Science Surprises

Grade 4 Name: _____

Read the story carefully. Then answer each question below in a full sentence.

Science is full of cause and effect! Identify what action was taken, what reaction happened, and trace the whole chain of events.

The Trapped Air Balloon

Leo was excited to try a new experiment he saw online. He wanted to inflate a small balloon *inside* a plastic bottle. He carefully pushed the deflated balloon into the bottle, stretching its opening over the bottle's mouth. Then, he took a deep breath and blew. He blew and blew, his cheeks puffing out, but the balloon only puffed up a tiny bit before stopping. Leo frowned, confused. Why wouldn't it get bigger? He tried again, even harder, but it was no use. The balloon stayed small and squishy.

He thought about it, looking closely at the bottle. "There must be something in the way," he mumbled. Then it hit him: the bottle was already full of air! When he tried to blow more air into the balloon, the air already inside the bottle had nowhere to go. It was trapped, pushing back against the balloon. Leo grabbed a small nail and carefully poked a tiny hole near the bottom of the bottle. He tried blowing again, and this time, the balloon expanded easily, filling the bottle almost completely. A small hiss of air escaped from the hole as the balloon grew. Leo grinned, understanding that the trapped air needed a way out.

COMPREHENSION QUESTIONS

(1) Which of these BEST explains why the balloon did not inflate much at first? Circle the correct answer.

(A) The bottle was too small for the balloon to fit inside.

(B) Leo was not blowing hard enough into the balloon.

(C) The air already inside the bottle had nowhere to escape, pushing back against the balloon.

(D) The balloon was too old and had a hole in it.

(2) Complete the sentence: Because _____, the balloon only puffed up a tiny bit at first.

(3) What did Leo do to make the balloon inflate easily?

(4) Describe how Leo's attempt to inflate the balloon led to his discovery about trapped air and then to the balloon fully inflating.

(5) What might have happened if Leo had used a bottle that was open at both ends? Explain.