

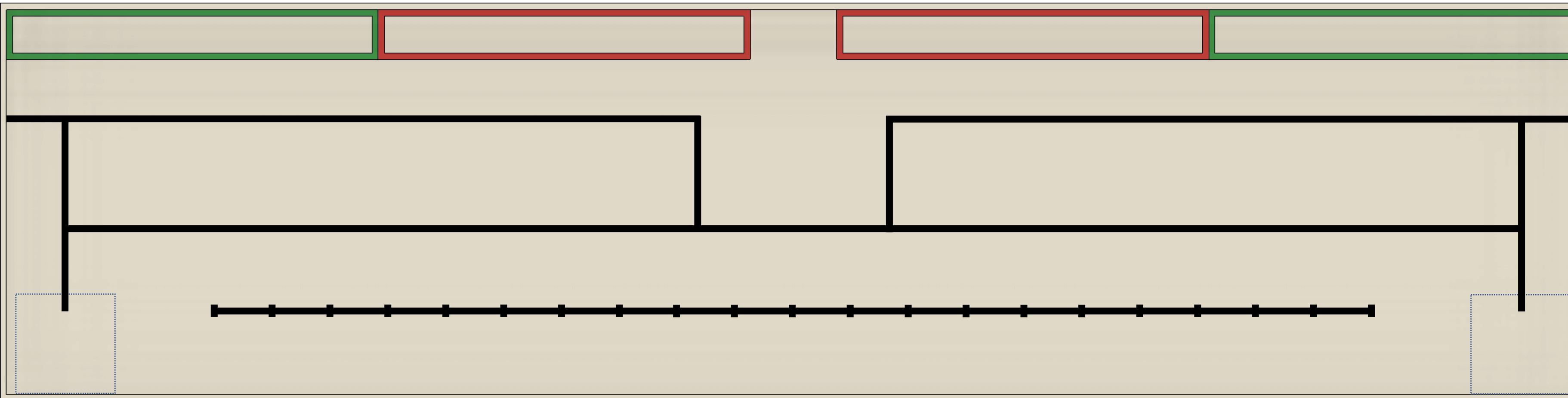


# 2019 ASABE Student Robotics Challenge

## Nursery crop precision inventory management

### July 9<sup>th</sup> 2019, Boston, Massachusetts

Top view of the playing board for beginner's division



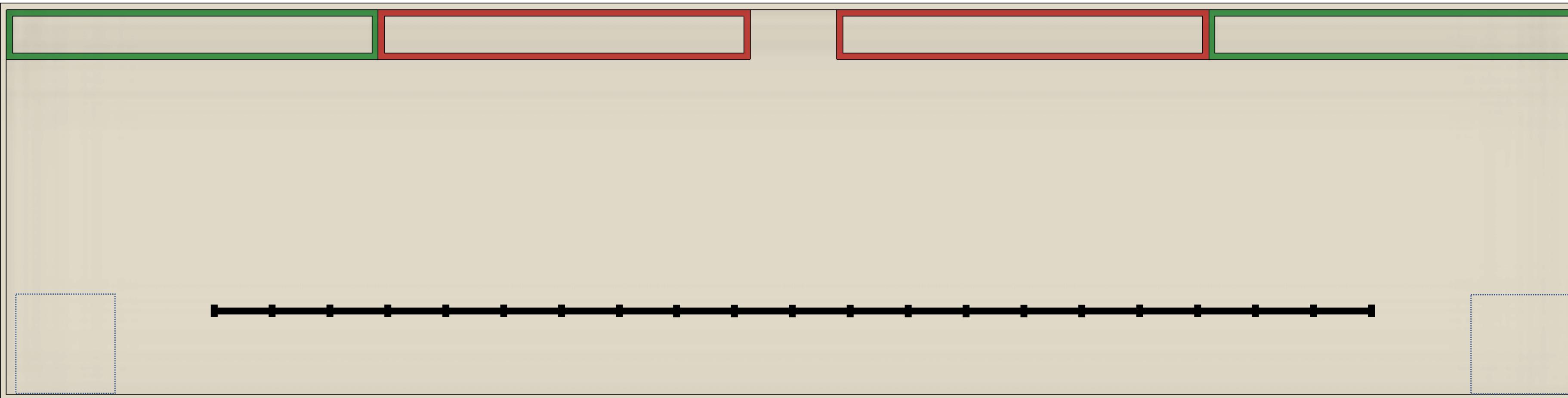


# 2019 ASABE Student Robotics Challenge

## Nursery crop precision inventory management

### July 9<sup>th</sup> 2019, Boston, Massachusetts

Top view of the playing board for advanced division



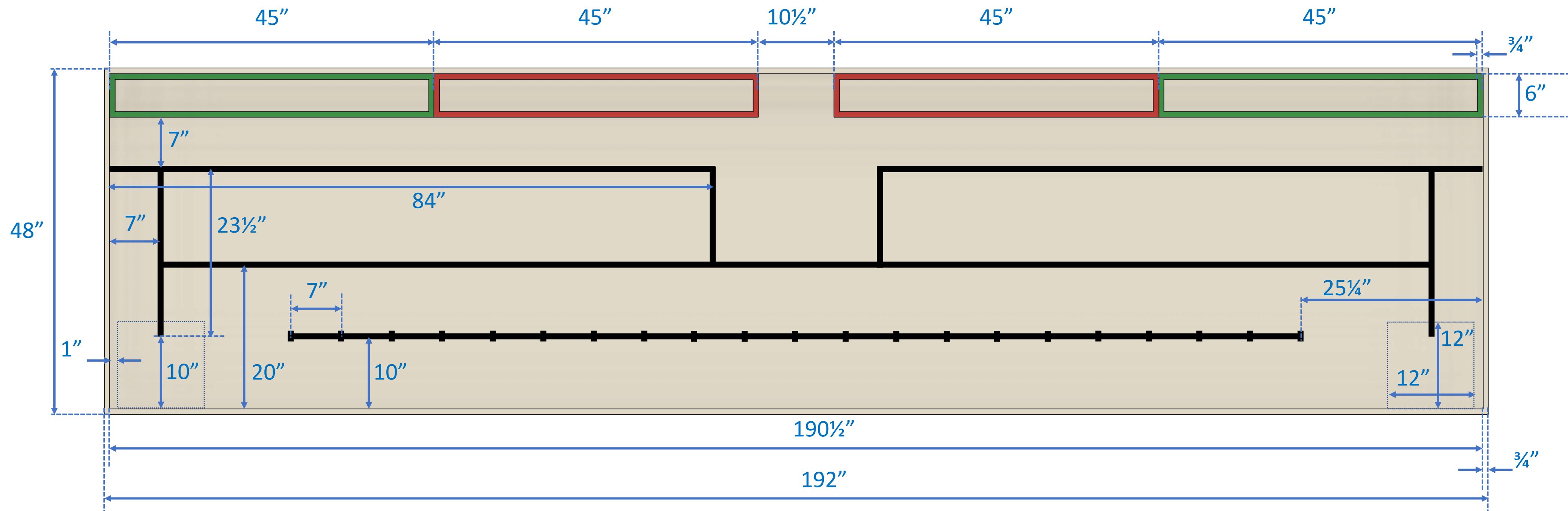


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July 9<sup>th</sup> 2019, Boston, Massachusetts

### Top view with dimensions



- The board is symmetric
- The black tapes on the board are for navigation (for beginners division) and locating the pot-plants (for both divisions)
- The width of the black tapes on the board is  $\frac{3}{4}$ "
- The 12x12" areas in the lower left and right corners of the board (shown by dotted lines) are the starting location for robots
- The green and red tapes on the board are showing the storage areas for the two types of plants: red and green
- The width of the green and red tapes on the board is  $\frac{3}{4}$ "

