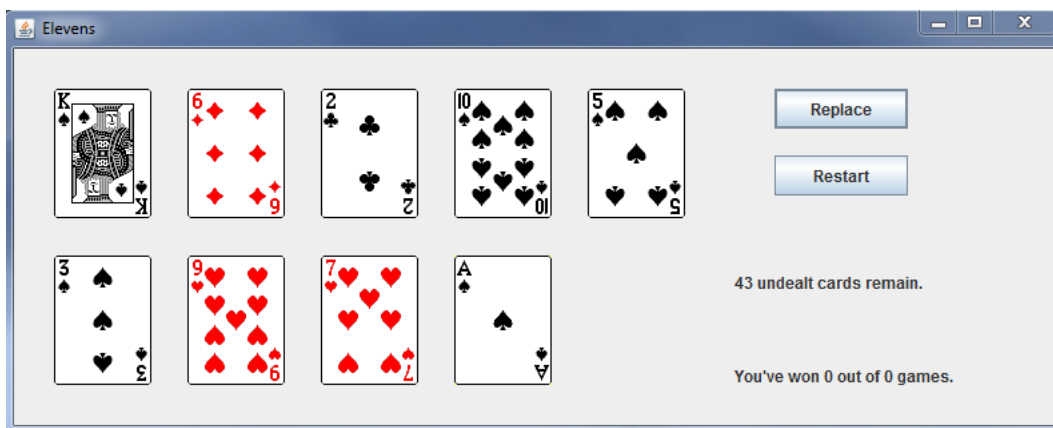


## AP ACTIVITY 4.2.6

# Playing Elevens (AP)

### INTRODUCTION

Elevens is a form of solitaire, which is a card game designed to be played by yourself. Your teacher may demonstrate the play of Elevens, or you may play a few times to try to determine the rules of the game.



### Materials

- Computer with BlueJ

### RESOURCES



**Elevens jar file (zip format)**  
Resources available online

## Procedure

The solitaire game of Elevens uses a deck of 52 cards, with ranks A (ace), 2, 3, 4, 5, 6, 7, 8, 9, 10, J (jack), Q (queen), and K (king), and suits ♣ (clubs), ♦ (diamonds), ♥ (hearts), and ♠ (spades).

Here are the basic steps to play:

1. The deck is shuffled, and nine cards are dealt face up from the deck to the board.

2. Then the following sequence of steps is repeated:
  - a. The player removes each pair of cards (A, 2, ... , 10) that total 11 (e.g., an 8 and a 3, or a 10 and an A. An ace is worth 1, and suits are ignored when determining cards to remove.).
  - b. Any triplet consisting of a J, a Q, and a K is also removed by the player. Suits are also ignored when determining which cards to remove.
  - c. Cards are dealt from the deck if possible to replace the cards just removed.

The game is won when the deck is empty and no cards remain on the board.

Here's a sample game:

#### Cards on the table

K♠ 10♦ J♣ 2♣ 2♥ 9♦ 3♥ 5♠ 5♦  
 K♠ 10♦ J♣ \_\_\_ 2♥ \_\_\_ 3♥ 5♠ 5♦  
 K♠ 10♦ J♣ 7♦ 2♥ Q♠ 3♥ 5♠ 5♦  
 \_\_\_ 10♦ \_\_\_ 7♦ 2♥ \_\_\_ 3♥ 5♠ 5♦  
 A♠ 10♦ 9♣ 7♦ 2♥ 7♣ 3♥ 5♠ 5♦  
 A♠ 10♦ \_\_\_ 7♦ \_\_\_ 7♣ 3♥ 5♠ 5♦  
  
 A♠ 10♦ 10♠ 7♦ 3♣ 7♣ 3♥ 5♠ 5♦  
 \_\_\_ 10♦ \_\_\_ 7♦ 3♣ 7♣ 3♥ 5♠ 5♦  
  
 2♠ 10♦ 9♠ 7♦ 3♣ 7♣ 3♥ 5♠ 5♦  
 \_\_\_ 10♦ \_\_\_ 7♦ 3♣ 7♣ 3♥ 5♠ 5♦  
 A♣ 10♦ K♦ 7♦ 3♣ 7♣ 3♥ 5♠ 5♦  
 \_\_\_ \_\_\_ K♦ 7♦ 3♣ 7♣ 3♥ 5♠ 5♦  
 6♦ K♣ K♦ 7♦ 3♣ 7♣ 3♥ 5♠ 5♦  
 \_\_\_ K♣ K♦ 7♦ 3♣ 7♣ 3♥ 5♠ \_\_\_  
 2♦ K♣ K♦ 7♦ 3♣ 7♣ 3♥ 5♠ Q♦

#### Explanation

initial deal  
 removed 2♣ (either 2 would work) and 9♦  
 new cards dealt  
 removed J♣ Q♠ K♠  
 new cards dealt  
 removed 9♣ and 2♥ (removing A♠ and 10♦ would have been legal here too)  
 new cards dealt  
 removed A♠ and 10♠ (10♦ could have been removed instead)  
 new cards dealt  
 removed 2♠ and 9♠  
 new cards dealt  
 removed A♣ and 10♦  
 new cards dealt  
 removed 6♦ and one of the 5s  
 new cards dealt; no further plays are possible;  
 game is lost.

A Java version of Elevens allows you to play the game by clicking card images and buttons rather than by handling actual cards. The cards on the "board" are displayed in a window.

- Clicking on an un-selected card selects it.
- Clicking on a selected card deselects it.
- Clicking on the Replace button checks that the selection is legal; if so, it removes the cards from the board and deals new cards to fill the empty slots.
- Clicking on the Restart button restarts the game.

The resource file for this activity contains an `Elevens.jar` file that, when executed, runs a UI for the Elevens game. You may be able to run it by double-clicking on the file. Otherwise, you can run it with the command line instruction:

```
java -jar Elevens.jar
```

- 1 Play a few games of Elevens. How many did you win?

## CONCLUSION

1. List all possible plays for the board  
5♠ 4♥ 2♦ 6♣ A♠ J♥ K♦ 5♣ 2♠
2. If the deck is empty and the board has three cards left, must they be J, Q, and K? Why or why not?
3. Does the game involve any strategy? In other words, when more than one play is possible, does it matter which one is chosen? Briefly explain your answer.