

Introduction to the Kanban



Agile

Frequent
Value
Delivery

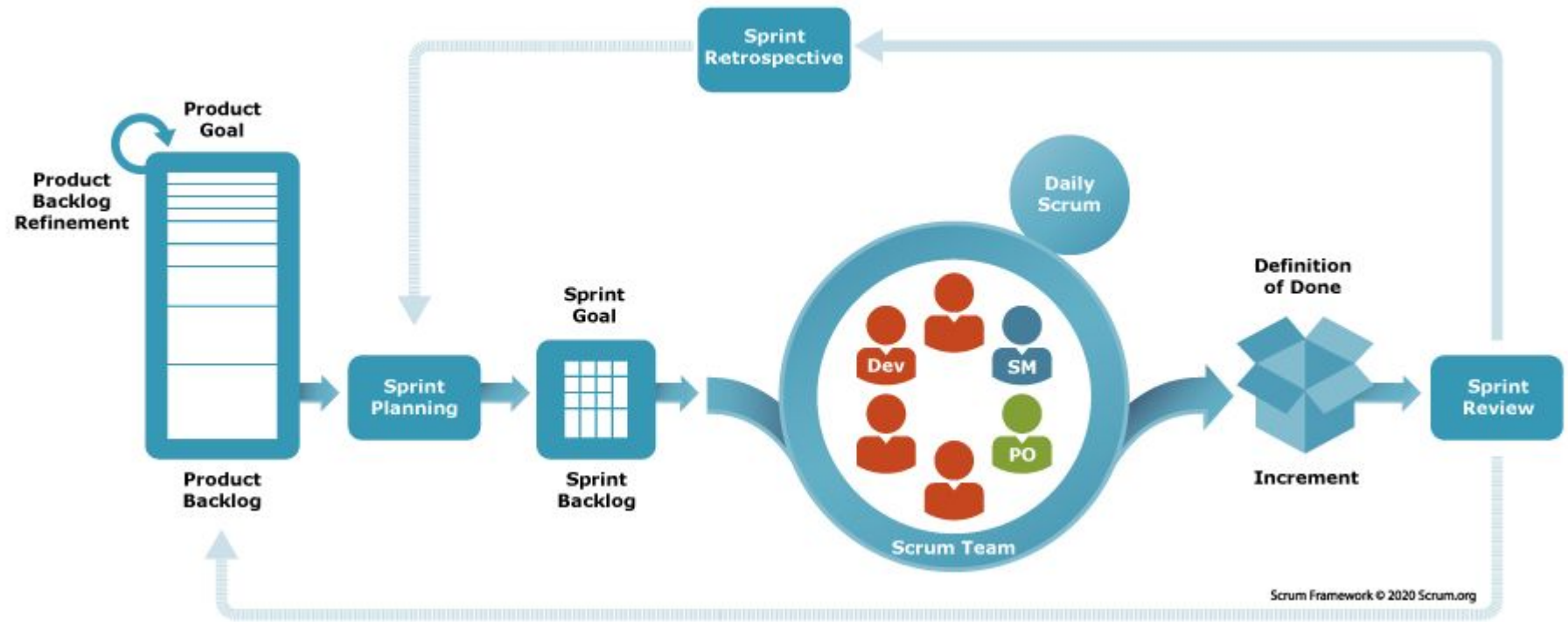
Adaptive to
Changes

Team
Collaboration

Customer
Collaboration



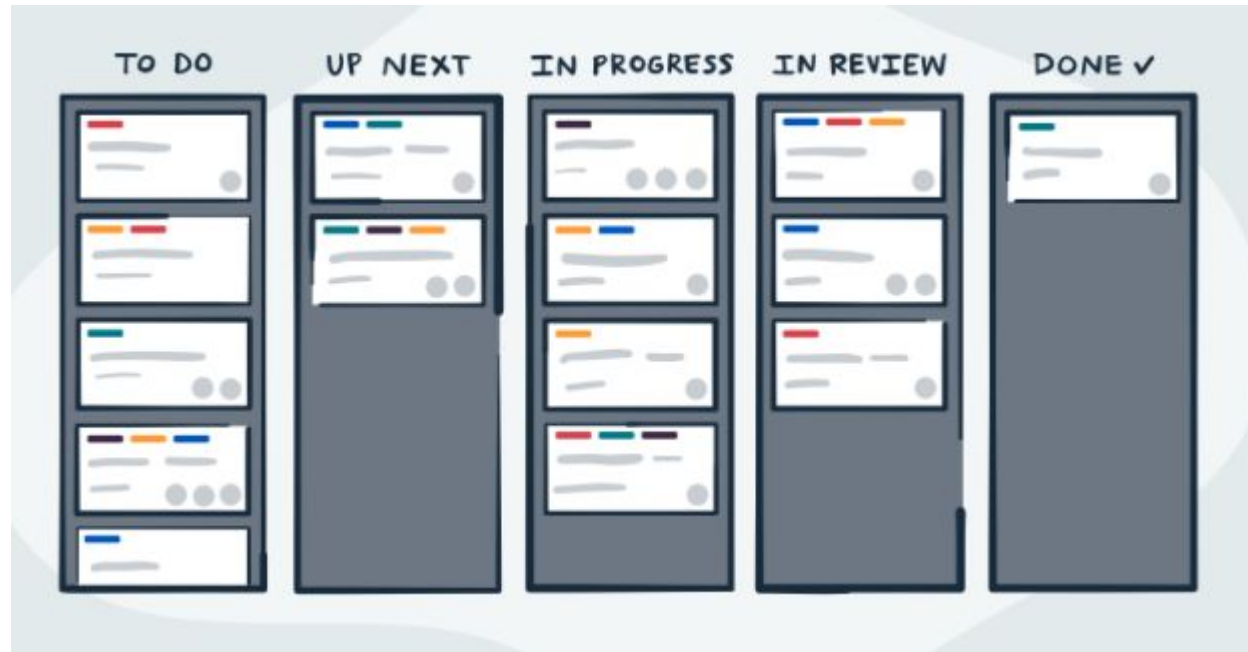
SCRUM



Kanban Board

Visualization of work in progress for project management in **Agile**.

Tasks shown as cards on a board to track progress.



Kanban Board

Board + cards = main tools (physical or digital).

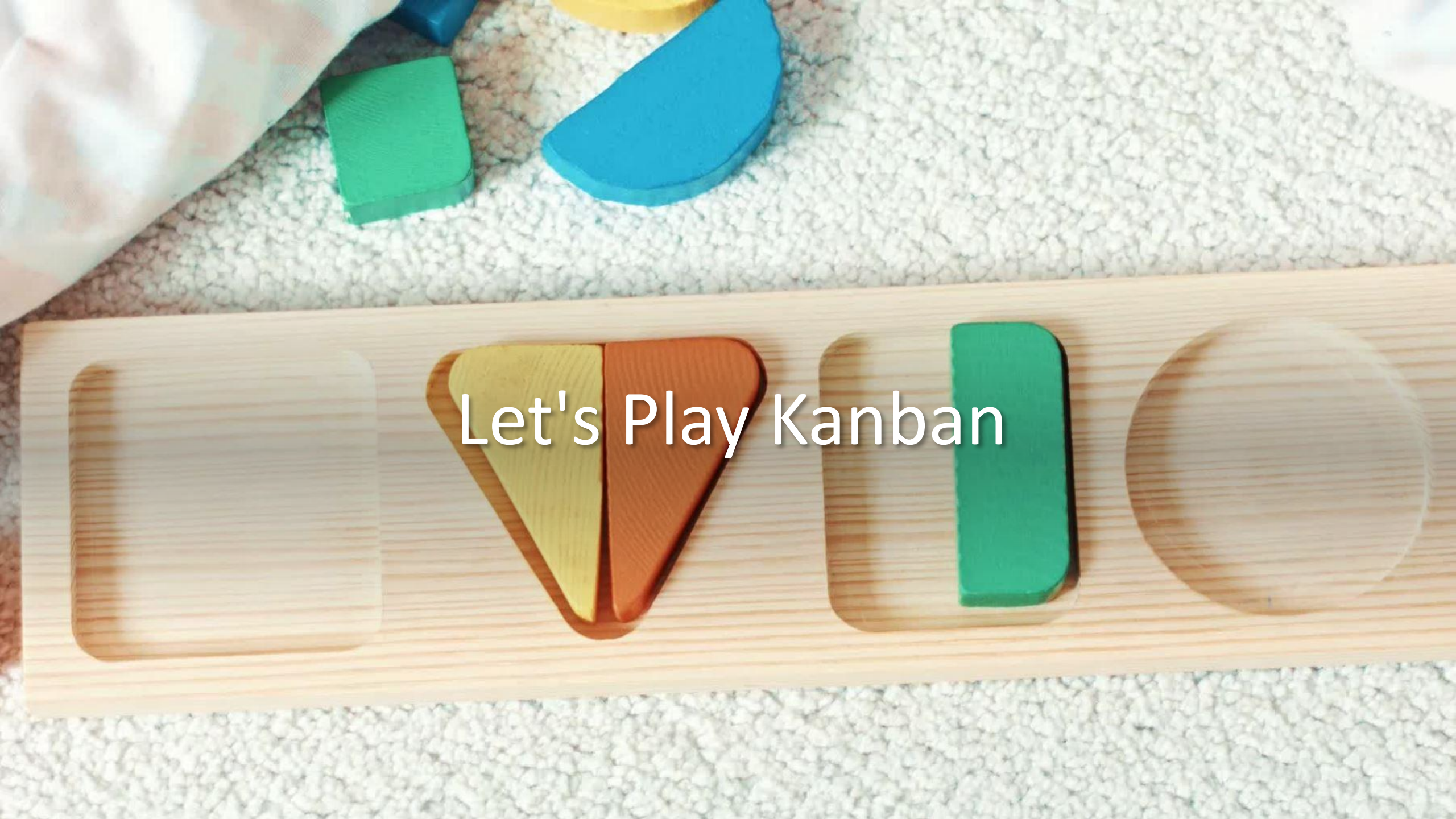
- Columns show progress stages.
- tasks = cards
 - hold task info (who, what, when).
- Owners move/manage their cards in the board.



WIP (Work in progress) limits?

Both SCRUM and KANBAN are Agile methodologies

	Scrum	Kanban
Origin	Software development	Lean manufacturing
Ideology	Learn through experiences, self-organize and prioritize, and reflect on wins and losses to continuously improve.	Use visuals to improve work-in-progress
Cadence	Regular, fixed-length sprints (i.e. two weeks)	Continuous flow
Practices	Sprint planning, sprint, daily scrum, sprint review, sprint retrospective	Visualize the flow of work, limit work-in-progress, manage flow, incorporate feedback loops



Let's Play Kanban

The image shows a wooden Kanban board with four lanes. The first lane is empty. The second lane contains two triangular pieces, one yellow and one orange. The third lane contains one rectangular piece, green. The fourth lane is empty. Above the board, there are several other wooden pieces: a green square, a blue semi-circle, and a yellow semi-circle. A hand is visible in the top left corner, holding a white cloth.

Background and Objective



- Each team is a software company



- Your company makes a web application with a subscription-based revenue model



- The more subscribers you attract, the more money you make



- Your goal is to **maximize profit**

Background and Objective



- You increase your application's capabilities by deploying new features



- New features attract new subscribers



- Your company has a three-day billing cycle: you bill your subscribers at the end of each billing cycle, on Days 9, 12, 15, 18, and 21



