# **Puzzle #1**

**while** [**led1**, **led2**, **led3**, **led4**] is NOT [BLUE, YELLOW, GREEN, PURPLE]**:**

**while BCenter** is not pressed**:**

**if** S1 is up:

**led8**.red = ON

**else**:

**led8**.red = OFF

**if** S2 is up:

**led8**.green = ON

**else**:

**led8**.green = OFF

**if** S3 is up:

**led8**.blue = ON

**else**:

**led8**.blue = OFF

**led4** = **led2**

**led2** = **led3**

**led3** = **led1**

**led0 = led8**

**while BCenter** is pressed**:**

do nothing

Play beep sound

Print “You win” on **LCD screen**

# **Puzzle #2**

A = 0;

B = 0;

Print A, “+”, B, “=”, A+B on **LCD screen**

**while** A + B != 10 or A < 2 or B < 2:

**if BUp is pressed and BRight is pressed:**

**A = A + 1**

clear **LCD screen**

**led1 = BLUE;**

**delay(1.0);**

**led1 = OFF;**

Print A, “+”, B, “=”, A+B on **LCD screen**

**if BCenter is pressed and BDown is pressed:**

**B = B + 1**

clear **LCD screen**

**led8 = GREEN;**

**delay(1.0);**

**led8 = OFF;**

Print A, “+”, B, “=”, A+B on **LCD screen**

delay(1.0);

Play beep sound

Print “You win” on **LCD screen**

# **Puzzle #3**

loop {

led1 = YELLOW

wait 5.0 seconds

led1 = OFF

if S4 is UP:

led1 = RED;

loop {

if S4 is DOWN:

exit loop

}

else:

wait 0.5 seconds

if S4 is UP:

exit loop

}

Play beep sound

Print “You win” on **LCD screen**

# **#4 (0100) – Learning Loops 1**

**while BDown** is not pressed**:**

led1 = RED

wait 3.0 seconds

led1 = OFF

wait 1.0 seconds

led1 = BLUE

wait 3.0 seconds

led1 = OFF

wait 1.0 seconds

led1 = GREEN

wait 3.0 seconds

led1 = OFF

wait 1.0 seconds

Play beep sound

Print “You win” on **LCD screen**

**Question:** Why doesn’t the program end as soon as you press **BDown**?

# **#5 (0101) – Learning Ifs 1**

**loop forever:**

**if** **BLeft** is pressed:

led5 = RED

led6 = ORANGE

led7 = YELLOW

**if** **BRight** is pressed:

**exit loop**

**else**

led5 = BLUE

led6 = AQUA

led7 = GREEN

Play beep sound

Print “You win” on **LCD screen**

**Question:** Why doesn’t the program end if you only press **BRight**?

# **#6 (0110) – Learning Loops 2**

**X** = 0

**led1** = GREEN

**while X < 10:**

**Wait** for **BCenter** to be pressed

Print “X is ” on **LCD screen**

Print **X** on **LCD screen**

**LED2 = LED3**

**LED3 = LED4**

**LED4 = LED8**

**LED8 = LED7**

**LED7 = LED6**

**LED6 = LED5**

**LED5 = LED1**

**LED1 =** OFF

**X** = **X** + 1

Play beep sound

Print “You win” on **LCD screen**

**Question:** What’s the value of X when the program ends?

**Challenge:** Explain why two LEDs turn on at the same time, but only once.

# **#7 (0111) – Learning Loops 3**

led1 = GREEN

led2 = GREEN

led3 = GREEN

led4 = GREEN

**BUp** = 1;

**BRight** = 2;

**BDown** = 3;

**BLeft** = 4;

**button** = (press a button)

**for** (**button**) number of times, turn on one LED

led4 = PURPLE

led3 = PURPLE

led2 = PURPLE

led1 = PURPLE

Play beep sound

Print “You win” on **LCD screen**