## Scroggle

| L | I | S |
| :---: | :---: | :---: |
| B | Z | D |
| Z | A | R |


| $S$ | $R$ | $E$ |
| :---: | :---: | :---: |
| $P$ | $U$ | $T$ |
| $M$ | $O$ | $C$ |


| $U$ | $Q$ | $G$ |
| :---: | :---: | :---: |
| $E$ | $S$ | $N$ |
| $E$ | $Z$ | $I$ |


| E | O | S |
| :---: | :---: | :---: |
| T | P | T |
| A | L | U |


| $E$ | $A$ | $K$ |
| :---: | :---: | :---: |
| $R$ | $T$ | I |
| $S$ | $G$ | $N$ |


| $S$ | $A$ | $T$ |
| :---: | :---: | :---: |
| $P$ | $T$ | $O$ |
| $E$ | $C$ | $R$ |


| $Z$ | S | I |
| :---: | :---: | :---: |
| O | T | G |
| O | L | O |


| $U$ | $Q$ | $C$ |
| :---: | :---: | :---: |
| $I$ | $T$ | $A$ |
| $T$ | $E$ | $D$ |


| $Y$ | $H$ | $E$ |
| :---: | :---: | :---: |
| $R$ | $C$ | $M$ |
| $T$ | $S$ | $I$ |

At the start of the game, a $9 \times 9$ grid with $9 \times 9$ letters in the grid is displayed. Each smaller grid has been populated with 9 -letter words using Boggle rules (up/down/diagonal letters are connected).

## Scroggle

| L | I | S |
| :---: | :---: | :---: |
| B | Z | D |
| Z | A | R |


| $S$ | $R$ | $E$ |
| :---: | :---: | :---: |
| $P$ | $U$ | $T$ |
| $M$ | $O$ | $C$ |


| $U$ | $Q$ | $G$ |
| :---: | :---: | :---: |
| $E$ | $S$ | $N$ |
| $E$ | $Z$ | $I$ |


| E | O | S |
| :---: | :---: | :---: |
| T | P | T |
| A | L | U |


| $E$ | $A$ | $K$ |
| :---: | :---: | :---: |
| $R$ | $T$ | $I$ |
| $S$ | $G$ | $N$ |


| $S$ | $A$ | $T$ |
| :---: | :---: | :---: |
| $P$ | $T$ | $O$ |
| $E$ | $C$ | $R$ |


| $Z$ | $S$ | I |
| :---: | :---: | :---: |
| O | T | G |
| O | L | O |


| $U$ | $Q$ | $C$ |
| :---: | :---: | :---: |
| $I$ | $T$ | $A$ |
| $T$ | $E$ | $D$ |


| $Y$ | $H$ | $E$ |
| :---: | :---: | :---: |
| $R$ | $C$ | $M$ |
| $T$ | $S$ | $I$ |

The player starts off with X minutes ( X defaults to 3 ). In phase 1 of the game, which lasts for half of the time ( 1.5 min ), players need to find the longest word they can in each Boggle board.

## Scroggle

| L | I | S |
| :---: | :---: | :---: |
| B | Z | D |
| Z | A | R |


| $S$ | $R$ | $E$ |
| :---: | :---: | :---: |
| $P$ | $U$ | $T$ |
| $M$ | $O$ | $C$ |


| $U$ | $Q$ | $G$ |
| :---: | :---: | :---: |
| $E$ | $S$ | $N$ |
| $E$ | $Z$ | $I$ |


| E | O | S |
| :---: | :---: | :---: |
| T | P | T |
| A | L | U |


| $E$ | $A$ | $K$ |
| :---: | :---: | :---: |
| $R$ | $T$ | I |
| S | G | N |


| S | $A$ | $T$ |
| :---: | :---: | :---: |
| $P$ | $T$ | $O$ |
| $E$ | $C$ | $R$ |


| $Z$ | S | I |
| :---: | :---: | :---: |
| O | T | G |
| O | L | O |


| $U$ | $Q$ | $C$ |
| :---: | :---: | :---: |
| $I$ | $T$ | $A$ |
| $T$ | $E$ | $D$ |


| $Y$ | $H$ | $E$ |
| :---: | :---: | :---: |
| $R$ | $C$ | $M$ |
| $T$ | $S$ | $I$ |

The 9-letter words should be randomly selected from your dictionary to seed the board each game. That ensures there is always the possibility of finding a 9 -letter word. Here the words for this grid: BLIZZARDS, COMPUTERS, SQUEEZING, POSTULATE, STREAKING, SPECTATOR, ZOOLOGIST, ACQUITTED,
CHEMISTRY. [Note, if you really want to get fancy, you can bias the word selection towards words that are more common somehow, which may make the game easier; it can be very difficult to figure out the 9letter words if they are not common]

