

## Auto-Assign Grouping Logic

### Example Setup

34 riders

6 Level 2/3 coaches

5 level 1 coaches

### Auto-Assignment Settings:

[✓] [REQUIREMENT] Riders per Coach = 6

[✓] [REQUIREMENT] Minimum Leader Level = 2

[✓] [REQUIREMENT] No 1 Leader group may have only one rider

[✓] Priority: Preferred Number of Coaches Per Group=3

[✓] Priority: Avoid 1 Leader Groups

[✓] Priority: Preferred Min/Max Total Group Size = 4-8

Step 1: Max Groups=6 (number of L2/3 coaches), CHECK  $34/6 < 6$  (Meets Requirements)  
can proceed

NOTE: If minimum ride ratio is not met and browser should issue a warning that minimum coach/rider ratios are not met and either additional coaches need to be added, riders need to be reduced, or practice should be cancelled.

Step 2: Use Priorities to determine best groups:

Preferred coaches per group=3

Preferred group size=4-8

Minimize 1 Leader Groups

Step 2A: Calculate all possible group size options based on rider count and test which is within group size range:

1 group=34 riders/group, outside preferred group size range

2 groups=17 riders/group, outside preferred group size range

3 groups=11.3 riders/group, outside preferred group size range

4 groups=8.5 riders/group, outside preferred group size range

[✓] **5 groups=6.8 riders/group, within preferred group size range**

[✓] **6 groups=5.6 riders/group, within preferred group size range**

7 groups=Exceeds number of L2/3 coaches, not allowed

Step 2B: Calculate all possible ride leader distribution for groups within preferred size range:

5 groups/11 coaches: 3,2,2,2,2 or 3,3,2,2,1 or 3,3,3,1,1

6 groups/11 coaches: 3,3,2,1,1,1 or 3,2,2,2,1,1 or 2,2,2,2,2,1

Given the priority to avoid 1 leader groups, the selected best option should be:

**[✓] 5 groups/11 coaches: 3,2,2,2,2**

NOTE: If 1 leader groups are unavoidable, they may be created, but in this scenario the option chosen is the only one that avoids 1 leader groups, even if that option had fewer 3-leader groups than some others.

Step 3: Rank all riders fastest to slowest by fitness score (assume default fitness score of 1-5)

Rider 1: Fitness 5

Rider 2: Fitness 5

Rider 3: Fitness 5

Rider 4: Fitness 5

Rider 5: Fitness 5

Rider 6: Fitness 5

Rider 7: Fitness 5

Rider 8: Fitness 4

Rider 9: Fitness 4

Rider 10: Fitness 4

Rider 11: Fitness 4

Rider 12: Fitness 4

Rider 13: Fitness 4

Rider 14: Fitness 4

Rider 15: Fitness 4

Rider 16: Fitness 3

Rider 17: Fitness 3

Rider 18: Fitness 3

Rider 19: Fitness 3

Rider 20: Fitness 3

Rider 21: Fitness 3

Rider 22: Fitness 3

Rider 23: Fitness 3  
Rider 24: Fitness 3  
Rider 25: Fitness 3  
Rider 26: Fitness 2  
Rider 27: Fitness 2  
Rider 28: Fitness 2  
Rider 29: Fitness 2  
Rider 30: Fitness 2  
Rider 31: Fitness 2  
Rider 32: Fitness 2  
Rider 33: Fitness 1  
Rider 34: Fitness 1

Step 3A Distribute riders evenly as possible into the 5 groups:

Group 1:

Rider 1: Fitness 5  
Rider 2: Fitness 5  
Rider 3: Fitness 5  
Rider 4: Fitness 5  
Rider 5: Fitness 5  
Rider 6: Fitness 5  
Rider 7: Fitness 5

Group 2:

Rider 8: Fitness 4  
Rider 9: Fitness 4  
Rider 10: Fitness 4  
Rider 11: Fitness 4  
Rider 12: Fitness 4  
Rider 13: Fitness 4  
Rider 14: Fitness 4

Group 3:

Rider 15: Fitness 4  
Rider 16: Fitness 3  
Rider 17: Fitness 3  
Rider 18: Fitness 3  
Rider 19: Fitness 3

Rider 20: Fitness 3

Rider 21: Fitness 3

Group 4:

Rider 22: Fitness 3

Rider 23: Fitness 3

Rider 24: Fitness 3

Rider 25: Fitness 3

Rider 26: Fitness 2

Rider 27: Fitness 2

Rider 28: Fitness 2

Group 5:

Rider 29: Fitness 2

Rider 30: Fitness 2

Rider 31: Fitness 2

Rider 32: Fitness 2

Rider 33: Fitness 1

Rider 34: Fitness 1

Note: Make last/slowest group smallest if number of riders don't number doesn't divide evenly

