Lesson 1 | Warmup

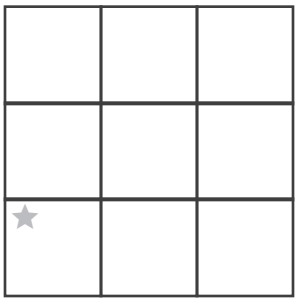
This is a Pixel Bots JavaScript exercise. In Pixel Bots we will program bots to paint pictures using Code Elements.

Code Elements

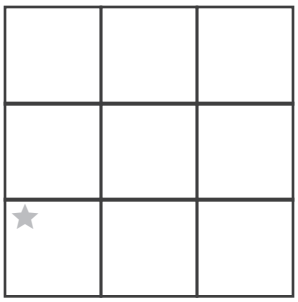
```
up()          down()
left()        right()
paint()
```

Problem 1

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



```
up()
paint()
right()
```



```
up()
right()
paint()
```

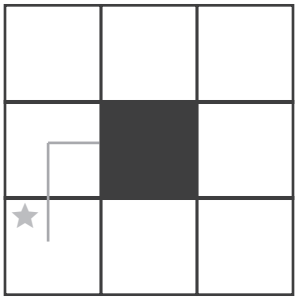
Lesson 1 | Worksheet 1

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()
```

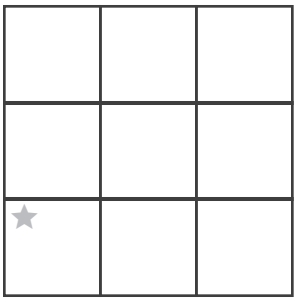
Example



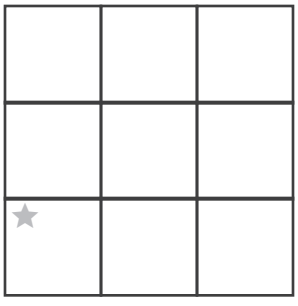
```
1 up()
2 right()
3 paint()
```

Problems

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

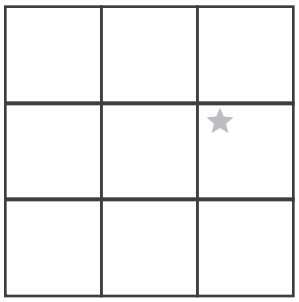


```
1 right()
2 right()
3 paint()
4 up()
```

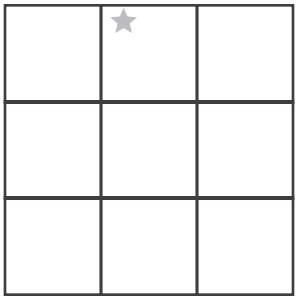


```
1 right()
2 paint()
3 up()
4 paint()
```

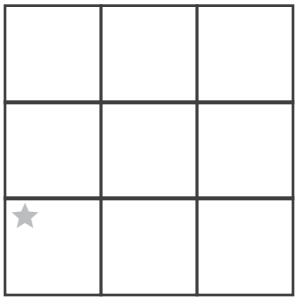
Lesson 1 | Worksheet 1 (cont'd)



```
1 down()
2 paint()
3 left()
4 paint()
```



```
1 paint()
2 left()
3 paint()
4 down()
5 paint()
```



```
1 paint()
2 up()
3 paint()
4 up()
5 paint()
```

Lesson 10 | Wrap up

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

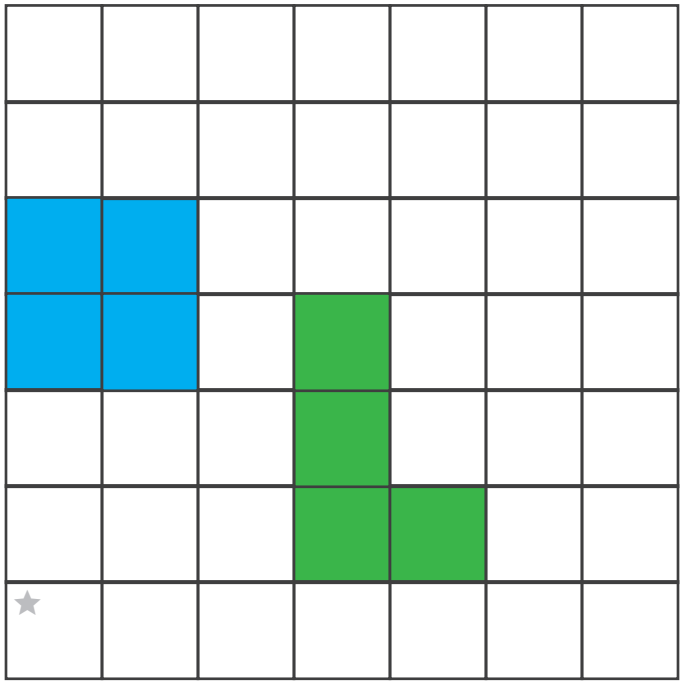
Code Elements

