



Teacher Notes for: **Angles**

Compatibility: **TI-83/83+/83+SE/84+/84+SE**

Run the program: **ANGLES**

► These teacher notes contain a **Summary** of the Program, **Features** of the Program and **Suggestions** for its use in lessons.

► Summary

This program helps students understand the concept of an angle through testing their knowledge of sizes of angles, the definitions of certain sized angles and the ability to locate angles relating to parallel lines.

► Features

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  ANGLES TUTOR
  V3.1 BY N HOPLEY 2000
  USE UP + DOWN + ENTER
  ▣ DIAGRAM -> ANGLE
  ANGLE -> DIAGRAM
  TYPES OF ANGLES
  COMP+SUPP ANGLES
  PARALLEL LINES

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Each of the five modes of the program presents the user with 10 questions and displays a final % score at the end.

10 points are given for a correct answer on the first attempt and/or with very good accuracy. If the user requires more attempts, or is less accurate in their answers, the number of points available decreases.

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  2
  [Diagram of an angle]
  ENTERED: 270°
  TOO FAR OFF...
  ...GO LARGER
  :

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DIAGRAM->ANGLE requires the user to estimate the size of angles from a given diagram that is drawn in front of them. If the entered answer is not accurate enough, the program prompts the user to go either larger or smaller.

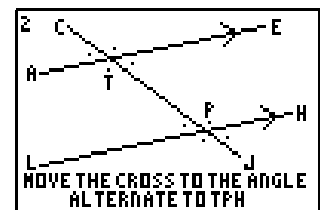
ANGLE->DIAGRAM requires the user to draw an angle of a prescribed size. The angle is drawn either clock-wise or anti-clockwise and the user must press **ENTER** to start and stop the drawing.

TYPES OF ANGLES requires the user to draw acute, obtuse and reflex angles in random succession, in a similar way to above. No marks are available here for accuracy of angle - it's either right or wrong.

COMP+SUPP ANGLES requires the user to calculate either complementary or supplementary angles from the ones drawn for them. Again, the answer is either right or wrong.

PARALLEL LINES presents the user with a diagram similar to that shown on the right. The labels on the diagram change with every re-drawing and all angles are referred to using standard 3 letter notation.

The user must move the cross-hairs (using the blue **ARROW KEYS**) to on, or near, the dot in the angle that they think is the correct response to the task printed along the bottom of the screen. After the user has had 3 incorrect attempts, the program indicates which angle should have been entered.



This option requires them to not only identify angles from their 3 letter reference, but also supplementary angles, alternate angles, corresponding angle and vertically opposite angles.

► Suggestions

It can often be beneficial for the teacher to spend the last 5/10 minutes of the previous lesson demonstrating via a viewpanel to the class, the program that they will subsequently be using themselves. This aids their familiarity with the task they will face and the menu options they will have to choose from, without the distraction of having a calculator in front of them at the time.

In the lesson when all students have a graphic calculator, the teacher should do one example of using the program (to remind them), and then let the students start themselves on the first option of **DIAGRAM->ANGLE**

Whilst they are working on using the program, the teacher can subsequently verbally issue a challenge for students to aim to score over 70% (this is a fair target, given the estimation nature of the task)

If a student does score highly enough, the teacher should direct them to try the next option of **ANGLE->DIAGRAM**. Many students find it self evident what to do in terms of key presses. Alternatively, build into the previous lesson a brief demonstration of this option, to minimise disruption to the flow of the lesson.

Students can continue by completing the option they are on to an acceptable standard, and then trying the next option on the list. If they do not achieve the required standard, they ought to re-attempt that option.

The final option of **PARALLEL LINES** which focuses on the relations *between* angles is best done in a separate lesson to the previous four options, each of which directly focus on *sizes* of angles. Again, a brief demonstration in the previous lesson can help smooth its use with the class.

Whilst the students can “self-teach” themselves the content knowledge required for the first four options, it is prudent to use the **PARALLEL LINES** option to revise and consolidate their knowledge of corresponding, alternate and vertically opposite angles, as well as three letter notation.