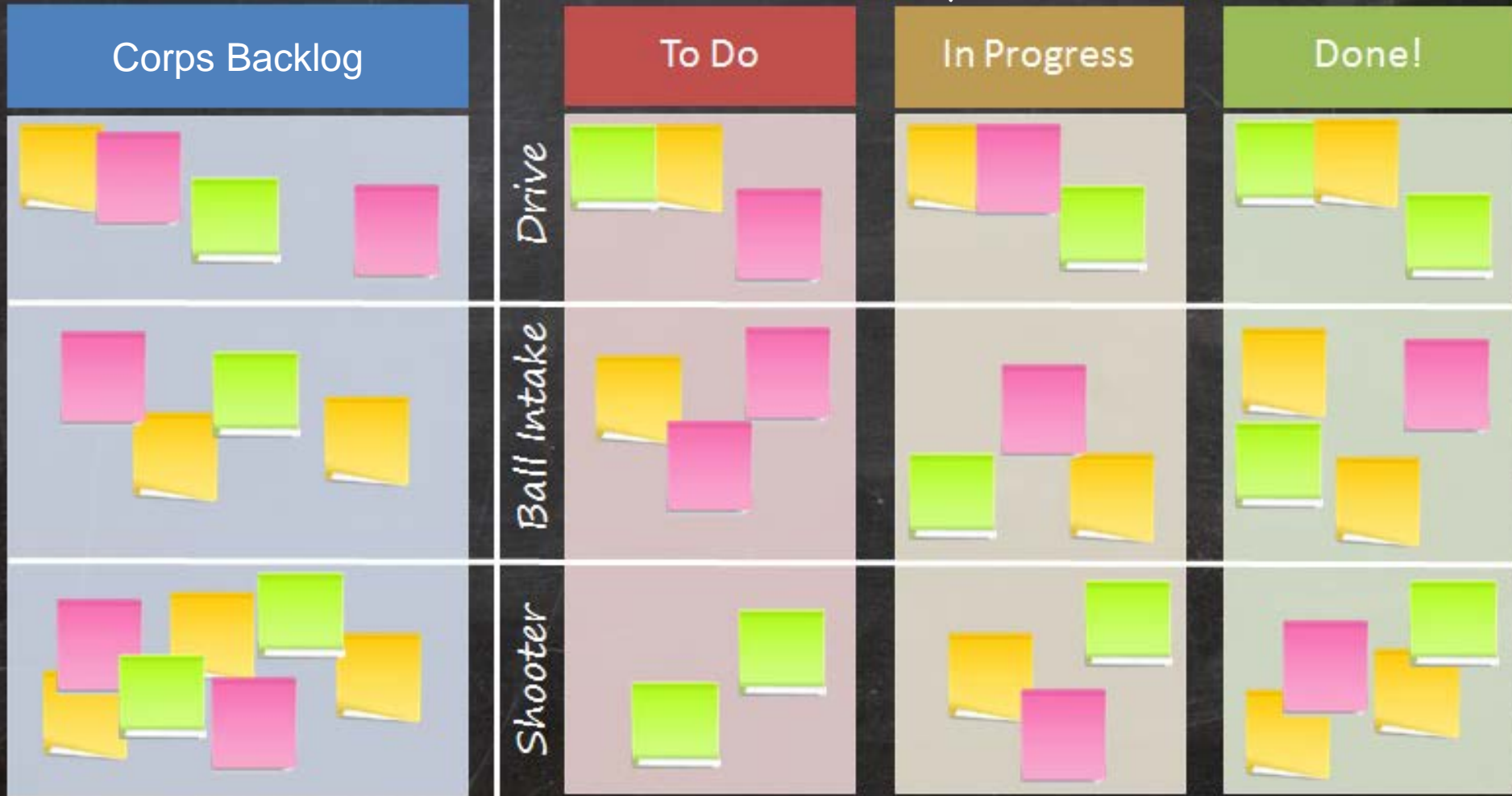
Stories


- Stories are a format for expressing the desired value for tasks in the backlog
- “As a [user], I want to [goal], so that [value].”
 - Ex: As a [fabricator], I want to [have accurate drawings of the drive frame], so that [I can fabricate the drive frame in a timely & efficient manner].




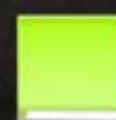
Kanban Board

-----Sprint 1-----



 = Mech Task

 = Fab Task

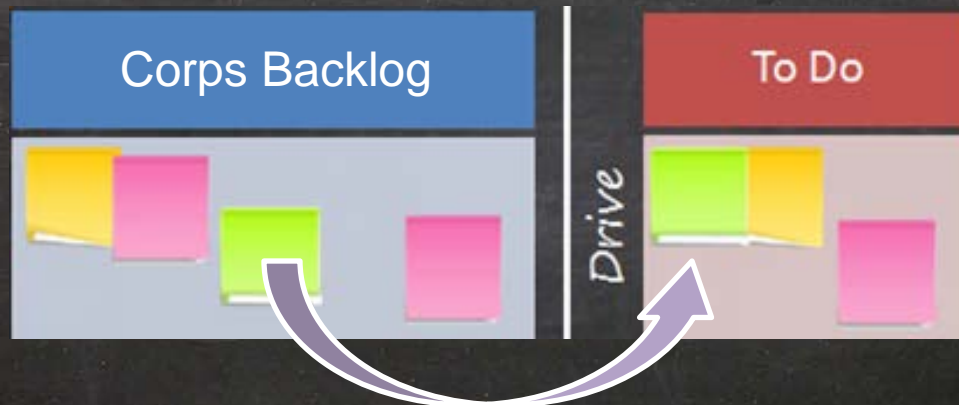
 = Controls Task



RBAD Meetings

Sprint Planning

- Each corps meets to plan out the tasks they will commit to work on/complete during the upcoming sprint
- Tasks are pulled from the corps backlog and are already prioritized by the Corps Owner
 - These tasks are put into the sprint backlog
 - As tasks are put into the sprint backlog, the team discusses what the definition of done is for that task
- It is important that the entire corps team is present during sprint planning!
- For Team 93, sprint planning occurs on Thursdays during build