```
up(steps)          down(steps)
left(steps)        right(steps)
paint(color)
```

Problems

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

lines of code: 16



Lesson 11 | Worksheet

Emoji Design Thinking Handout

Empathize

I am creating an emoji for _____

List interests and likes of this person.

_____

_____

_____

_____

_____

_____

Emotions and feelings to convey in emoji.

_____

_____

_____

_____

_____

_____

Ideate

List your pixel emoji ideas.

_____

_____

_____

_____

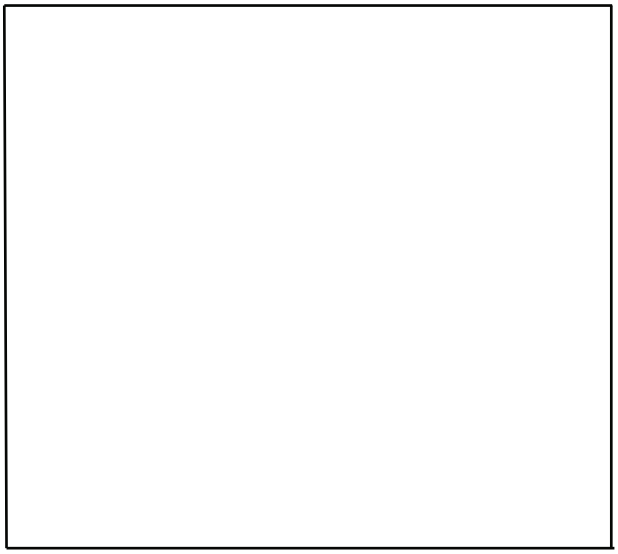
_____

_____

_____

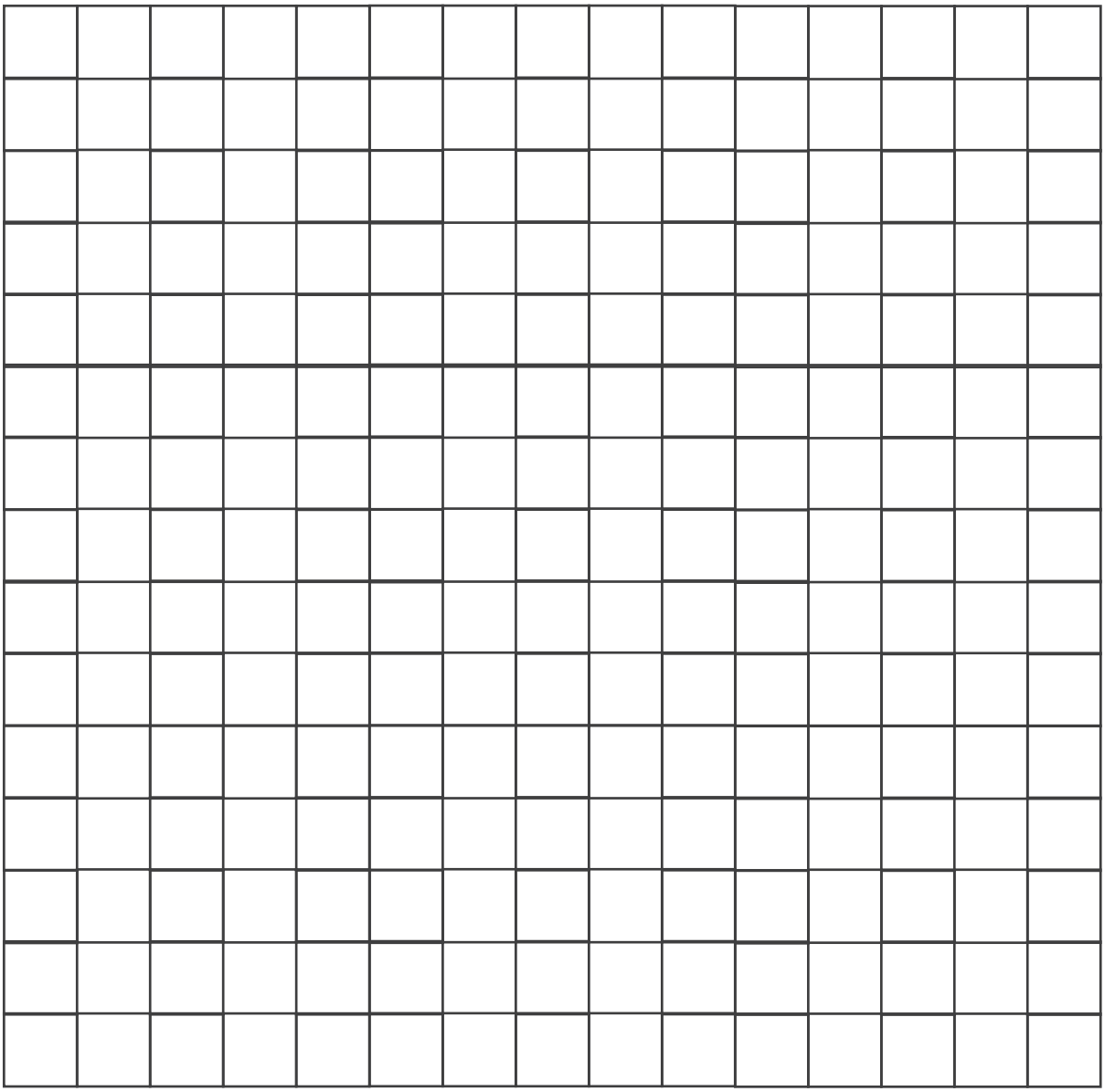
_____

Sketch your ideas.



Lesson 11 | Worksheet

Prototype #1

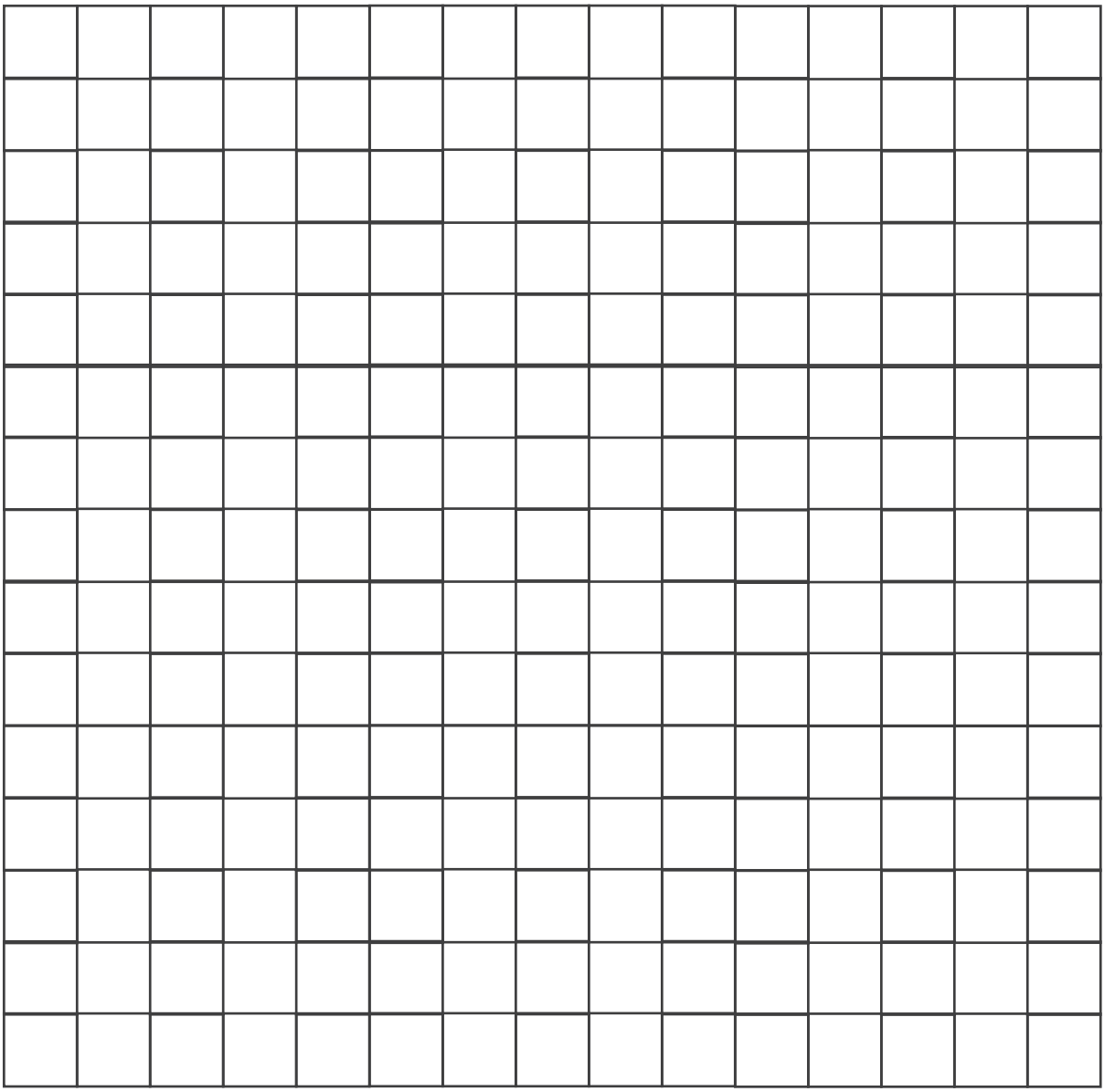


Decompose your emoji

What are the key features of your pixel emoji? (Example: face, face outline, mouth, eyes)
Circle features and write what the feature is and the color.

Lesson 11 | Worksheet

Prototype #2



Decompose your emoji

What are the key features of your pixel emoji? (Example: face, face outline, mouth, eyes)
Circle features and write what the feature is and the color.

Lesson 12 | Worksheet 1

Feature List

_____

_____

_____

_____

_____

_____

_____

_____

To Do List Today's date _____

- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____

Lesson 12 | Worksheet 1

To Do List

Today's date _____

- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____

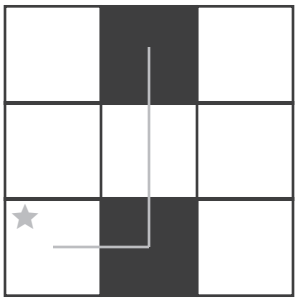
Lesson 2 | Warmup

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()
```

