



# Lesson 1 | Warmup

---

This is a Pixel Bots exercise. In Pixel Bots we will program bots to paint pictures using Code Elements.

## Code Elements

---



## Problem 1

---

Pixel Bot Read Code: You are a pixel bot. Read the code and paint the picture.





# Lesson 1 | Worksheet 1

This is a Pixel Bots exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

## Code Elements



## Example



## Problems

You are a pixel bot. Read the code and paint the picture.





# Lesson 1 | Worksheet 1 (cont'd)



1	↓
2	↖
3	←
4	↗



1	↖
2	←
3	↖
4	↓
5	↖



1	↖
2	↑
3	↖
4	↑
5	↖





# Lesson 10 | Warm-up

---

This is a Pixel Bots JavaScript exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

## Code Elements

---

up()                      down()  
left()                    right()  
paint()

## Problems

---

You are a coder. On the code line paper, write code to command the pixel bot to paint the picture.



# { } Lesson 10 | Worksheet 1



1) This is a drill. A drill creates holes by spinning a drill bit. How would you create a bigger hole with a drill bit? Be creative.



2) This is a golfer. A golfer hits a golf ball with a golf club. How would the golfer hit the ball further? Be creative.



# Lesson 10| Worksheet 1 (cont'd)

Now try programming the drill to create 3 different size holes using one coding element.

## Code Elements

`drill(size)`



1	
2	
3	
4	
5	
6	

Program the golfer to hit the ball 3 different distances.

## Code Elements

`swing(club)`



1	
2	
3	
4	
5	
6	



# Lesson 10 | Worksheet 1 (cont'd)

5) Now it's time to return to Pixel Bot. Can you come up with a way to paint the picture in 6 lines? Think about problems 3 and 4.



1	
2	
3	
4	
5	
6	

6) What are the similarities between drilling, golf, and moving the pixel bot multiple steps?



# Lesson 10 | Worksheet 2

This is an online Pixel Bots exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

## Problems

You are a coder. Write code to command the pixel bot to paint the pictures.



- ☐ done
- ☐ explained



- ☐ done
- ☐ explained



- ☐ done
- ☐ explained



- ☐ done
- ☐ explained







# Lesson 11 | Worksheet

This is an online Pixel Bots exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

## Problems

You are a coder. Write code to command the pixel bot to paint the pictures.



☐ done  
☐ explained



☐ done  
☐ explained



☐ done  
☐ explained



☐ done  
☐ explained



☐ done  
☐ explained



☐ done  
☐ explained



☐ done  
☐ explained



☐ done  
☐ explained



☐ done  
☐ explained



☐ done  
☐ explained



☐ done  
☐ explained



☐ done  
☐ explained





# Lesson 11 | Exit Ticket

---

This is an online Pixel Bots exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

## Problems

---

You are a coder. Write code to command the pixel bot to paint the picture.



Code Link





# Lesson 12 | Exit Ticket

Match the artist with the blocks of code that complete the shape he is drawing.



```
move forward ▾ by 100 pixels  
turn right ▾ by 120 degrees  
move forward ▾ by 100 pixels
```

```
move forward ▾ by 100 pixels  
turn right ▾ by 90 degrees  
move forward ▾ by 100 pixels
```

```
move forward ▾ by 100 pixels  
turn right ▾ by 60 degrees  
move forward ▾ by 100 pixels
```

```
turn right ▾ by 120 degrees  
move forward ▾ by 100 pixels
```





## Lesson 2 | Warmup

This is a Pixel Bots exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

### Code Elements



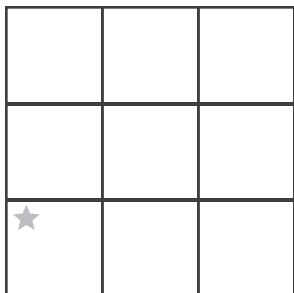
### Example



1	→
2	↗
3	↑
4	↑
5	↗

### Problems

You are a pixel bot. Read the code and paint the picture.



