STUDENT ASSESSMENT

NAME: _____ Pre-Assessment

DO YOU KNOW THE SCIENCE OF SPEED?

This unit is about aerodynamics and how it influences force, momentum, and speed.
Share what you know about the science of speed.

1 What does the science of aerodynamics study?

- **A** The weight of objects
- **B** The speed and flight of objects
- **C** The movement of air
- **D** The sound of air

2 What are three key aerodynamics principles?

- **A** Drag, height, and acceleration
- **B** Drag, downforce, and drafting
- **C** Acceleration, downforce, and motion
- **D** Acceleration, height, and motion

3 What word describes a force that slows an object when air pushes against it?

- **A** Drag
- **B** Downforce
- **C** Drafting
- **D** Deceleration

4 What aerodynamics force is used to create both lift and downforce?

- **A** Air speed
- **B** Air pressure
- **C** Both A and B
- **D** Neither A nor B

5 True or false? Downforce is caused by the combination of high air pressure pushing against the top of an object and low air pressure beneath an object.

- **A** True
- **B** False

6 True or false? Downforce is the opposite of lift.

- **A** True
- **B** False

7 True or false? Drafting is a driving strategy that improves speed.

- **A** True
- **B** False

8 Drafting happens when:

- **A** Two or more racecars accelerate next to each other with inches between them.
- **B** Two or more racecars line up, one behind the other, with inches between them.
- **C** Two or more racecars tap the bumpers of the cars in front of them.
- **D** None of the above

9 The goal of adaptations to NASCAR racecars is:

- **A** To prevent racecars from flipping over or lifting.
- **B** To provide more downforce to improve tire traction.
- **C** To force high-pressure air over the car to make sure it "sticks" to the track.
- **D** To create more contact between the tires and the tracks.
- **E** All of the above

10 Why is the science of aerodynamics important to racing?

- **A** Because aerodynamics helps improve the safety of the racecars, keeping them on the track.
- **B** Because aerodynamics helps enhance the speed of the racecars, helping drivers zoom past the competition.
- **C** Because aerodynamics helps improve the performance of the cars, keeping them running smoothly and consistently.
- **D** All of the above