

Lesson No	Integer	Sides Error Message	Unique Number assigned to a lesson frame.
Line No	Integer	Sides Error Message	Line no of text in the second error message (usually on sides).
Error message Text	String	Sides Error Message	Line of text for given line no.
Lesson No	Integer	Lesson Sequence	Unique Number assigned to a lesson frame.
Previous Lesson	Integer	Lesson Sequence	Number of previous lesson.
Next Lesson	Integer	Lesson Sequence	Number of following lesson.
Group No	Integer	Lesson Group Data	Number of the lesson group this lesson belongs to.
Group No	Integer	Lesson Group Data	Unique Number assigned to a group of lessons.
Previous Group	Integer	Lesson Group Data	Number of previous group of lessons.
Next Group	Integer	Lesson Group Data	Number of following group of lessons.
Lesson No	Integer	Lesson Group Data	Number of the first lesson in this group of lessons.
Description	String	Lesson Group Data	Description of the current group of lessons.

Database Name: **Student Group**

<u>Attribute Name</u>	<u>Type</u>	<u>Table Name</u>	<u>Description</u>
Group No	Integer	Student Group	Unique Number assigned to a group of students.
Previous Group	Integer	Student Group	Number of previous group of students.
Next Group	Integer	Student Group	Number of following group of students.
Description	String	Student Group	Description of the current group of students.
Student Names	List	Student Group	List of all students belonging to this Group.
Student Name	String	Student Details	Student name recorded in the system.
Teaching Method	Integer	Student Details	Number indicating whether student views description or example first.
Next Lesson	Integer	Student Details	Number of the lesson the student will view next (current lesson).
No of attempts	Integer	Student Details	Number of attempts student has already had at the current lesson.
Group Numbers	List	Student Details	List of all the groups of lessons the student has access to.
Student Name	String	Student's LOGO Programs	Student name recorded in the system.
Procedure Names	List	Student's LOGO Programs	List of all the LOGO procedures the student has access to.

Database Name: **Student History**

<u>Attribute Name</u>	<u>Type</u>	<u>Table Name</u>	<u>Description</u>
Lesson No	Integer	Student's Solution	Unique Number assigned to a lesson frame.
Attempt No	Integer	Student's Solution	The number of the attempt at this lesson.
Solutions	List	Student's Solution	Student's solution with errors flagged.
Lesson No	Integer	Student's Exact Steps	Unique Number assigned to a lesson frame.
Attempt No	Integer	Student's Exact Steps	The number of the attempt at this lesson.
Solutions	List	Student's Exact Steps	Student's every step (whether relevant to the solution or not).
Lesson No	Integer	Time Taken	Unique Number assigned to a lesson frame.
Attempt No	Integer	Time Taken	The number of the attempt at this lesson.
Time Started	Integer	Time Taken	The actual time lesson was started.
Time Finished	Integer	Time Taken	The actual time lesson was finished.
Time taken	Integer	Time Taken	Time the actual lesson took the student to complete.

Database Name: **Student Solution**

<u>Attribute Name</u>	<u>Type</u>	<u>Table Name</u>	<u>Description</u>
Procedure Name	String	Student's LOGO Procedures	Name of the procedure.
Procedure Code	List	Student's LOGO Procedures	List of all the lines of code in the procedure.
Procedure Variables	List	Student's LOGO Procedures	List of all the variable names in the procedure (may be an empty list).

