Name: _____ Date: _____

Under Two Seconds

Reading level 8 (4th grade) · 720 words

Picture a tire changer named Teo, kneeling beside a Formula 1 car in the pit lane. It is Thursday, and the race is three days away, but the crew is already practicing. The car rolls in and stops on its marks. Four tires must come off, and four new ones go on. Everyone wants to know one thing. How fast can a pit stop be?

First, the weekend. A Formula 1 weekend lasts three days, usually Friday through Sunday. On most weekends the cars practice twice on Friday, an hour each time. Saturday starts with one more hour. Teo's crew practices too, because crews run practice stops all weekend. Practice is not a race, but teams use it to test the car and learn the track.

Later on Saturday comes qualifying, which decides where each car will start on Sunday. Teo watches from the garage. There are 22 cars, and the slowest drop out after each of the first two rounds. Only a few are left for the last round, and the fastest of them wins the front spot, called pole position.

Sunday is the Grand Prix, the main event. A race has no set number of laps. In most races it is the fewest laps that add up to more than 305 kilometers. Five red lights come on, one by one, and then go out together. Cars near the front score points, and the driver with the most points at the end is world champion.

Flags are how the track talks to the drivers. Green means the track is clear. Yellow means danger, so drivers must slow down and cannot pass. Red means the race is stopped. A black and white checkered flag means the race is over, and Teo's crew sees it waved from above the pit wall.

Teo knows why the stop matters. Tires wear out. A soft tire is the fastest, but it wears out first. A hard tire lasts longest, but it grips less. Soft tires are marked red, medium are yellow, and hard are white. In a dry race, the rules say each driver must use two kinds of dry tire, so everyone has to stop.

A pit crew is big. About twenty people can work on one stop. At each wheel, three of them share the job. One person loosens and tightens the wheel nut with a wheel gun. One pulls off the old wheel, and one puts on the new one. Teo has the front left. Other crew lift the car on jacks.

Then comes the light the crew has been waiting for. It turns green only when the wheels are on tight and the pit lane is clear, and only then can the driver go. The car has to leave safely, because even the pit lane has a speed limit.

So how fast can it be? The world record is 1.80 seconds, set by a McLaren crew in Qatar in

October 2023. Count "one Mississippi, two Mississippi," and that car is gone before you finish. Through the Mexico City race in 2026, nobody has beaten it, and the year's quickest stop was 1.99 seconds. A record can fall at any race.

Why can these cars turn so quickly? Part of the answer is air. A plane's wing is built so that moving air pushes it up. A race car's wing is built the other way around, so when the car moves, the air pushes the car down. That push is called downforce. It presses the tires into the road, and that gives them grip.

Downforce grows with speed. One team's guide to its 2022 car guessed that at top speed it was three or four times the car's weight. The 2026 cars are built to make less, but air still holds a fast car down. The same air slows the car on the straights, and that is called drag. Lots of downforce can feel like a parachute.

On Sunday, the real stop comes. Teo and the crew did about 60 practice stops this weekend. Now the car rolls in for the race. Four wheels come off, and four go on. The light turns green, and the car is gone, in about the time it takes to count to two. Teo stands up, and the checkered flag is still many laps away.

Questions

1. What does qualifying decide?

A. Which tires each driver may use
B. Where each car starts on Sunday
C. Who wins the world title

2. A driver sees a yellow flag. What must the driver do?

A. Stop at once
B. Let a faster car pass
C. Slow down and not overtake

3. Why must every driver in a dry race make at least one pit stop?

A. The rules say each driver must use two kinds of dry tire
B. The car runs out of air
C. The flag turns blue

4. What must happen before the light turns green and the driver can go?

A. The wheels are on tight and the pit lane is clear
B. The crew finishes lunch
C. The checkered flag waves

5. In the sentence "That push is called downforce," what does "push" refer to?

A. A crew member pushing the car
B. A driver pressing a button

C. Air pressing the car down onto the road

6. Why does a car with lots of downforce feel like it has a parachute on the straights?

A. The tires are too soft

B. The same air that presses it down also slows it

C. The crew forgot a wheel

Words to know

qualifying: starting-spot rounds

jacks: lifting stands

grip: sticking power

downforce: air pushing down

drag: air slowing it

Answer key: Under Two Seconds

1. B. Where each car starts on Sunday
2. C. Slow down and not overtake
3. A. The rules say each driver must use two kinds of dry tire
4. A. The wheels are on tight and the pit lane is clear
5. C. Air pressing the car down onto the road
6. B. The same air that presses it down also slows it