The Fastest Man in the World: Problem Handouts

The Fastest Man in the World

Part 1

You and some of your friends are gathered for a Super Bowl party at your apartment, since you received a big screen TV from your folks for Christmas. During the pre-game festivities, Janie moves over to your bookshelf to check out your current reading choices (most of which are textbooks, of course). Picking up a book, she calls out to everyone, "Look here, I've found the new 2002 Guinness World Records. Let's take a look at some of these. Damon, what record do you want to hear about?" "What's the fastest record for opening beer bottles?" he laughs. "You won't believe this" Janie responds, "but a three-man team in Munich Germany opened 300 bottles of beer in 107 seconds in 1999!" She continues, "I want to know the fastest speed anyone's ridden a bike. I think it's taking me too long to get to the University most mornings. Wow, listen to this guys, Fred Rompelburg rode his bike on the Bonneville Flats in Utah at 167 mph in 1995."

You and Damon are on the University track team, so you ask, "Who's the fastest human on record?" Everyone starts naming their favorite track star. Janie says, "I remember reading that Donovan Bailey was the fastest human, but I think that was a couple years ago. I wonder how they would decide who's the fastest?"

1. List the criteria you would use to decide who was the fastest runner. Be sure to list all the data you would require.
2. Where could you find the information you need?

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Part 2

Janie's question causes some major discussion and disagreements. The Guinness World Records lists USA's Maurice Greene as holding the outdoor record of 9.79s for the 100m in Athens, Greece, 16 June 1999. You take the stand that to decide the fastest runner, the split times need to be analyzed. Several at the party who aren't on the track team shout, "What are split times?" Janie says, "Would you just look at the 100m races, or would you look at others? Here it says that Donovan Bailey holds the 50m indoor record of 5.56s (1996), which was tied by Maurice Greene in 1999. But there are no split times listed, just total time. How can we figure this out?"

Running has now become a major topic of conversation at the party, instead of which team has the best quarterback or the best defense. Damon went on the internet to see what he could find. He says to Janie, "Look at this, Donovan Bailey was featured as the fastest man alive in the 1998 Guinness World Records at the Atlanta Olympics in 1996. Bailey in the article stated that he had ran 27 mph."

1. Would you want to look at split times in order to decide who's the fastest runner? Explain why or why not.
2. Do you think you should look at indoor as well as outdoor record winners? Explain the physical factors that may impact the running speeds in both settings.
3. Through your research, list the top 5 sprinters that hold world or Olympic records indoors or outdoors.
4. Specify the criteria you will use to analyze the running data of your top runners. Justify your reasoning using physics principles related to forces and motion. Decide if an athlete's reaction time (at the start) should factor into the decision. Justify your reasoning. Name one way to factor out the reaction time.
5. Using your criteria, who is the fastest human on earth? Be sure to cite all resources you use to come to your decision