Objectives
At the end of the lines and angles lesson, students will be able to:
• Calculate probability for real life situations.

Background Information
Probability is the study of chance, or the likelihood that an event will occur. Probability can’t tell us what will happen, only what is likely to happen. Here we examine how we find probability mathematically.

Vocabulary for Statistics and Probability is found in the GED Connection Mathematics book, Program 37, p. 230.

This lesson should take approximately 1 hour and 15 minutes to complete, if all components are utilized.

Video
Before starting the video segment Probability as a Number, ask your students questions about their prior knowledge, like, “When you hear ‘It will probably rain today,’ what do you think this means? How should you respond--get an umbrella? How does math help us to answer this question?” Show the video segment Probability as a Number.

After watching the video, focus on these points:
• By comparing the number of desirable or favorable outcomes to the number of possible outcomes, you can find the chance, or probability, that an event will occur.
• Probability can be expressed as a fraction, a ratio, or a decimal, but it is most often expressed as percent ranging from 0% to 100%.
• The number 1 represents a certain probability. The chance that an event will not happen is equal to 1 minus the probability that an event will occur.

Introduce the next video segment, Independent Events, by saying it is important to be able to distinguish independent and dependent events. Ask students to think about other events that might be examples of independent events. If you follow up this suggestion with a discussion, encourage students to practice the vocabulary by using it in the classroom. Show the video Independent Events.
After watching the video, focus on these points:
• Events are independent when the result of the first event does not affect the second event (for example, flipping a coin).
• We can calculate the probability of independent events by multiplying the ratios together.
• Recognizing independent and dependent events is key to solving probability problems.

The final video segment is called *Dependent Events*. Ask your students to predict what dependent events are and how probability is calculated. Write down their ideas if possible, and compare them to students’ definitions and restatements of how probability is calculated for dependent events.
Show the video segment *Dependent Events*.

After watching the video, focus on these points:
• Events are dependent when the first event does affect the second (for example, drawing a second card from a deck without replacing the first card).
• We can calculate the probability of dependent events by recalculating the ratio of desirable or favorable outcomes and the number of possible outcomes after each event, then multiplying the ratios.

**Worksheets/Practice**

This worksheet packet provides practice and reinforces concepts presented in the video segments.

- Skill Practice, p. 239, problems 1-6
- Skill Practice, p. 241
- GED Practice, p.244, problems 16-20

**Online Activities**

[Interactive: Coin Toss](#). This activity allows the user to explore experimental probabilities through simulation of a coin toss. It includes explanations, history, and links to related online activities.
For more resources and an overview of the 2002 GED® test, click [www.gedmathstrategies.com](http://www.gedmathstrategies.com).
Test Tips:

- Knowing the common fraction-decimal-percent equivalencies will help you solve probability problems in life and on the GED® Mathematics test. They are listed in the GED Connection Mathematics workbook, p. 336.
- On the GED® Mathematics test, you will often be given more information than you need to solve a problem. Use your number sense to sift through the information in the problem to write the ratio from the number of desirable outcomes and the number of possible outcomes.