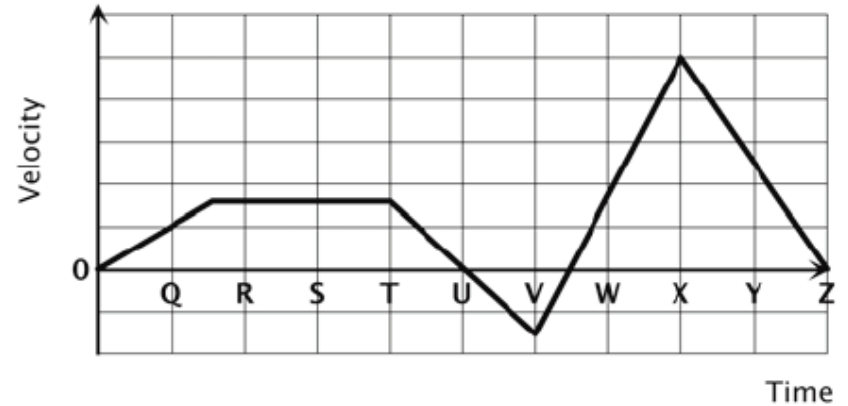


Results: Concept Surveys

Test of Understanding Graphs – Kinematics (TUG-K)

2. The following figure shows the velocity versus time graph of an object. Which of the following options corresponds to the case when its acceleration is the most negative?

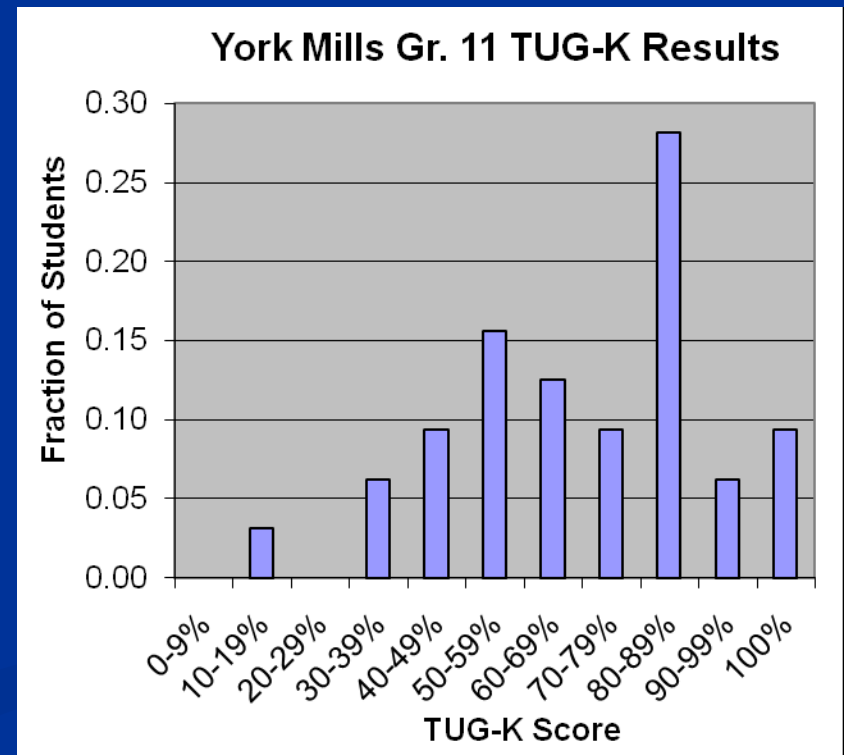
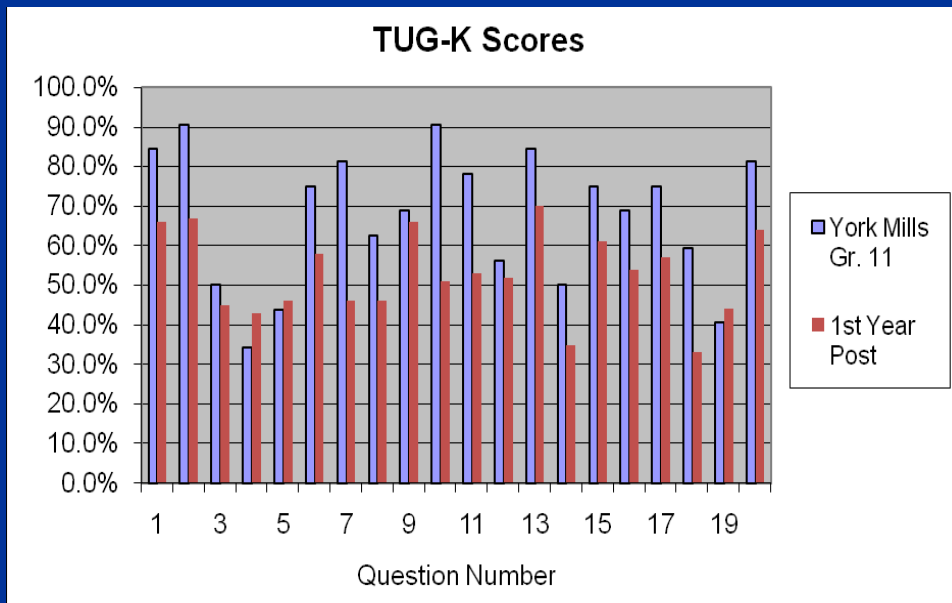
- A) V to X
- B) T to V
- C) V
- D) X
- E) X to Z



