ACTIVITY APPROACH TO THE TEACHING AND LEARNING OF INEQUALITIES AND THEIR SYMBOLS IN PRIMARY SCHOOLS

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Abstract

The major task of mathematics teachers is to see that the appropriate mode of representation is used while teaching mathematics concepts. Strategies for teaching concepts in mathematics are many but teachers should try to exemplify the concepts by creating activities which would enable students to appreciate and understand the concepts. It is important to carry students along while developing concepts in mathematics. Since mathematics is hierarchical in nature, the teachers take them from the lower order concept to a higher order one. For instance the pre-requisite for inequality is the knowledge of comparison of objects with varying sizes and numbers and also being able to detect which one is greater or less or equal as the case may be. From this concept, one can state the symbol for greater than, less than or equal to. This paper presented different strategies used to introduce the "symbols of greater than", "less than" and "equal to", practically.

Many children in our primary and secondary schools experience difficulties with the learning of some aspects of the mathematics curriculum. Just as students find difficulties in learning mathematics, teachers equally find difficulties in achieving affective teaching in our school system. Mathematics teachers face many challenges as they try to adopt effective methods of communicating mathematics in order to enhance the performance of the students(Amaefuna, 2002).

Since the teachers deal with teaching children of various ages, abilities, levels, interest, background and so on. They need to vary the learning situation in order to promote learning. Piage: believes that a child matures to (earn a particular skills, concept or principle whereas Brunner believes that readiness should be extended to include the subject in which case a teacher can make a particular subject matter ready for a learner who ordinarily may not be ready by using an appropriate mode of representation. Bruner agrees with Piaget that the child's mental development evolves through development stages. Though many mathematics teachers still teach mathematics by rote method which makes the subject difficult, frustrating and abstract. This paper therefore, promotes an effective method of teaching and learning inequalities and their appropriate symbols in the primary schools.

Learning Strategies

Strategies for **teaching** and learning concepts in mathematics are many but the teacher--should try to exemplify the concept by creating activities which would enable students to appreciate and understand the concepts. The first step in the teaching of a topic in mathematics should begin with identification of the pre-requisite knowledge needed by the learner for meaningful learning of that topic. Children learn better and quicker by doing as said by one Chinese proverb, quoted by Oyesanya(2002) thus; What 1 hear 1 forget What 1 see 1 remember What I do, 1 understand

When teaching mathematics in the primary schools, the teachers should always start with concrete objects and move into abstract when pupils have mastered the concept (Enukoha, 1995). For instance, in inequality, we should not start presenting to the pupils the symbols for greater than 'equal to' and 'less than' rather we should start by presenting the children with the objects that have such shapes and comparing them.

Teaching Inequalities and their Symbols in Primary School through Activities

Three pupils are brought out of the class for practical demonstration. **One** is to use the left elbow, the other the right elbow and the third the two arms. The right elbow is bent to give the shape > and is called 'greater than' or bigger than'. The left elbow is bent to give the shape < and it is called 'less than' or 'smaller than' while the third person will stretch out the two arms to give the shape = and it is called "equal to" or "same". From here, one can demonstrate that the right arm when bent has the shape of 'greater than' (>) while the left arm when bent has the shape of 'less than' (<) and when the two arms are stretched out they give the shape of 'equal to' or 'the same' (=).

Situations like this make the children to see mathematics as something real and not abstract. When the symbols of inequalities are not related to real life situation children become easily confused and mix up the symbols while solving problems in inequalities.

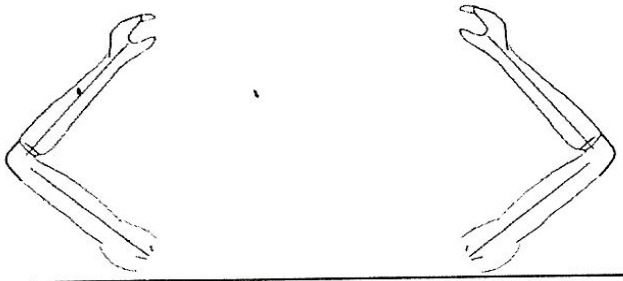
Teaching Inequality to Primary Three Pupils

Step I:

Show them the right and the left arms. Bend the arms and make the children observe the direction each elbow points to and ask them the direction.