Appendix E

System Walk Through

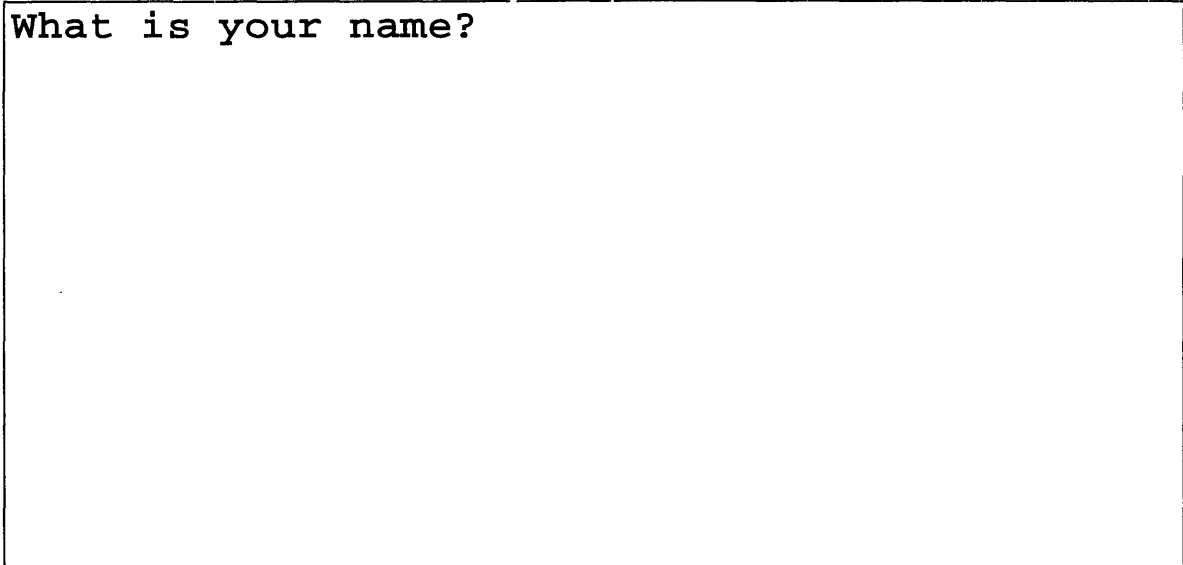
The following figures represent what the student sees when completing the second Geometry lesson and task.

Figure D1 illustrates the first screen the student sees when entering the CAI system. The student is asked to select the way in which he/she wishes to use the CAI system. The system can be used for lessons and exercises; can be used for practice exercises alone; and can be used for self exploration (discovery learning).

<p>Do you want to :</p> <ol style="list-style-type: none">1. use lessons and exercises?2. use exercises only?3. explore on your own? <p>Type in 1 2 or 3</p>
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Figure D1: CAI System Entry Screen

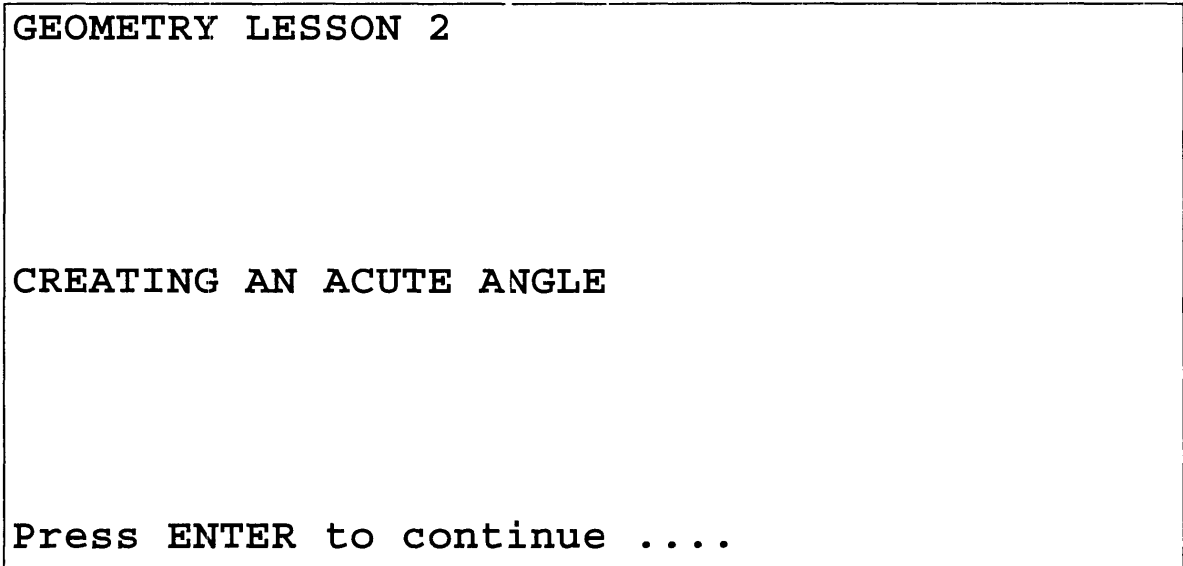
Figure D2 shows the identification screen which is the second screen that appears to the student on entering the CAI system and selecting to do a task. The CAI system requires the student's name to allocate the appropriate lesson and/or task to the student.