Results: Concept Surveys

Test of Understanding Graphs – Kinematics (TUG-K)

- 1st Year physics, post instruction = 52.9%
- York Mills Gr.11 = 67.5%

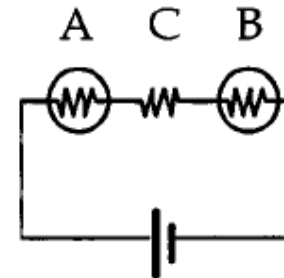


Results: Concept Surveys

DC Circuits Concept Test (DIRECT)

26) If you increase the resistance C , what happens to the brightness of bulbs A and B ?

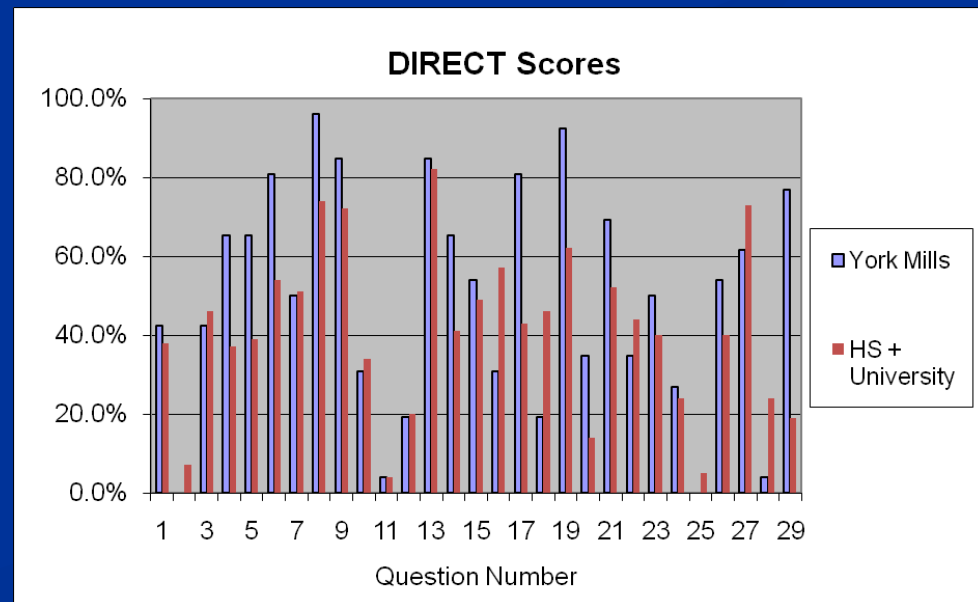
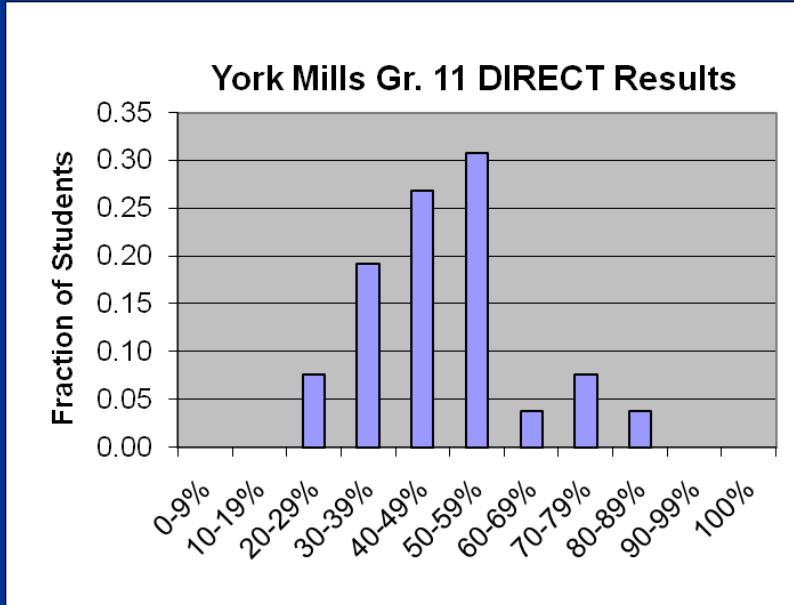
- (A) A stays the same, B dims
- (B) A dims, B stays the same
- (C) A and B increase
- (D) A and B decrease
- (E) A and B remain the same