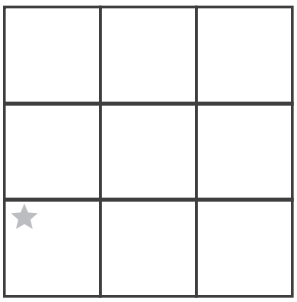
Example



```
1  right()
2  paint()
3  up()
4  up()
5  paint()
```

Problems

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



```
1  up()
2  right()
3  paint()
4  up()
5  right()
6  paint()
7  down()
8  down()
9  paint()
```

Lesson 2 | Worksheet 1

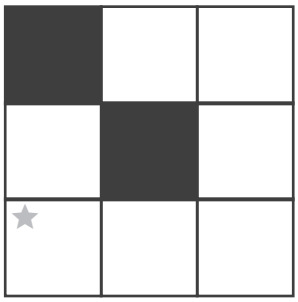
This is a Pixel Bots JavaScript exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

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
```

Lesson 2 | Worksheet 2-1

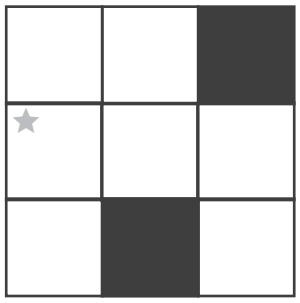
This is a Pixel Bots JavaScript exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

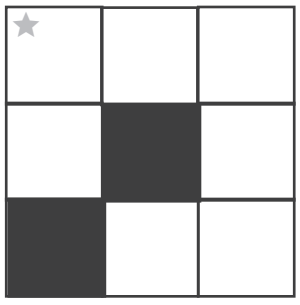
Code Elements

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

Problem

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





Lesson 2 | Worksheet 2-2

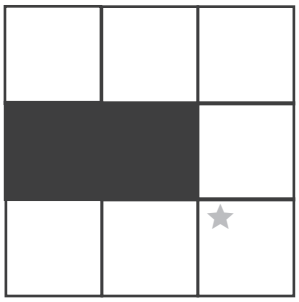
This is a Pixel Bots JavaScript exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

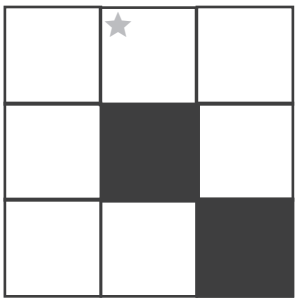
Code Elements

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

Problem

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





Lesson 2 | Worksheet 2-3

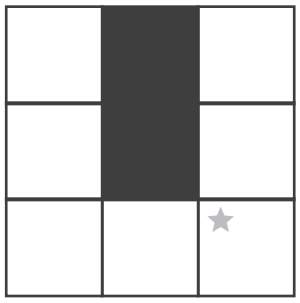
This is a Pixel Bots JavaScript exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

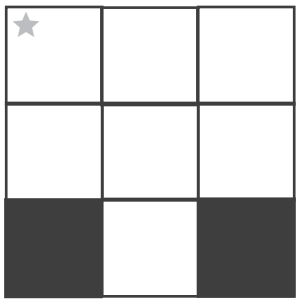
Code Elements

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

Problem

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





Lesson 3 | Warmup

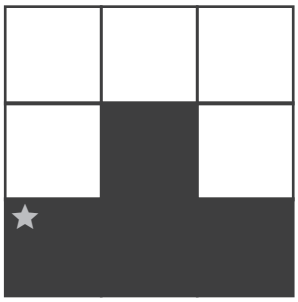
This is a Pixel Bots JavaScript exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

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
```

Lesson 3 | Worksheet 1

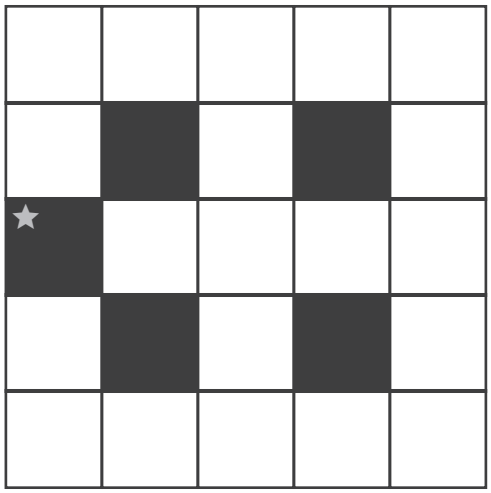
This is a Pixel Bots exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

Code Elements

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

Problem

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



Lesson 3 | Worksheet 2

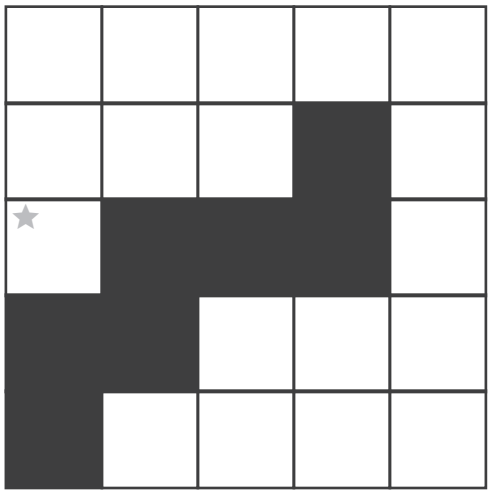
This is a Pixel Bots JavaScript exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