## Scroggle

| $L$ | I | S |
| :---: | :---: | :---: |
| $B$ | $Z$ | $D$ |
| $Z$ | $A$ | $R$ |


| $S$ | $R$ | $E$ |
| :---: | :---: | :---: |
| $P$ | $U$ | $T$ |
| $M$ | $O$ | $C$ |


| $U$ | $Q$ | $G$ |
| :---: | :---: | :---: |
| $E$ | $S$ | $N$ |
| $E$ | $Z$ | $I$ |


| E | O | S |
| :---: | :---: | :---: |
| T | P | T |
| A | L | U |


| $E$ | $A$ | $K$ |
| :---: | :---: | :---: |
| $R$ | $T$ | I |
| $S$ | $G$ | $N$ |


| S | A | T |
| :---: | :---: | :---: |
| P | T | O |
| E | C | R |


| $Z$ | $S$ | I |
| :---: | :---: | :---: |
| O | T | G |
| O | L | O |


| $U$ | $Q$ | $C$ |
| :---: | :---: | :---: |
| $I$ | $T$ | $A$ |
| $T$ | $E$ | $D$ |


| $Y$ | $H$ | $E$ |
| :---: | :---: | :---: |
| $R$ | $C$ | $M$ |
| $T$ | $S$ | $I$ |

Each mini board needs to allow tiles to be selected and then words to be entered and checked against the dictionary. There are different strategies that you could use to allow word selection in each small grid. Here LID has been selected. (They could have done LIDS for a 4-letter word, as well as many others. Each grid has a 9-letter word, too, though. In this case, it would be BLIZZARDS).

## Scroggle

| L | I |  |  | S | R | E | U | Q |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | G |  |  |  |  |  |  |  |
|  |  | D | P | U | T | E | S | N |
|  |  |  | M | O | C | E | Z | I |


| E | O | S | E | A | K | S | A | T |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| T | P | T | R | T | I | P | T | O |
| A | L | U | S | G | N | E | C | R |


| $Z$ | $S$ | I |
| :---: | :---: | :---: |
| O | T | G |
| O | L | O |


| $U$ | $Q$ | $C$ |
| :---: | :---: | :---: |
| $I$ | $T$ | $A$ |
| $T$ | $E$ | $D$ |


| $Y$ | $H$ | $E$ |
| :---: | :---: | :---: |
| $R$ | $C$ | $M$ |
| $T$ | $S$ | $I$ |

Once the word is selected, the remaining letters in that grid disappear.

## Scroggle

| $L$ | $I$ |  | S | R | E | U | Q | G |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | D | P | U | T | E | S | N |
|  |  |  | M | O | C | E | Z | I |


| $E$ | $O$ | $S$ |
| :---: | :---: | :---: |
| $T$ | $P$ | $T$ |
| $A$ | $L$ | $U$ |


| $E$ | $A$ | $K$ |
| :---: | :---: | :---: |
| $R$ | $T$ | I |
| $S$ | $G$ | $N$ |


| $S$ | $A$ | $T$ |
| :---: | :---: | :---: |
| $P$ | $T$ | $O$ |
| $E$ | $C$ | $R$ |


| $Z$ | $S$ | I |
| :---: | :---: | :---: |
| O | T | G |
| O | L | O |


| $U$ | $Q$ | $C$ |
| :---: | :---: | :---: |
| $I$ | $T$ | $A$ |
| $T$ | $E$ | $D$ |


| $Y$ | $H$ | $E$ |
| :---: | :---: | :---: |
| $R$ | $C$ | $M$ |
| $T$ | $S$ | $I$ |

The player can continue with another small Boggle grid, in any order s/he chooses. Here they have selected TORT (Again, TORTS would have been better, and SPECTATOR would have been best)