RBAD Meetings

Daily Standup

- Everyday the team meets within each corps
 - For Team 93: 6:15pm on weekdays, 9:15am on weekends
- Corps Owners will get together for a CO standup after each corps individual standup
 - For Team 93: 6:30pm on weekdays, 9:30am on weekends
- Each member answers 3 questions:
 - What have I done since yesterday?
 - What will I do today?
 - Are there any impediments in my way?



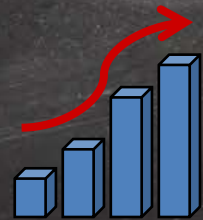
RBAD Meetings

Sprint Review

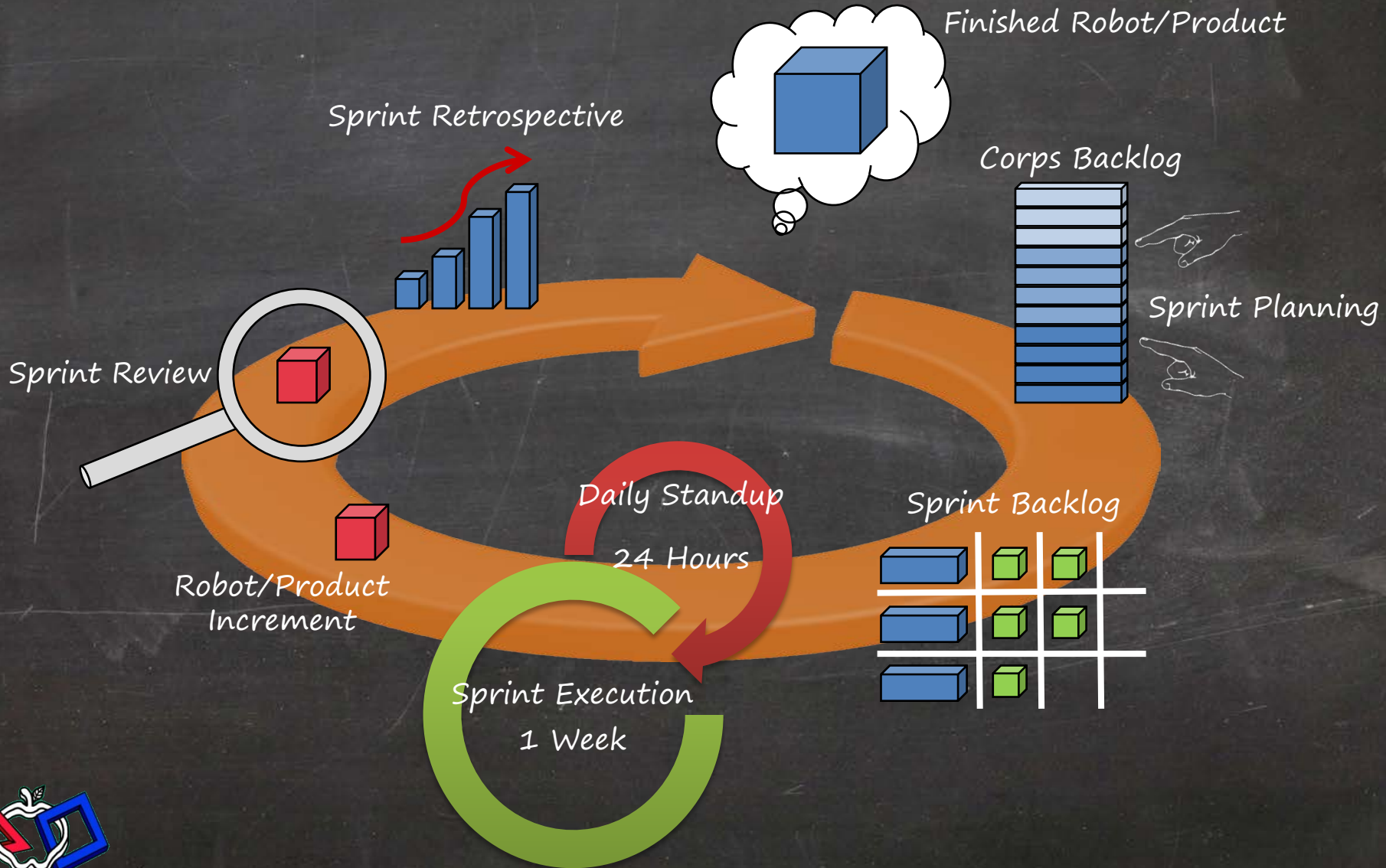
- At the end of each sprint, the team will showcase the work accomplished during the sprint
- The entire team is welcome to participate!
- For Team 93: This is the first part of our Thursday meetings during build

Sprint Retrospective

- Immediately after the sprint review, the corps break out and discuss how the previous sprint went
- We want to improve how we work as a team and keep improving
- The corps talks about 3 things:
 - What went well during the sprint?
 - What didn't work well during the sprint?
 - What do we want to try for the next sprint?



RBAD Recap



Questions? Comments?

- Email
nacteam93.director@gmail.com
- Leave a comment on our RBAD webpage
- We are happy to help teams implement the RBAD framework!