- To save startup time, we begin the game on Day 9 of a project already underway

Roles and Team arrangement

Project Manager

Team Member

Run Chart Tracker

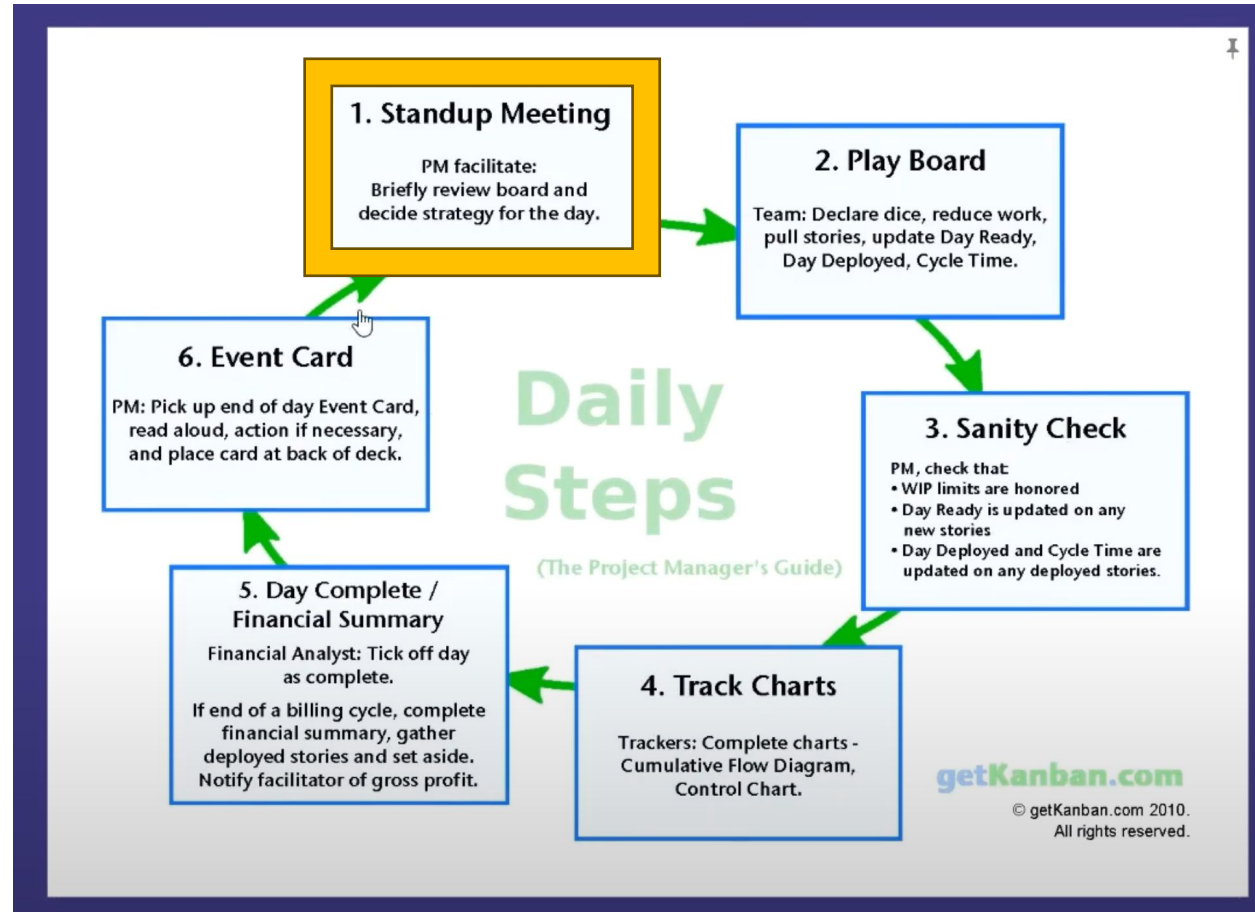
Lead Time Distribution
Chart Tracker

Financial Analyst

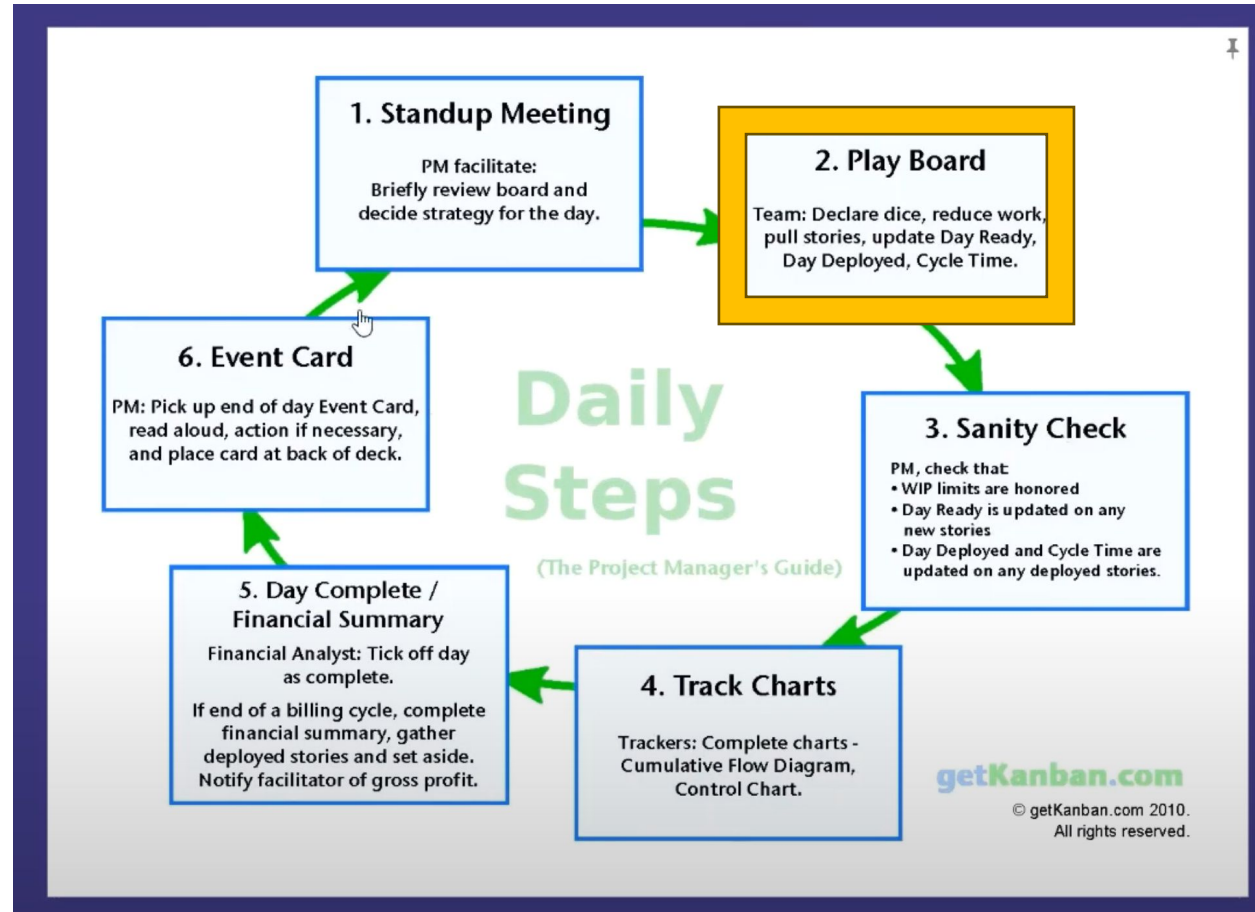
CFD Tracker

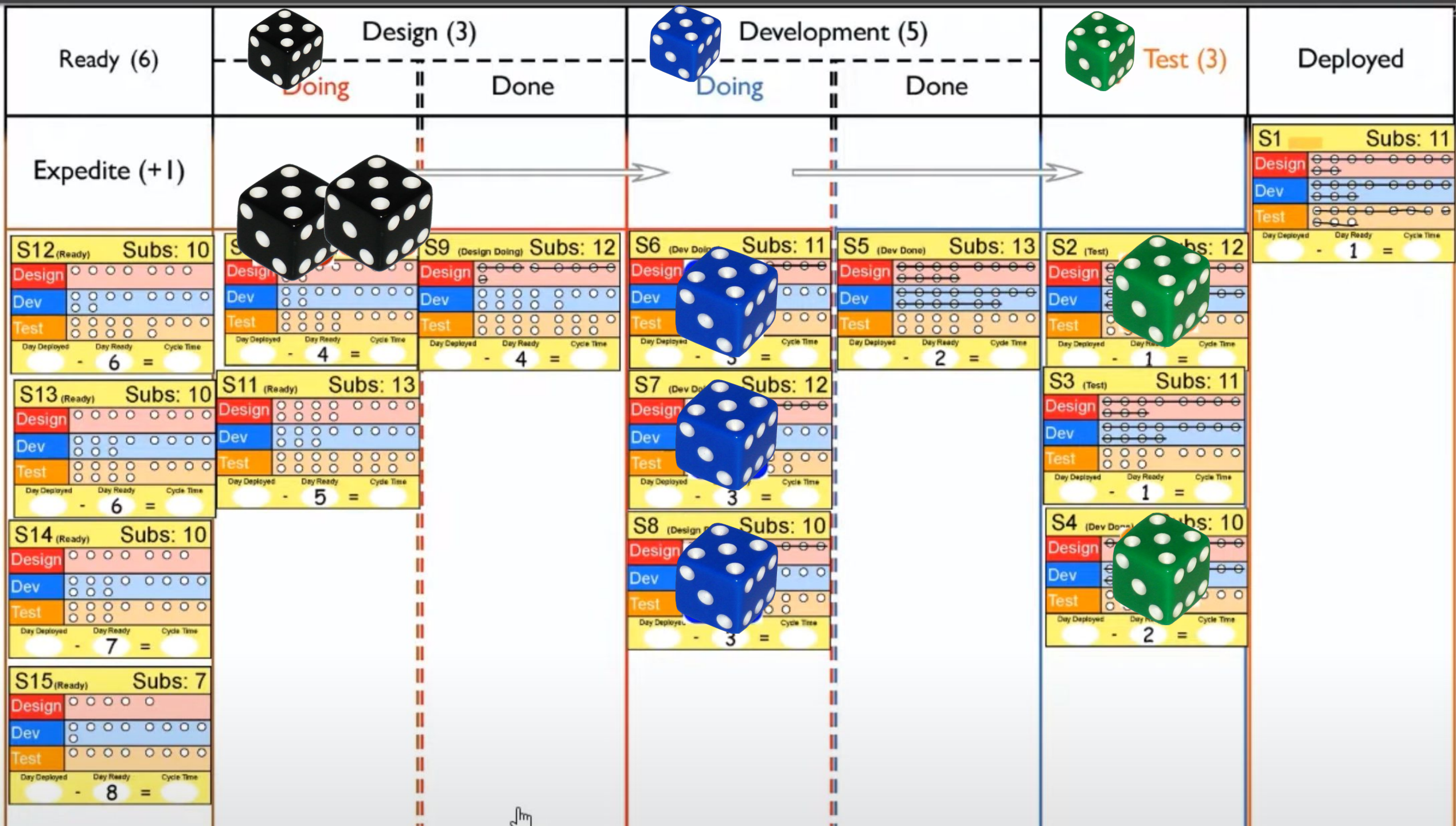


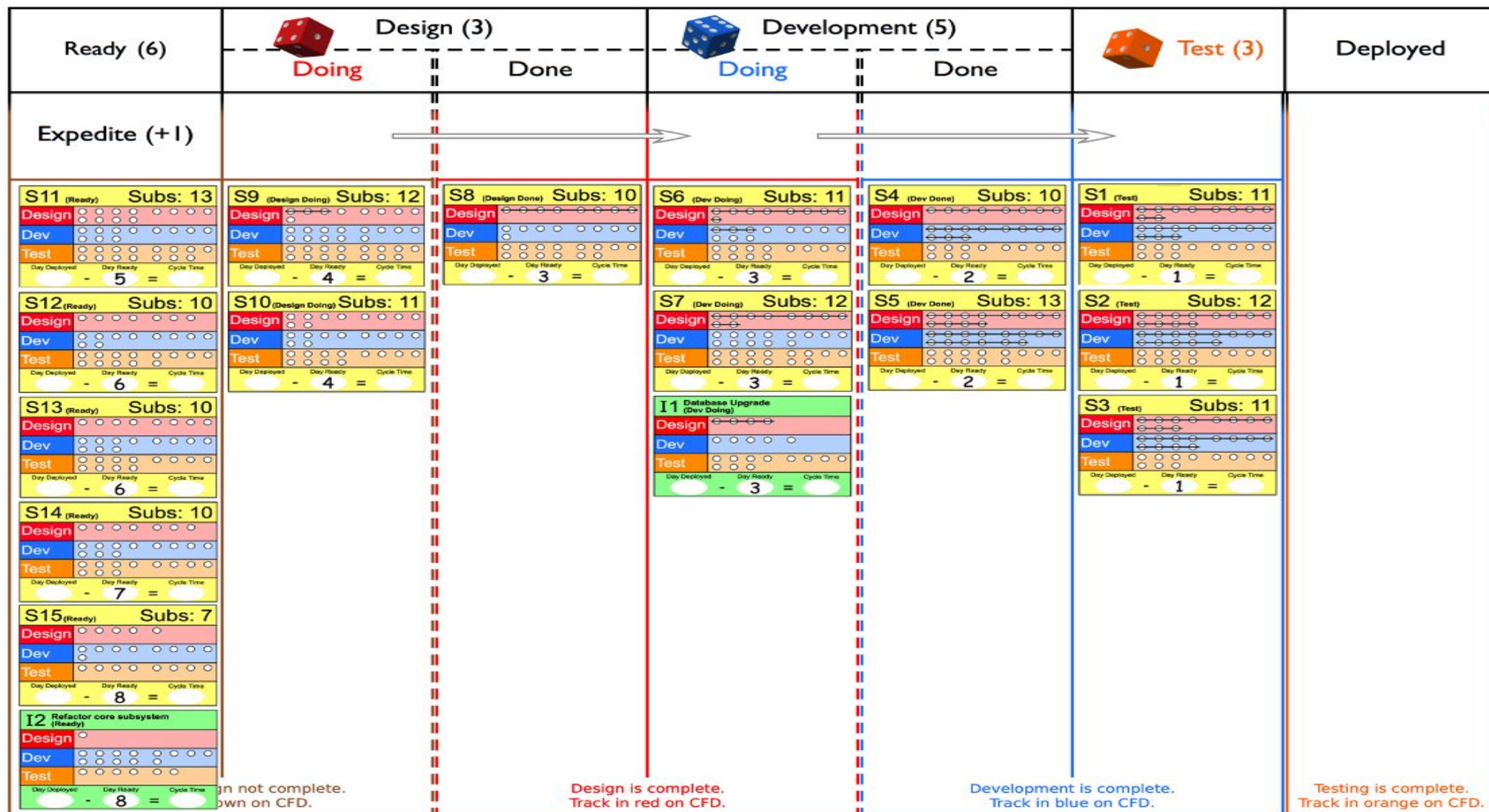
Project manager, Keeping track of all the steps



Project manager, Keeping track of all the steps







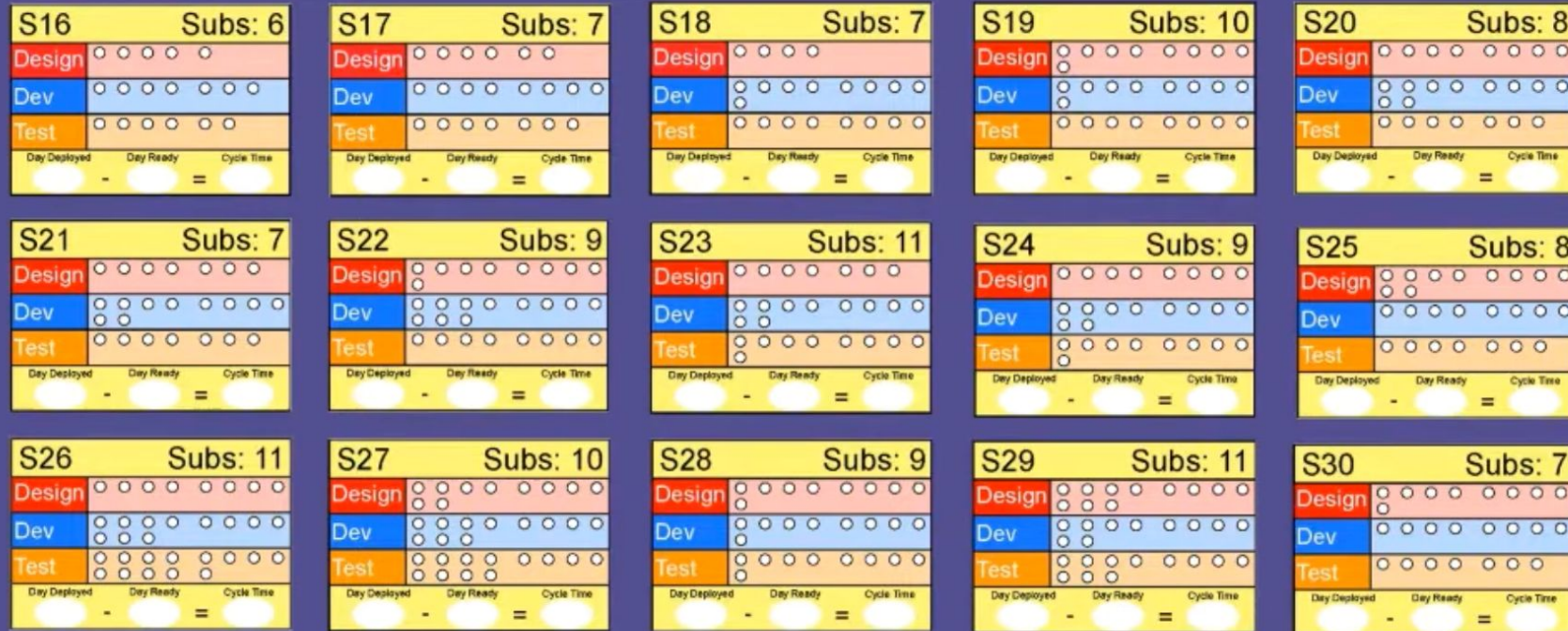
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Board at start of Day 9

Tasks

DEVELOPMENT CARDS



Development team roles



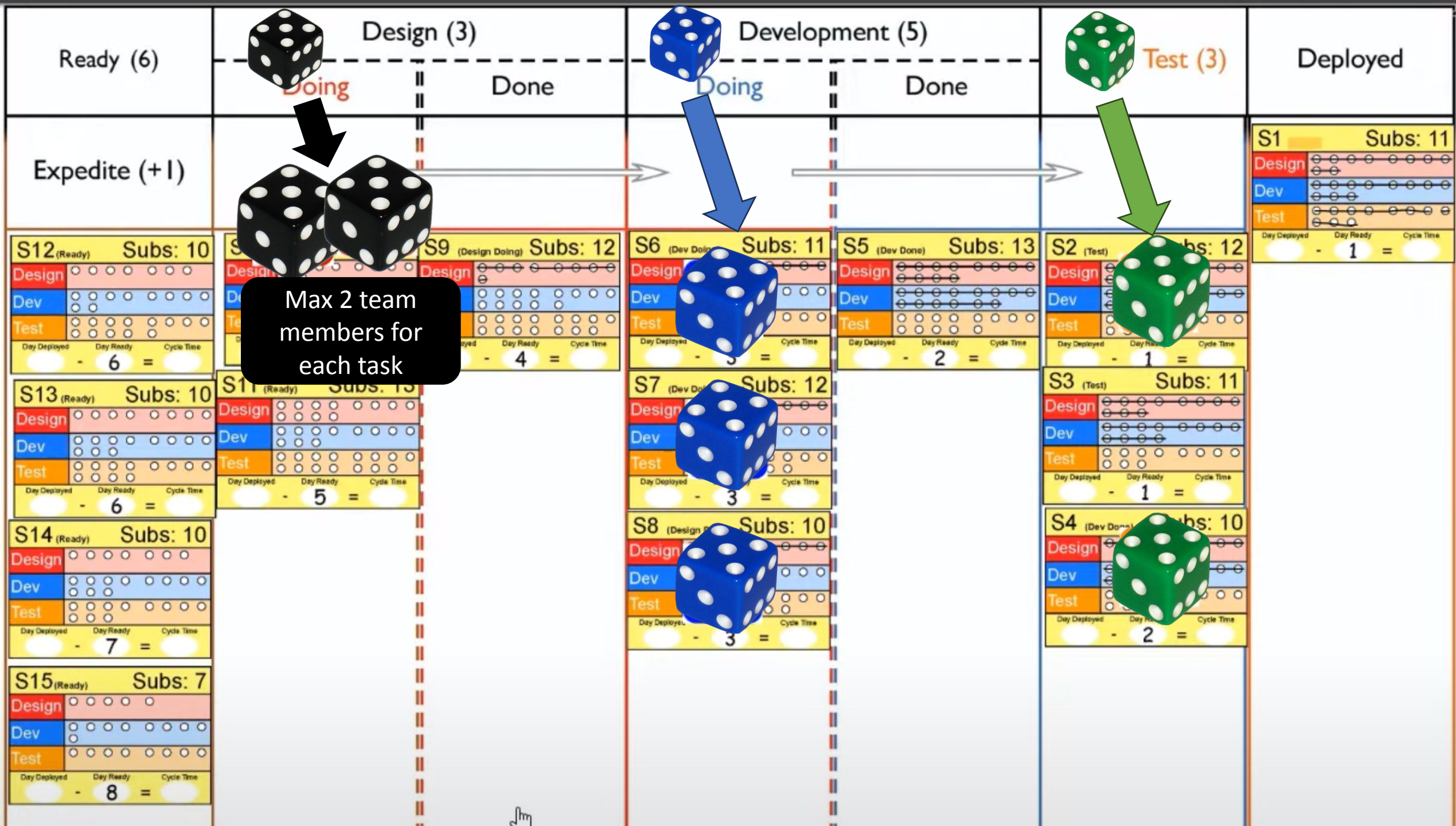
Designer (you start with 2 dice)



