



# Lesson 1 | Warmup

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

## Code Elements

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## Problem 1

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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



1	↑
2	→
3	🎨

## Problems

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



1	→
2	→
3	🎨
4	↑



1	→
2	🎨
3	↑
4	🎨





# Lesson 1 | Worksheet 1 (cont'd)



1	↓
2	↖
3	←
4	↗



1	↖
2	←
3	↖
4	↓
5	↗



1	↖
2	↑
3	↖
4	↑
5	↖





# Lesson 10 | Warm-up

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

## Code Elements

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

## Problems

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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)`



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Program the golfer to hit the ball 3 different distances.

## Code Elements

`swing(club)`



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## 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.



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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



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☐ explained



☐ done  
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☐ done  
☐ explained



☐ done  
☐ explained





# Lesson 11 | Exit Ticket

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

## Problems

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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

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

## Code Elements

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## Problem

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



1	
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4	
5	
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# 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	
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# 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.



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# Lesson 3 | Worksheet 2

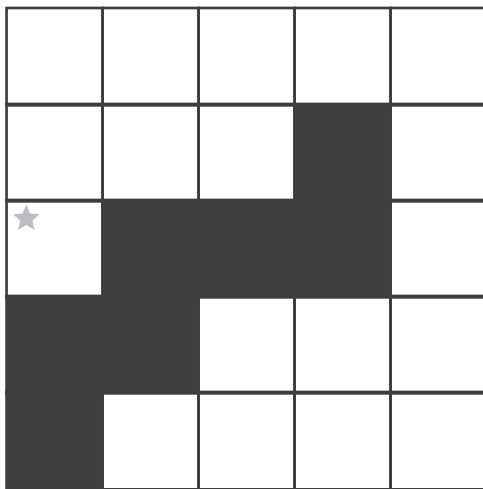
This is a Pixel Bots exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

## Code Elements



## Problem

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



1  
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# 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.



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# 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	
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# 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  
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# Lesson 4 | Worksheet 1

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

## Problems

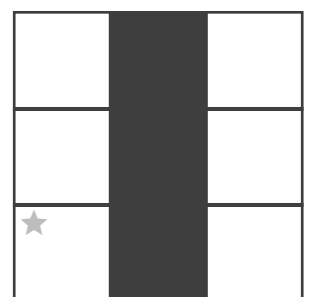
You are a coder. Write code to command the pixel bot to paint the pictures.



- ☐ done
- ☐ explained



- ☐ done
- ☐ explained



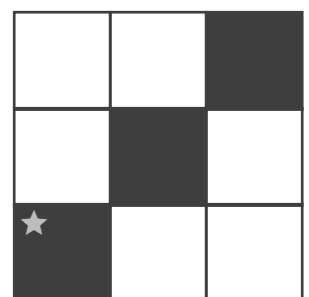
- ☐ done
- ☐ explained



- ☐ done
- ☐ explained



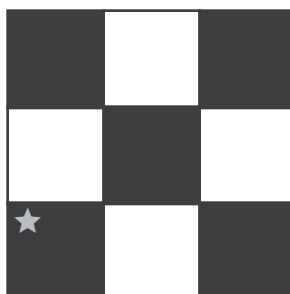
- ☐ done
- ☐ explained



- ☐ 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


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8  
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11  
12




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# Lesson 6 | Warmup

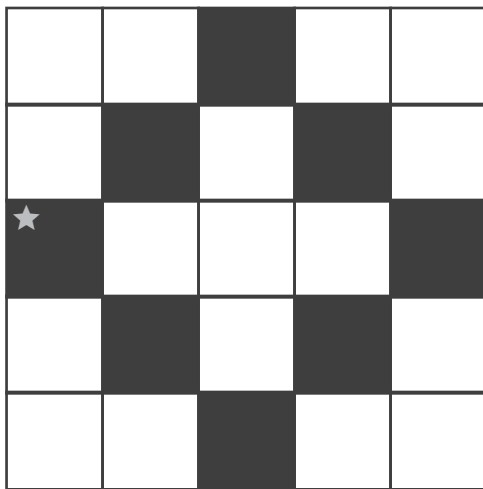
This is a Pixel Bots exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

## 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.



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# Lesson 6 | Worksheet 2

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

## Code Elements

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<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	
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3		18	
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10		25	
11		26	
12		27	
13		28	
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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()

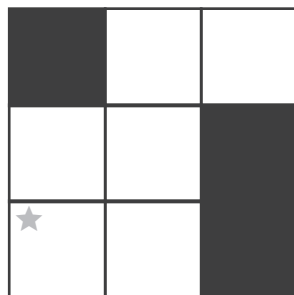
## Problems

---

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.



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# Lesson 8 | Warm-up

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

## Code Elements

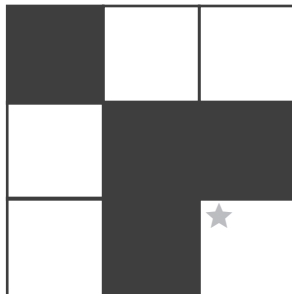
---

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

## Problems

---

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



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# Lesson 8 | Exit Ticket

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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.



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# 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.



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# Coders & Bots

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## Coders

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**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

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**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

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# Coding Paper

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# Coding Paper

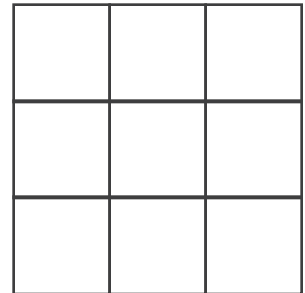
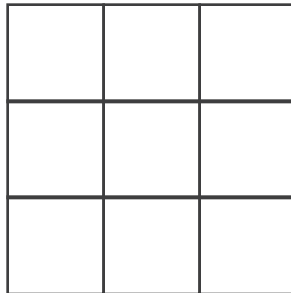
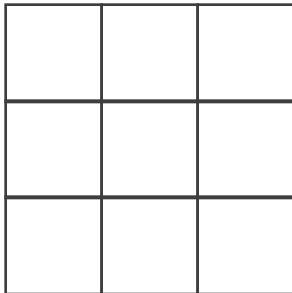
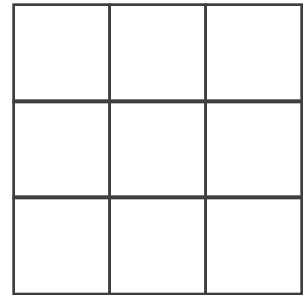
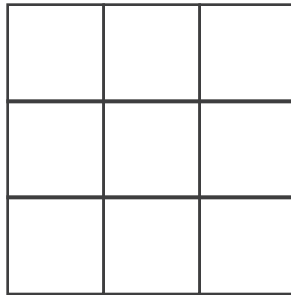
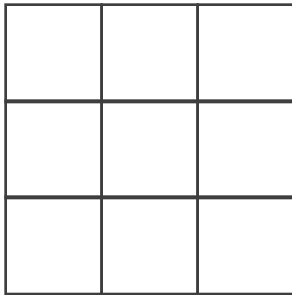
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1		31		61	
2		32		62	
3		33		63	
4		34		64	
5		35		65	
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7		37		67	
8		38		68	
9		39		69	
10		40		70	
11		41		71	
12		42		72	
13		43		73	
14		44		74	
15		45		75	
16		46		76	
17		47		77	
18		48		78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



# Small Pixel Grids

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# Medium Pixel Grids

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# Large Pixel Grids

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# Challenge Problems - 1

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## Challenge Problems - 2