1	↑
2	→
3	↗
4	↑
5	→
6	↗
7	↓
8	↓
9	↗





# Lesson 2 | Worksheet 1

---

This is a Pixel Bots exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

## Code Elements

---



## Problem

---

You are a coder. Write code to command the pixel bot to paint the picture.



1	
2	
3	
4	
5	
6	





## Lesson 3 | Warmup

This is a Pixel Bots exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

### Code Elements



### Problem

You are a coder. Write code to command the pixel bot to paint the picture.



1	
2	
3	
4	
5	
6	
7	
8	
9	
10	





# Lesson 3 | Worksheet 1

This is a Pixel Bots exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

## Code Elements



## Problem

You are a coder. Write code to command the pixel bot to paint the picture.



1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

11	
12	
13	
14	
15	
16	
17	
18	
19	
20	





# Lesson 3 | Worksheet 2

This is a Pixel Bots exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

## Code Elements



## Problem

You are a coder. Write code to command the pixel bot to paint the picture.



1  
2  
3  
4  
5  
6  
7  
8  
9  
10

11  
12  
13  
14  
15  
16  
17  
18  
19  
20







# Lesson 3 | Worksheet 3

This is a Pixel Bots exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

## Code Elements



## Problem

You are a coder. Write code to command the pixel bot to paint the picture.



1  
2  
3  
4  
5  
6  
7  
8  
9  
10

11  
12  
13  
14  
15  
16  
17  
18  
19  
20





# Lesson 3 | Worksheet 4

This is a Pixel Bots exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

## Code Elements



## Problem

You are a coder. Write code to command the pixel bot to paint the picture.



1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

11	
12	
13	
14	
15	
16	
17	
18	
19	
20	





## Lesson 3 | Exit Ticket

This is a Pixel Bots exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

### Code Elements



### Problem

You are a coder. Write code to command the pixel bot to paint the picture.



1  
2  
3  
4  
5  
6  
7  
8  
9  
10

11  
12  
13  
14  
15  
16  
17  
18  
19  
20





# Lesson 4 | Worksheet 1

This is an online Pixel Bots exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

## Problems

You are a coder. Write code to command the pixel bot to paint the pictures.



- ☐ done
- ☐ explained



- ☐ done
- ☐ explained



- ☐ done
- ☐ explained



- ☐ done
- ☐ explained



- ☐ done
- ☐ explained



- ☐ done
- ☐ explained



- ☐ done
- ☐ explained



- ☐ done
- ☐ explained





# Lesson 4 | Exit Ticket

This is a Pixel Bots exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

## Code Elements



## Problem

You are a coder. Write code to command the pixel bot to paint the picture.



1  
2  
3  
4  
5  
6


7  
8  
9  
10  
11  
12




1  
2  
3  
4  
5  
6


7  
8  
9  
10  
11  
12






# Lesson 6 | Warmup

This is a Pixel Bots exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

## Code Elements



## Problem

You are a coder. Write code to command the pixel bot to paint the picture.



1		16	
2		17	
3		18	
4		19	
5		20	
6		21	
7		22	
8		23	
9		24	
10		25	
11		26	
12		27	
13		28	
14		29	
15		30	





# Lesson 6 | Worksheet 1

This is a Pixel Bots JavaScript exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

## Code Elements

up()                      down()  
left()                    right()  
paint()

## Problem

You are a coder. Write code to command the pixel bot to paint the picture.



1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15

16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30





# Lesson 6 | Worksheet 2

---

This is a Dance Bot exercise. In Dance Bot we program bots to dance.

## Code Elements

---

<code>up()</code>	<code>down()</code>
<code>left()</code>	<code>right()</code>
<code>spinLeft()</code>	<code>spinRight()</code>
<code>wait()</code>	

## Problem

---

You are a coder. Write code to command your bot to perform the same dance your teacher is doing.