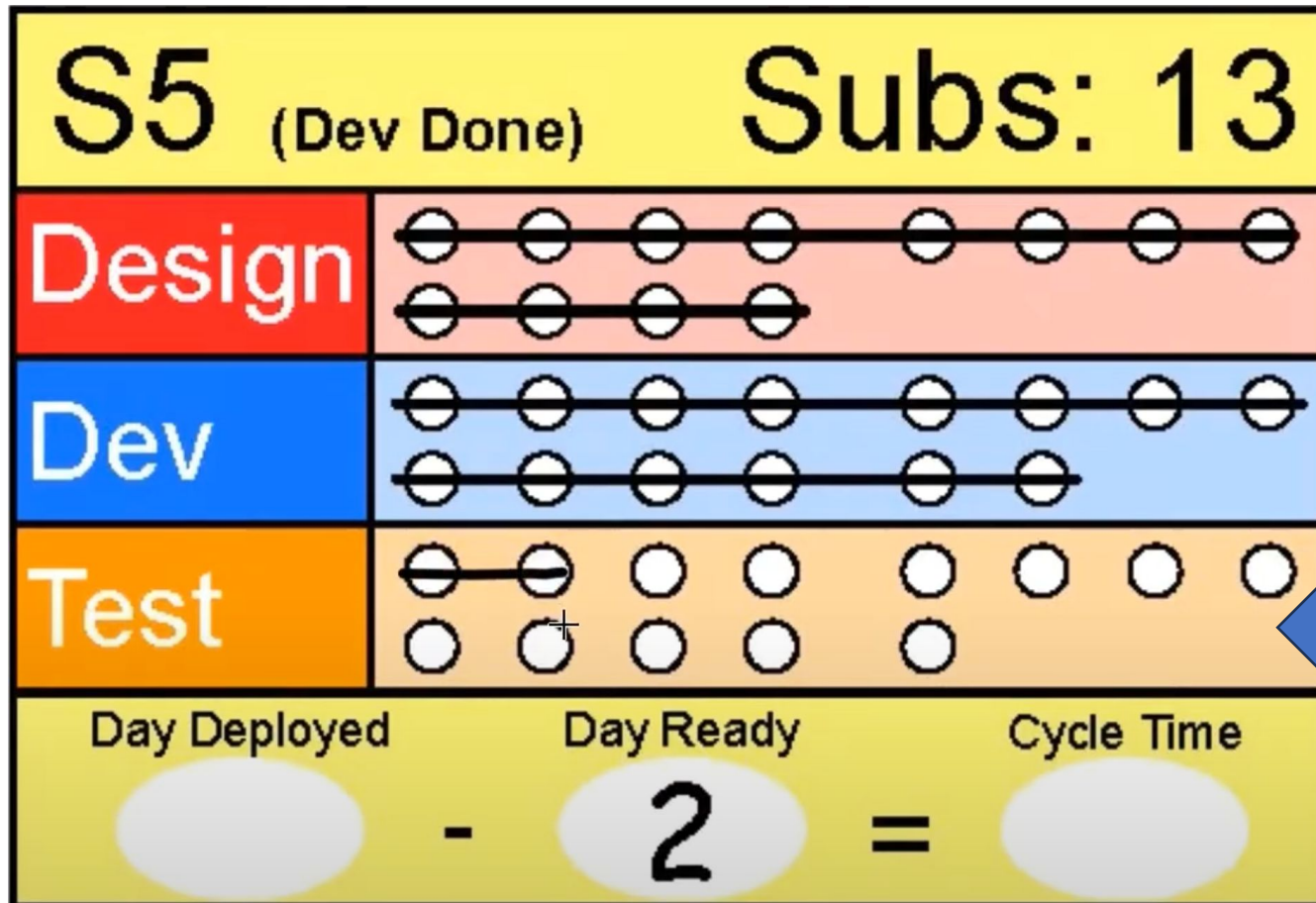
Developer (you start with 3 dice)



Tester (you start with 2 dice)

