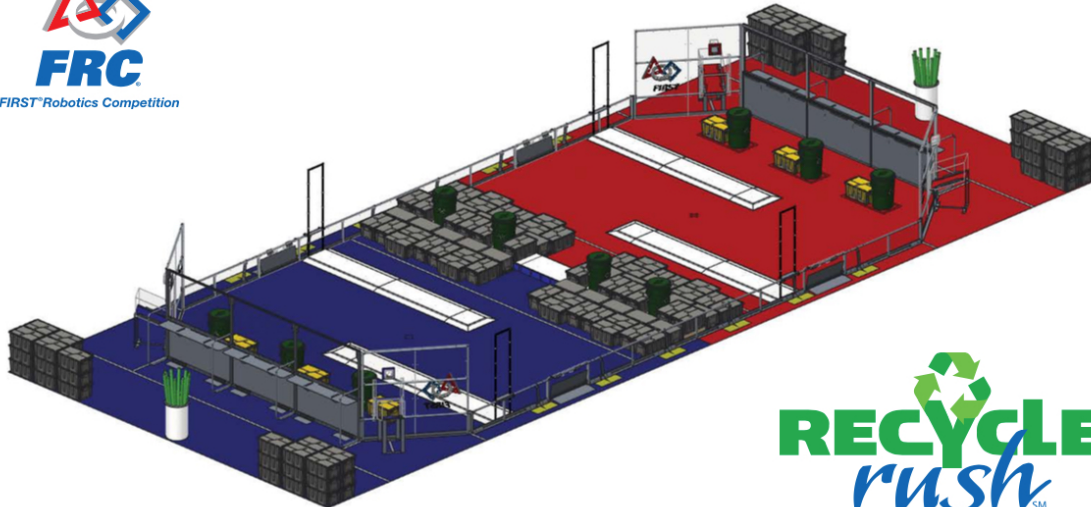
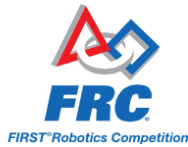


# Recycle Rush Drive Team Game Rules and Robot Design Test



## THE GAME

What is the duration of the Autonomous period? \_\_\_\_\_ the Tele-operated period? \_\_\_\_\_

All yellow totes must be on the playing field at the start of the autonomous period. True or False

Robots can start on a scoring platform in AUTONOMOUS. True False

How many Grey TOTES are placed in each LANDFILL ZONE at the start of a match?

- A. 16      B. 20      C. 28      D. 30

How many Grey Totes start in the Red alliance station?

- A. 20      B. 25      C. 30      D. 45

With 15 seconds left in the match you can throw litter. True False

How many ALLIANCE members MAY be in each HUMAN PLAYER ZONE at a time?

- A. 1      B. 2      C. 3      D. 4

The UNPROCESSED LITTER Bonus is worth.

- A. 1pt a piece      B. 2pt a piece      C. 4pt a piece      D. 6pt a piece

LITTER Scored in a LANDFILL ZONE is worth.

- A. 1pt a piece      B. 2pt a piece      C. 4pt a piece      D. 6pt a piece

Which is true about Fouls.

- A. They add 6 points on to the other alliance      B. They remove 6 points from the offending alliance  
C. They automatically come with a yellow card      D. More than 2 fouls results in a YELLOW CARD.  
E. B & D

Stop Build Day is

- A. February 15, 2015      B. February 16, 2015      C. February 17, 2015      D. February 24, 2015

Where can your robot start the match?.

- A. AUTO ZONE      B. LANDFILL ZONE      C. Anywhere except the AUTO ZONE or LANDFILL ZONE  
D. Only in the area between the AUTO ZONE and the ALLIANCE STATIONS

A robot stacks a tote on top of a stack of 6 totes. How much is the last tote worth?

- A. Penalty                      B. It scores 0 pts                      C. It scores 2 pts                      D. It scores 28 pts

How many RECYCLING CONTAINERS does each team have access too.

- A. 3                      B. 5                      C. 6                      D. 7

Which is true about Litter?

- A. It is always worth 4 points if it is scored.                      B. It has tape on it to indicate the alliance color.  
C. It is 4 ft long                      D. None of the these

How many upside down totes does each alliance start the match with?

