

CHOKER UP ON THAT BAT!

Questions • Section 4.2



SCIENCE
TOPIC
OUTREACH
POSTERS

Name	Grade/Class #	Name	Grade/Class #
_____	_____	_____	_____

Level ONE Questions (#1-3)

1. Who is “choking up on the bat” more in the pictures—Ted Williams or Megan? _____
2. What does it mean for something to “rotate”?
 - a) move in a straight line
 - b) stand still
 - c) move around a center point
 - d) play baseball
3. To choke up on a bat, which of the following do you do?
 - a) move your grip toward the heavy end of the bat
 - b) move your grip toward the light end of the bat
 - c) turn the bat around and grip the other end
 - d) none of the above

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Level TWO Questions (#4-7)

4. Which has more inertia, a bicycle or a truck? Explain.

5. From looking at the pictures on the poster, who bats left-handed, Ted Williams, or Megan?

6. Which would be easier to spin, a disk or a ring with the same mass and size?

7. A batter decides to switch bats so that he or she can swing faster. Without choking up, which of the following bats will do the trick?

- a) one that is the same length, but heavier
- b) one that is the same weight, but longer
- c) one that is the same weight, but shorter
- d) one that is both longer and heavier

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Name _____ Grade/Class # _____

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Level THREE Questions (#8-10)

8. When an ice skater starts a spin move with her arms outstretched, and then pulls her arms inward, she starts spinning faster. Based on the information presented on the poster, explain why this happens.

9. Suppose your whole class took a ride on a Merry-Go-Round. Would the motor that makes it rotate have to work harder if everyone rode on the horses far from the center, or on the ones closest to the center?

10. Pitchers in the Major Leagues often throw balls that move 120 feet per second (about 36 meters per second). Home plate is only 60 feet (18 meters) from the pitcher's mound. How long does it take the ball to travel that far?

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Answers • Section 4.2



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Level ONE Questions (#1-3)

1. Who is “choking up on the bat” more in the pictures—Ted Williams or Megan? **Answer: Megan**
2. What does it mean for something to “rotate”? **Answer: c) move around a center point**
3. To choke up on a bat, which of the following do you do?
Answer: a) move your grip toward the heavy end of the bat

Level TWO Questions (#4-7)

4. Which has more inertia, a bicycle or a truck? Explain.
Answer: A truck. It has more mass.
5. From looking at the pictures on the poster, who bats left-handed, Ted Williams, or Megan?
Answer: Ted Williams
6. Which would be easier to spin, a disk or a ring with the same mass and size?
Answer: The disk, because the ring has its mass located farther from the center.
7. A batter decides to switch bats so that he can swing faster. Without choking up, which of the following bats will do the trick?
Answer: c) one that is the same weight, but shorter

Level THREE Questions (#8-10)

8. When an ice skater starts a spin move with her arms outstretched, and then pulls her arms inward, she starts spinning faster. Based on the information presented on the poster, explain why this happens.
Answer: When her arms are pulled in, more of her mass is concentrated near the spin axis so she spins faster.
9. Suppose your whole class took a ride on a Merry-Go-Round. Would the motor that makes it rotate have to work harder if everyone rode on the horses far from the center, or on the ones closest to the center?
Answer: It would have to work harder if everyone rode on the ones farthest from the center.
10. Pitchers in the Major Leagues often throw balls that move 120 feet per second (about 36 meters per second). Home plate is only 60 feet (18 meters) from the pitcher’s mound. How long does it take the ball to travel that far?
Answer: If the ball travels 120 feet it one second, it will take half that long to go 60 feet. Thus, it will take 0.5 seconds.