Code Elements

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

Problem

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



Lesson 3 | Worksheet 3

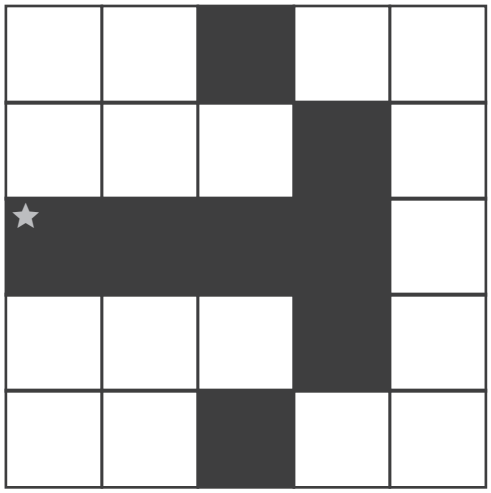
This is a Pixel Bots JavaScript exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

Code Elements

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

Problem

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



Lesson 3 | Worksheet 4

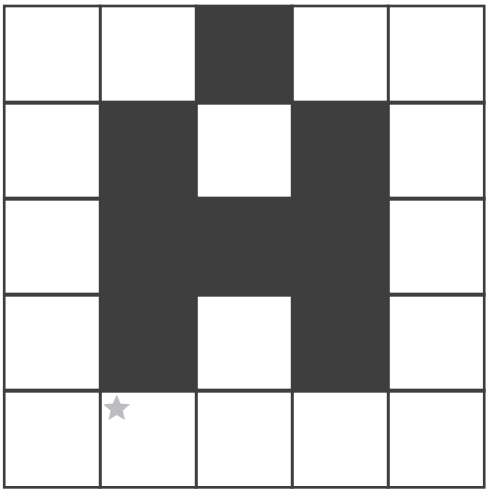
This is a Pixel Bots JavaScript exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

Code Elements

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

Problem

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



Lesson 3 | Exit Ticket

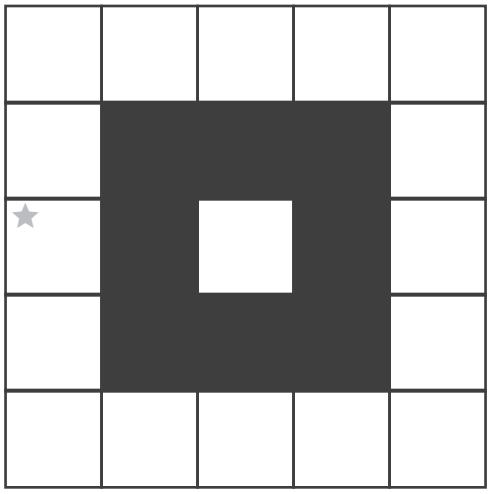
This is a Pixel Bots JavaScript exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