What is your name?

Figure D2: Identification Screen

Figure D3 shows the contents of the Lesson Title Screen. This screen informs the student of the number of the lesson and the topic of the lesson.



GEOMETRY LESSON 2

CREATING AN ACUTE ANGLE

Press ENTER to continue

D3: Lesson Title Screen

Figure D4 shows the Description Screen. This screen gives the student a description of the topic covered in the lesson.

An ACUTE ANGLE is an angle that is less than 90 degrees.

You saw in the example we looked at before, that to create an angle of 30 degrees you had to turn 150 degrees:

ANGLE SIZE = 180 DEGREES - ?

30 DEGREES = 180 DEGREES - 150 DEGREES

60 DEGREES = 180 DEGREES - 120 DEGREES

PRESS ANY KEY TO CONTINUE

D4: Description Screen

Figure D5 shows the Example Screen One. This screen gives the student an example for the topic being covered with the appropriate LOGO commands.

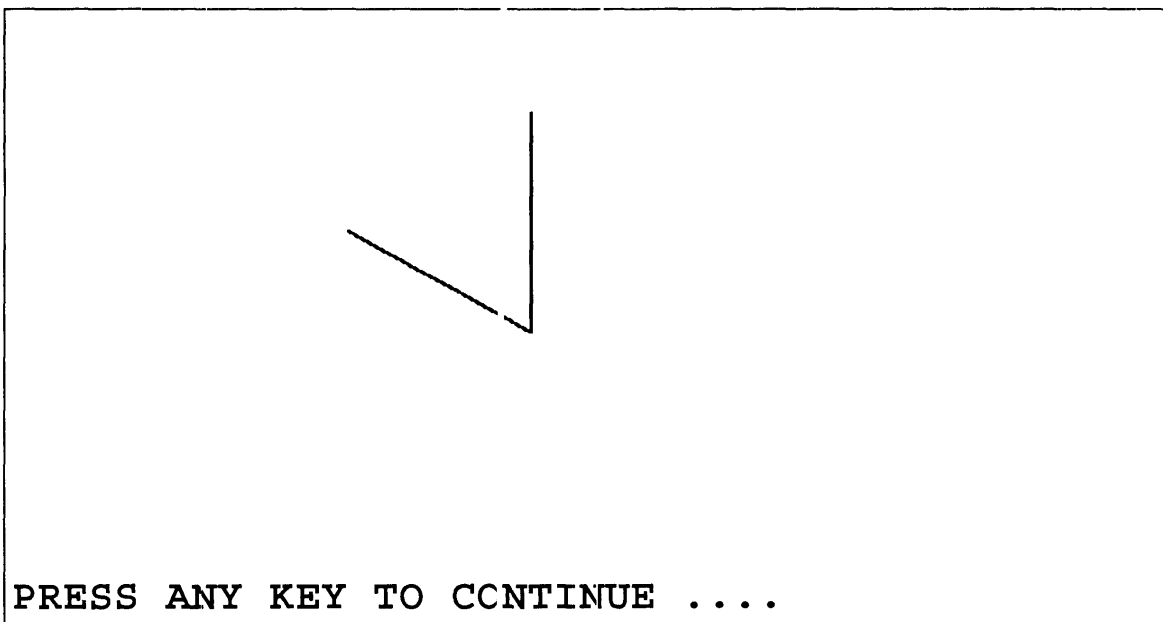
This example shows you how to create
an angle of 60 degrees:

```
forward 70  
right 120  
forward 70  
stop
```

PRESS ENTER TO SEE WHAT THE COMPUTER
WILL DRAW

D5: Example Screen One

Figure D6 shows Example Screen Two. This screen shows the student the result of the LOGO code in Example Screen One.



