

Understanding the Use of Prepositions in Guiding a Robot

GRADE LEVEL
K-1

SUBJECTS
Using Prepositions

ESTIMATED TIME
50-minute session

Ending a sentence with a preposition is something up with which I will not put.
Winston Churchill

OVERVIEW

The purpose of the exercise is to enhance student understanding of prepositions by following verbal commands in guiding the educational robots in a “hands-on” fun activity that also develops hand eye coordination and communication.

NATIONAL/STATE MATH STANDARDS

A number of the state standards for many states are met by the use of these exercises for grades K-2.

OBJECTIVES

In this series of lessons, students will

- Become familiarized with the use of prepositions
- Develop hand eye coordination skills by using their robot
- Be able to read, verbalize and understand each preposition with confidence

MATERIALS

- An Educational Robot with wireless controller (ideally one per student)
- A chair
- Cup
- Popsicle sticks labeled with prepositions

SETUP

1. Prior to the session, the teacher can present the concept of prepositions as a part of conversation. Prepositions such as: “to”, “through”, “into”, “over”, “under”, “around” “behind”, “in front of”, “from”, “onto” will be part of this exercise to familiarize students with their meaning.
2. Place a fully charged robot (and controller) at the starting point. Test it to make certain the wireless remote and robot are synced properly.
3. Have the student drive the robot around to gain familiarity with starting, stopping, reversing and turning.
4. There should be a teacher or mentor present to assist each student and if there are multiple set ups, there should be a person with each student.

LESSON

1. First, have one student sit on a chair in front of the student with a wireless controller and their robot. Then, the student in the chair will select a popsicle stick from the cup and read aloud to the student controlling the robot.
2. The teacher or student mentor will call out where the robot is to go and the pupil will respond by controlling their robot to perform the designated task. The mentor can designate the chair to be any well-known object like a tree or a building. For example, upon hearing the command “Drive your robot “AROUND” the chair” the student will guide the robot around the chair and bring it back to the starting position. Another command by the mentor can be issued such as “Drive your robot TO the tree” and the pupil will guide the robot to the front of the tree. Next the mentor could say “Drive your robot “THROUGH” the tree and stop it “BEHIND” the tree”. The pupil will drive it through the tree and stop behind.
3. The commands are repeated for each preposition multiple times until the student is comfortable with the command.
4. For non-native speakers, the student can be asked to repeat the command given by the mentor in English as each move is being executed.

Depending on time, resources available and number of mentors present the exercise can be repeated.

ASSESSMENT / EVALUATION

1. Does the pupil comprehend what the intention of each preposition is?
2. Does the pupil have hand-eye coordination ability?
3. For non-English speaking pupils, are their language skills enhanced after the exercise?

ENRICHMENT

1. Knowledge of the various prepositions and how they are employed is enhanced by pupils piloting their robot probes and learning about them.
2. Depending on time, a review of each preposition can be repeated.
3. Questions on prepositions can be asked such as why are prepositions important in following instructions to tell others such as how to get to school or how to go to the park.

SAMPLE