

Name: _____

Hands On With Newton's 3rd Law SPH4C

Safety Warning: Do not step on the scooters at any point!

What would happen if you tried to step onto the scooter (without someone holding onto it)?

Explain why: _____

Similarly, you should not step off the scooters at any point. What would happen if you tried it?

Explain why: _____

Part 1: You, the Floor, and a Wall

Sit on a scooter. Scoot yourself over to a wall. Push against the wall. What happens?

Explain why, with reference to Newton's 3rd Law: _____

How can you move yourself along the floor if you are not near a wall?

Explain why, with reference to Newton's 3rd Law, this works: _____

What would happen if the floor were really slippery (waxed or iced over)?

Explain why: _____

So, is the tread on the bottom of your shoes designed to *increase* the friction or *decrease* the friction between you and the floor? _____

Part 2: Find a Partner

Find a partner who is also on a scooter. Have your partner sit with their back to you. Give them a push. What happens?

Explain why, with reference to Newton's 3rd Law: _____

Which person moved more? _____

Explain why, with reference to Newton's 2nd Law: _____

Repeat this exercise, this time with your partner pushing on your back.

Did you get the same results? _____

Hold hands with your partner and move your scooters as far away from each other as possible while still holding hands. Pull your partner toward you. What happens?

Explain why, with reference to Newton's 3rd Law: _____

Part 3: Partners in Motion

Scot down the hallway side-by-side with your partner. Give your partner a sideways push. What happens?

Explain why you both also continue moving forward, with reference to Newton's 1st Law of Motion.

Scot down the hallway behind your partner. Give your partner a gentle push in the back. What happens?

Explain why: _____