D6: Example Screen Two

Figure D7 illustrates a task that may be set after the lesson topic has been described to the student, and an example has been given to the student.

GEOMETRY EXERCISE 2:

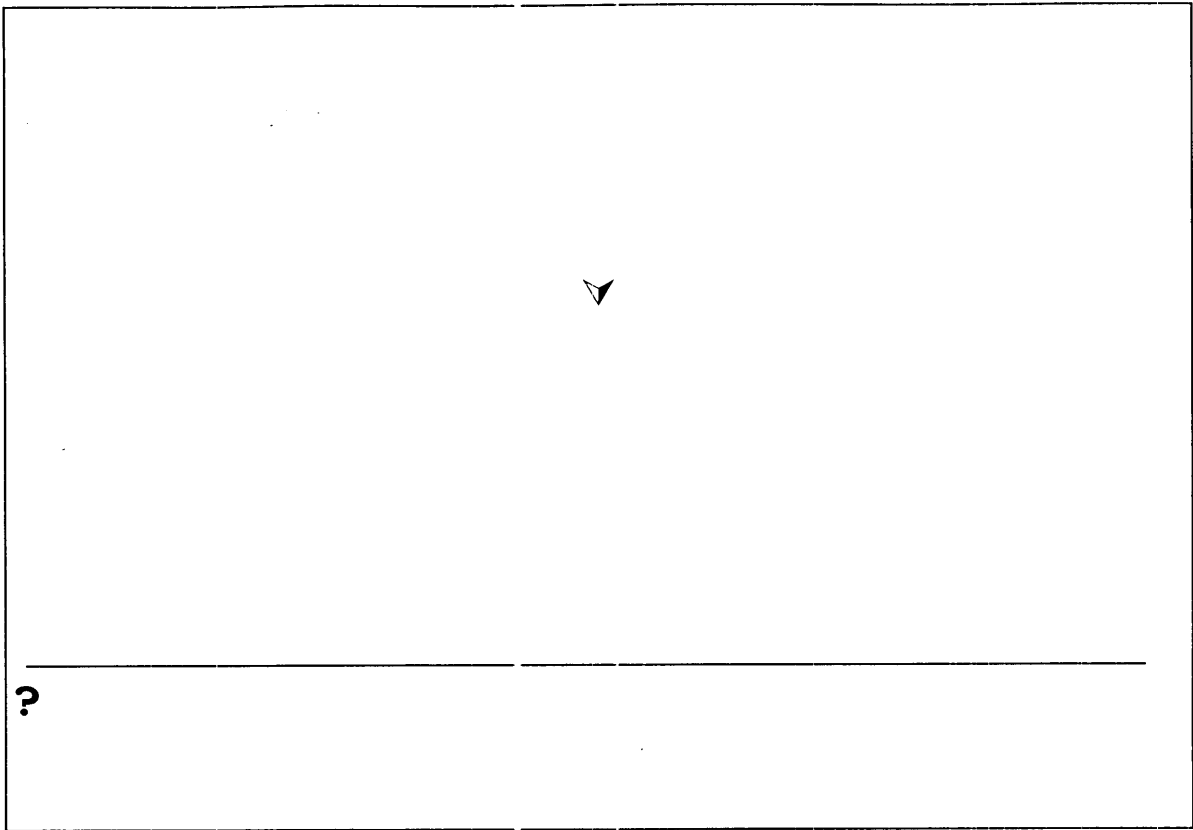
Using the command FORWARD 70 draw a line of length 70. Create an ACUTE ANGLE of 60 degrees. Finally draw another line of length 70 using the command FORWARD 70.

Check that the angle looks ok.
If not type in CLR and start again.

PRESS ANY KEY TO CONTINUE

D7: Task Screen

Figure D8 shows the student's Working Screen. The Working Screen is in two sections divided by a line near the foot of the screen. In the upper section there is a arrow showing the student the starting point. The upper section will show the results of the LOGO commands typed in by the student. In the bottom section there can be up to three lines of the student's LOGO commands displayed. Each new line is preceded by a "?" prompt.



D8: Working Screen