BASIC ALGORITHMS
Lesson Plan: Class 03 / ALG / 09

Overall goal of the lesson:
Children will learn what an algorithm is and how to put the steps of an algorithm in sequence for activities that they do in their daily lives.

Prior knowledge required:
Simple conditionals, logical thinking, and familiarity with a card deck

Material Required:
Physical:

1. One copy of worksheet (Basic Algorithms) per child
2. A deck of cards and Or colourful card paper chits with numbers written on it Or small plastic balls with numbers written on them
3. Two different coloured boxes
4. Pictures of children going on a picnic or crossing the road or watching movie which can be stuck on the board with tape (point 3 is optional but will add some liveliness in the class)

Electronic:
PPT presentation for Basic Algorithms

Procedure Summary:

1. Review conditionals
2. Ask children what steps will they take to perform a task (for example eating their breakfast, or when they have to go to a children's party)
3. Distribute the worksheet
4. Discuss worksheet - the importance of an algorithm and its sequence of steps

Procedure Details:

1. Start the class with asking students what they did today morning before they came to school. See what activities they say and pick one or two from them. Give them hints if required, like ate breakfast, packed school bag, got ready for school etc.
2. Pick one activity and ask them to list out the steps that they carried out to complete the activity. For example, the activity "ate breakfast" the steps can be as follows:
    i. Wash hands
    ii. Sit on breakfast table
    iii. Say "Thank You" Prayer
    iv. Eat breakfast
    v. Drink Bournvita / Horlicks....
    vi. Put plate and cup in washing sink
    vii. Wash hands and face
3. Ask students what will happen if they did not follow the steps in the above activity in sequence. For example "Put plate in washing sink" before "Eat Breakfast". Laugh and say Mommy will not be happy and they will come to school hungry
4. Ask the students if there is another way of doing the same activity "Eat breakfast". Give them a hint like drink Bournvita and Mommy packs the breakfast to have in school.
5. Give them the idea that in both algorithms above they will get the breakfast but in one case you will not be hungry at all but take more time to get ready for the school bus and the other case they might be slightly hungry but they will get ready for school bus faster.
6. Children may give different algorithms for the same task and all of them can be correct. Encourage them to think out the steps in a logical sequence.

7. Show them how Conditionals are used in the algorithms. Show them the slide on “getting ready for picnic”. Ask them how the algorithm will change IF it was raining on that day.
8. See what they say. Then give hints like - You will wear raincoat on top of your clothes. Also you will wear rain shoes instead of normal shoes.
9. Play the game with the different numbered balls. Put the balls or numbered chits of card paper in a bag. Keep the two colored boxes on the table. As you pick each ball / chit from the bag see which child says the correct box first. Congratulate them.
10. You can add And / OR Conditional while playing the game but for this it will be better to have the deck of cards. Then you can say Odd number card AND Red in color goes in one box But Odd number and Black card goes in the other box. You can make other combinations of AND / OR conditionals to make them think.
11. Now play the game to show loop algorithms. You can either play with cards or balls. Keep the bag of balls or the card deck on one side of the table and put an empty box on the other side. Tell the loop condition for example, pick the ball from the bag and put into the box till the number of balls in the box is 5. You can also do with cards for example, the loop condition can be pick the card from the deck and put it in the box only if it is black in color and it is a face card (Jack, Queen, King). If the card you pick from the deck is anything else then put it aside. Engage the children and make them say whether it should go in the box or not.
12. Recap what they learnt in this class

Assessment :
Distribute & discuss worksheet