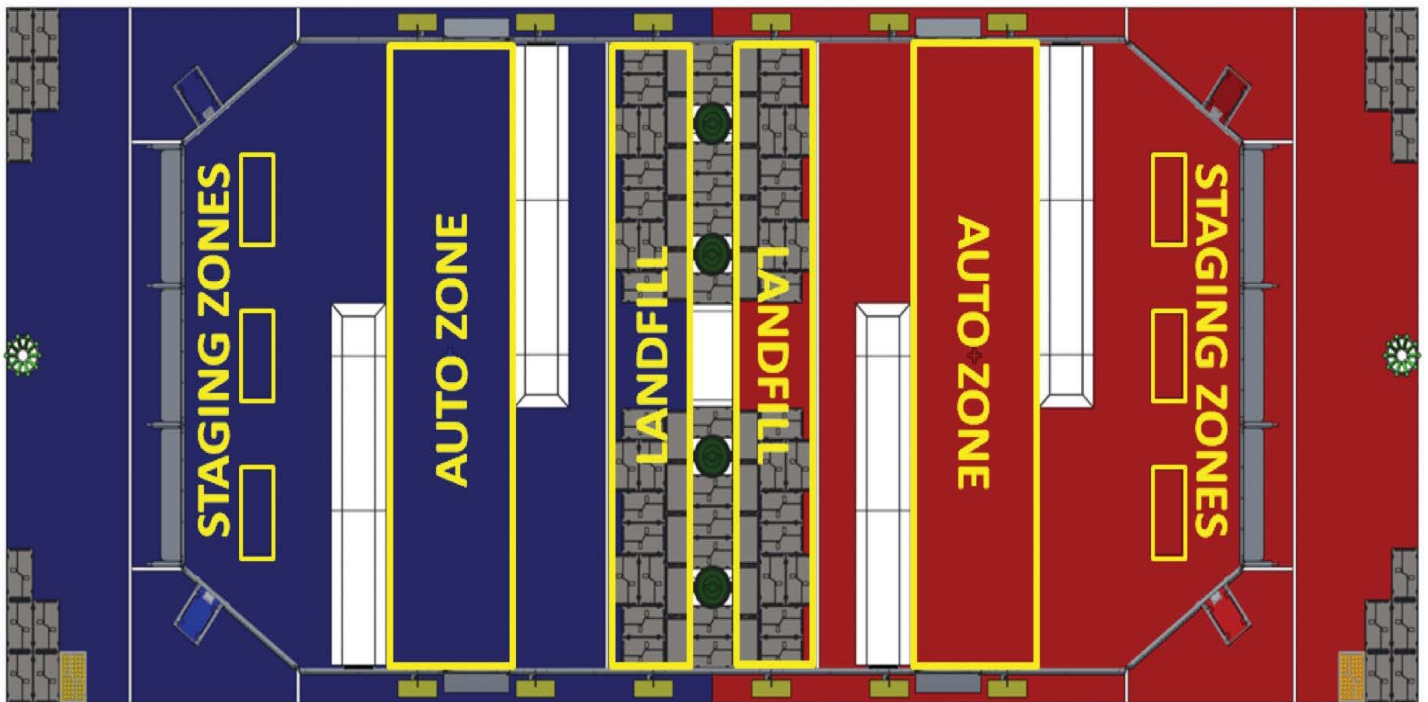
- A. 8                      B. 10                      C. 12                      D. 14                      E. 20

The staging zone includes the width of the tape.                      True                      False

The landmark is located inside the Autonomous Zone.                      True                      False

At the end of the match a stack of 2 totes with 1 bin on top is in the staging zone. This is worth?