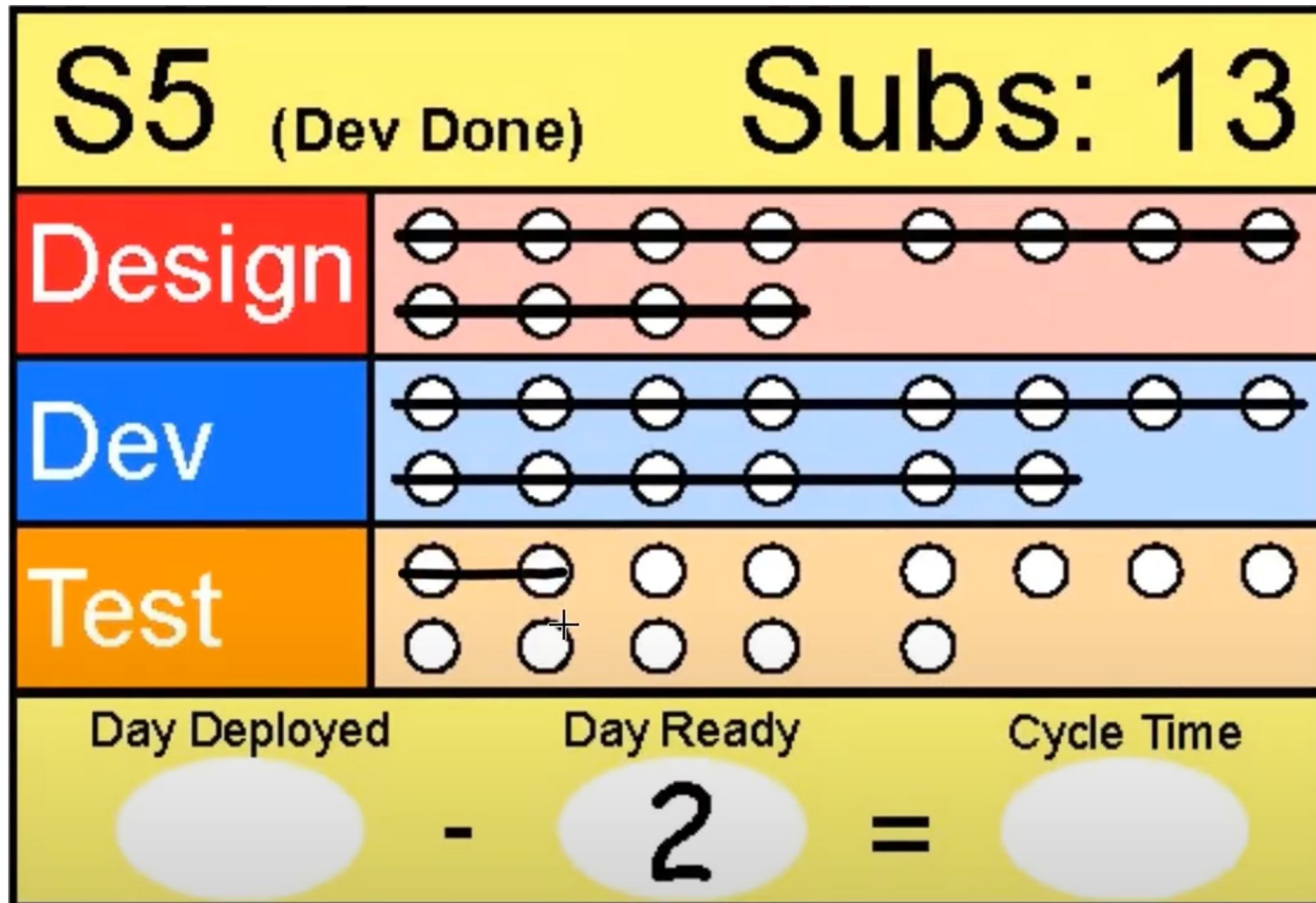


Remaining units of work



This story needs to be tested for 11 units of work

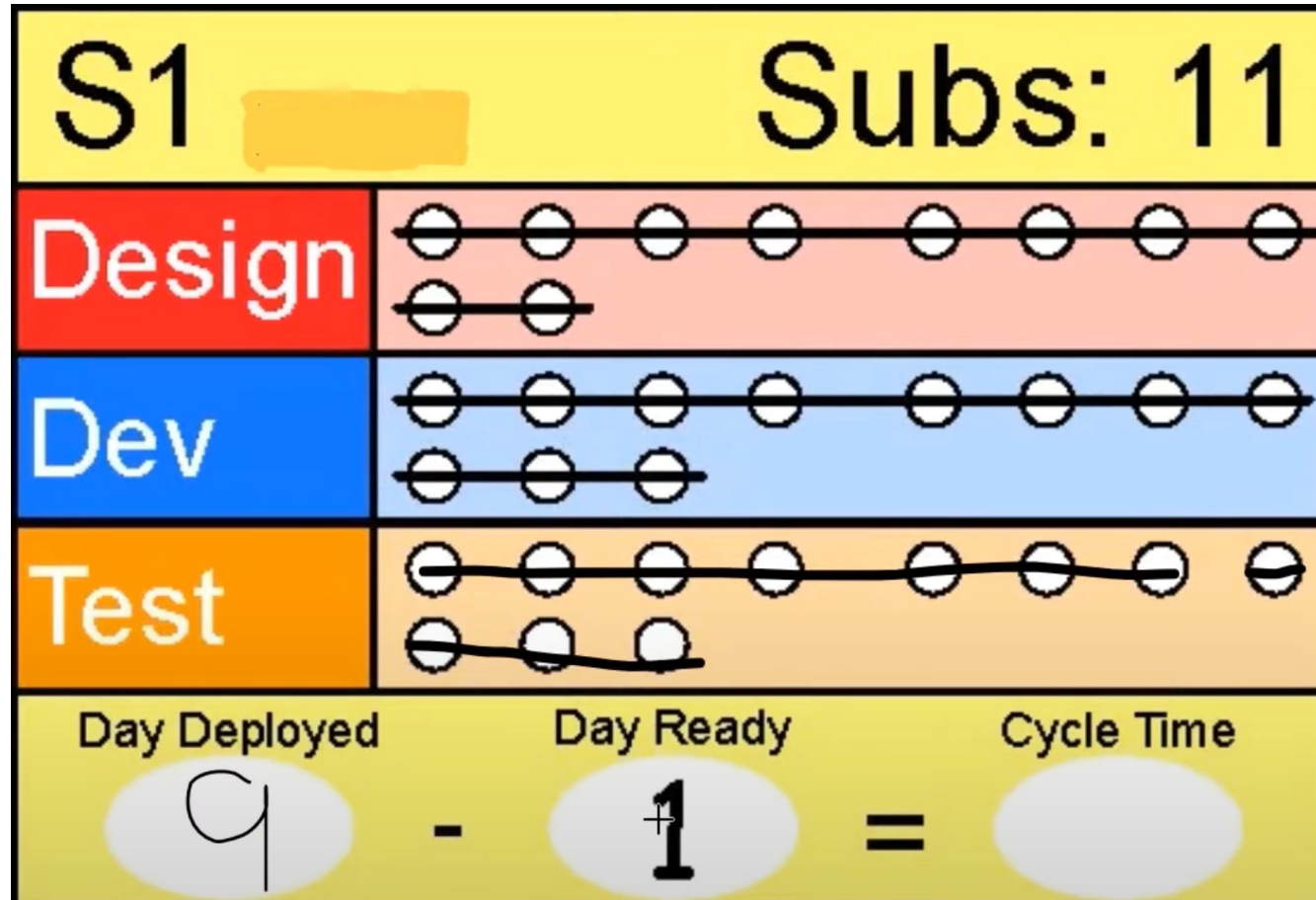
Remaining points



Roll the tester dice

$$6 * 2 = 12$$

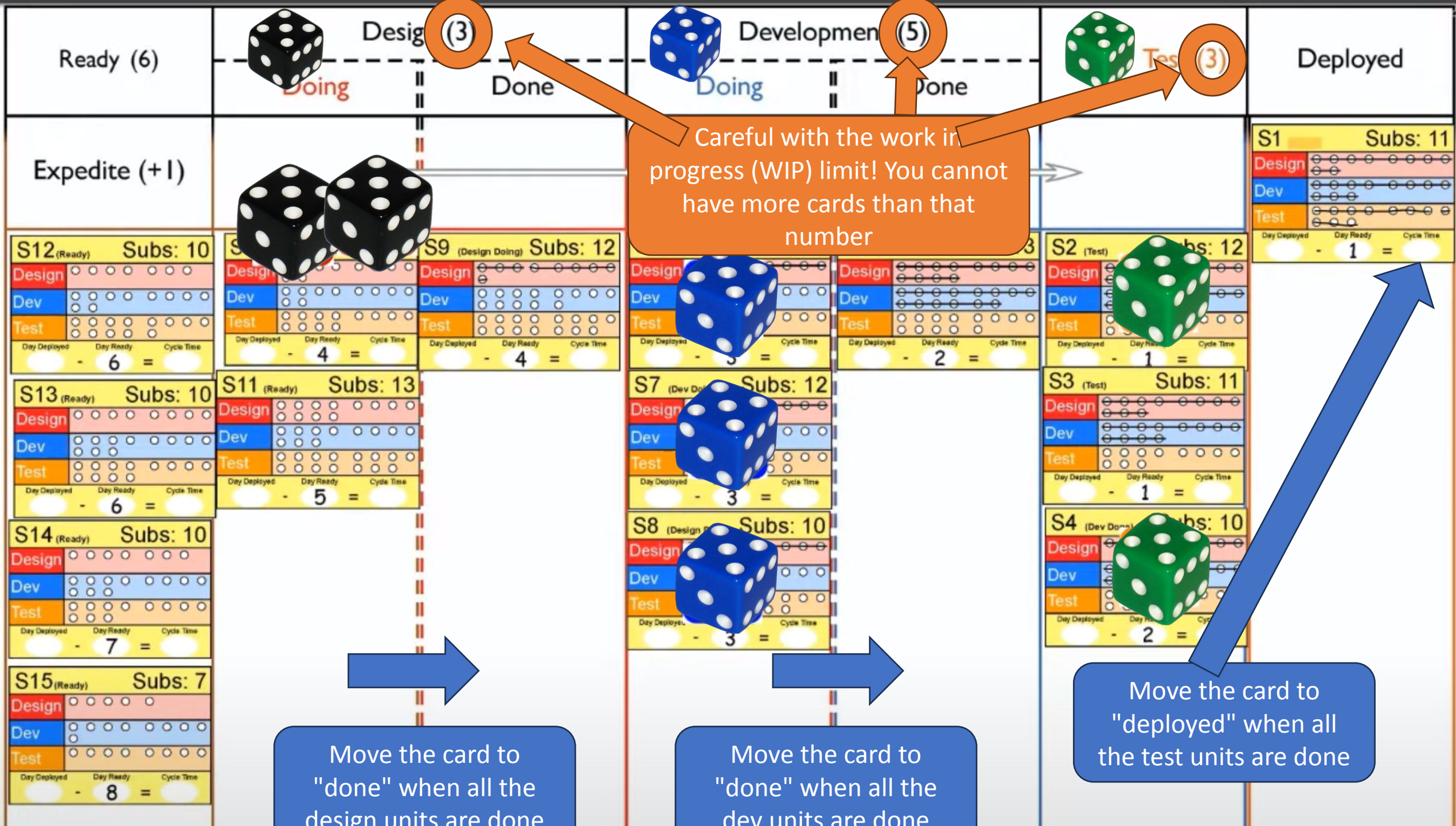
Strike out the unit of works

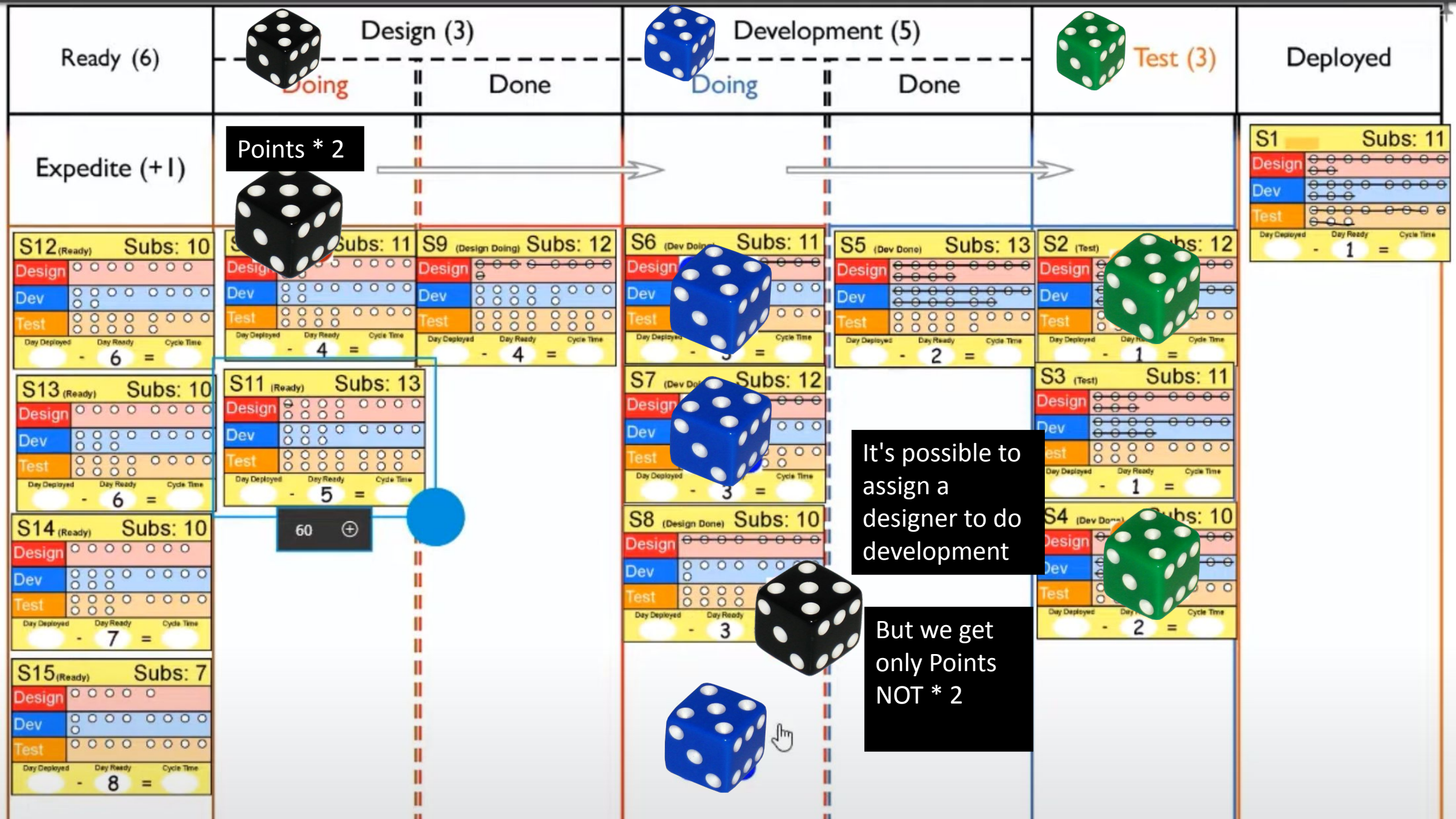


Roll the tester dice

$6 * 2 = 12$ points

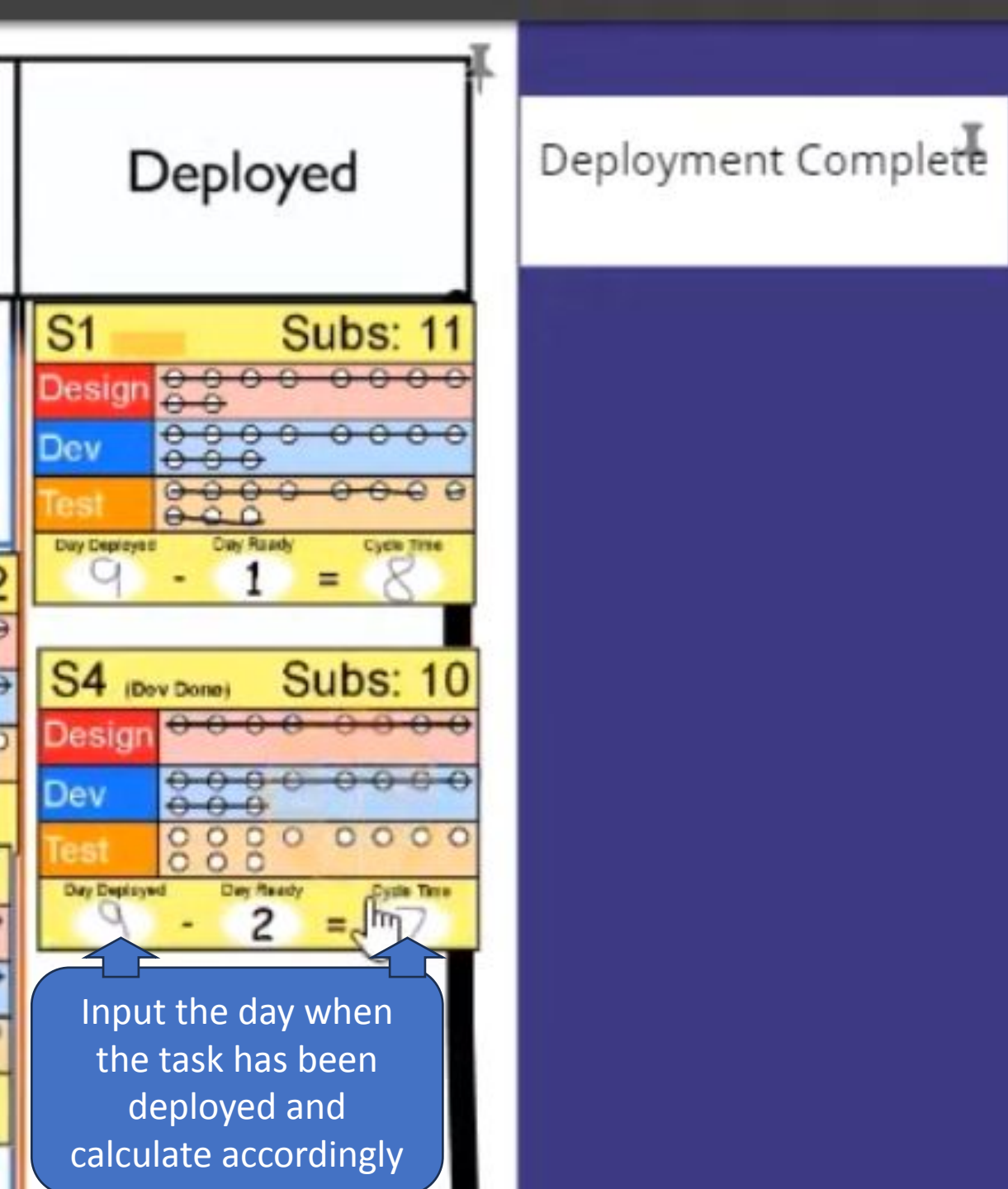
$12 > 11$ so strike out all the remaining 11 points



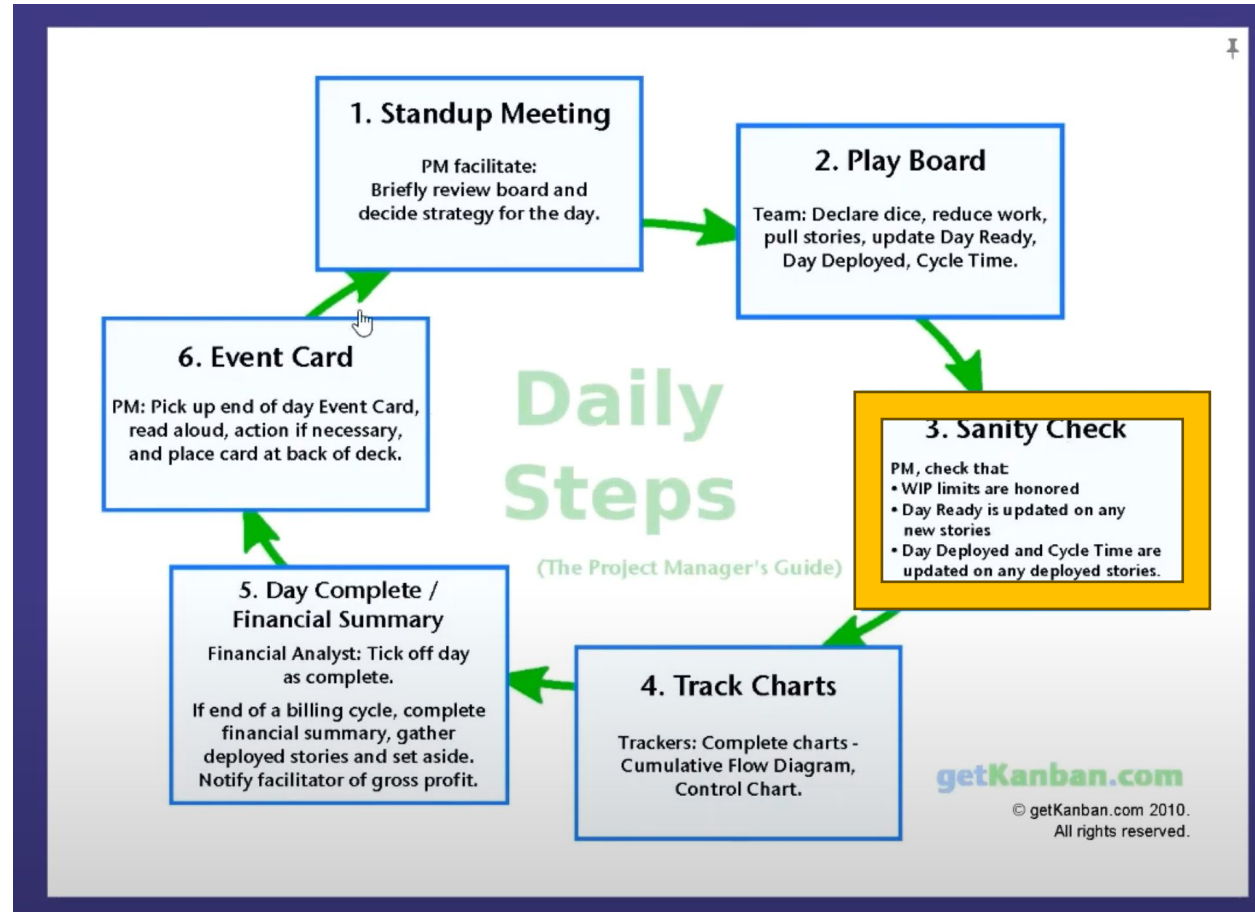


Calculate and keep Track

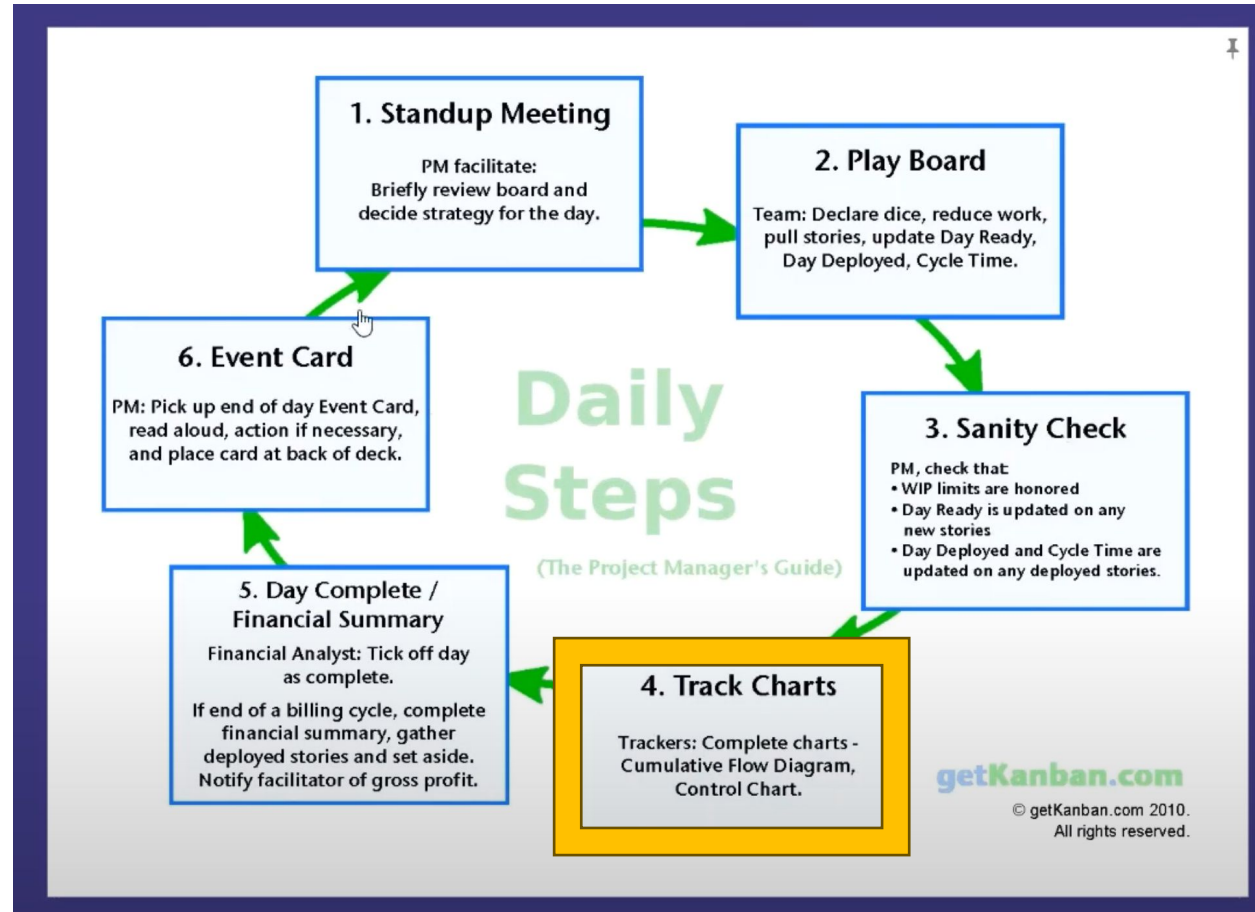
- Cycle time for each deployed features or card
- And the number of subscriber gained



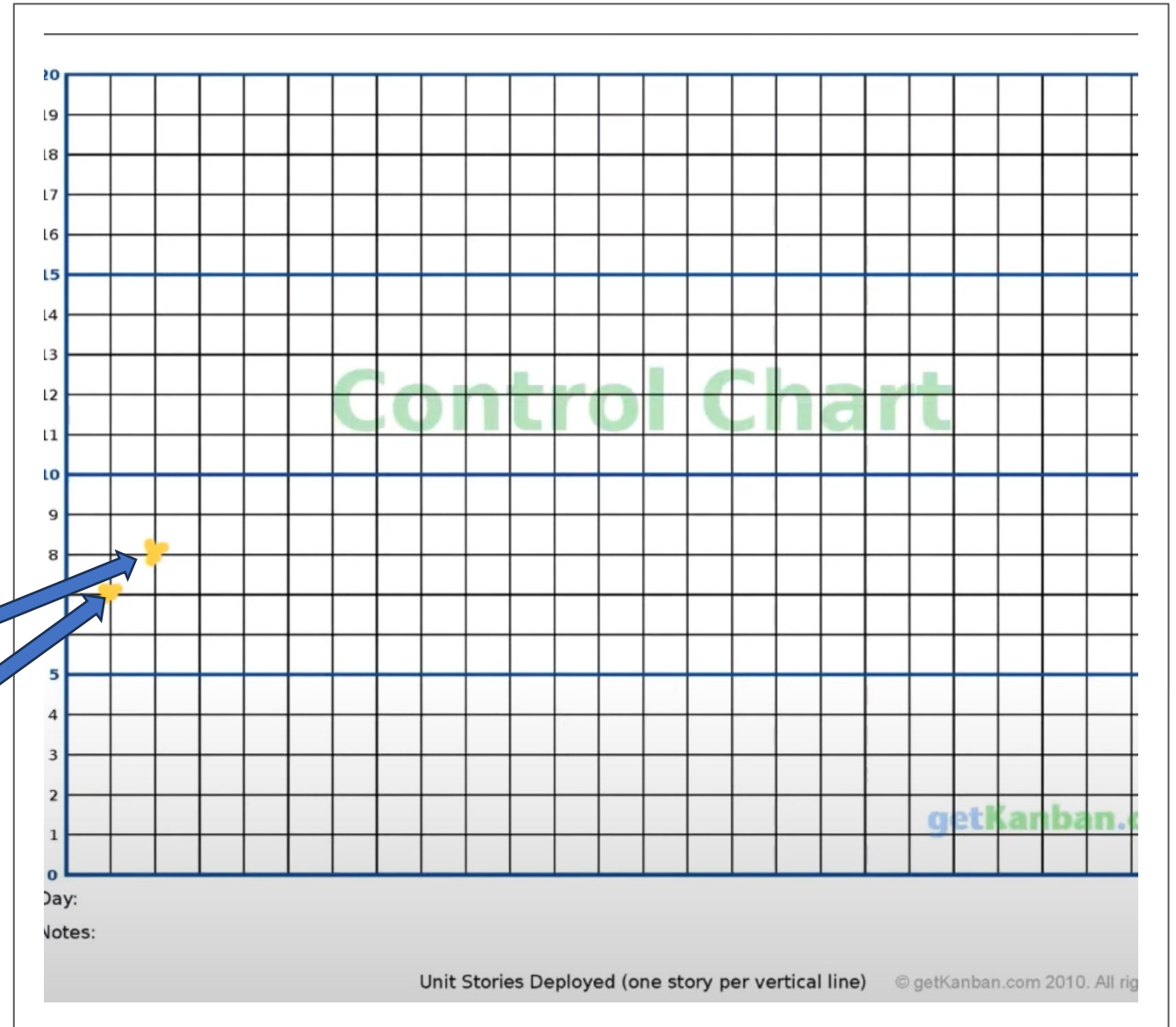
Project manager, Keeping track of all the steps