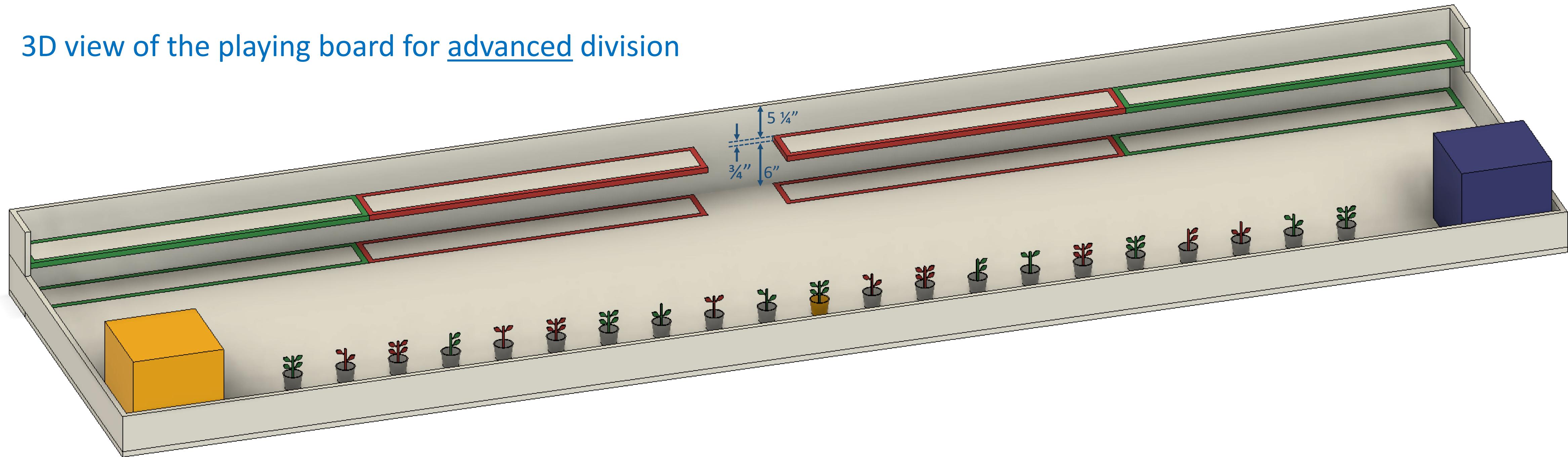


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#### 3D view of the playing board for advanced division



- The storage areas on the board for advanced division are arranged in two shelves
- Top shelf for healthy plants and lower shelf for stressed plants
- The height of the top shelf is 6"
- The height of the wall in the back of the storage area is 11¼"
- The yellow and dark blue cubes on the board are representing the robots

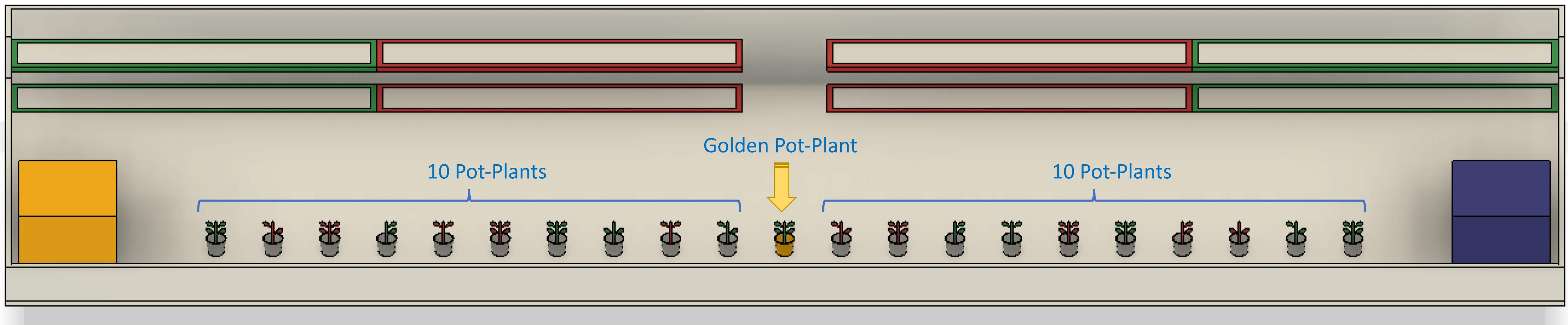


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## Nursery crop precision inventory management

