



## LESSON 5 DRAFTING

### START YOUR ENGINES!

**ASK:** What does it feel like on your face when your ride in a car with the windows down? (Make a list of responses on a piece of paper.)

**SAY:** The wind blowing your face and hands has force as your car moves through the air. The same thing happens at Sonoma Raceway as cars move around the track. As cars push through clean air, the “draft” passes over the car and creates turbulent—or “dirty air”—behind the car. This dirty air can slow down the driver in the rear. But if he can “piggyback” on the car in front of him, he can get caught in the “draft” and move faster. Let’s read more to see how this works.

### GO!

Give your child the NASCAR Drafting Worksheet. Before reading, review questions on the chart below.

**SAY:** As you read “closely” today, underline the answers to the questions in each section. Notice how the section headers make it easier to locate information.

## OBJECTIVES

### Your child will:

- Understand the physics behind racecar drafting
- Build content vocabulary
- Illustrate drafting principle
- Practice “close reading”
- Answer “text dependent” questions

### You will need:

- Drafting *Kid Scoop News* Worksheet
- Engineer’s Journal (see Lesson 1)

SECTION	QUESTIONS	ANSWERS
Drafting— Not Tailgating	What two things does drafting do to help racecar drivers?	
Replace the Missing Vowels	What does the front car do?	
	What does the trailing car do?	
	What two things happen to both cars as a result?	

**ANSWERS:** What two things does drafting do to help racecar drivers? *Drafting helps cars get more speed and better gas mileage.*

What does the front car do? *The front car reduces resistance on the car behind it.*

What does the trailing car do? *The trailing car pushes high-pressure forward.*

What two things happen to both cars as a result? *Both cars have less drag and go faster.*

**SAY:** *Racecar driving is not the only sport that can take advantage of “drafting.” What other kinds of races might benefit from this principle? (Answers: bicycle, motorcycle, motocross, speed skaters, cross country skiers and swimmers are examples.)*



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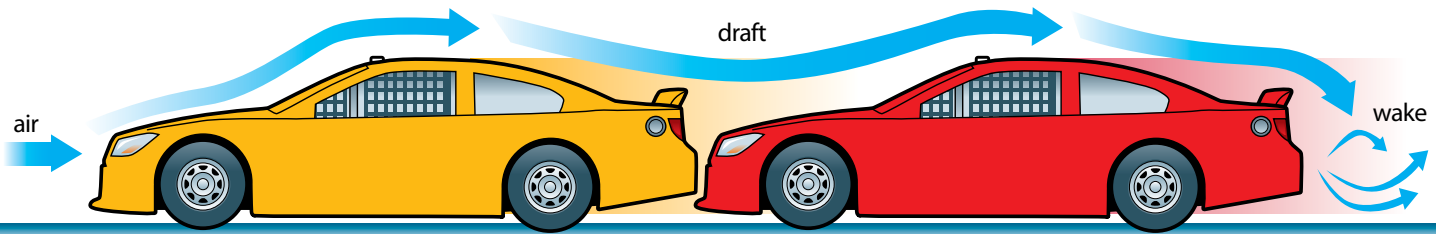
### VICTORY LANE!

- 1. Chat it UP!** Working together, come up with your own explanation of the aerodynamic relationship between “clean air,” “resistance,” “drafting” and “dirty/turbulent air.” How does this knowledge make racecar drivers behave on the track?
- 2. Imagin-eer!** In your Engineer’s Journal, illustrate the concept of drafting. Draw one car and label with “clean air,” “draft,” and “dirty air/turbulent air.” Then draw three cars “drafting” and show how the front car cuts through the clean air with the draft passing over all three before becoming turbulent. Under your illustration, write the explanation.
- 3. Write On!** Imagine you’re Jeff Gordon holding off Mark Martin in 1999 by 0.197 seconds. You have been asked to write a statement for the newspaper telling about your feelings during the last part of the race. What might Jeff Gordon say in his statement?

STUDENT NAME: \_\_\_\_\_

# NASCAR DRAFTING

NASCAR drivers race around Sonoma Raceway's track at 95 miles per hour. It takes a lot more than a heavy foot on the gas pedal to be a winner. **It takes an understanding of science!**



## Wake Up!

When a car in front of a pack in a race speeds down the track, it pushes through and disturbs the air, creating a wake behind it.

## SCIENCE AT SONOMA RACEWAY: Raceway Records

The Sonoma Raceway record for the closest margin of victory in a NASCAR race occurred in 1999 when Jeff Gordon held off Mark Martin by just .197 seconds.



## Drafting – Not Tailgating

A talented driver will slip a car into the wake of the car in front of it. It may look like the car is tailgating, but it is actually doing something called **drafting**. Drafting helps cars to get more speed and better gas mileage.

## Does drafting make a difference?



It sure does! When two cars remain bumper to bumper, they can both travel faster than if they were alone.

The low pressure behind the car in front reduces the aerodynamic resistance on the car behind it. The trailing car pushes high-pressure forward.

Both cars have less drag and both cars go faster. How much faster? Replace the missing vowels to reveal the answer!

Dr\_ft\_ng all\_ws r\_hec\_rs to tr\_vel thr\_\_  
to f\_ve m\_les p\_r h\_\_r f\_st\_r!

NASCAR driver Kyle Larson holds the track qualifying record at Sonoma Raceway. Larson covered the 12-turn, 1.99-mile road course in just one minute, 14.186 seconds at a top speed of 96.568 mph.

