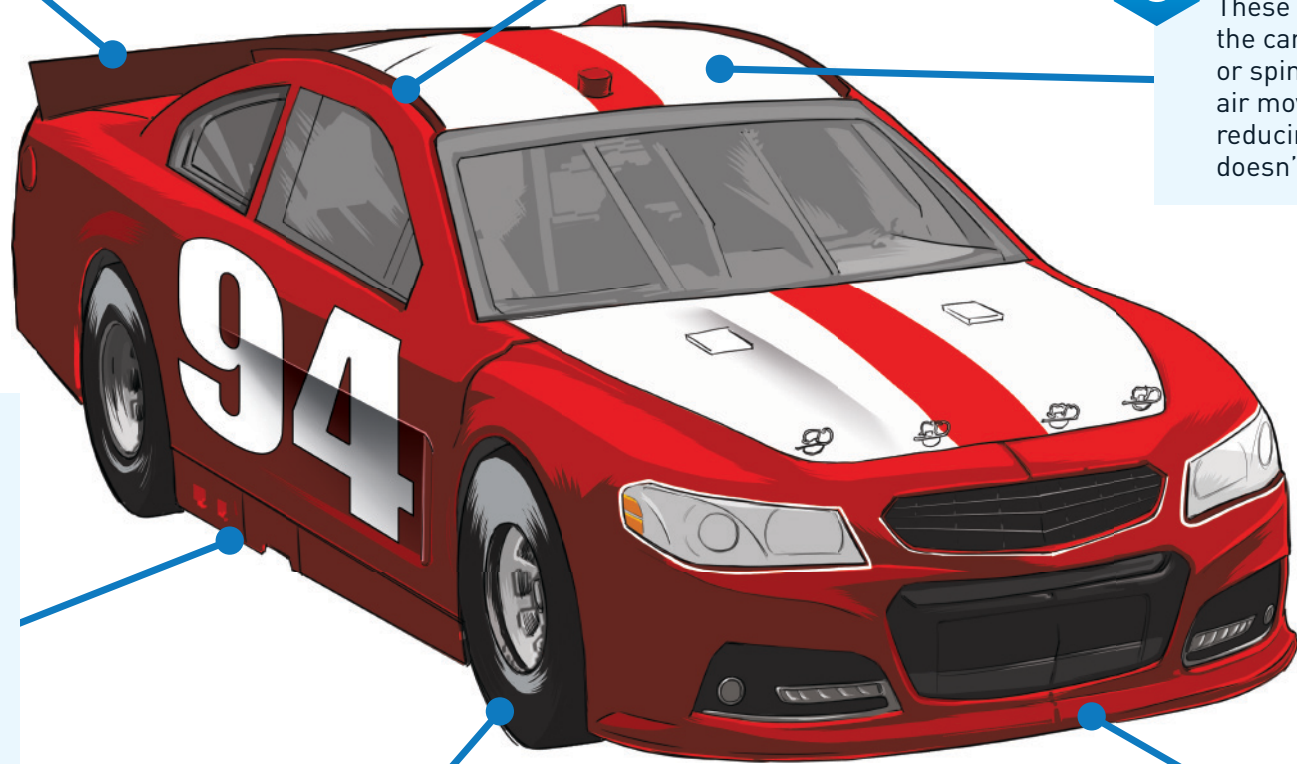# RACECAR ADAPTATIONS

Each racing season, NASCAR sets rules that determine the shape and weight of its cars. Check out some NASCAR racecar features and learn how they influence safety, speed, and racing aerodynamics.

1 SPOILER
This device traps high-pressure air, creating downforce to provide more rear-tire traction. It also increases drag to prevent racecars from traveling at unsafe speeds.

2 ROOF STRIPS
These thin rails run along the roof edges to disrupt airflow and cut down on unwanted lift.

3 ROOF FLAPS
These spring open if the car starts to slide or spin. They disturb air moving over the car, reducing lift so the car doesn't go airborne.