## Scroggle

| L | I |  |  | S | R | E | U | Q |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | G |  |  |  |  |  |  |  |
|  |  | D | P | U | T | E | S | N |
|  |  |  | M | O | C | E | Z | I |


| E | O | S |
| :---: | :---: | :---: |
| T | P | T |
| A | L | U |


| $E$ | $A$ | $K$ |
| :---: | :---: | :---: |
| $R$ | $T$ | I |
| $S$ | $G$ | $N$ |


|  |  | $T$ |
| :--- | :--- | :--- |
|  | $T$ | $O$ |
|  |  | $R$ |


| Z | S | I |
| :---: | :---: | :---: |
| O | T | G |
| O | L | O |


| $U$ | $Q$ | $C$ |
| :---: | :---: | :---: |
| $I$ | $T$ | $A$ |
| $T$ | $E$ | $D$ |


| $Y$ | $H$ | $E$ |
| :---: | :---: | :---: |
| $R$ | $C$ | $M$ |
| $T$ | $S$ | $I$ |

And so on...
Points will be assigned based on how long each word is.

## Scroggle

| L | I |  | S | R | E | U | Q | G |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | D | P | U | T | E | S | N |
|  |  |  | M | O | C | E | Z | I |


| E | O | S |
| :---: | :---: | :---: |
| T | P | T |
| A | L | U |


| $E$ | $A$ | $K$ |
| :---: | :---: | :---: |
| $R$ | $T$ | I |
| $S$ | $G$ | $N$ |


|  |  | $T$ |
| :--- | :--- | :--- |
|  | $T$ | $O$ |
|  |  | $R$ |


| $Z$ | S | I |
| :---: | :---: | :---: |
| O | T | G |
| O | L | O |


| $U$ | $Q$ | $C$ |
| :---: | :---: | :---: |
| $I$ | $T$ | $A$ |
| $T$ | $E$ | $D$ |


| $Y$ | $H$ | $E$ |
| :---: | :---: | :---: |
| $R$ | $C$ | $M$ |
| $T$ | $S$ | $I$ |

And so on...

## Scroggle



| $S$ | $R$ | $E$ |
| :---: | :---: | :---: |
| $P$ | $U$ | $T$ |
| $M$ | $O$ | $C$ |


| $U$ | $Q$ | $G$ |
| :---: | :---: | :---: |
| $E$ | $S$ | $N$ |
| $E$ | $Z$ | $I$ |


| $E$ | $O$ | $S$ |
| :---: | :---: | :---: |
| T | P | T |
| A | L | U |


| $E$ | $A$ | $K$ |
| :---: | :---: | :---: |
| $R$ | $T$ | I |
| S | $G$ | $N$ |


|  |  | $T$ |
| :--- | :--- | :--- |
|  | $T$ | $O$ |
|  |  | $R$ |


| Z | S | I |
| :---: | :---: | :---: |
| O | T | G |
| O | L | O |


| $U$ | $Q$ | $C$ |
| :---: | :---: | :---: |
| $I$ | $T$ | $A$ |
| $T$ | $E$ | $D$ |


| $Y$ | $H$ | $E$ |
| :---: | :---: | :---: |
| $R$ | $C$ | $M$ |
| $T$ | $S$ | $I$ |

You will need to develop a scoring mechanism for the game. You might give points for length of words created in this round, or only give points in the following round (which will be easier if longer words have been selected in this round). You could give points that are based only on word length, or also use word length plus letter frequency (as in Scrabble). You could give a bonus for getting the 9 -letter word. Use your creativity!

Whatever you decide, however, it is important that your players UNDERSTAND what the rules are.
Try not to do this just with text instructions ... think back to class discussions and readings on "teaching" vs. telling.

