



Development of CAI (Computer Assisted Instruction) Programme for the Students of VIII Class in the Subject of Mathematics

KEYWORDS

CAI, Mathematics, PowerPoint and Individualized Instructional Material

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ABSTRACT *Mathematics is an abstract subject. So, it is not hidden fact that students have very low interest in mathematics at all levels of learning. It is very difficult for a teacher to reach to all the students. Therefore, there is a need of innovative methods with class room teaching. CAI (Computer Assisted Instruction) plays very important role in this situation. In the present paper CAI programme was prepared with the help of PowerPoint for the students of VIII class in the subject of mathematics.*

Introduction

CAI is one of the methods of providing individualized and self-learning instructional material to the students. This method has contributed significantly in making the learning activity effective and simplified. For developing the CAI programme the following procedure was adopted by the investigator.

1. Selection of the content
2. Analysis of the content
3. Writing the instructional objectives in behavioral terms
4. Development of animation and graphics
5. Preparation of the CAI Programme
6. Pilot testing and experts' opinion
7. Final development of CAI Programme

1. Selection of the content

Content of the present CAI Programme was selected from the subject of mathematics of the VIII class, on the basis of maximum difficulties faced by the students. Investigator selected topic 'Mensuration' of VIII class of CBSE.

2. Analysis of the content

After thoroughly going through the chapter based on topic 'Mensuration' the content of the chapter has been analyze as shown below. This analysis of the chapter has been done on the basis of main theory included in the chapter.

1. Area of a Trapezium
2. Area of a General Quadrilateral and a Polygon
3. Area of a Rhombus and a Kite
4. Curved and Total Surface Area of a Cuboid
5. Curved and Total Surface Area of a Cube
6. Volume of a Cuboid
7. Volume of a Cube
8. Curved and Total Surface Area of a Right Circular Cylinder
9. Volume of a Right Circular Cylinder

3. Writing the instructional objectives in behavioral terms

Unit wise Instructional Objectives

After the teaching is over, students will be able to

1	Area of a Trapezium	Recognize the shape of a Trapezium in different quadrilaterals Define a Trapezium Recall the formula for the computation of the area of a Trapezium Distinguish between a Trapezium and other quadrilaterals Derive the formula of area of a Trapezium Solve the problems related to area of a Trapezium with speed and accuracy. Draw the figure of a Trapezium distinctly showing and naming its different parts Apply the knowledge of area of a Trapezium in their day to day life and in other subjects.
2	Area of General Quadrilateral and a Polygon	Define a quadrilateral Define a polygon Recall the formula for the computation of the area of a general quadrilateral Derive the formula of area of a general quadrilateral Derive the formula of area of a polygon Solve the problems related to area of a general quadrilateral and a polygon with speed and accuracy Draw the figure of a general quadrilateral and a polygon distinctly showing and naming its different parts Apply the knowledge of area of a general quadrilateral in their day to day life and in other subjects.
3	Area of a Rhombus and a Kite	Recognize the shape of a Rhombus in different quadrilaterals Define a Rhombus Recall the formula for the computation of the area of a Rhombus Distinguish between a Rhombus and other quadrilaterals Derive the formula of area of a Rhombus Derive the formula of area of a kite Solve the problems related to area of a Rhombus and a kite with speed and accuracy Draw the figure of a Rhombus and a kite distinctly showing and naming its different parts Apply the knowledge of area of a Rhombus as well as area of a kite in their day to day life and in other subjects.
4	Curved and Total Surface Area of a Cuboid	Recognize the shape of a Cuboid in different shapes Define a Cuboid Recall the formula for the computation of the curved surface area as well as total surface area of a Cuboid Recall the formula for the computation of the diagonal of a Cuboid Distinguish between a Cuboid and other shapes Derive the formula of curved surface area as well as total surface area of a Cuboid Differentiate between curved surface area and total surface area of a Cuboid Apply the knowledge of area of a Cuboid in their day to day life and in other subjects Solve the problems related to area of a Cuboid and diagonal of a Cuboid with speed and accuracy Draw the figure of a Cuboid distinctly showing and naming its different parts.

