

PRACTICE

Activity 6: Pushes, Pulls, and More Interactions

Name _____

Date _____

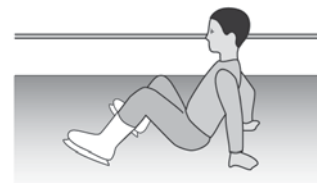
Class _____

Read the following story and answer the questions that follow.

Slip Sliding Away on Ice in the Real World

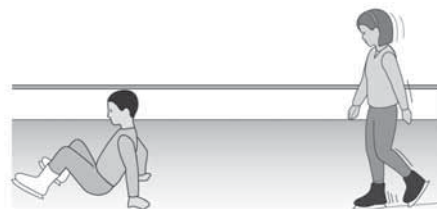
After school, Otis, Nguyen, and Isabel went ice-skating at the big ice rink near the new shopping mall. Isabel had gone ice skating lots of times with her family, but this was the first time Otis and Nguyen had skated on ice. After struggling to pull their skates on and lace them up, the three friends finally managed to get on the ice. Isabel said, “Hold on to the railing and try to dig your blades into the ice a little bit. Practice just standing up and holding your ankles straight!”

Otis replied, “Hey Isabel, do you think you’re teaching little kids? I don’t need to practice standing up. I’ll race you to the other side! *Whooooo!*” Otis cried as he took a giant leap, then landed on his rear and slid across the ice.



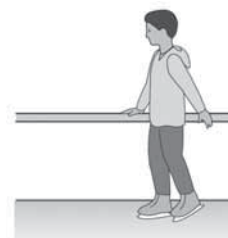
“Great move, Otis,” Nguyen called. “Next time, why don’t you race on your skates instead of on your seat?”

“Well, at least I slid to a stop before I ran into the wall,” yelled Otis while sitting in the middle of the rink. “*Now* what am I supposed to do? There’s nothing for me to hold onto to help me stand up again.”



“Oh, Otis, I’ll help you,” grumbled Isabel. “If you had just listened to me, you wouldn’t be sitting helpless in the middle of the ice.” Isabel dug her skates into the ice and gave herself a quick strong push over to Otis. She slid on her skates across the rink, then made a quick stop inches away from where he had fallen.

“Wow, Isabel, you *are* a good skater!” Nguyen called from the railing. “*I’ll* listen to you. Would you teach me to skate like that?”



1. In the story, Otis slid across the ice rink and came to a stop in the middle of the rink.

a) As Otis slid across the ice, was he *speeding up*, *slowing down*, or did he have a *constant speed*? _____

b) Was the force on Otis in the *forward direction*, the *backward direction*, or were there *no interactions affecting his motion*? Explain your reasoning.

c) What type of interaction caused Otis to come to a stop? _____

d) What were the interacting objects? _____

2. Suppose Otis slid across a *frictionless* ice rink.

a) Would Otis *speed up*, *slow down*, or have a *constant speed* across the *frictionless* ice rink? _____

b) On a *frictionless* ice rink, would there be a force on Otis in the *forward direction*, the *backward direction*, or would there be *no interactions* affecting his motion? Explain your reasoning.

3. After Isabel pushed herself toward Otis to help him, she slid on her skates across the *real* ice rink. She slowed down, but not as quickly as Otis slowed down. Why do you think Otis slowed down more quickly than Isabel?