Results: Concept Surveys

DC Circuits Concept Test (DIRECT)

- High School, post = 36.0%
- 1st Year Physics, post = 44.0%
- YM Gr. 11 = 48.9 %

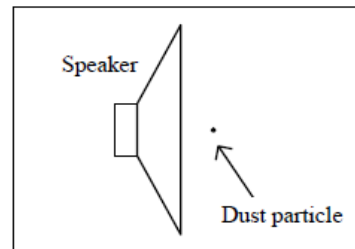


Results: Concept Surveys

Mechanical Waves Conceptual Survey (MWCS)

Consider the following description and answer questions 6 - 8.

A dust particle hovers in front of a silent loudspeaker (see figure below). The loudspeaker is turned on and plays a loud tone at a constant pitch.



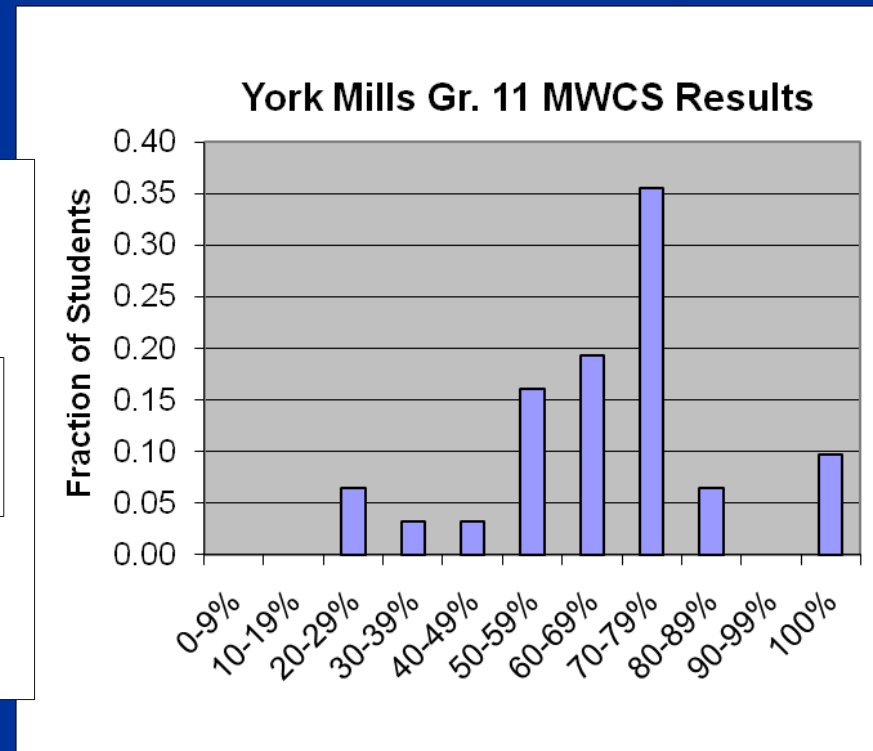
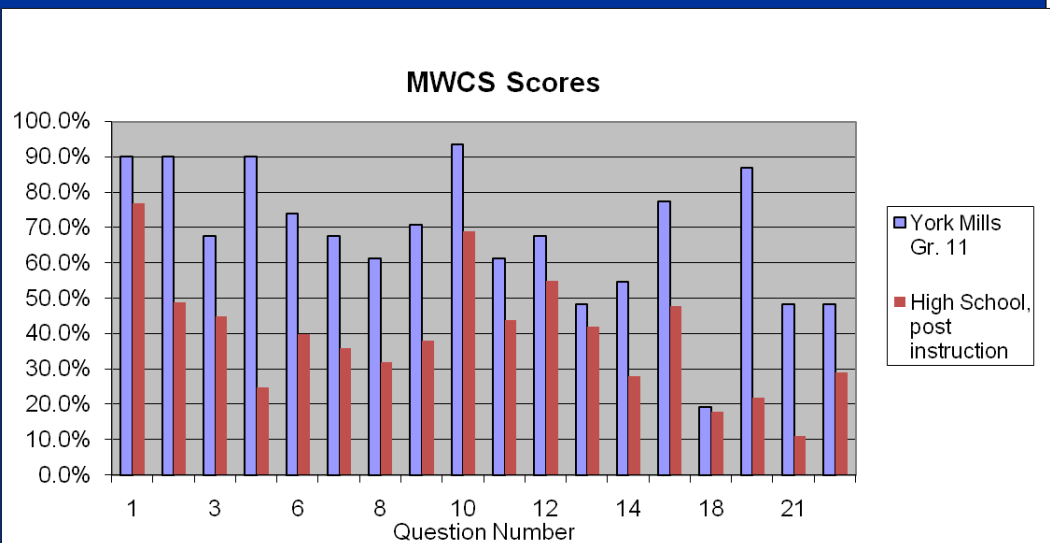
___ 6) How will the dust particle move?

