

MATH LANGUAGE, OFFLINE ACTIVITY 2

Lesson Plan: Mathematical Language, Intro to the Bus, Activity 2

OVERVIEW OF THE ACTIVITY

Students use a closed box as the bus and must note the number of “passenger” objects getting off and on at each stop. Finally they are asked how many remain on the bus at the last stop.

DESCRIPTION OF THE ACTIVITY

One student acts as bus driver and four other students act as bus stop monitors. The “bus” is a box that has a cover (depending upon the size of objects used as “passengers”, it could be a shoe box or a box of photocopy/printer paper, both of which have tops that are easy to remove and put back in place). All other students observe the “bus” travelling along its route. The bus driver determines how many passengers get off the bus at any stop, states the number, opens the box and actually removes the passengers. The current bus stop monitor determines how many passengers get on the bus, states the number and places the passengers in the box and closes the box. Just before the bus pulls up to the last stop, all other students must raise a card with a numeral to indicate how many passengers they have calculated are still on the bus.

PRINCIPAL LEARNING GOAL(S)

- Reinforce students' understanding of how this game is played;
- Train the students who are observing to do mental computations and to remember how many passengers are on the bus at any time;
- Reinforce students' understanding that the correct answer is based on real evidence, and is not the property of the teacher.

PREREQUISITE KNOWLEDGE AND SKILLS

- This activity assumes that students have already completed the four ideas in the Theme of Number Concept (Count, Compare, Add and Subtract).

RESOURCES FOR THE LESSON

- Sets of index cards with numerals between 0 and 9 for each child (see appendices);
- A box with a lid that can serve as the bus and a set of objects that can serve as passengers;
- A sheet to record student roles assigned in bus games (see appendices).

POTENTIAL DIFFICULTIES

May flow from:

- the actions on the bus not being performed slowly and clearly, hence in the initial stage, when the teacher is performing as bus driver and bus stop monitor, the teacher should emphasize the need to speak slowly, clearly and forcefully, as well as moving the passengers on and off the bus slowly so that all students can clearly see the action;
- missing pre-requisite skills, particularly if a student is seen to make multiple mistakes (making errors in addition or subtraction), and such skills can be reviewed by repeating Theme 01 activities, in particular Ideas 01 (Count), 03 (Add) and 04 (Subtract).

MAIN ACTIVITY ~ 20 MINUTES

The very first time in this activity the teacher demonstrates how to play the game by taking on the role of bus driver as well as all of the bus stop monitors. Thus, when the bus pulls up at a stop, acting as bus driver, the teacher will announce how many passengers will get off, open the box and remove that number of passengers. Then, changing position, the teacher will act as bus stop monitor, announce how many passengers will get on, add that number of objects to the bus and close the lid of the box. When the bus arrives at the last stop, the driver asks students how many passengers are on the bus (the box is still closed) and to hold up a number card with their answers. If the teacher is confident that the class has understood the game, then the teacher selects five (5) students, one to act as bus driver, who decides how many and which passengers get off at each stop (0 to 3), and four bus stop monitors, who decide how many and which passengers get on the bus (0 to 3) at the stop that he/she patrols. If the teacher is not confident that the class has understood, she should repeat the game still acting as bus driver and bus stop monitors. Each bus driver/bus stop monitor student team could repeat the bus route a few times before a new student team takes over. Note that when a student team is running the bus, the teacher monitors carefully to see that the students play out their roles correctly.

ACTIVITIES IN OTHER SUBJECTS

When teaching other subjects the teacher can engage students in activities that will help with this bus activity:

- in art class the students can decorate the box that will eventually be used as a bus so that it actually looks like a bus, and create different signs for each of the various bus stops;
- in social science class the teacher can continue the discussion concerning appropriate behaviour when using public transportation (waiting in line, waiting for passengers to get off before attempting to get on, providing seats for elderly or passengers with a disability, etc.).

TEACHER ACTIONS 15 MINUTES

Upon completion of the activity it is important to discuss with the students the concepts involved in the activity so as to consolidate the knowledge acquired and help make connections to prior knowledge. Discuss with students the following questions:

- 1) Ask students how they kept track of the number of passengers on the bus?

Elements to Pay Attention To

Since the students can no longer see the passengers, as in the previous activity, presumably they had to perform mental calculations (one addition and one subtraction) at each bus stop, and to remember the result of the calculation until the bus arrived at the next stop where they would again do computations. Listen to student comments concerning how easy or hard it was to remember the number of people on the bus at any given moment. Engage students in a discussion as to how this task could be made easier.

- 2) Ask students how they knew if their answer was right or wrong?

Elements to Pay Attention To

Listen to students' responses and encourage those who mention seeing the content of the "bus" when it was revealed. These students are connecting the results of computation to the physical reality of the situation.



APPENDIX 2

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