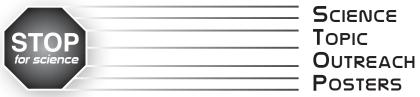
Questions · Section 4.2



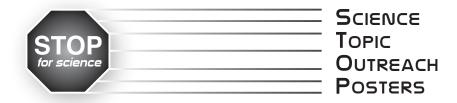
| Name   | Grade/Class      |            | Name                | Gı        | rade/Class #                   |
|--|------------------|------------|---------------------|-----------|--------------------------------|
| Level ONE Questions  |                  |            |                     |           |                                |
| 1. Who is "choking up or   | n the bat" more  | in the pi  | ctures—Ted Williams | or Megan? |                                |
| 2. What does it mean fo  | r something to   | "rotate"?  |                     |           |                                |
| a) move in a straight line   |                  | b) star    | nd still            |           |                                |
| c) move around a center point  |                  | d) play    | baseball            |           |                                |
| 3. To choke up on a bat,   | which of the fo  | ollowing c | lo you do?          |           |                                |
| a) move your grip  | toward the he    | avy end o  | of the bat          |           |                                |
| b) move your grip  | toward the ligh  | nt end of  | the bat             |           |                                |
| c) turn the bat are  | ound and grip th | ne other   | end                 |           |                                |
| d) none of the ab  | ove              |            |                     |           |                                |
| CHOKE UP ON Touch the Choke UP ON Touch UP O |                  | Stor       | TOP                 |           | SCIENCE TOPIC OUTREACH POSTERS |
| Name   | Grade/Class      | s#         | Name                | Gı        | rade/Class #                   |
| Level ONE Questions  |                  |            |                     |           |                                |
| 1. Who is "choking up or   | n the bat" more  | in the pi  | ctures—Ted Williams | or Megan? |                                |
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| a) move in a strai   | ght line         | b) star    | nd still            |           |                                |
| c) move around a   | center point     | d) play    | v baseball          |           |                                |
| 3. To choke up on a bat,   | which of the fo  | ollowing c | lo you do?          |           |                                |
| a) move your grip  | toward the hea   | avy end o  | 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

Questions · Section 4.2



| Name                                 | Grade/Class #                      | Name                   | Grade/Class #                    |  |  |  |  |
|--------------------------------------|------------------------------------|------------------------|----------------------------------|--|--|--|--|
| Level TWO Questions (#4-7)           |                                    |                        |                                  |  |  |  |  |
| 4. Which has more                    | e inertia, a bicycle or a truck?   | Explain.               |                                  |  |  |  |  |
|                                      |                                    |                        |                                  |  |  |  |  |
| 5. From looking at                   | the pictures on the poster, wh     | o bats left-handed, Te | d Williams, or Megan?            |  |  |  |  |
| 6. Which would be                    | e easier to spin, a disk or a rinç | g with the same mass   | and size?                        |  |  |  |  |
|                                      |                                    |                        |                                  |  |  |  |  |
| 7. A batter decides following bats w |                                    | he can swing faster. V | Vithout choking up, which of the |  |  |  |  |
| a) one that                          | is the same length, but heavie     | er                     |                                  |  |  |  |  |
| b) one that                          | is the same weight, but longer     |                        |                                  |  |  |  |  |
| c) one that                          | is the same weight, but shorte     | r                      |                                  |  |  |  |  |
| d) one that                          | is both longer and heavier         |                        |                                  |  |  |  |  |

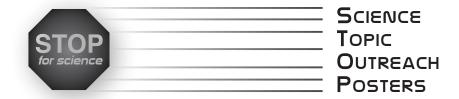
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SCIENCE TOPIC OUTREACH POSTERS

| Name             | Grade/Class #                | Name | Grade/Class #  |
|------------------|------------------------------|------|--|
| Level THREE Ques | etions (#8-10)               |      |  |
|                  |                              |      | , and then pulls her arms inward,<br>the poster, explain why this hap- |
|                  |                              | -    | ld the motor that makes it rotate<br>enter, or on the ones closest to  |
|                  | me plate is only 60 feet (18 |      | et per second (about 36 meters<br>her's mound. How long does it        |
|                  |                              |      |  |
|                  |                              |      |  |

Answers · Section 4.2



### **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 worker 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.