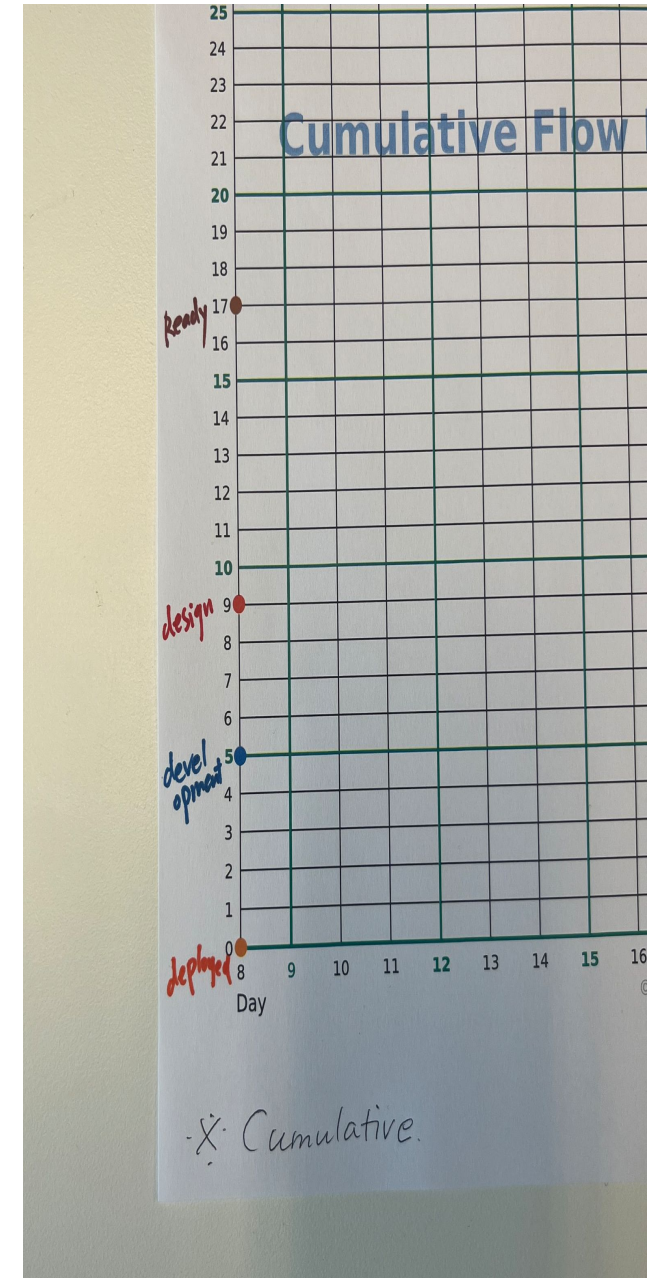
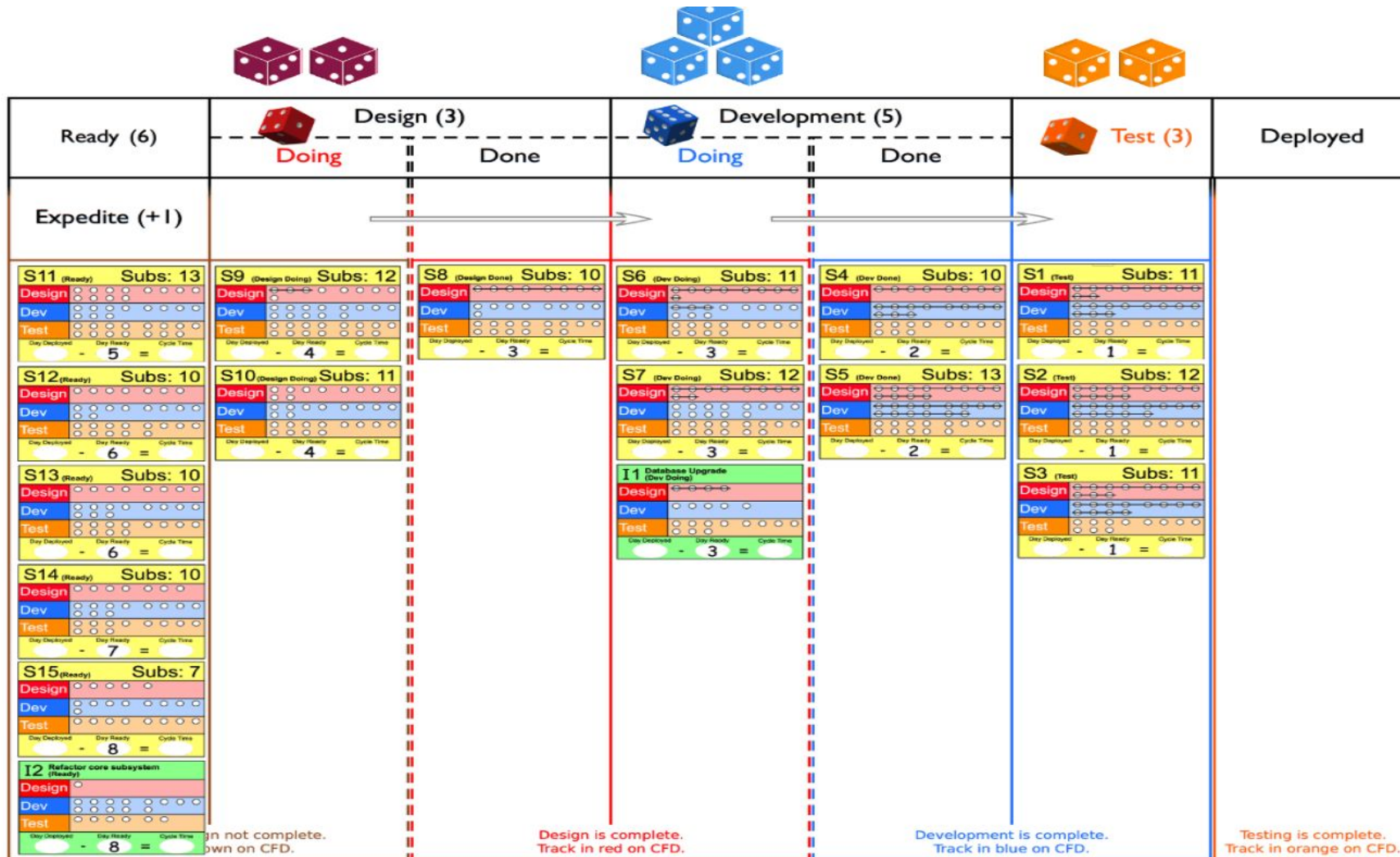
Project manager, Keeping track of all the steps



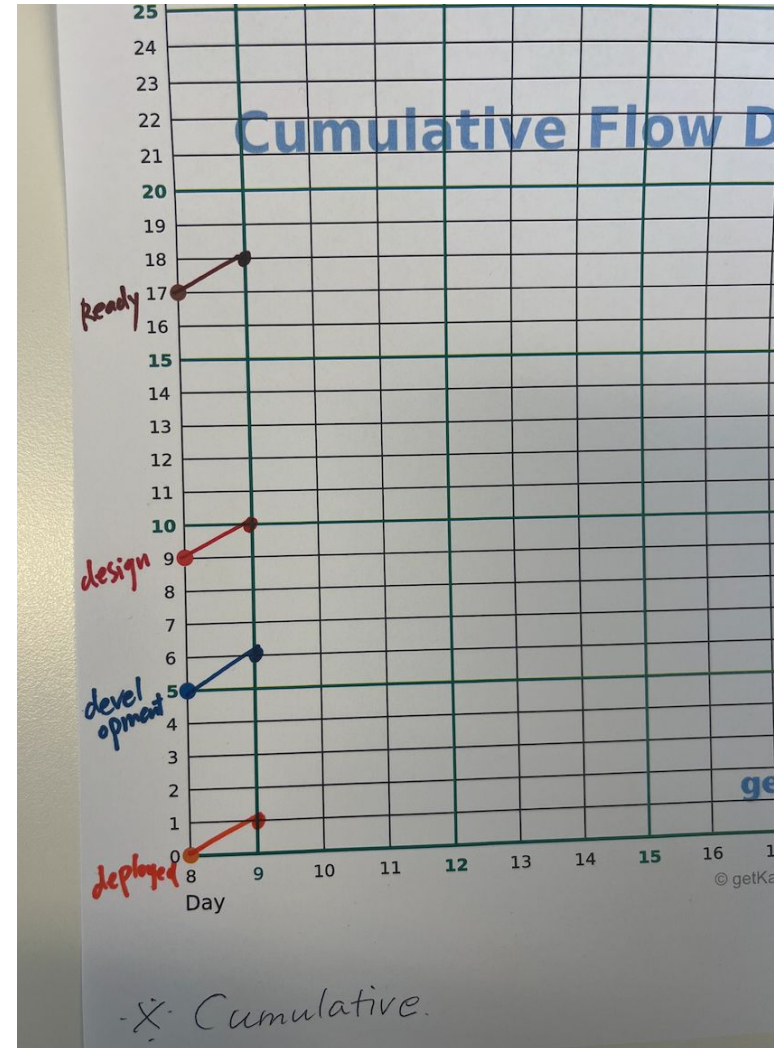
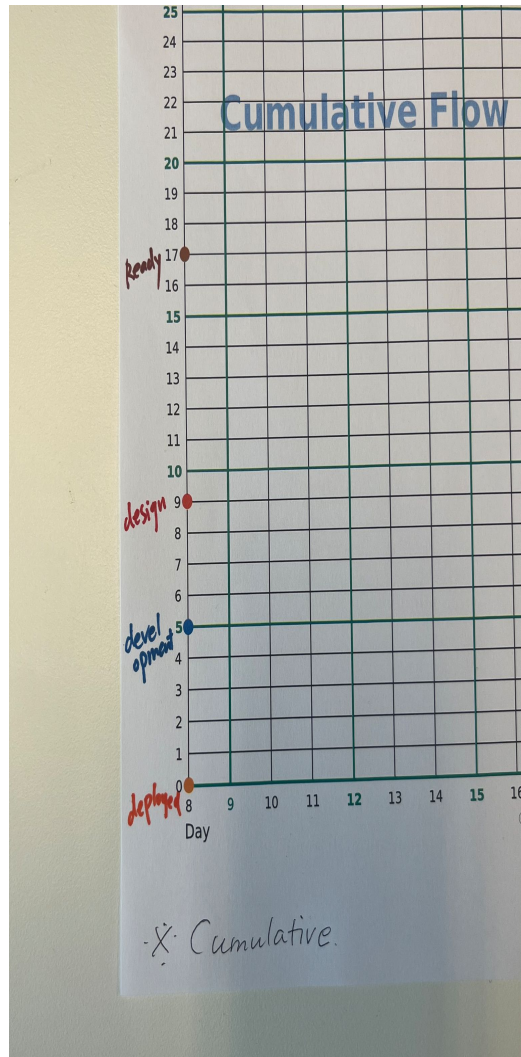
- From the deployed cards, Plot the cycle time everyday



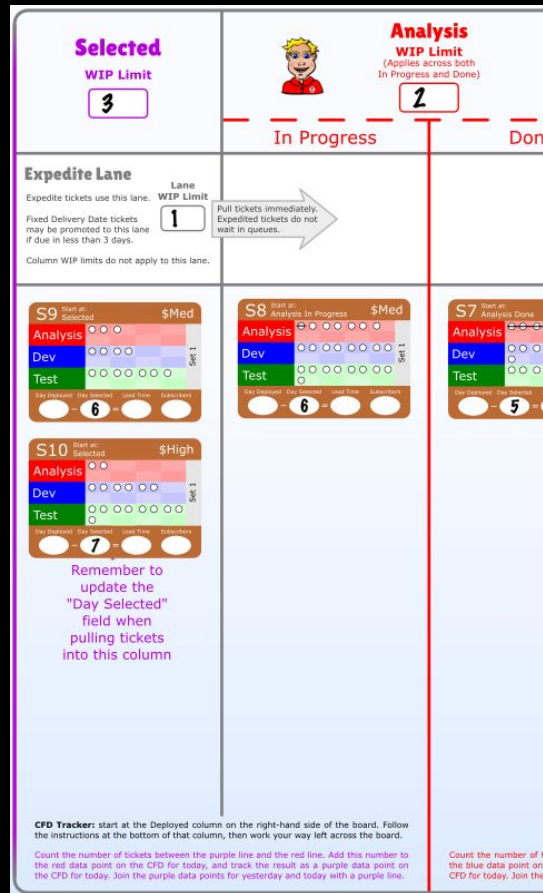
Cumulated Flow Chart Instructions



Cumulated Flow Chart Instructions

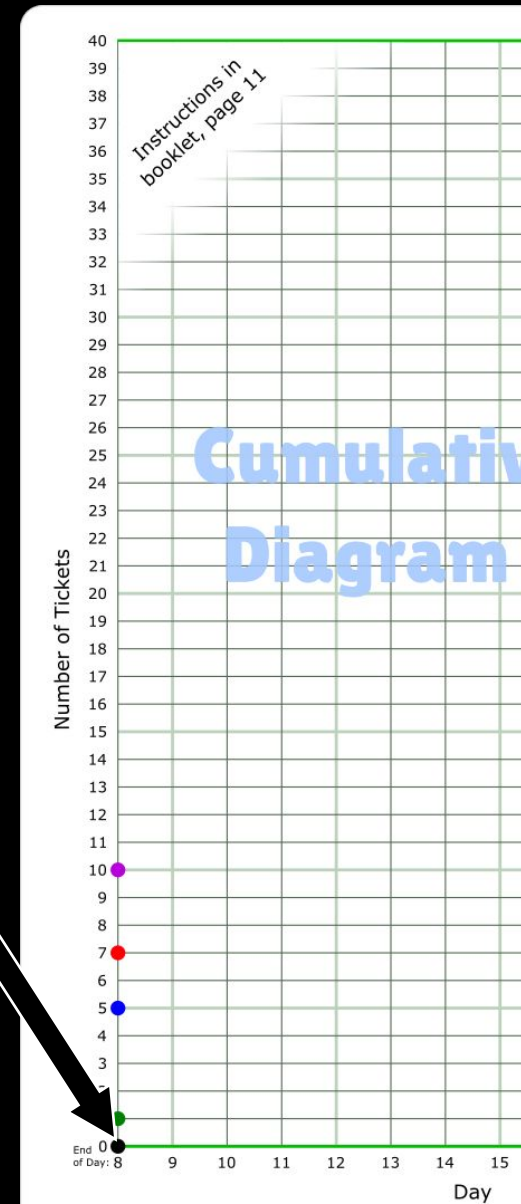
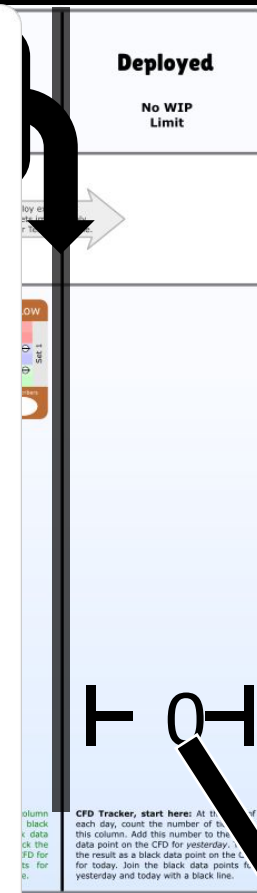
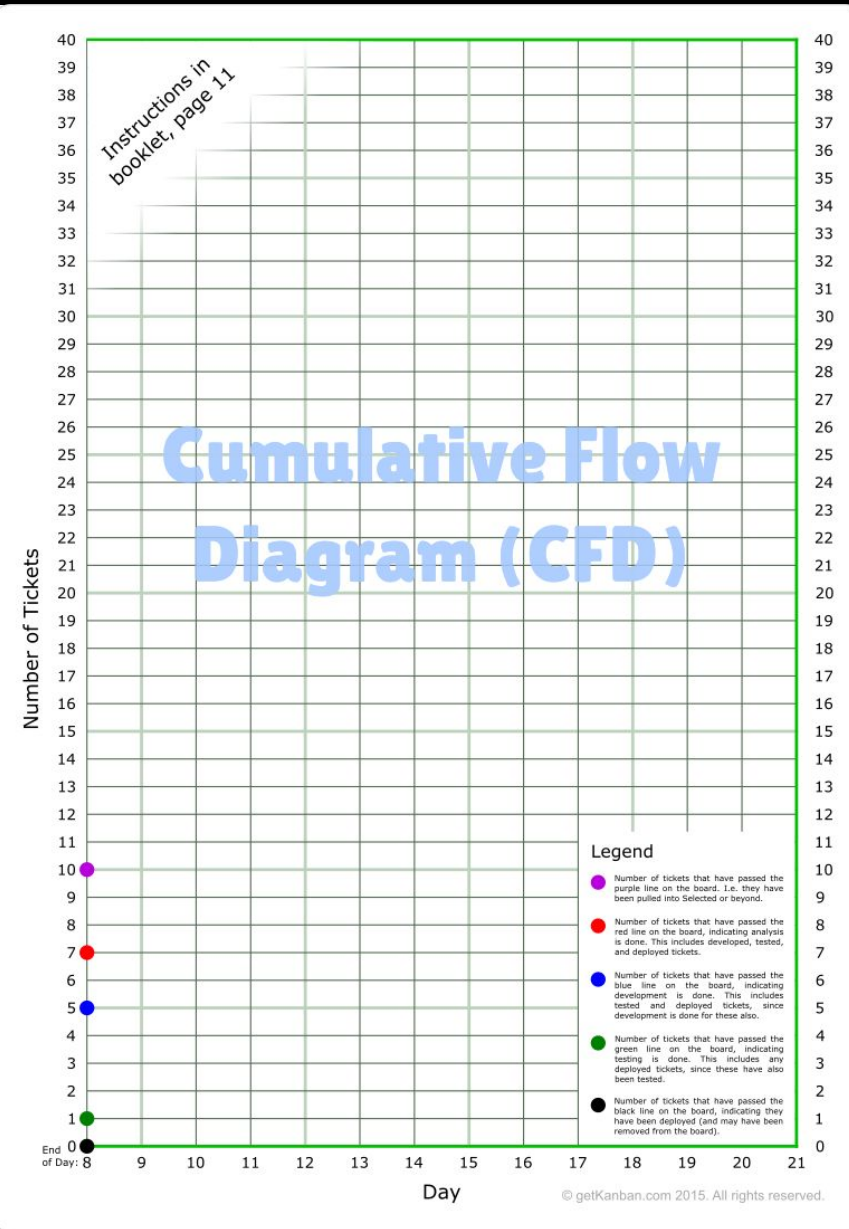