1		16	
2		17	
3		18	
4		19	
5		20	
6		21	
7		22	
8		23	
9		24	
10		25	
11		26	
12		27	
13		28	
14		29	
15		30	





# Lesson 7 | Worksheet 1

This is an online Pixel Bots exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

## Problems

You are a coder. Write code to command the pixel bot to paint the pictures.



- ☐ done
- ☐ explained



- ☐ done
- ☐ explained



- ☐ done
- ☐ explained



- ☐ done
- ☐ explained



- ☐ done
- ☐ explained



- ☐ done
- ☐ explained





# Lesson 7 | Worksheet 2

This is an online Pixel Bots exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

## Problems

You are a coder. Write code to command the pixel bot to paint the pictures.



- ☐ done
- ☐ explained



- ☐ done
- ☐ explained



- ☐ done
- ☐ explained



- ☐ done
- ☐ explained



- ☐ done
- ☐ explained



- ☐ done
- ☐ explained





# Lesson 7 | Exit Ticket

---

This is a Pixel Bots JavaScript exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

## Code Elements

---

up()                      down()  
left()                    right()  
paint()

## Problems

---

1) Which of the following has a syntax error:

- a. up()
- b. down()
- c. right)
- d. left()

2) You are a coder. Write code to command the pixel bot to paint the picture.



1	
2	
3	
4	
5	
6	
7	
8	
9	





# Lesson 8 | Warm-up

---

This is a Pixel Bots JavaScript exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

## Code Elements

---

up()                      down()  
left()                    right()  
paint()

## Problems

---

You are a coder. Write code to command the pixel bot to paint the picture.



1	
2	
3	
4	
5	
6	
7	
8	
9	
10	





# Lesson 8 | Exit Ticket

---

This is a Mouse Bot JavaScript exercise. In Mouse Bot we program the bot to eat the cheese.

## Code Elements

---

faceUp()      move()  
faceRight()    getCheese()

## Problems

---

You are a coder. Assuming the Mouse Bot starts at the star facing the right, write code to get the cheese.



1  
2  
3  
4  
5  
6  
7  
8





# Lesson 9 | Warm Up

This is a Mouse Bot JavaScript exercise. In Mouse Bot we program the bot to eat the cheese.

## Code Elements

faceUp()  
faceRight()  
move()  
getCheese()

## Problems

You are a coder. Assuming the Mouse Bot starts at the star facing the right, write code to get the cheese.



1	
2	
3	
4	
5	
6	
7	
8	
9	
10	





# Coders & Bots

---

## Coders

---



**Navigator.** You are responsible for the overall plan for the program. Guide the Writer and keep track of what your program is doing.



**Writer.** Add code to your program. Pay attention to syntax.

## Bots

---



**Stepper.** Step through the program and read each step aloud. Keep your finger on the step you are reading.



**Actor.** Listen carefully to each line of code the Stepper says aloud. Using the materials available, show what each line of code does.

# Coding Paper

---

1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

11	
12	
13	
14	
15	
16	
17	
18	
19	
20	





# Coding Paper

---

1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	

16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	

31	
32	
33	
34	
35	
36	
37	
38	
39	
40	
41	
42	
43	
44	
45	

1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	

16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	

31	
32	
33	
34	
35	
36	
37	
38	
39	
40	
41	
42	
43	



# Coding Paper

---

1		31		61	
2		32		62	
3		33		63	
4		34		64	
5		35		65	
6		36		66	
7		37		67	
8		38		68	
9		39		69	
10		40		70	
11		41		71	
12		42		72	
13		43		73	
14		44		74	
15		45		75	
16		46		76	
17		47		77	
18		48		78	
19		49		79	
20		50		80	
21		51		81	
22		52		82	
23		53		83	
24		54		84	
25		55		85	
26		56		86	
27		57		87	
28		58		88	
29		59		89	
30		60		90	



# Small Pixel Grids

---





# Medium Pixel Grids

---





# Large Pixel Grids

---





# Challenge Problems - 1

---





## Challenge Problems - 2