## Scroggle



| $S$ | $R$ | $E$ |
| :---: | :---: | :---: |
| $P$ | $U$ | $T$ |
| $M$ | $O$ | $C$ |


| $U$ | $Q$ | $G$ |
| :---: | :---: | :---: |
| $E$ | $S$ | $N$ |
| $E$ | $Z$ | $I$ |



|  |  | $T$ |
| :---: | :---: | :---: |
|  | $T$ | $O$ |
|  |  | $R$ |



| $Y$ | $H$ | $E$ |
| :---: | :---: | :---: |
| $R$ | $C$ | $M$ |
| $T$ | $S$ | $I$ |

In this case, the player has found LID, COMPUTERS, (nothing yet), TOPS, KIN, TROT, LOGS, TIE, and CHEMISTRY. As the player finds words, you should have a timer counting down, and warn the user as time gets close to running out for this phase of the game. If this was a 3 -min game, at 1.5 min the time runs out on this user and $\mathrm{s} / \mathrm{he}$ has not selected a word from the last grid...

## Scroggle

| $L$ | $I$ |  |
| :--- | :--- | :--- |
|  |  | $D$ |
|  |  |  |


| $S$ | $R$ | $E$ |
| :---: | :---: | :---: |
| $P$ | $U$ | $T$ |
| $M$ | $O$ | $C$ |


|  |  |  |
| :--- | :--- | :--- |
|  |  |  |
|  |  |  |



|  |  | $T$ |
| :---: | :---: | :---: |
|  | $T$ | $O$ |
|  |  | $R$ |


|  | S |  |
| :---: | :---: | :---: |
|  |  | G |
|  | L | O |


|  |  |  |
| :---: | :---: | :---: |
| I |  |  |
| $T$ | $E$ |  |


| $Y$ | $H$ | $E$ |
| :---: | :---: | :---: |
| $R$ | $C$ | $M$ |
| $T$ | $S$ | $I$ |

The grid clears all letters that have not been selected, and the game enters the next phase. For the second half of the game, he player needs to find words using only letters that remain in the big grid. There are several options you could use here, and you can come up with your own creative idea as well. What is critical is that your design for the second phase of the game must reward the player for finding larger words in the first phase, somehow giving the player more options in this round.

Also, you are going to turn this game into a two-player game in an upcoming assignment. So you want to think about that now, because the design you pick here might influence your two-player options.

## Scroggle - Gameplay option 1



One way to design phase 2 of the game would be to have the players quickly select a single letter from each grid. Then they play Boggle for the remaining time using those letters. Important: In Phase 2, they can reuse letters (as in Boggle), but they cannot reuse letters in the same grid back to back. For example, SIS would be a valid word here, but DISS would not.

## Scroggle - Gameplay option 2



| $S$ | $R$ | $E$ |
| :---: | :---: | :---: |
| $P$ | $U$ | $T$ |
| $M$ | $O$ | $C$ |


|  |  |  |
| :--- | :--- | :--- |
|  |  |  |
|  |  |  |



|  |  | $T$ |
| :---: | :---: | :---: |
|  | $T$ | $O$ |
|  |  | $R$ |


|  | S |  |
| :--- | :--- | :--- |
|  |  | G |
|  | L | O |


|  |  |  |
| :---: | :---: | :---: |
| $I$ |  |  |
| $T$ | $E$ |  |


| $Y$ | $H$ | $E$ |
| :---: | :---: | :---: |
| $R$ | $C$ | $M$ |
| $T$ | $S$ | $I$ |

An alternative way is to leave all the letters, and to let someone pick one letter from each quadrant. As in gameplay option 1, they can revisit grids, but not back to back. So DUD would be a valid word (using quadrants 1-1, 1-2, 1-1) but DUE (using quadrants 1-1 $1-2,1-2$ ) would not. This strategy will allow much more interesting words to be created.

## Scroggle - Gameplay option 3

| L | 1 | T | S | R | E | T |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| T | E | D | P | U | T | T |
| H | 0 | T | M | 0 | C | 1 |
| C | 0 | S | R | G | K |  |
| T | P | L | I | 0 | 1 |  |
| S | M | T | Y | S | N |  |

You could take all the letters selected, and create a new Boggle board (as close to square as possible), either placing the letters in some interesting way, or randomly placing them. Then the game is standard Boggle.

## Scroggle - Gameplay option 4

## Scroggle

For the entire game, you will need to design strategies to make the gameplay in all phases of the game work (e.g., highlight letters as they are selected, show words completed, show the timer, show the score, indicate the phase, etc.) You will also need to think about how you will teach your player about the scoring and how the game works.

You are encouraged to think creatively about how to make the game better, within these basic guidelines.

Your goal is to make this a new, unique word game.

