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## Why are red and yellow cards used in soccer?

- 1 If you have ever played in or watched a soccer game, you have seen the referee point to players and hold up yellow or red cards. The referee uses these colored cards to indicate an offense by the player. The referee does not have to use language. The color of the card explains the penalty.
- 2 This system is based on the traffic signal. The yellow color on a traffic signal means caution and the red color means stop. In soccer, a yellow card indicates a warning to a player. A red card indicates that a player is ejected. The player must leave the field immediately and may not return to play in the game.
- 3 This system of using colored cards was created in 1966. During the quarter-finals of the 1966 World Cup, England was playing Argentina. Two players on England's team had committed serious fouls and were cautioned by the referee. One of Argentina's players was sent off the field. However, the referee did not make these calls clear during the game. Some people at the game didn't even realize what happened until they read reports about the calls in the newspaper later. There was no system in place to announce the calls during the match. Often in a match, the officials and the player involved were the only ones that knew about a call.
- 4 An English referee who was at the 1966 game thought a better system was needed to inform the teams and spectators about calls as they happened. He also wanted a system that did not use language. Soccer players came from countries around the world. He modeled the red and yellow card system on the traffic signal. This system worked so well that other sports adopted it.



**Circle the correct answers. Write your answer to question 6.**

1. A player who receives a yellow card \_\_\_\_\_.  
**A** cannot continue to play in the game  
**B** is given a warning about an offense  
**C** must leave the field immediately  
**D** receives a penalty kick
2. Which word in paragraph 2 means "points out or expresses"?  
**A** immediately  
**B** indicates  
**C** warning  
**D** based
3. Which paragraph tells what caused an English referee to invent the colored card system?  
**A** 1  
**B** 2  
**C** 3  
**D** 4
4. What is the main idea of the article?  
**A** The traffic signal was invented before 1966.  
**B** Red and yellow cards signal different penalties in soccer.  
**C** England and Argentina competed against each other in the 1966 World Cup.  
**D** The color card system lets players and fans know what is happening on the soccer field.
5. You can conclude from the article that \_\_\_\_\_.  
**A** not all soccer players speak the same language  
**B** the system of colored cards is used in other sports  
**C** a yellow card signals a warning to a player  
**D** a red card is the most serious penalty

 **Details**

 **Context Clues**

 **Cause & Effect**

 **Main Idea**

 **Inference & Conclusion**

- 6.** Think about other sports or games that use nonverbal signals. Explain what the signals are and what they mean.

## How do roller coasters go up and down?

- 1 Unlike other rides, roller coasters do not have motors. How do they work? Roller coasters use different types of energy. They are based on gravity and inertia.
- 2 First, the roller coaster cars are pulled up a steep hill by chains or magnets. The only energy being used is that long pull up the first hill, or “lift hill.” This hill is very steep so that the roller coaster can build up potential energy. Potential energy is the energy that is being stored to use later. By the time the car reaches the top of the first hill, it has all the energy it needs. The higher the hill is the more energy the car has built up. It converts this energy to kinetic energy. Kinetic energy is the energy the car has when it moves. Gravity pulls the coaster down the hill. Gravity is the pull of an object toward Earth. The more kinetic energy the coaster has the faster it goes.
- 3 At the bottom of the hill, the coaster still has enough kinetic energy to propel it up the next hill against gravity. The second hill is the next highest hill of the ride. The energy of each drop down a hill works against gravity to push the coaster up the next hill.
- 4 A roller coaster cannot keep going forever. The roller coaster has three sets of wheels that run above, under, and alongside the track. The rubbing of these wheels on the track creates friction. This friction and the coaster’s resistance to air slow the coaster down. That’s why each hill is smaller and smaller. Finally, the coaster loses the last of its energy, and it can coast to a stop.
- 5 Early roller coasters were made of wood. Today, roller coasters are made of steel. Steel makes the ride smoother and helps the coaster go even faster. It also lets designers shape the track into loops and corkscrews.



Circle the correct answers. Write your answer to question 6.

1. The first hill a roller coaster climbs is the highest so it can build up \_\_\_\_\_.

- A inertia
- B friction
- C potential energy
- D kinetic energy

2. Which word in paragraph 3 means "force; push"?

- A coaster
- B energy
- C against
- D propel

3. Which paragraph tells about the roller coaster's wheels?

- A 1
- B 2
- C 3
- D 4

4. The roller coaster begins to slow down because \_\_\_\_\_.

- A the hills are not as high as the first hill
- B gravity is pulling the coaster down a hill
- C the coaster has three sets of wheels
- D of air resistance and friction

5. *Coast* can have the following meanings. Mark the meaning used in paragraph 4.

- A to move without further power
- B the immediate area of view
- C to sail along the shore
- D the land near a shore

6. Think about the rides at an amusement park or the equipment at a playground. What is your favorite ride or equipment? Explain how it works.