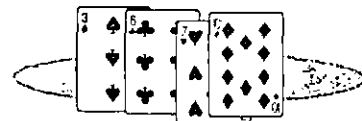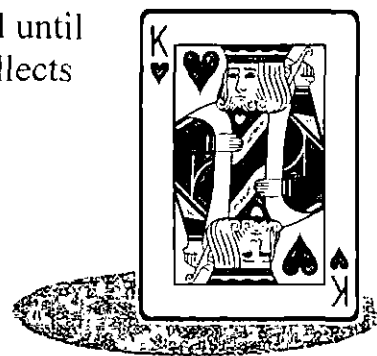*Objective:* Describe the likelihood of an outcome, using such terms as likely, unlikely, expect, probably.

Representation:
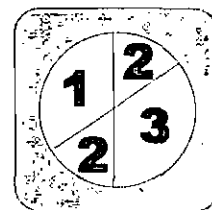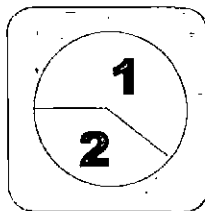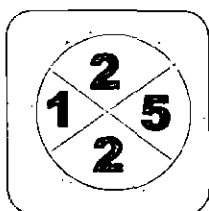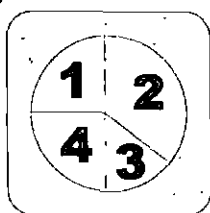
Materials: deck of cards.

• Work with a partner to play this game.
• Decide who will collect hearts and who will collect kings.
• Shuffle the cards and leave them face down in a pile.
• Take turns flipping over a single card. If you are collecting hearts and you flip over a heart then you get to keep the card. Otherwise you discard it.
• Take turns flipping over cards looking for your type of card until all cards have been claimed or discarded. The player who collects the most cards in his/her set is the winner.
• Answer the questions:
   • are you more likely to draw a heart or a king.
   • is it likely or unlikely that you will draw a king?
   • should you expect to draw a heart every turn?

PROBLEM SOLVING

With which spinner will you probably spin a 1? With which spinner are you likely to spin a 2?

STRATEGY: *Guess & Check*

ANSWER:
You are likely to spin a 1 with the third spinner. You are likely to spin a 2 with the second spinner.

adaptations:

DOWN
Have the students sort the cards into piles: hearts, kings, king of hearts, neither hearts nor kings. Which pile is biggest? smallest?

How does this help explain what you are likely to draw?

UP
Play the game again, this time drawing for 'red' cards and 'black' cards.

How do the results of this game compare to game described above? Which game could be described as fair? How do you know?

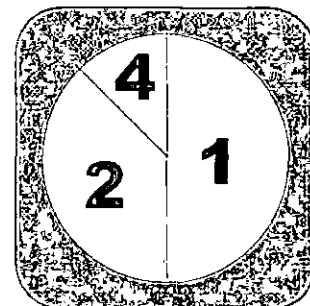**Writing Corner:**

What do the words "probably" and "likely" mean?

Objective: Make a prediction based on a simple probability experiment.
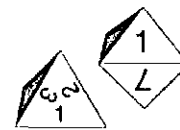
Representation:

Materials: blank spinner mat, overhead spinner.

• Create a spinner like the one shown.

• Play this game with a friend.

• On a turn: • predict where the spinner will land when twirled.
  • twirl the spinner.
  • if your prediction is correct, score that number of points.

• First player to collect 8 or more points is the winner.

• Adaptation: change the game so that if you predict incorrectly, your opponent scores the number of points indicated by the spinner.

PROBLEM SOLVING

Are you more likely to roll a 2 with a 6-sided die or with a 4-sided die?
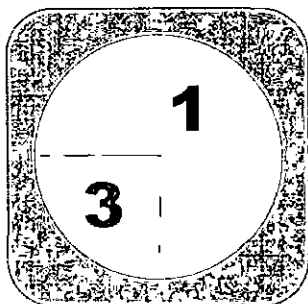
STRATEGY: *Act It Out*

ANSWER:

You are more likely to roll a 2 with a 4-sided die.

adaptations:

DOWN

Change the spinner to be like the one shown below and repeat the game.

UP

Using the spinner in the game above, predict how many 1s you will spin in 20 spins. Check and see!

Create a spinner that will give you about five 4s if you twirl it 20 times. Check your prediction!

Writing Corner:

On the spinner used in the game above, describe which number will be spun 'most often' and 'least often.' How do you know?