Understand the CFD as at the end of Day 8 (that is, now – at the start of the game)

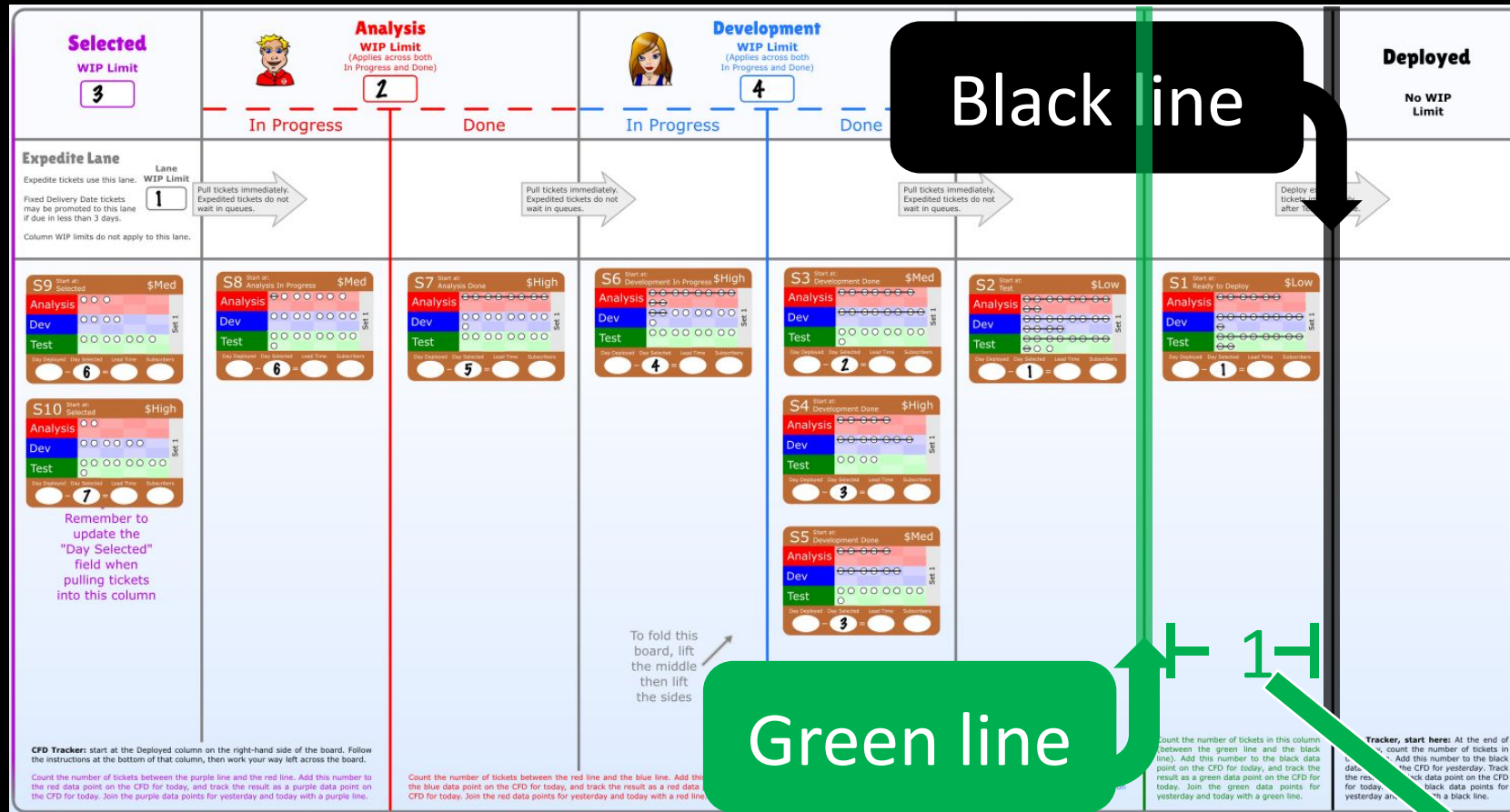


Zero tickets have passed the
... and there is a black point

This means that, as at the end



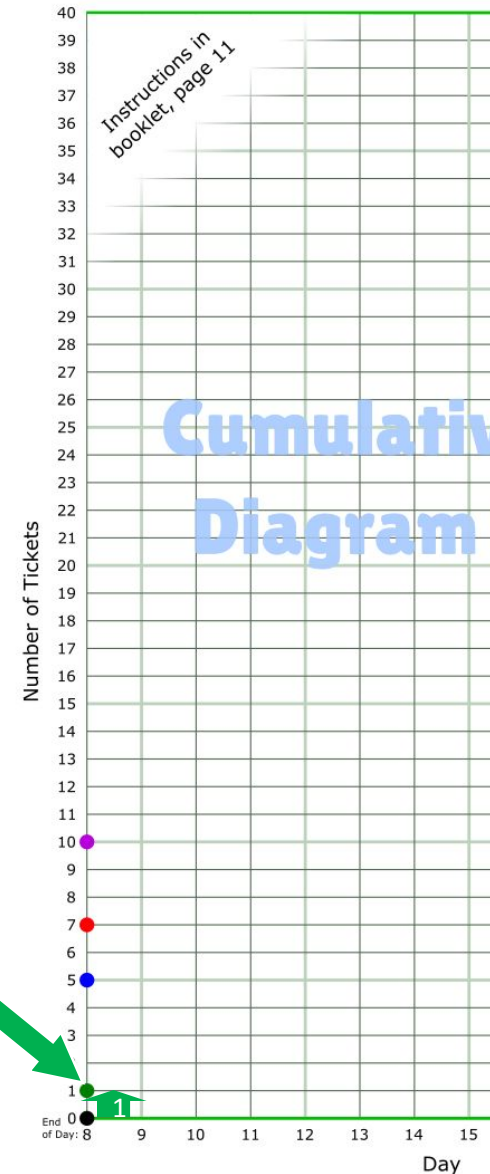
Understand the CFD as at the end of Day 8 (that is, now – at the start of the game)



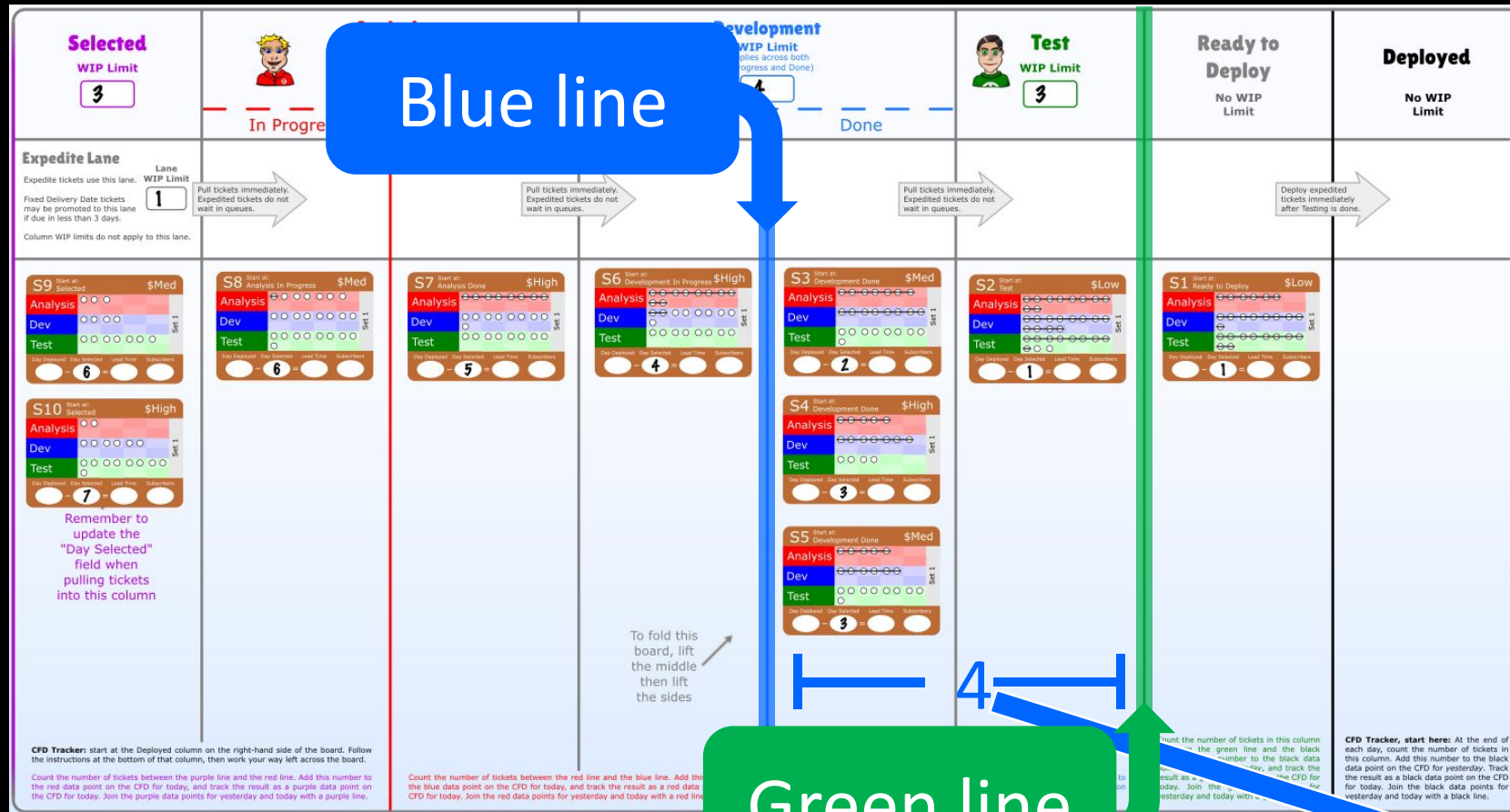
There is one ticket between the green line and the black line on the board ...

... so we count up 1 from the black point to the green point on the CFD.

This means that, as at the end of Day 8, one ticket has finished Test, but has not yet been deployed.



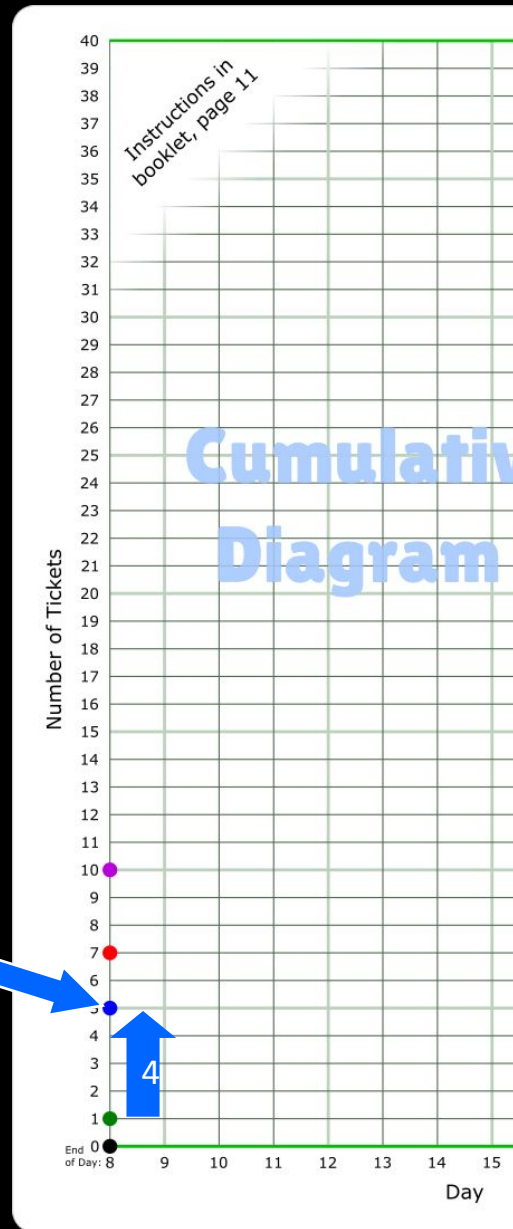
Understand the CFD as at the end of Day 8 (that is, now – at the start of the game)



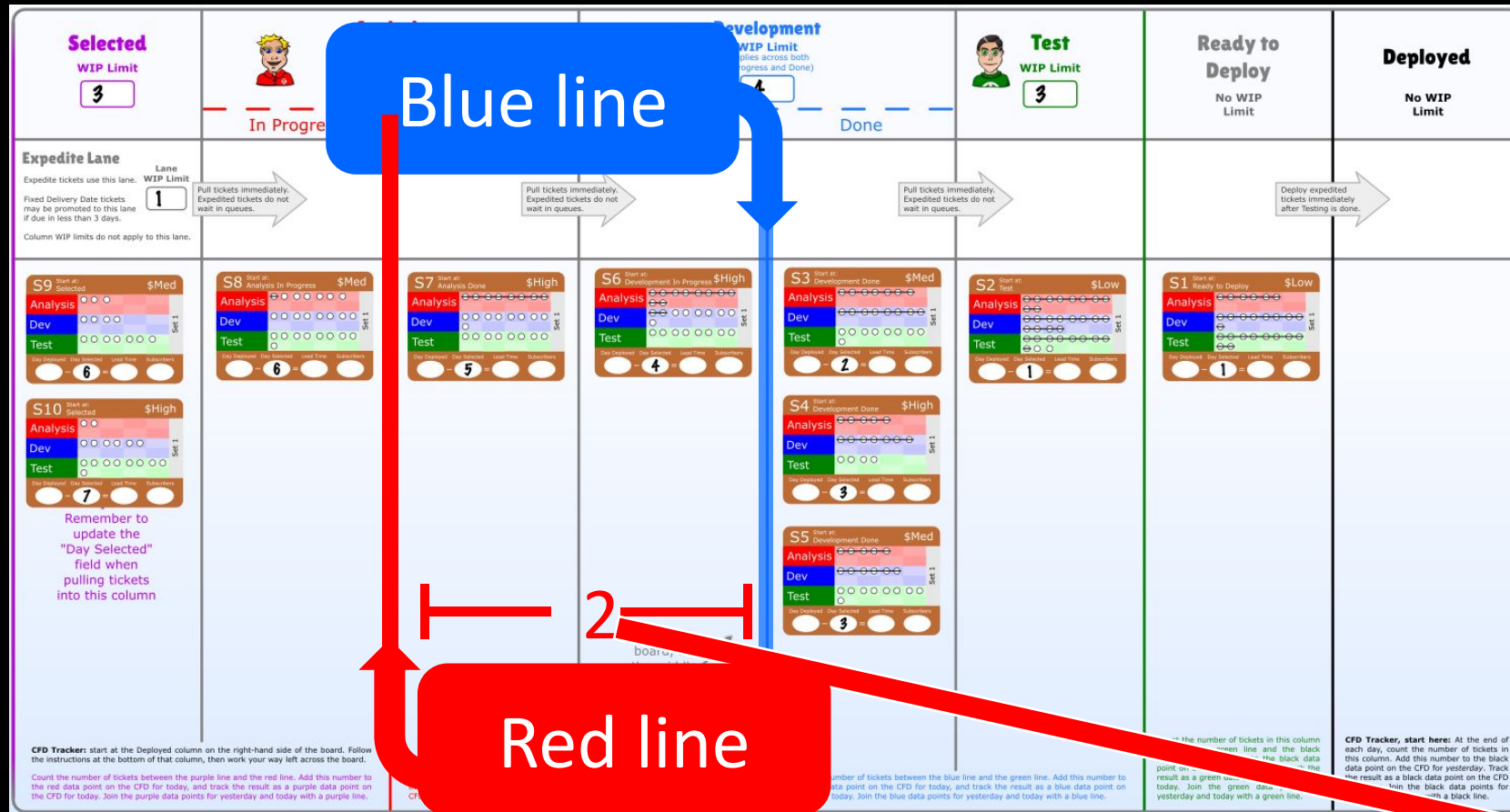
There are four tickets between the blue line and the green line on the board ...