Step3B:

Review and make adjustments to move riders with same fitness score in same groups where possible. Do as recursive steps with checks as follows:

Group 1: [7] Fitness 5--no changes needed

Group 2: [7] Fitness 4--no changes needed

Group 3: [1] Fitness 4 + [6] Fitness 3, TRY to move [1] fitness 4 into Group 2

RECHECK Group 2: [7] Fitness 4—within group size standards—passed

RECHECK Group 3: [6] Fitness 3—within group size standards—passed

Both rechecks passed, **move approved**

Group 4: [4] Fitness 3 & [3] Fitness 2, TRY to move [3] fitness 2 into Group 5

RECHECK Group 4: [4] Fitness 3—within group size standards—passed

RECHECK Group 5: [7] Fitness 2 + [2] Fitness 1—outside group size standards—failed

Only one recheck passed, **move denied**

Group 5: [4] Fitness 2 & [2] Fitness 1, TRY to move [4] fitness 2 into Group 4

RECHECK Group 4: [4] Fitness 3+ [7] Fitness 2— outside group size standards—failed

RECHECK Group 5: [2] Fitness 1— outside group size standards —failed  
Only one recheck passed, **move denied**

Resulting Final rider groups:

Group 1:

Rider 1: Fitness 5

Rider 2: Fitness 5

Rider 3: Fitness 5

Rider 4: Fitness 5

Rider 5: Fitness 5

Rider 6: Fitness 5

Rider 7: Fitness 5

Group 2:

Rider 8: Fitness 4

Rider 9: Fitness 4

Rider 10: Fitness 4

Rider 11: Fitness 4

Rider 12: Fitness 4

Rider 13: Fitness 4

Rider 14: Fitness 4

Rider 15: Fitness 4

Group 3:

Rider 16: Fitness 3

Rider 17: Fitness 3

Rider 18: Fitness 3

Rider 19: Fitness 3

Rider 20: Fitness 3

Rider 21: Fitness 3

Group 4:

Rider 22: Fitness 3

Rider 23: Fitness 3

Rider 24: Fitness 3

Rider 25: Fitness 3

Rider 26: Fitness 2

Rider 27: Fitness 2

Rider 28: Fitness 2

Group 5:

Rider 29: Fitness 2

Rider 30: Fitness 2

Rider 31: Fitness 2

Rider 32: Fitness 2

Rider 33: Fitness 1

Rider 34: Fitness 1

Step 4:

Determine which groups get which number of coaches. If there are variable numbers of coaches for some groups (in this case 3,2,2,2,2), the largest group should get larger number(s) of coaches. If multiple groups are largest, assign to groups with more variance of fitness levels. If these are also equal, assign to the slower groups. In this example:

Group 1: 7 riders, All Fitness 5

Group 2: 8 Riders, All Fitness 4

Group 3: 6 Riders, All Fitness 3

Group 4: 7 Riders, Fitness 2 & 3

Group 5: 6 Riders, Fitness 1 & 2

Group 2 would get 3 coaches because it is the largest and the others would all get 2

Step 4A:

Rank L2/L3 Coaches by fitness

L2/3 Coach 1: Fitness 5

L2/3 Coach 2: Fitness 5

L2/3 Coach 3: Fitness 4

L2/3 Coach 4: Fitness 4

L2/3 Coach 5: Fitness 4

L2/3 Coach 6: Fitness 2

Step 4B:

Assign Coaches as Ride Leaders from Highest to Lowest Fitness level to assigned Groups.

Group 1 Leader: Coach 1

Group 2 Leader: Coach 2

Group 3 Leader: Coach 3

Group 4 Leader: Coach 4

Group 5 Leader: Coach 5

Step 4C:

Make list of L1 coaches plus any unassigned L2/L3 coaches who are not ride leaders, in order of fitness (this list disregards coach level):

L1 Coach 7: Fitness 4

L1 Coach 8: Fitness 4

L1 Coach 9: Fitness 4

L1 Coach 10: Fitness 3

L1 Coach 11: Fitness 3

L2/3 Coach 6: Fitness 2

Step 4D:

Assign Additional Coaches to groups by fitness level to complete coaching assignments.

Group 1 Leader: Coach 1

Group 1 Sweep: Coach 7

Group 2 Leader: Coach 2

Group 2 Sweep: Coach 8

Group 2 Roam: Coach 9

Group 3 Leader: Coach 3

Group 3 Sweep: Coach 10

Group 4 Leader: Coach 4

Group 4 Sweep: Coach 11

Group 5 Leader: Coach 5

Group 5 Sweep: Coach 6

END