- A. 0 points                      B. 4 points                      C. 8 points                      D. 10 points



### SCORING TABLE

In the AUTONOMOUS Period,

How many points for a "TOTE SET"? \_\_\_\_\_ for a "STACKED TOTE SET"? \_\_\_\_\_

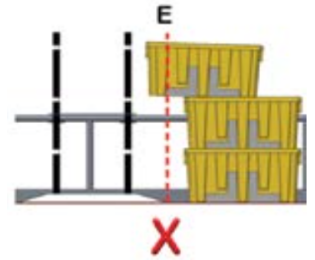
How many points for a "CONTAINER SET"? \_\_\_\_\_ How many points for a "ROBOT SET"? \_\_\_\_\_

What are the maximum points available in the AUTONOMOUS Period? \_\_\_\_\_

What is a ROBOT SET? \_\_\_\_\_

\_\_\_\_\_

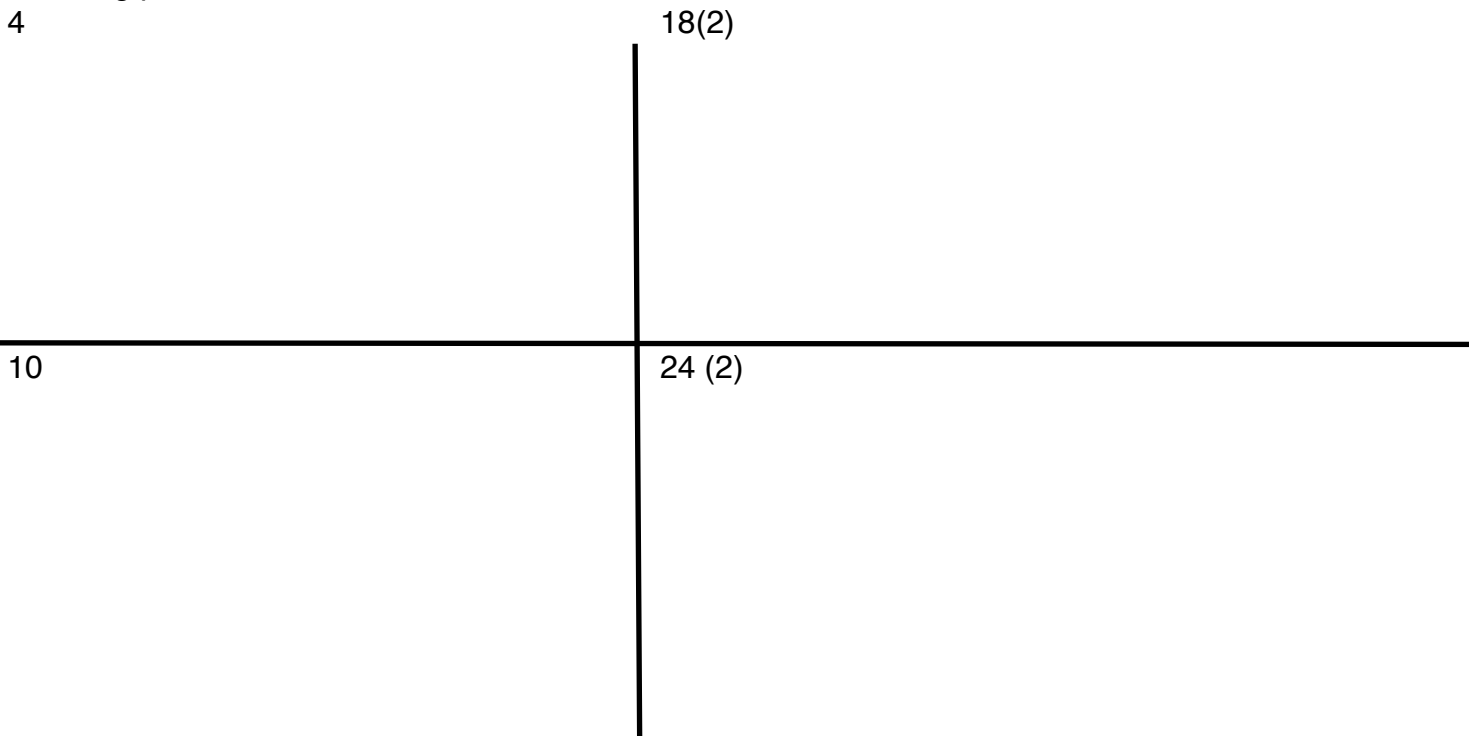
Why doesn't this stack count in AUTONOMOUS? →



Describe 4 autonomous scenarios where an Alliance scores the following points:

- 6 \_\_\_\_\_
- 10 \_\_\_\_\_
- 14 \_\_\_\_\_
- 20 \_\_\_\_\_

Draw 4 tele-operated “stacks” where an Alliance using; Totes, Containers, and Noodles scores the following points:



Describe how the Human Player can contribute to the score in a match.