Code Elements

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

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
```

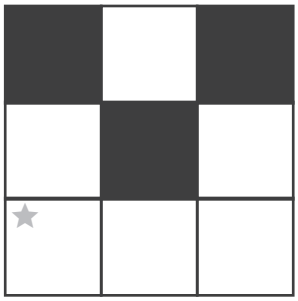
```
11
12
13
14
15
16
17
18
19
20
```

Lesson 4 | Worksheet 1

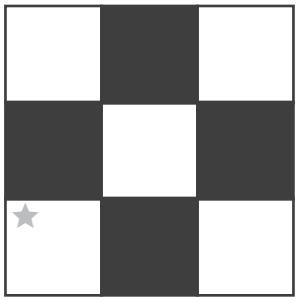
This is an online Pixel Bots exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

Problems

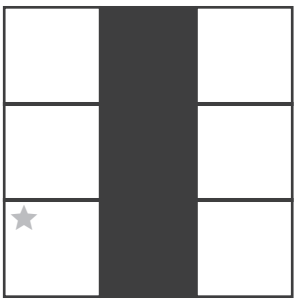
You are a coder. Write code to command the pixel bot to paint the pictures.



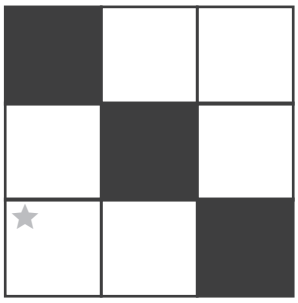
☐ done
☐ explained



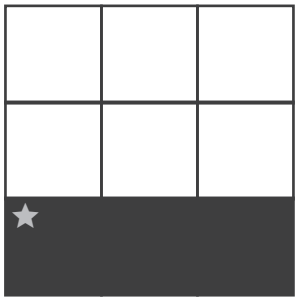
☐ done
☐ explained



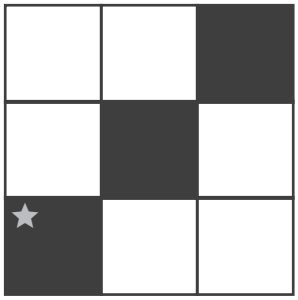
☐ done
☐ explained



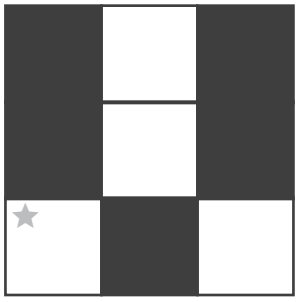
☐ done
☐ explained



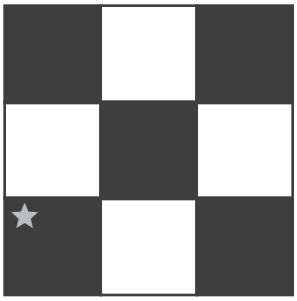
☐ done
☐ explained



☐ done
☐ explained



☐ done
☐ explained



☐ done
☐ explained

Lesson 4 | Exit Ticket

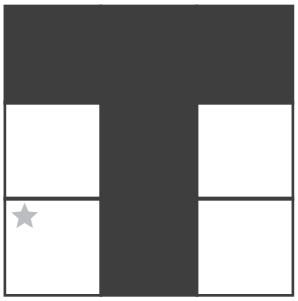
This is a Pixel Bots JavaScript exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

Code Elements

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

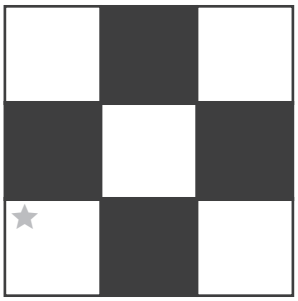
Problem

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
```



```
1
2
3
4
5
6
```

```
 7
 8
 9
10
11
12
```

Lesson 5 | Warm-up

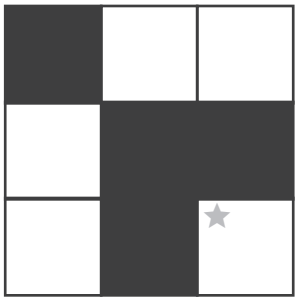
This is a Pixel Bots JavaScript exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

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 5 | Exit Ticket

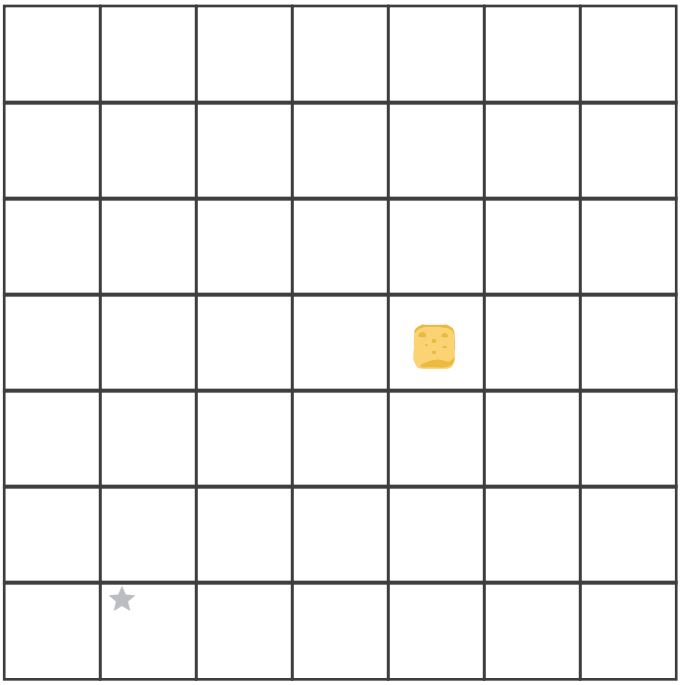
This is a Mouse Bot JavaScript exercise. In Mouse Bot we program the bot to eat the cheese.