Step II:

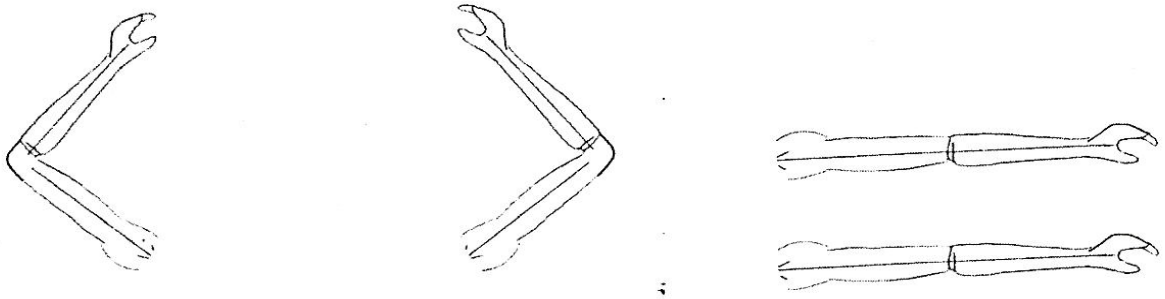
Draw the shapes of the bent arms with the elbows pointing to different directions on the chalkboard and write the name of each arm beside the shape, thus:



Left Arm '<'	Right Arm '>'	Two stretched Arms '='

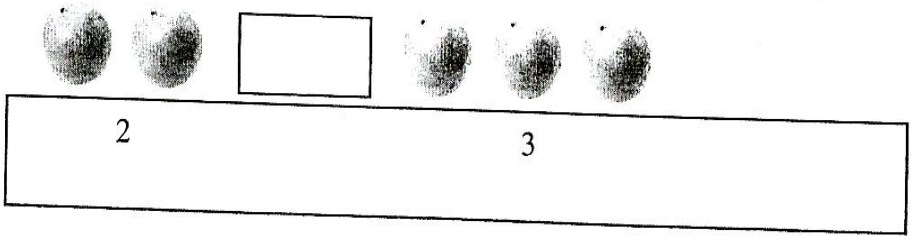
Step III:

Tell the children that these shapes drawn are used to represent less than', 'greater than' and 'equal to'. The bent left arm represents 'less than' while the bent right arm represents 'greater than' and the two stretched arms represent 'equal to', thus:

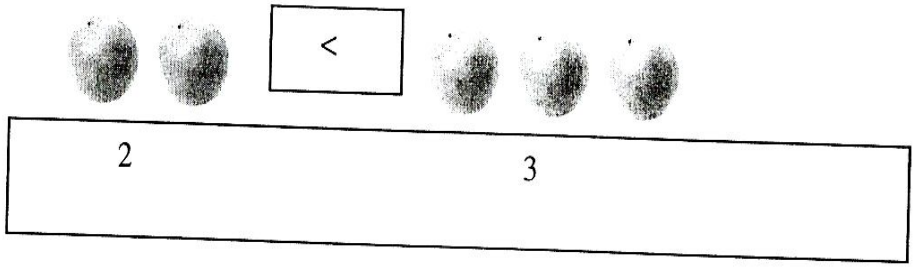


Left Hand < less than Or smaller than	Right Hand > greater than or bigger than	two Hands Stretched = equal to or same

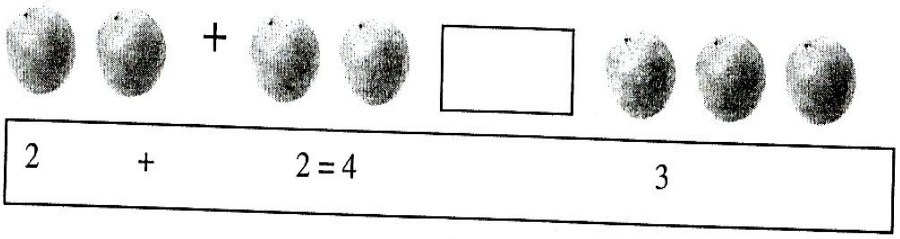
Bring any five objects; let the pupils say how many they are. Draw some objects like oranges, 3 on the right hand side and two on the left hand side and place a box between them as:



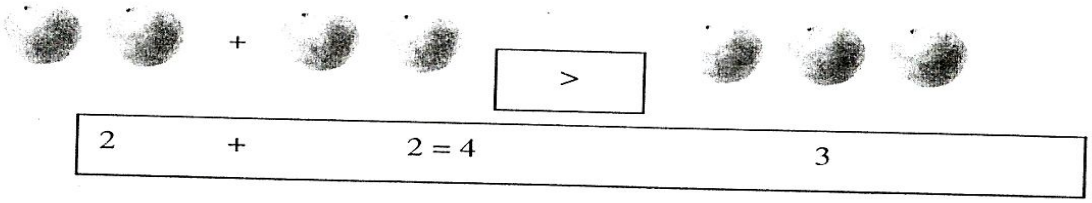
Then ask the pupils to say how many oranges are on each side and whether the number of oranges on the left hand side is greater than or less than the number on the right hand sides. The answer could be that the oranges on the left are less than those on the right, it is associated with using the left arm which is <. Ask a pupil to fix the symbol of less than into the box, thus:



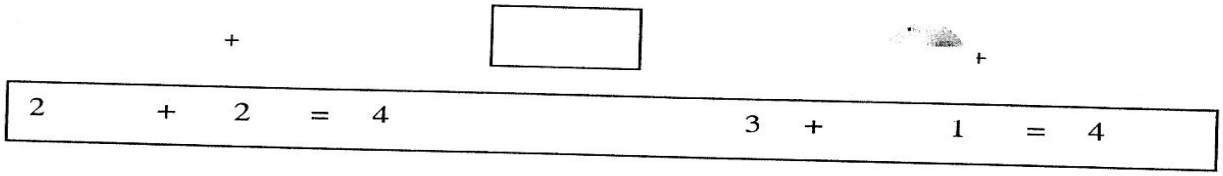
Step V:
Add another two oranges on the left hand side, thus:



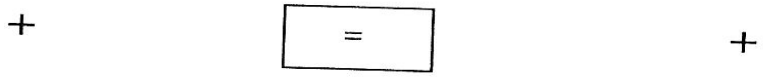
Ask the pupils to count and say the number of oranges on the left hand side and the number of the right hand side. Then ask them to say whether the number of oranges on the left hand side is still less than that on the right hand side. The answer could be that the number of oranges on the left hand side is greater than that on the right hand side, it is associated with using the right arm which is <. Ask a pupil to fix the symbol of 'greater than' into the box, thus:



Step VI: Add one more orange on the right hand side, thus:

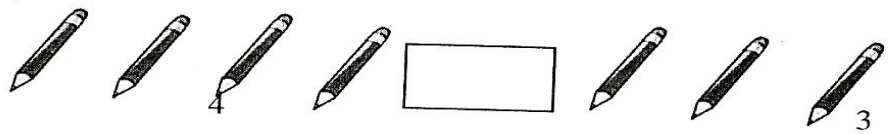


Ask the pupils to count the number of oranges on both sides, and then ask them to say which side is greater than the other. The answer could be that they are same in number, that is, the number of oranges on the left hand side is equal in number with that on the right hand side. Ask a child to fix the symbol of 'equal to' in the box provided.

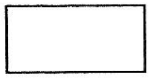


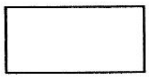
Other objects such as beads, pencils, books, bottle-tops, stones, sticks and so on, of different quantities could be used to demonstrate inequalities. Other examples could now be communicated to them allowing them fill in the gaps with the appropriate symbols of inequalities, thus:

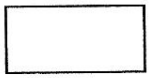
Fill the boxes below with the appropriate inequality symbols.

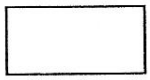
1. 

2. 

3. 2  3

4. 7  3

5. 3+5  1 + 9

6. 2+4  1 + 5

Conclusion

In this paper an attempt has been made to provide step-by-step approach for effective teaching and learning of inequalities in primary schools. Using these steps it is believed that the teaching and learning of inequalities at primary level will be fruitful and the fruit yielded will help the pupils when they pass to higher levels of education.

Recommendations

Mathematics teachers are therefore urged to work towards removing the abstractness of the subject through moving the learners from the known to unknown, from simple to complex and from concrete to abstract. They should ensure that every topic is related to the child's environment while teaching it, so as to enable the child utilize what he or she has learnt to solve problems in his or her environment. They should also teach the children how to apply mathematics to everyday situations, including the use of mathematical terms and vocabularies.

It is strongly believed that if teachers of mathematics adopt the 'activity strategy' which involves a practical demonstration of the concepts in teaching the subject, then the abstractness of the subject will be drastically reduced.

References

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