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# QUALIFICATIONS AND ELIMINATIONS

All 2015 events will be played with alliances of 3 during the Eliminations. True False

Which is true about surrogates?

- A. Status is indicated by a T in the match schedule.
- B. A SURROGATE receives zero MATCH Pts
- C. If a team will be a surrogate it is always their third Qualification MATCH
- D. All of the above.

How many "Time-Outs" are allowed per team in the Qualifications.

- A. 0
- B. 1
- C. 2
- D. 3
- E. 4

How many "Time-Outs" are allowed per alliance in the Eliminations.

- A. 0
- B. 1
- C. 2
- D. 3
- E. 4

Describe the Practice Matches.

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What is the "filler line" and how do you get in it?

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What is a "Surrogate Robot"?

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How is the Qualification score determined?

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Describe what a team needs to do to get a clarification of a ruling or match score.

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What is the sorting criteria for the rankings?

1st order sort	
2nd order sort	
3rd order sort	
4th order sort	
5th order sort	
6th order sort	
7th order sort	

- CHOICES:** RECYCLING CONTAINER points      Team NUMBER      TOTE points  
RANDOM by the FMS      CO-OPERITION points      LITTER points  
AUTONOMOUS points      QUALIFICATION Average      FOUL points

How are backup teams chosen for the elimination rounds?  
How many backup teams can an alliance choose?

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How are the winners of the Quarterfinal eliminations determined?

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How are the winners of the Semifinal eliminations determined?

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How are the winners of the Final eliminations determined? Who wins the competition?

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# THE ROBOT

The total cost of all items on the ROBOT shall not exceed?

- A. \$2500 USD                      B. \$4000 USD                      C. \$5000 USD                      D. \$10000 USD

COTS stands for?

- A. Consumer Operational Transportation Standards                      B. Custom Original Technology Solution  
C. Commercial Off The Shelf                      D. Chief Organization Testing Safety

No individual, non-KOP item shall have a value that exceeds?

- A. \$250 USD                      B. \$400 USD                      C. \$500 USD                      D. \$1000 USD

BOM stands for

- A. Bill Of Materials    B. Base Operation Metrics    C. Built Original Mechanism                      D. Barrier Of Motion

At an Event, Teams may have access to a static set of FABRICATED ITEMS known as a WITHHOLDING ALLOWANCE that shall not exceed.

- A. 15lbs                      B. 20lbs                      C. 25lbs                      D. 30lbs

Which items qualify as being part of the KOP.

- A. Kickoff Kit                      B. FIRST Choice                      C. Objects obtained via PDV    D. All of the these

ROBOT height must not exceed X during the MATCH.

- A. 6 ft. 6 in.                      B. 6 ft. 8 in.                      C. 7 ft. 4 in.                      D. 7 ft. 6 in.

“Working” air pressure on the ROBOT must be no greater than.

- A. 40 psi                      B. 60 psi                      C. 100 psi                      D. 120 psi

Which of the following are considered pneumatics devices?

- A. a device that creates a vacuum                      B. pneumatic tubing                      C. air-filled (pneumatic) wheels  
D. none of the these.

Team Numbers must be displayed on the ROBOT with numbers that are at least \_\_\_ inches high and at least \_\_\_\_\_ inches wide with a white background extending at least \_\_\_\_\_ inches from the edges of the numbers.