5	Curved and Total Surface Area of a Cube	<p>Recognize the shape of a Cube in different shapes Define a Cube</p> <p>Recall the formula for the computation of the curved surface area of a Cube as well as total surface area of a Cube</p> <p>Recall the formula for the computation of the diagonal of a Cube</p> <p>Distinguish between a Cube and other shapes</p> <p>Derive the formula of curved surface area as well as total surface area of a Cube</p> <p>Differentiate between curved surface area and total surface area of a Cube</p> <p>Apply the knowledge of area of a Cube in their day to day life and in other subjects</p> <p>Solve the problems related to area of a Cube and diagonal of a Cube with speed and accuracy</p> <p>Draw the figure of a Cube distinctly showing and naming its different parts.</p>
6	Volume of a Cuboid	<p>Recall the formula for the computation of the volume of a Cuboid</p> <p>Derive the formula of volume of a Cuboid</p> <p>Apply the knowledge of volume of a Cuboid in their day to day life and in other subjects.</p> <p>Solve the problems related to volume of a Cuboid with speed and accuracy</p> <p>Draw the figure of a Cuboid distinctly showing and naming its different parts.</p>
7	Volume of a Cube	<p>Recall the formula for the computation of the volume of a Cube</p> <p>Derive the formula of volume of a Cube</p> <p>Apply the knowledge of volume of a Cube in their day to day life and in other subjects</p> <p>Solve the problems related to volume of a Cube with speed and accuracy</p> <p>Draw the figure of a Cube distinctly showing and naming its different parts.</p>
8	Curved and Total Surface Area of a Right Circular Cylinder	<p>Recognize the shape of a Right Circular Cylinder in different shapes</p> <p>Define the height of a Right Circular Cylinder</p> <p>Define radius and diameter of a Right Circular Cylinder</p> <p>Define a Right Circular Cylinder</p> <p>Recall the formula for the computation of the curved surface area as well as total surface area of a Right Circular Cylinder</p> <p>Distinguish between circle and a Right Circular Cylinder</p> <p>Derive the formula of curved surface area of a Right Circular Cylinder</p> <p>Derive the formula of total surface area of a Right Circular Cylinder</p> <p>Differentiate between curved surface area and total surface area of a Right Circular Cylinder</p> <p>Apply the knowledge of area of a Right Circular Cylinder in their day to day life and in other subjects</p> <p>Solve the problems related to area of a Right Circular Cylinder with speed and accuracy</p> <p>Draw the figure of a Right Circular Cylinder distinctly showing and naming its different parts.</p>

9	Volume of a Right Circular Cylinder	<p>Recall the formula for the computation of the volume of a Right Circular Cylinder</p> <p>Derive the formula of volume of a Right Circular Cylinder</p> <p>Apply the knowledge of volume of a Right Circular Cylinder in their day to day life and in other subjects</p> <p>Solve the problems related to volume of a Right Circular Cylinder with speed and accuracy</p> <p>Draw the figure of a Right Circular Cylinder distinctly showing and naming its different parts.</p>
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3. Content scrutiny and slide development

The main concern of the learning process and Programme was the content and its scrutiny, which plays an important role in Programme development. This Programme was prepared for the students of the VIII class of CBSE on the unit/ topic 'Mensuration'. In between or at the end as per the need multiple choice type questions were placed. Initially slides were prepared with the help of this content. The important words were highlighted and essential effects were given. The slides were prepared in English medium with the help of PowerPoint.

4. Development of animation and graphics

Animation means exactly to breathe life into something. A transformation is involved to move things. It plays important role in stimulating learning. Animation is that stimuli to the mental, physical and emotional life of people in a given area which they find higher degree of self-realization. At the same time information presented in the form of diagrams.

5. Preparation of the CAI Programme

With the help of above steps CAI Programme was prepared. It was prepared by seeing the importance of the subject, level of the students, need of the graphics and animation, depth of the content, relevancy of the animation with the content presented in the particular slide. With animation importance of the picture was considered and positioned at appropriate place. Each and every slide of every topic has possible number of animation so that take it to the depth of the knowledge.

6. Pilot testing and experts' opinion

Pilot testing was done on the students of VIII class. The students were aware with the use of computer, hence slight instruction worked effectively. The students and teachers observed the CAI Programme. The suggestions were obtained from the students as well as teachers. Necessary modifications were incorporated. The Programme was also shown to the subject experts in the field of educational technology as well as Mathematics. The suggestions from these subject experts were accordingly incorporated.

7. Final development of CAI Programme

Following the above stages, CAI Programme was prepared by the investigator. The investigator has developed Computer Assisted Instruction programme with the help of Power Point. Power Point is a program that allows creating dynamic presentation shown in classroom. Power Point is great way to present an appealing visual impression of the content.

Conclusion

Computers and related technologies are being used now in most of the schools. Innovations in technology are certainly reflected in present educational systems. Most of the educators and researchers are trying to use technologies in various subject matters, and this CAI programme help in changing the nature, concepts and methods, the process of teaching and learning, the roles and functions of the most of the concepts in the subject of mathematics.

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