Year 9 Science: Position-time graphs, free-body diagrams and pressure

Name: _____ Date: _____

Try these without your notes first, then check the answer key.

Practice

1. On a position-time graph, a line goes from 0 m at 0 s to 120 m at 20 s in a straight line. What is the speed, and is it steady?

2. Describe the motion shown by a position-time graph that is flat from 5 s to 12 s.

3. A kayak has 150 N of paddle thrust forward and 90 N of drag backward; its weight and the water's upward push are both 800 N. Find the net force.

4. A 60 N force pushes a drawing pin with a point of 0.000 001 m². What pressure does the point make, and why does it go into a cork board?

5. Explain why one wide snowboard and two skis both work on soft snow, but walking in boots does not.

Fix the mistake

6. Correct this statement: "A flat line on a position-time graph means the object is moving at a steady speed."

7. Correct this statement: "A straight line sloping upwards means the object is speeding up."

8. Correct this statement: "The free-body diagram of a box should show the box pushing down on the floor."

9. Correct this statement: "An axe cuts wood because it pushes harder than a hammer."