- A. It will stay in the same position.
- B. It will move back and forth about the same position.
- C. It will move up and down about the same position.
- D. It will move away from the speaker.
- E. It will move away as a sine curve.

Results: Concept Surveys

Mechanical Waves Conceptual Survey (MWCS)

- High School, post = 33.7%
- 1st Year Physics, post = 58.0%
- YM Gr. 11 = 67.7 %



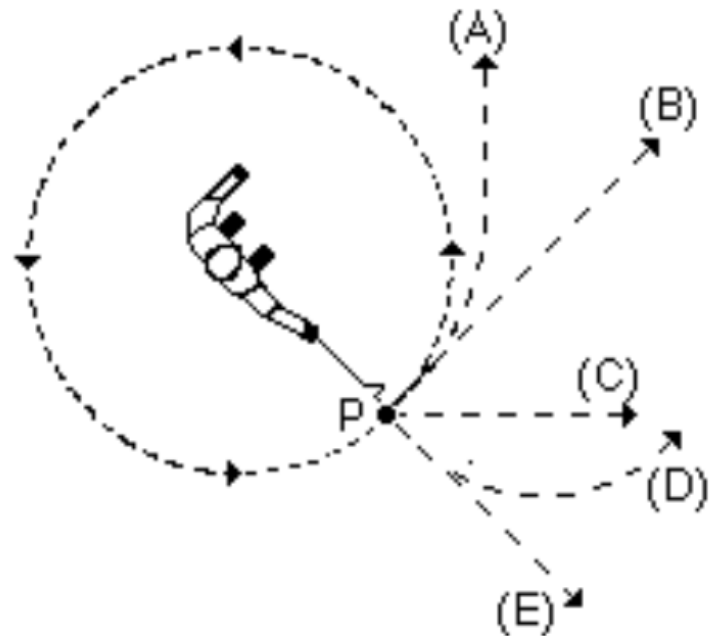
Results: Concept Surveys

Force Concept Inventory (FCI)

7. A steel ball is attached to a string and is swung in a circular path in a horizontal plane as illustrated in the accompanying figure.

At the point P indicated in the figure, the string suddenly breaks near the ball.