### July 9<sup>th</sup> 2019, Boston, Massachusetts

3D view of the playing board for advanced division



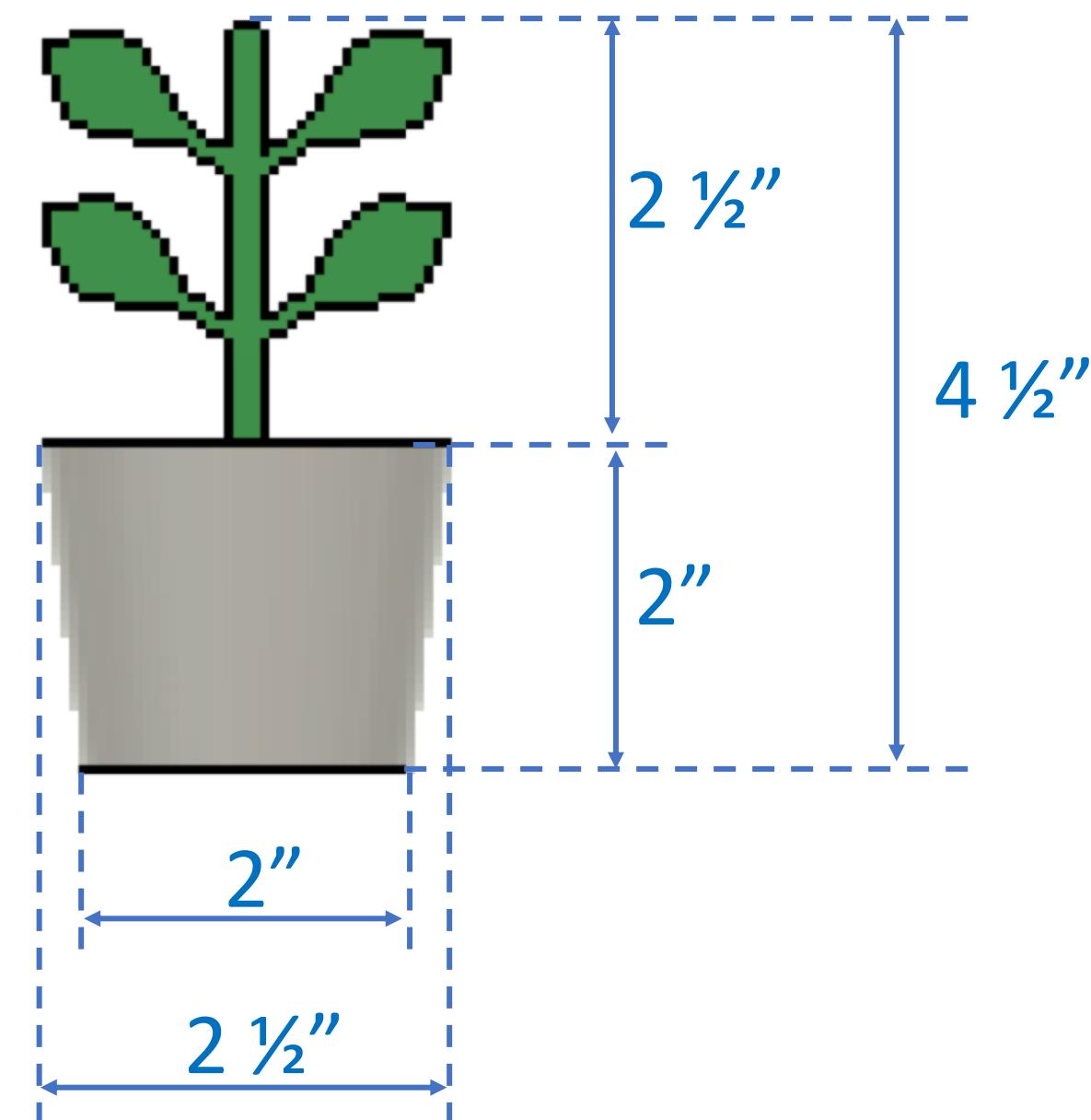


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#### Pot-plant dimensions



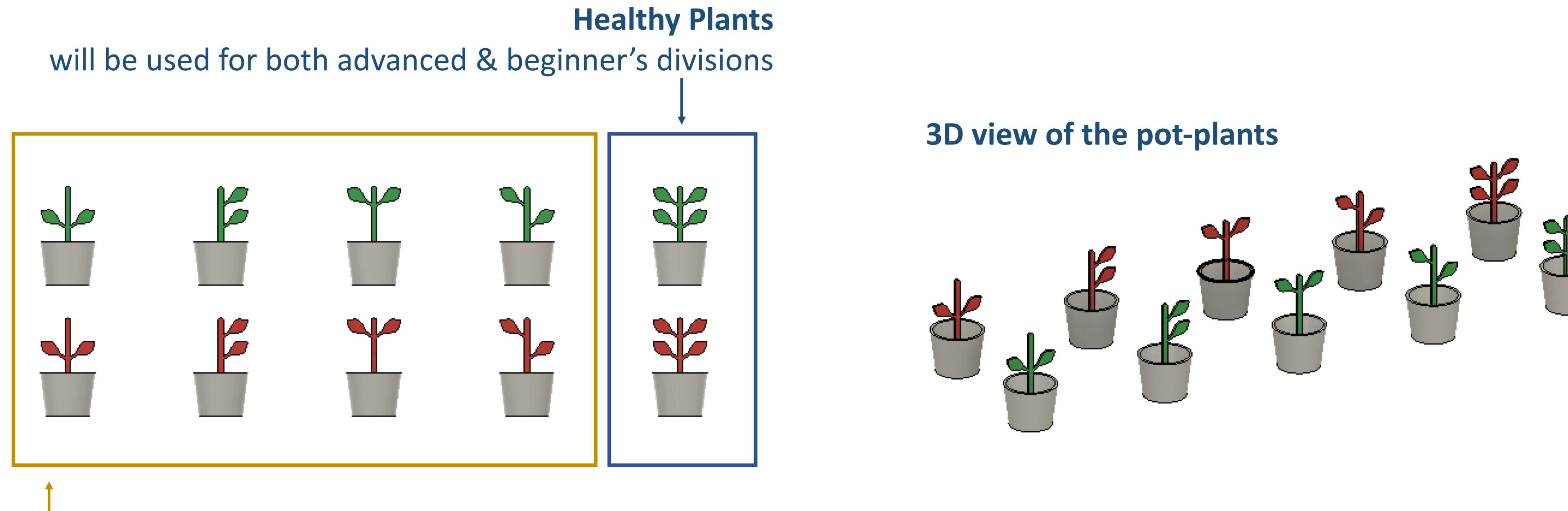


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## Nursery crop precision inventory management

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Different types (colors) & health statuses (healthy or stressed) of plants



- Plants with 4 leaves are considered healthy plants
- Plants with 2 leaves (in any arrangement) are considered stressed plants
- For beginners division, only healthy plants in two types (colors) will be used
- the blueprint of pot and plants are provided in stl format
- All pots (but the golden pot) should be 3D printed with black filament or painted black after printing
- The golden pot should be 3D printed by yellow filament or painted yellow after printing
- Plants should be 3D printed with green and red filaments or painted green and red after printing