

Try this Activity (Nelson 12, p. 12)

Graphing Linear Motion

- In this activity, students predict the position-time and velocity-time graphs for a variety of situations. They can verify their predictions using motion sensors and graphing software.
- Time: 15–30 min

Teacher Preparation

- Teachers must be aware of the proper operation of the motion sensors and graphing software.
- If not using the electronic equipment, teachers should prepare the appropriate graphs on overheads ahead of time and display the graphs for the students at the conclusion of the activity.

Material/Equipment	Quantity per station	Quantity for 16 stations
motion sensors and appropriate graphing software	1	16

Materials and Equipment Notes

- Prepare materials so the class can work in groups of 4 or less. This reduces the amount of equipment needed and minimizes the demands for help on the teacher among the groups.
- This activity is useful even if motion sensors and graphing software are not used.

Safety and Disposal

- Not applicable

Student Preparation

- Students should review the key ideas concerning motion graphs. The purpose of this activity is to help the students recall this material from grade 11 physics.
- Students should be aware of the operation of motion sensors and the accompanying graphing software from previous science or mathematics courses, particularly in grade 9.

Teacher Suggestions

- Hold a contest to see which group can produce the appropriate graph in the shortest possible time for motion situations that are suggested by the teacher or other students.
- Provide graphs to students on overhead transparencies or printed copies. Ask students to describe the motion that each graph represents. Challenge students to duplicate the motion shown in a graph using motion sensors and graphing software. This will challenge even the best students.

Extensions/Modifications

- Have students produce the corresponding position-time graph from a velocity-time graph.
- Have students produce the corresponding acceleration-time graph from a velocity-time graph.