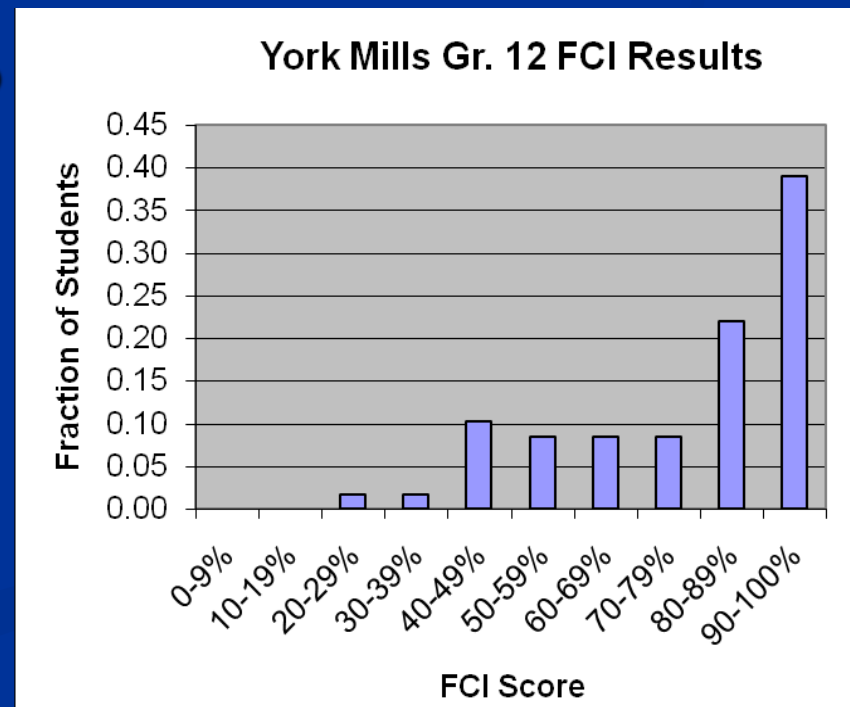
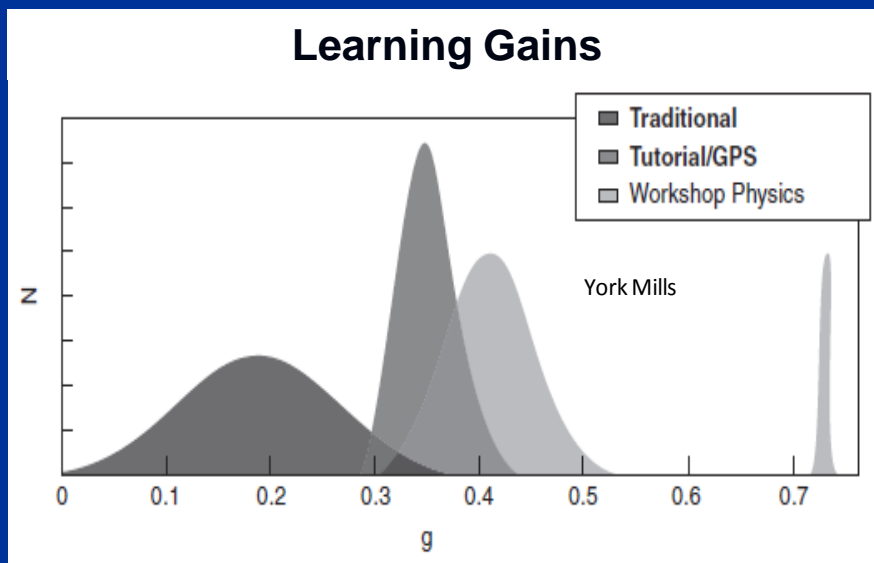
If these events are observed from directly above as in the figure, which path would the ball most closely follow after the string breaks?



Results: Concept Surveys

Force Concept Inventory (FCI)

- Starting 1st year physics = 45%
- Starting Harvard = 70%
- York Mills Gr. 12 = 82.8%



Results: Concept Surveys

Energy and Momentum Concept Survey (EMCS)

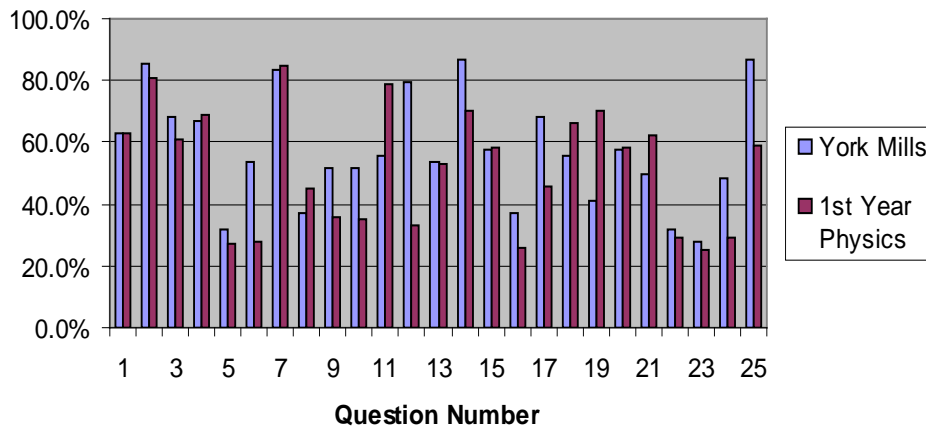
15. While in a playground, you and your niece take turns sliding down a frictionless slide. Your mass is 75 kg while your little niece's mass is only 25 kg. Assume that both of you begin sliding from rest from the same height. Which one of the following statements best describes who has a larger speed at the bottom of the slide?
- (a) Both of you have the same speed at the bottom.
 - (b) Your niece, because she is not pressing down against the slide as strongly so her motion is closer to free fall than yours.
 - (c) You, because your greater weight causes a greater downward acceleration.
 - (d) Your niece, because lighter objects are easier to accelerate.
 - (e) You, because you take less time to slide down.

Results: Concept Surveys

Energy and Momentum Concept Survey (EMCS)

- Completed 1st year calculus-based physics = 51.2%
- Gr. 12 York Mills = 57.2%

YM Gr. 12 EMCS Results



York Mills Gr. 12 EMCS Results