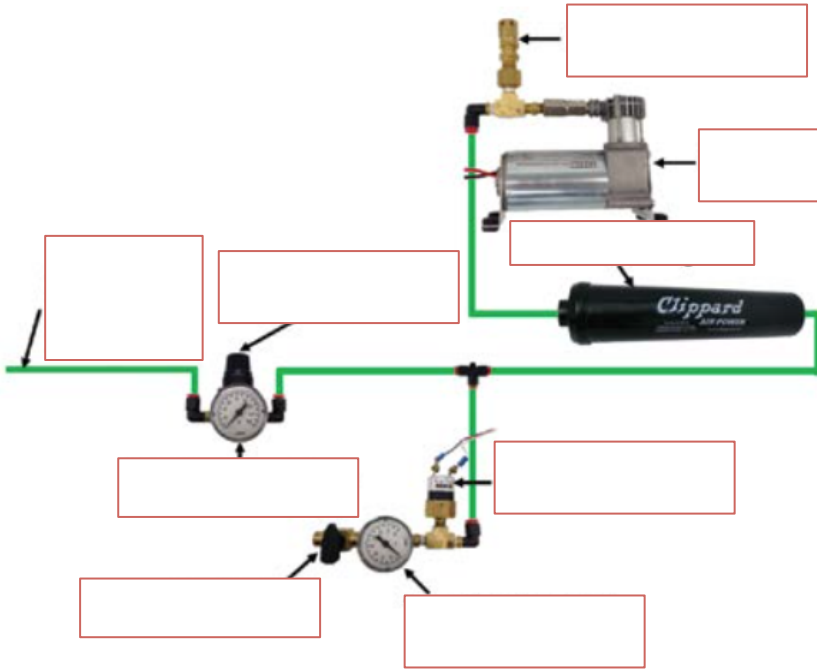
How many team number displays must be on a ROBOT? \_\_\_\_\_

What is meant by the TRANSPORT CONFIGURATION? \_\_\_\_\_

What are the dimensions of the TRANSPORT CONFIGURATION? \_\_\_ in. wide x \_\_\_ in. long x \_\_\_ in. tall

What documentation should be brought to your ROBOT inspection? \_\_\_\_\_

Figure 4-7: Pneumatic System Setup



- Pressure Relief Valve
- “Stored” Pressure Gauge
- “Working” Pressure Gauge
- Compressor
- Pressure Switch
- Air Storage Tank
- Pressure Vent Plug
- “Working” Pressure Regulator
- Air to Working Components

Fill in the Boxes above using the list of Labels to the right.

What is this thing called?  $\longrightarrow$

What does it do? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

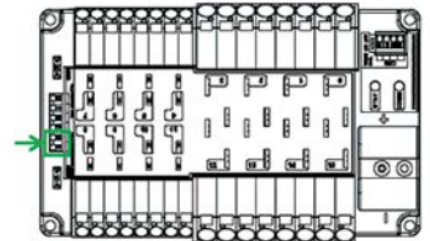
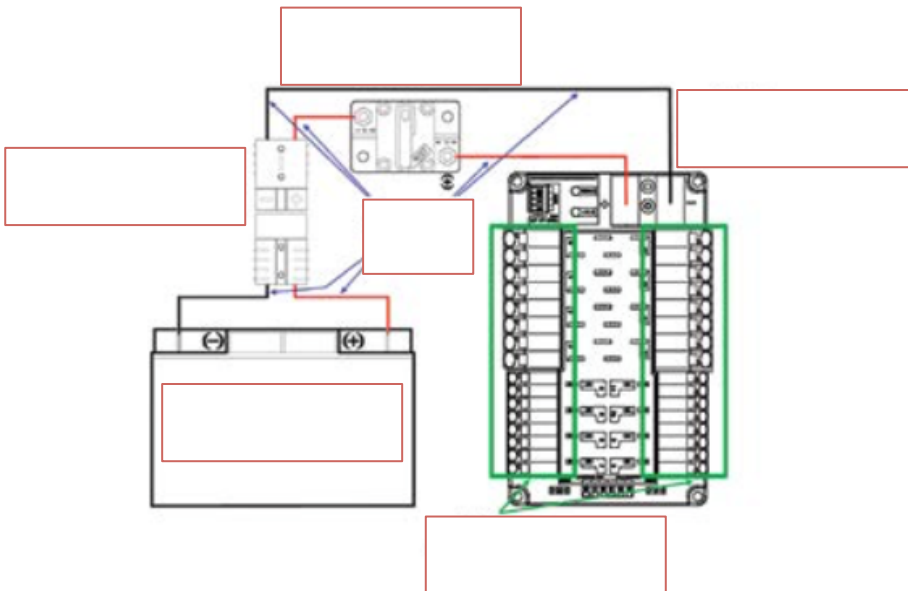


Figure 4-2: Main Power Distribution



- 120-Amp Circuit Breaker
- Power Distribution Board
- 12 VDC Robot Battery
- APP Connectors
- Load Terminals
- What is the minimum gauge wire allowed? \_\_\_\_\_

Fill in the Boxes above using the list of Labels to the right.

