

Guidelines for Teachers - Activity 1: Mail Delivery

Description:

This activity presents students with a postman who needs to deliver mail to all 5 people.

Objectives:

Upon completion of this activity, students should be able to:

1. Understand and apply the use of headings.
2. Use the coordinate system to record the locations of randomly scattered people and postman.
3. Use Pythagoras theorem to calculate distance travelled by the postman.

Student's Prerequisites:

Students should be familiar with

- Pythagoras theorem
- Coordinate system

Student's Task:

1. Students will re-create the original positions of the postman and the people on graph paper accurately by means of the coordinate system.
2. Students will also describe the steps taken by the postman in order to reach all 5 people using heading.
3. Students will also calculate distance travelled in reaching all 5 people using Pythagoras theorem.
4. Students will create a program to find the information stated in the above 3 steps.
Students will create a program with the following features.

- Program the postman to move in order to reach and deliver mail to all 5 people
- Program the postman to announce "You're got mail" upon reaching each person.
- Program the person to disappear upon receiving mail.

Lesson Plan:

Before students start individual/pair work:

1. Demonstrate how to set up scenario by double-clicking on the *setup* programming block.
2. Illustrate use of blocks not encountered previously
 - *if-else* programming block and logic involved in using it
 - *collide* block
 - *say* block for postman to announce “You’ve got mail”
 - *die* programming block to kill person upon receiving mail
3. Show how to retrieve information such as coordinates and heading of current position of people and postman.

This activity can be used to introduce and consolidate the idea of heading to students by means of a whole class discussion on the concept of heading. The people and postman in StarLogo TNG have an associated characteristic called heading which gives the heading of their current position when one double clicks upon them. The teacher can introduce to students the concept of heading within the StarLogo TNG environment. The teacher can demonstrate how a change in direction of the postman’s orientation affects the value of the heading. After a short introduction, the teacher can allow students to explore this idea in StarLogo TNG by themselves and subsequently they can decide how it could aid them in completing the activity.