KEYWORDS AND OPERATORS

**Pink:** represents a physical tile colored pink (any of the pink tiles)

**Yellow:** represents a physical tile colored yellow (any of the yellow tiles)

**L1**: represents one of the physical markers in the kit (a specific colored game piece)

**L2:** represents one of the physical markers in the kit (the other game piece)

**UP:** the direction to move the marker (increasing the row)

**DOWN:** the direction to move the marker (decreasing the row)

**LEFT:** the direction to move the marker (increasing the column)

**RIGHT:** the direction to move the marker (decreasing the column)

**if**: part of a conditional statement that tests a boolean condition (one time check of condition)

**while:** part of a conditional statement that tests a boolean condition (possible multiple checks)

**else**: part of an if-statement that marks the block of code for when the condition is false

**true**: boolean value

**false:** boolean value

**and:** joins 2 boolean conditions to check that both are true

**or**: joins 2 boolean conditions to check that either are true

**not**: operator applied to a boolean condition that changes false to true, and true to false

**in**: part of a conditional statement used to check membership in a list

( ): used to signify a function is being called (i.e. an action is being performed)

( ): also used to show precedence among operators

[ ]: used to construct a list of values

**Arithmetic operators**: *+ - \* / %*

**Relational operators**: *< > <= >= == in*

FUNCTIONS / OPERATIONS

**tile.place(x,y)** - example: Pink.place(1,5)

**marker.place(x,y)** - example: L1.place(2,12)

**tile.place(marker)** - example: Pink.place(L1)

**marker.shift(direction,units)** - example: L1.shift(UP,1)

**roll()** - physically roll the die to get a random number

**random()** - physically grab a tile (without looking) to get a random tile color

**print(value)** - displays the value (for our purposes, written on a piece of paper). example: print(x)

if (condition)

code statement 1

code statement 2

else

code statement 1

while (condition)

code statement 1

code statement 2

code statement 3

if (condition 1) and (condition 2)

code statement 1

CSC165 Programming Unplugged Set-Up (Initial Presentation of the language)

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| OBJECTS | * Visualization Grid * 20 Tiles (10 pink, 10 yellow) * 2 Markers (L1 and L2) * 1 Die * 5 Variable Index Cards (x,y,v1,v2,i) |
| KEYWORDS AND OPERATORS | * Represent physical tiles: *Pink, Yellow* * Represent physical markers: *L1, L2* * Shift directions: *UP, DOWN, RIGHT, LEFT* * Arithmetic operators: *+ - \* / =* * Relational operators: *< > ==* * Conditional programming constructs: *if, else, while* |
| FUNCTIONS / OPERATIONS | * tile.place(x,y) - example: Pink.place(1,5) * marker.place(x,y) - example: L1.place(2,12) * tile.place(marker) - example: Pink.place(L1) * marker.shift(direction,units) - example: L1.shift(UP,1) * roll() - physically roll the die to get a random number * random() - physically grab a tile (without looking) to get a random tile color |

EXAMPLE CODE

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| --- | --- |
| 1. Pink.place(4,3) 2. Pink.place(6,2) 3. Pink.place(8,3) 4. Yellow.place(3,8) 5. Yellow.place(9,8) 6. Yellow.place(6,6) | 1. L1.place(5,3) 2. Yellow.place(L1) 3. L2.place(L1) 4. L2.shift(RIGHT,2) 5. Pink.place(L2) 6. L1.shift(UP,2) 7. Yellow.place(L1) 8. L2.shift(RIGHT,2) 9. Pink.place(L2) |
| 1. tile = random() 2. tile.place(3,5) 3. tile = random() 4. tile.place(3,7) 5. tile = random() 6. tile.place(3,9) | 1. x = roll() \* 2  2. if x == 12  3. d = x - 1  4. x = d  5. y = roll() \* 2  6. if y == 12  7. d = y -1  8. y = d  9. Yellow.place(x,y)  10. L1.place(x,y)  11. if x > 5  12. L1.shift(LEFT,2)  13. else  14. L1.shift(RIGHT,2)  15. Pink.place(L1) |
| 1. x = roll() 2. y = roll() 3. Yellow.place(x,y) 4. d = x+2 5. i = y-2 6. Pink.place(d,i) |

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| --- | --- |
| CODE EXAMPLE A   1. i = 0 2. while i < 5 3. print(i) 4. i = i + 1 5. i = 5 6. while i >= 0 7. print(i) 8. i = i -1 | CODE EXAMPLE D   1. i = true 2. while i == true 3. d = roll() 4. if d in [1,2,3] 5. print(d) 6. else 7. i = false |
| CODE EXAMPLE B   1. i = 0 2. d = roll() 3. while ( (d%2) == 0 ) 4. i = i + 1 5. d = roll() 6. print(i) | CODE EXAMPLE E   1. x = roll() 2. if x == 1 or x == 2 3. i = 2 4. else 5. if x == 3 or x == 4 6. i = 4 7. else 8. i = 6 9. while i > 0 10. x = roll() 11. print(x) 12. i = i -1 |
| CODE EXAMPLE C   1. i = 0 2. x = 0 3. y = 0 4. while i < 5 5. d = roll() 6. if (d%2) == 0 7. x = x + 1 8. else 9. y = y + 1 10. i = i + 1 11. print(x,y) |  |