... so we count up 4 from the green point to the blue point on the CFD.

This means that as at the end of Day 8, four tickets have finished Development, but have not yet finished Testing.



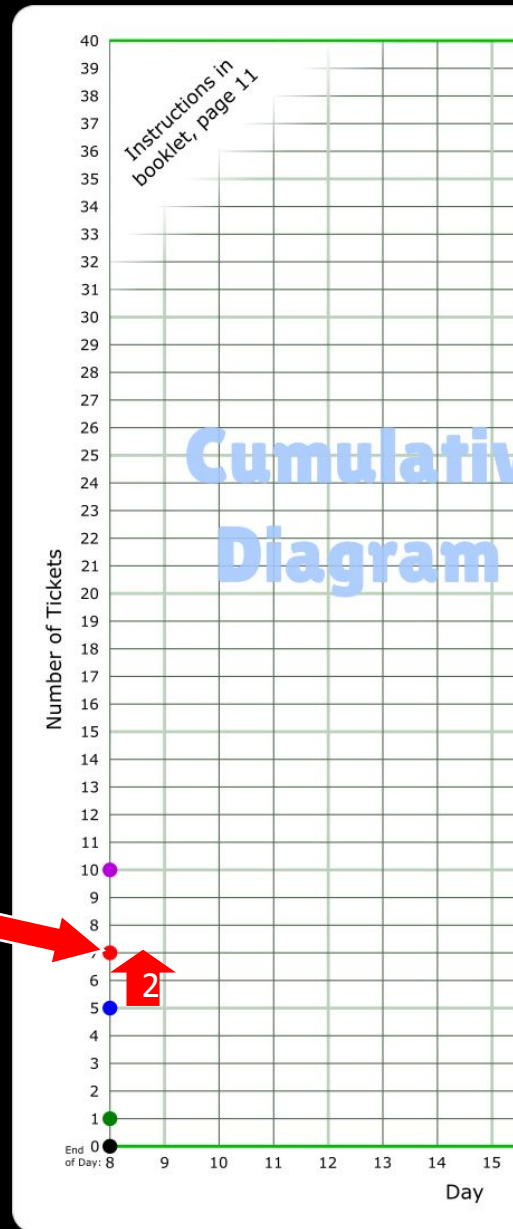
Understand the CFD as at the end of Day 8 (that is, now – at the start of the game)



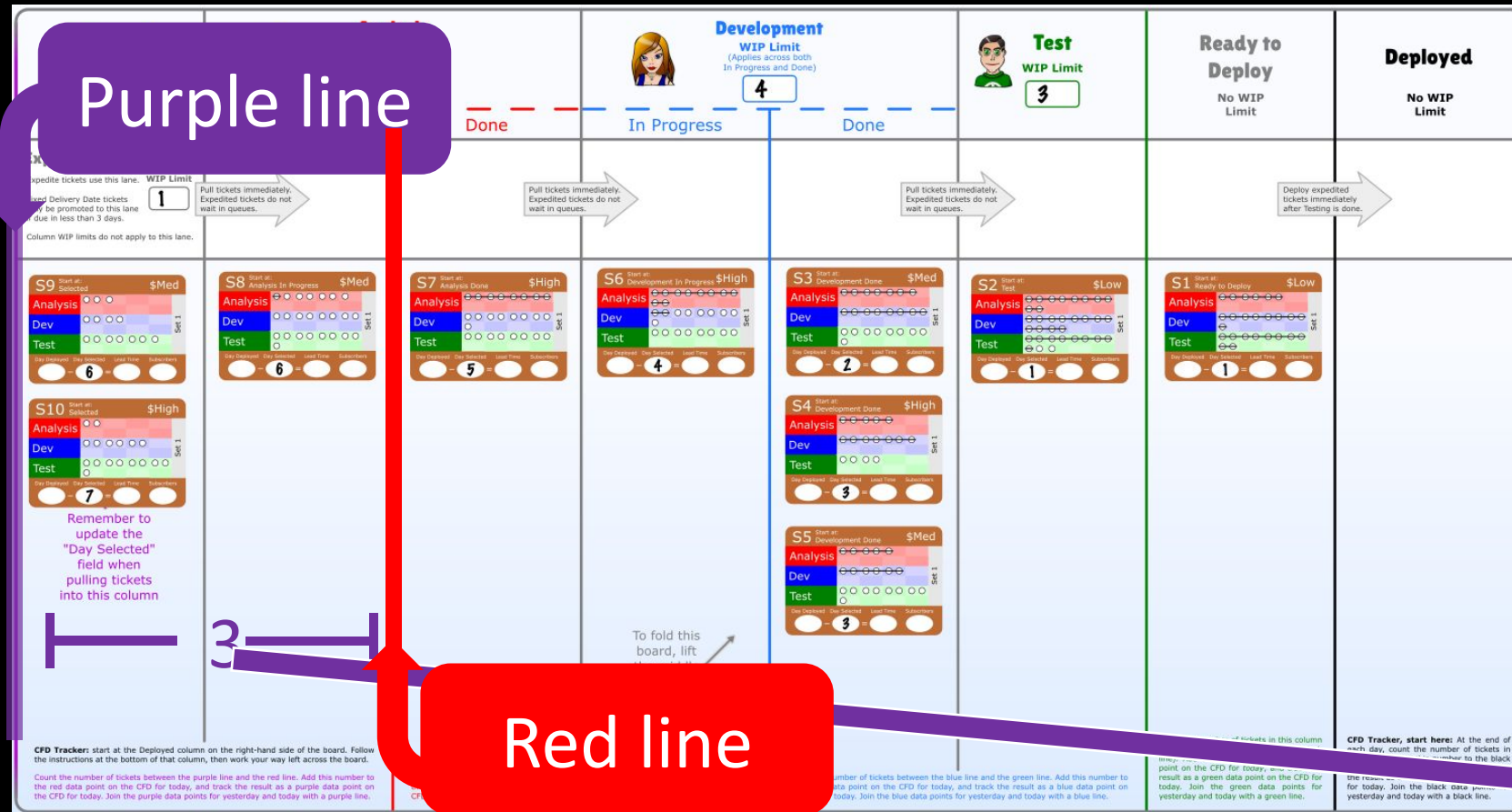
There are two tickets between the red line and the blue line on the board ...

... so we count up 2 from the blue point to the red point on the CFD.

This means that as at the end of Day 8, two tickets have finished Analysis, but have not yet finished Development.



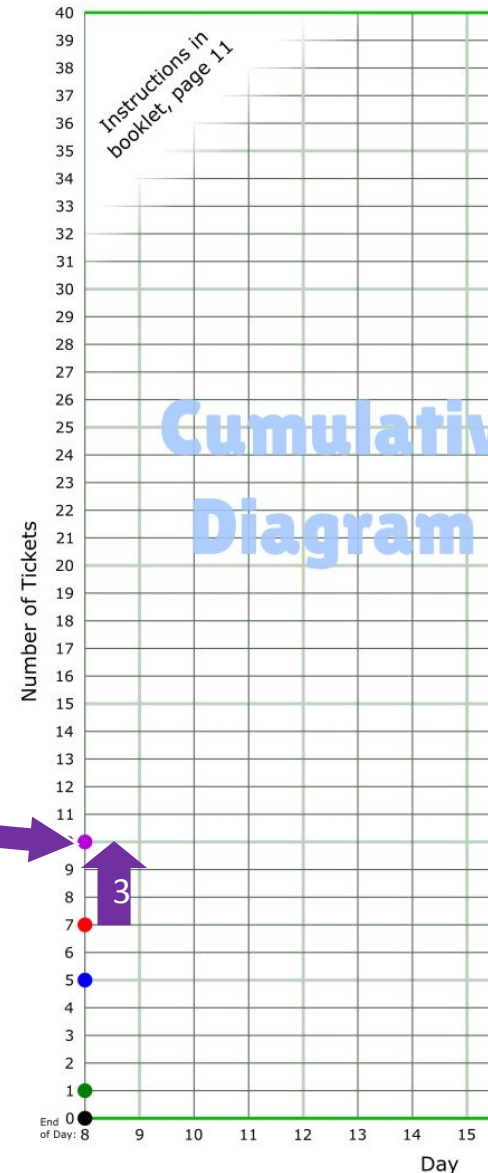
Understand the CFD as at the end of Day 8 (that is, now – at the start of the game)



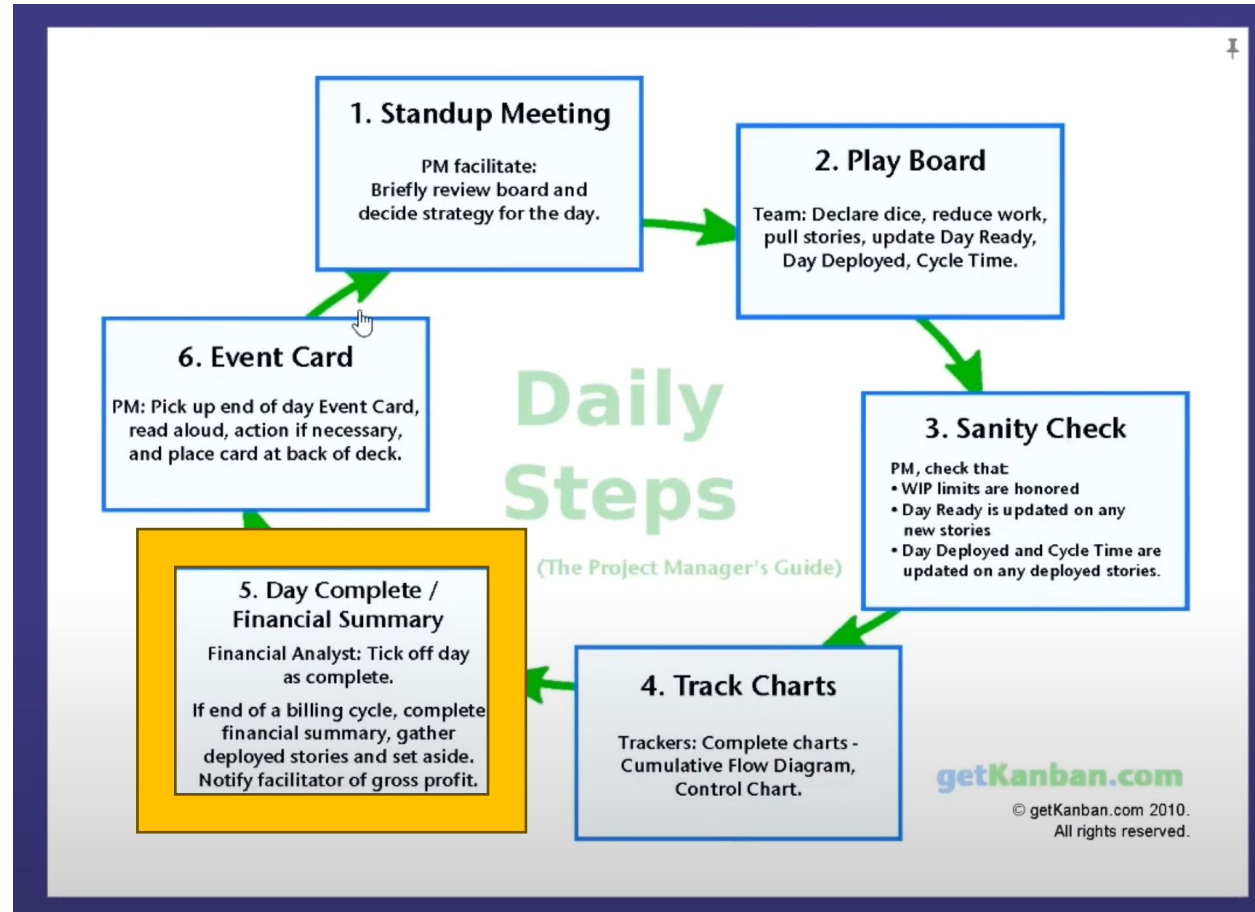
There are three tickets between the purple line and the red line on the board ...

... so we count up 3 from the red point to the purple point on the CFD.

This means that as at the end of Day 8, three tickets have been pulled onto the board, but have not yet finished Analysis.



Project manager, Keeping track of all the steps



Financial summaries

Add the total number of subscribers from the **deployed** card

S1	Subs	11
Design		
Dev		
Test		
Day Deployed	Day Ready	Cycle Time
9	1	= 8

S4 (Dev Done)	Subs	10
Design		
Dev		
Test		
Day Deployed	Day Ready	Cycle Time
9	2	= 11

Financial Summaries: Three Day Billing Cycle

Tick off days as they are completed

Billing cycle ended day

Billing cycle new subscribers (add up Subs from stories deployed in billing cycle)

Total subscribers to date

Billing cycle subscriber revenue

Billing cycle fines or cash payments

Billing cycle gross profit

Total gross profit to date (notify facilitator when calculated)

Gather up the stories deployed at the end of each billing cycle, and set aside.

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Tick the day that has been finished

9 10 11 12 13 14 15 16 17 18 19 20 21

9 12 15 18 ~~21~~

9A 21 12A 15A 18A 21A

Copy 9A 9B + 12A 12B + 15A 15B + 18A 18B + 21A

9B 24 12B 15B 18B 21B

9B x \$100 12B x \$100 15B x \$100 18B x \$100 21B x \$100

9C 2100 12C 15C 18C 21C

Did you finish F1 by day 15? If not, put your \$2,200 fine here.

15D - 21D

Did you finish F2 by day 20? If so, make sure you include the 25 additional subscribers.