4 SKIRTING
Edging around the bottom of the car prevents high-pressure air from moving under the vehicle and creating unwanted lift. If the car starts to slide sideways, the skirting lessens the chance of the car rolling over or flying off the track.
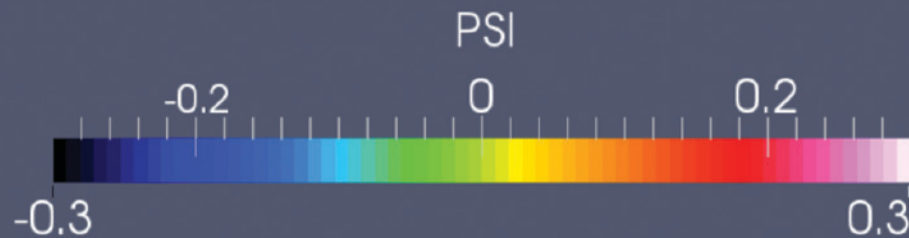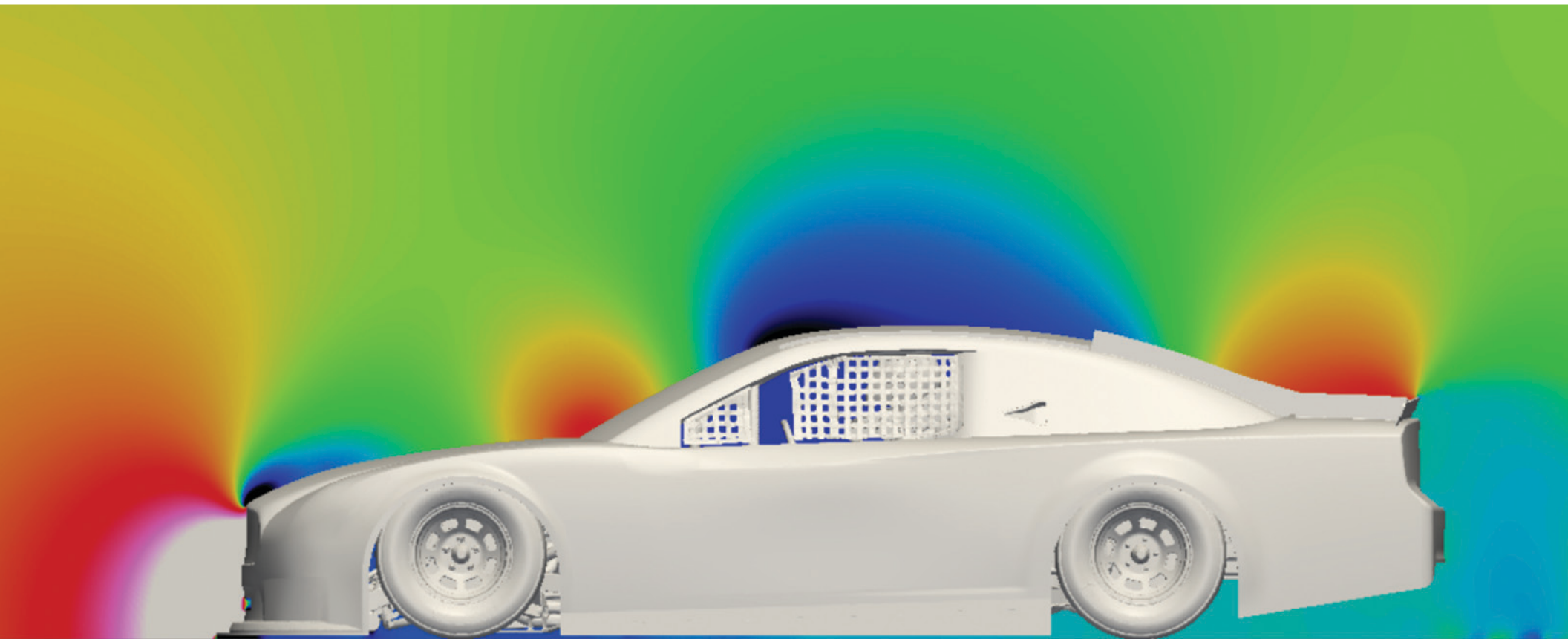
5 TIRES
Treadless tires make more contact with the ground, increasing traction.

6 SPLITTER
This flat strip runs parallel to the ground underneath the front bumper. Air accelerates more quickly under the splitter, leading to a low-pressure area that helps suck the car downward toward the track.

RACECAR AIRFLOW

The way air flows around a NASCAR racecar determines how much pressure the car is under. Pressure is measured by "PSI," which means pounds per square inch. Areas that allow the air to flow quickly experience low pressure. Areas where the air gets trapped and flows slowly experience high pressure.

PSI

-0.2   0   0.2

-0.3   0.3

Use the color bar above to identify the areas of the car that experience the highest pressure and the lowest pressure.

A FOCUS ON AIR PRESSURE

Take a look at the image below to discover exactly where a NASCAR racecar experiences pressure. The areas of high PSI are the areas of the racecar that receive the most downforce. As the higher amounts of pounds per square inch push down on the racecar, it experiences more traction and sticks to the track.

PSI

-0.4   -0.2   0   0.2   0.4

-0.5   0.5