# THE DRIVE TEAM

Who can operate our robot?

- A. Only our teams 2 drivers.
- B. Any driver on our alliance.
- C. Any precollege student on our alliance.
- D. Our teams 2 drivers and human player.

As a guideline, ROBOTS should be configurable in fewer than (X) seconds.

- A. 30
- B. 60
- C. 90
- D. 120

During Elimination matches, the Robot is not allowed to be returned to the Pits area.

How many additional team members are allowed to assist in the preparation of the Robot for Elimination matches?

- A. 0
- B. 1
- C. 2
- D. 3
- E. 4

How much time, after the Arena Reset of the preceding match, does an alliance have to submit their "Time-Out" request?

- A. 30 seconds
- B. 1 minute
- C. 2 minutes
- D. 3 minutes
- E. 4 minutes

An alliance captain may choose to call up a backup team without using their timeout by informing the head referee directly within \_\_\_\_\_ minutes of the head referee issuing the arena reset signal preceding their match.

- A. 30 seconds
- B. 1 minute
- C. 2 minutes
- D. 3 minutes
- E. 4 minutes

How many minutes does a "Team Timeout" last?

- A. 1
- B. 2
- C. 4
- D. 6
- E. 10

What is **FMS** an acronym for? \_\_\_\_\_

- A. Field Management System
- B. Full Material Score
- C. Field May Start
- D. FIRST Management System

When placed on the field, each Robot must be:

1. \_\_\_\_\_  
\_\_\_\_\_
2. \_\_\_\_\_  
\_\_\_\_\_
3. \_\_\_\_\_  
\_\_\_\_\_

What is the purpose of the Ethernet cable at the operator station?

\_\_\_\_\_  
\_\_\_\_\_

How many amps can the 120 VAC power supply at the operator station safely handle? \_\_\_\_\_



There are LED Strings of lights on the lower part of the glass at the driver station.

What does it mean when:

The LED's are **off**? \_\_\_\_\_

The LED's are showing your **Alliance color**? \_\_\_\_\_

The LED's are **yellow**? \_\_\_\_\_

The LED's are **flashing** twice a second? \_\_\_\_\_

The LED's are **white**? \_\_\_\_\_

The LED's are **green**? \_\_\_\_\_

The LED's are showing your **Alliance color** with a white middle section? \_\_\_\_\_

**Choices:** **Co-opertition Stack**  
**Autonomous Period**  
**Field is safe to enter**

**Co-opertition Set**  
**Tele-op Period**  
**A foul has been called**

**Referees are assessing points**  
**Match is about to begin**  
**Match is about to end**

At the top and center of each teams player station, there is an LED with your alliance color.

What does it mean when the light is:

Blinking? \_\_\_\_\_

Amber? \_\_\_\_\_

Solid? \_\_\_\_\_

Off? \_\_\_\_\_

- Choices:**    A) Robot connected during a match                      B) Robot connected before a match  
 C) Robot has lost connectivity to the FMS                      D) The Emergency Stop Button has been pressed  
 E) The FMS is preset for a match                      F) A foul has been called against your team

Describe at least four actions that will result in a FOUL (there are 16 per the manual):

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What is the purpose of YELLOW and RED Cards?

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What is a YELLOW CARD?

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Describe two actions that will result in a YELLOW CARD and explain what happens to a team that receives a YELLOW CARD (There are seven listed in the manual)

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What is a RED CARD?

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What effect does a RED CARD have on your qualification ranking?

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Describe three actions that will result in a RED CARD and explain what happens to a team that receives a RED CARD. (There are from 9 to 12 listed in the manual)

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