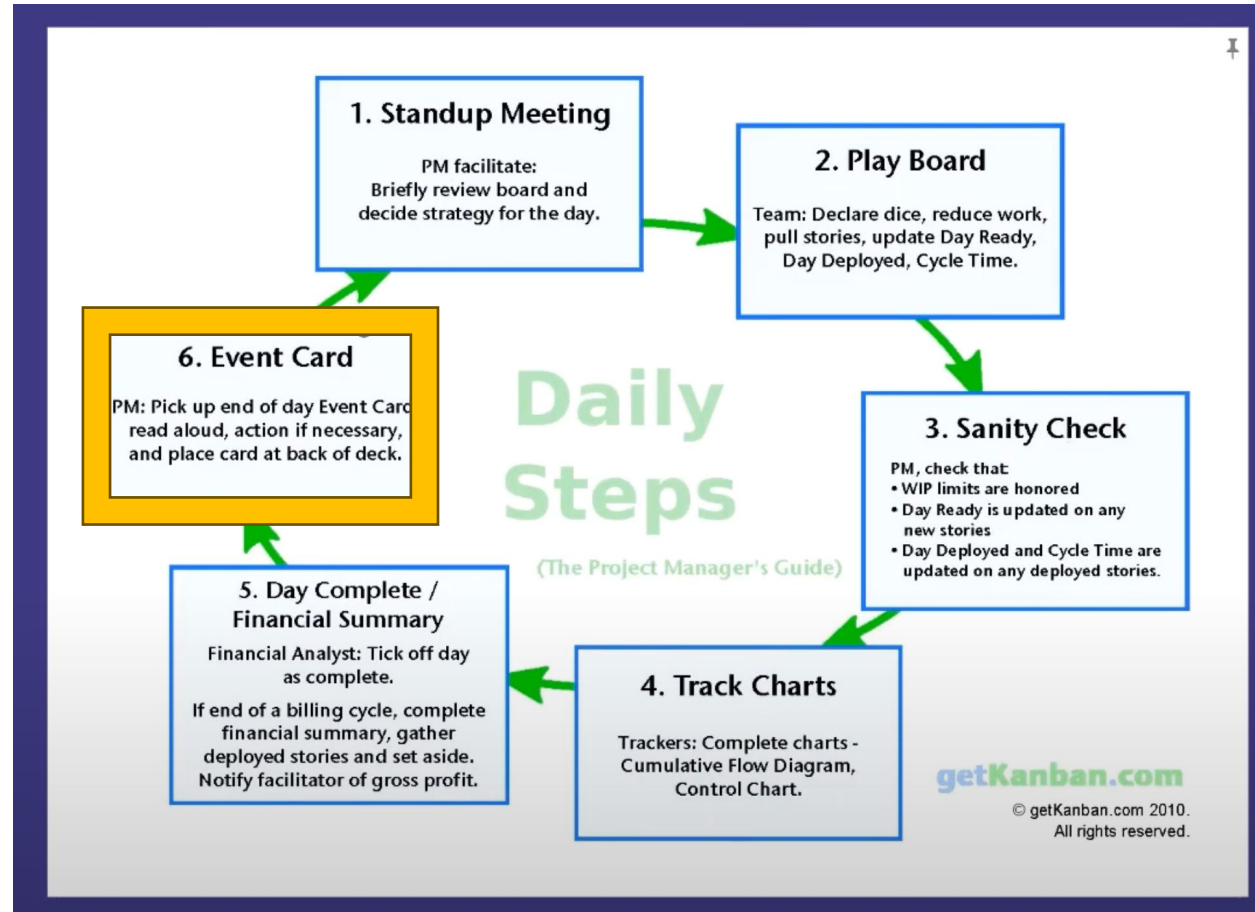
Copy 9C Copy 12C 15C + 15D Copy 18C 21C + 21D

9E 2600 12E 15E 18E 21E

Copy 9E 9F + 12E 12F + 15E 15F + 18E 18F + 21E

9F 2100 12F 15F 18F 21F

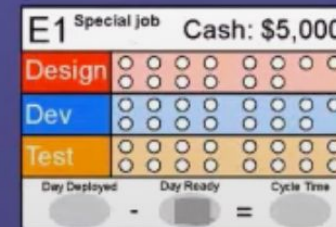
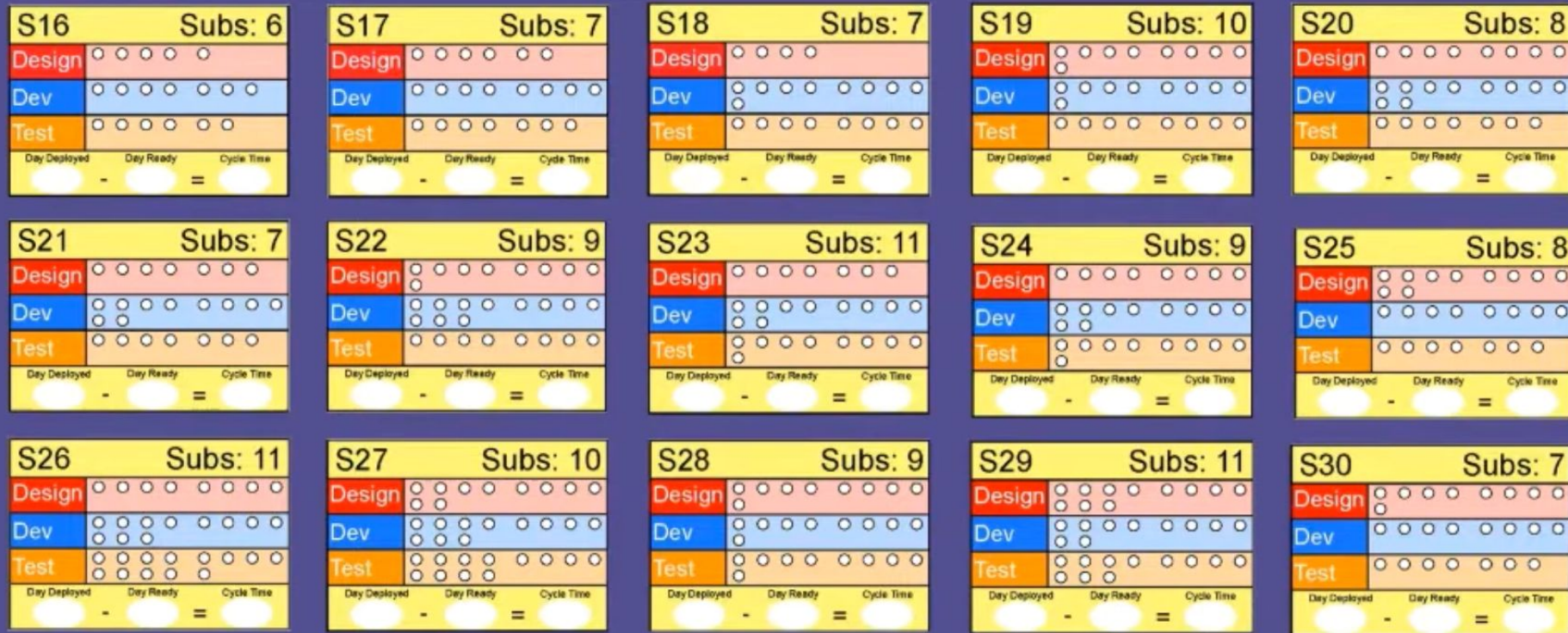
Project manager, Keeping track of all the steps



Each day a new event happens
Remove the event card



DEVELOPMENT CARDS



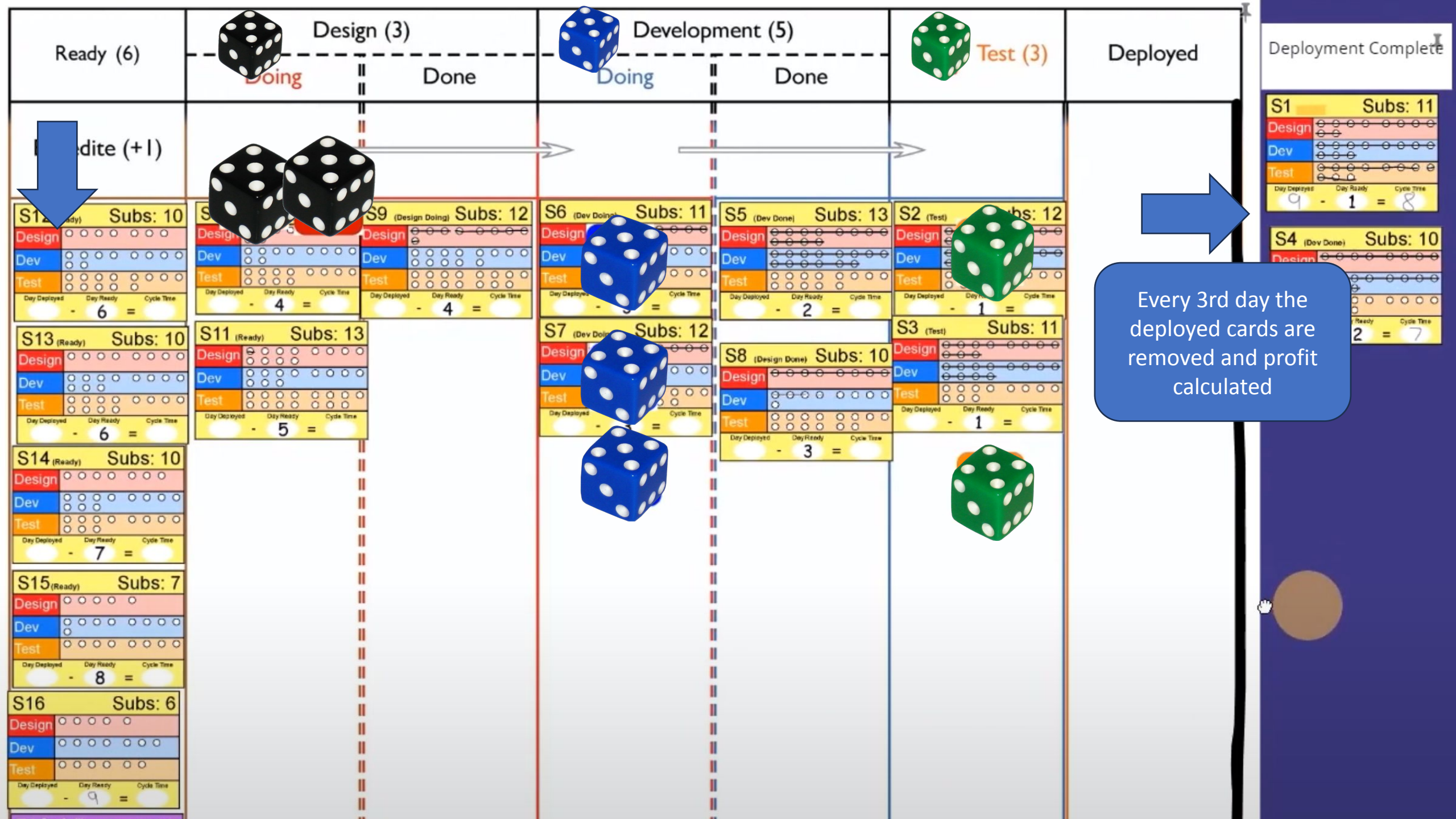
After calculating and plotting the results

- Move new ticket or cards from the available set of development and other cards , depending on the event .
- Continue playing the game for until day 18th and report the Final summary at the end of every 3rd day.

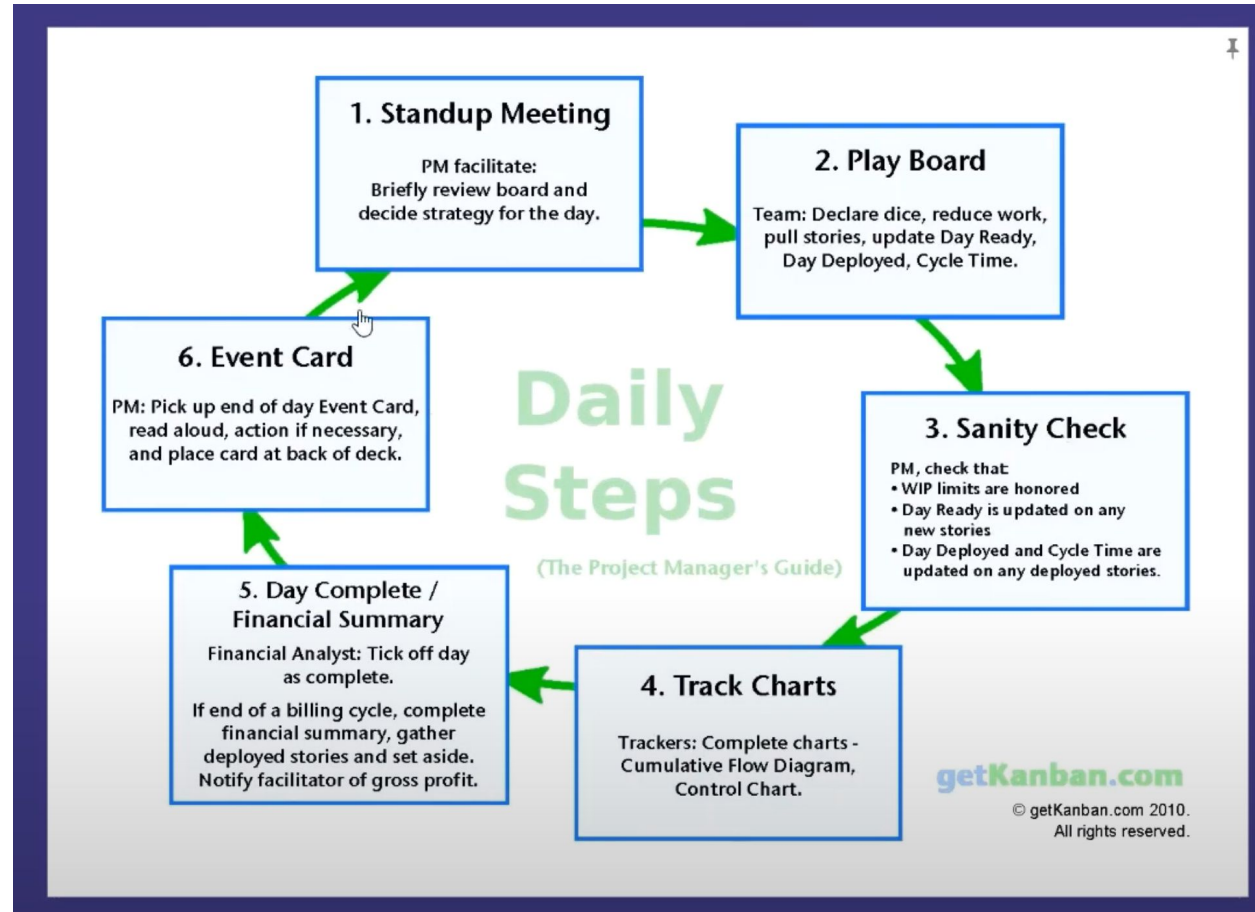
S16 Subs: 6	
Design	○ ○ ○ ○ ○
Dev	○ ○ ○ ○ ○ ○ ○
Test	○ ○ ○ ○ ○ ○
Day Deployed	Day Ready = Cycle Time
	- 9 =

F1 Sec. Audit Due day: 15 Fine:\$2,200	
Design	○ ○ ○
Dev	○ ○ ○ ○ ○ +
Test	○ ○ ○ ○ ○ ○ ○
Day Deployed	Day Ready = Cycle Time
	- 9 =

Ready (6)	
Expedite (+1)	
S12 (Ready) Subs: 10	
Design	○ ○ ○ ○ ○ ○ ○
Dev	○ ○ ○ ○ ○ ○ ○
Test	○ ○ ○ ○ ○ ○ ○
Day Deployed	Day Ready = Cycle Time
	- 6 =
S13 (Ready) Subs: 10	
Design	○ ○ ○ ○ ○ ○ ○
Dev	○ ○ ○ ○ ○ ○ ○
Test	○ ○ ○ ○ ○ ○ ○
Day Deployed	Day Ready = Cycle Time
	- 6 =
S14 (Ready) Subs: 10	
Design	○ ○ ○ ○ ○ ○ ○
Dev	○ ○ ○ ○ ○ ○ ○
Test	○ ○ ○ ○ ○ ○ ○
Day Deployed	Day Ready = Cycle Time
	- 7 =
S15 (Ready) Subs: 7	
Design	○ ○ ○ ○ ○ ○ ○
Dev	○ ○ ○ ○ ○ ○ ○
Test	○ ○ ○ ○ ○ ○ ○
Day Deployed	Day Ready = Cycle Time
	- 8 =
S16 Subs: 6	
Design	○ ○ ○ ○ ○
Dev	○ ○ ○ ○ ○ ○ ○
Test	○ ○ ○ ○ ○ ○
Day Deployed	Day Ready = Cycle Time
	- =
F1 Sec. Audit Due day: 15 Fine:\$2,200	
Design	○ ○ ○
Dev	○ ○ ○ ○ ○ +
Test	○ ○ ○ ○ ○ ○ ○
Day Deployed	Day Ready = Cycle Time
	- =



Project manager, Keeping track of all the steps



A wooden shape-sorter toy is shown against a light-colored, textured background. The toy has four slots: a square, a triangle, a rectangle, and a circle. The triangle slot is filled with a yellow and orange piece. The rectangle slot is filled with a green piece. A hand is visible in the top left corner, placing a blue semi-circular piece into the circle slot. Other pieces, including a green square and a blue semi-circle, are scattered on the surface.

Previous Exam Questions

Reflections on Kanban?

[2024]

Why should organizations that develop or procure software have software process models? Choose a standard (general) software process model and briefly describe its elements.

[2024]

Based on what you have learned in this course, suggest a process improvement for the case and describe at least two measures to assess the improvement.

[2024]

Implement agile frameworks like Scrum or Kanban

- prioritize features with all stakeholders
- daily standup for globally distributed development teams
- measures: cycle time, stakeholder satisfaction, frequency of meeting

Use descriptive process modeling, such as BPMN (for transitioning from Financio to Zenith), or visualize the process using a Scrum or Kanban board.

- By using BPMN, it is possible to analyze the deficiencies in the existing process and improve them
- By using a kanban board, communication improves and everyone can follow the current status of the developed features
- measures: satisfaction, number of changed systems, decrease in transaction system, etc.

[2017]

List and describe the four most popular agile meetings

Previous Exam Questions (2017)

List and describe the four most popular agile meetings

- Sprint planning
- Daily standup meeting
- Sprint review meeting
- Sprint retrospective meeting