Code Elements

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

Problems

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



```
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```

Lesson 6 | Warm Up

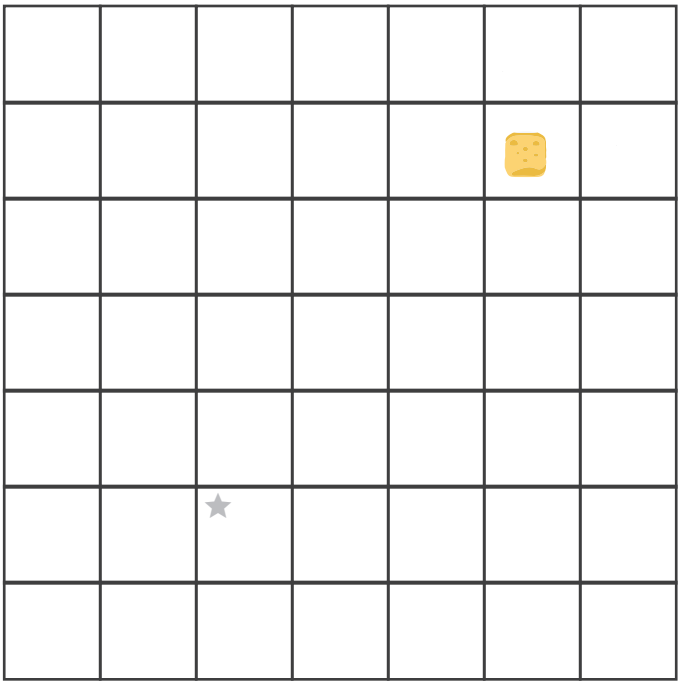
This is a Mouse Bot JavaScript exercise. In Mouse Bot we program the bot to eat the cheese.

Code Elements

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

Problems

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



```
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```

Lesson 7 | Warm-up

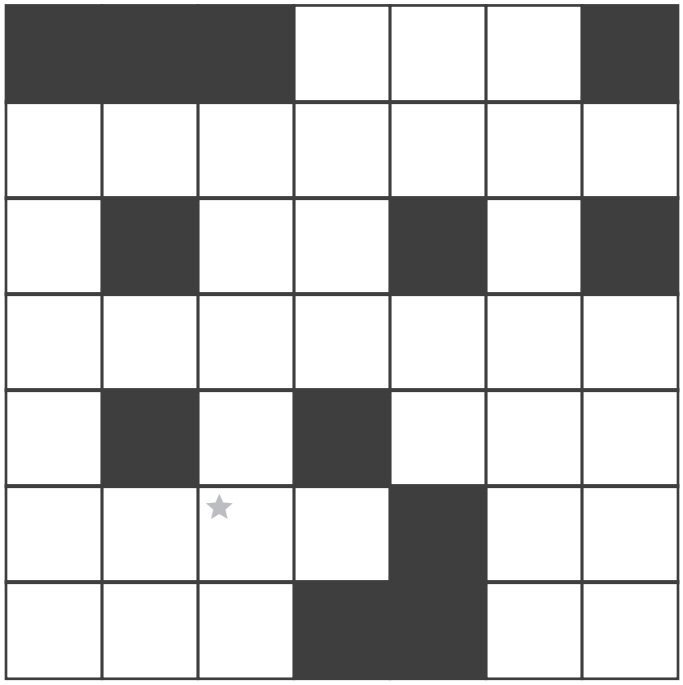
This is a Pixel Bots JavaScript exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

Code Elements

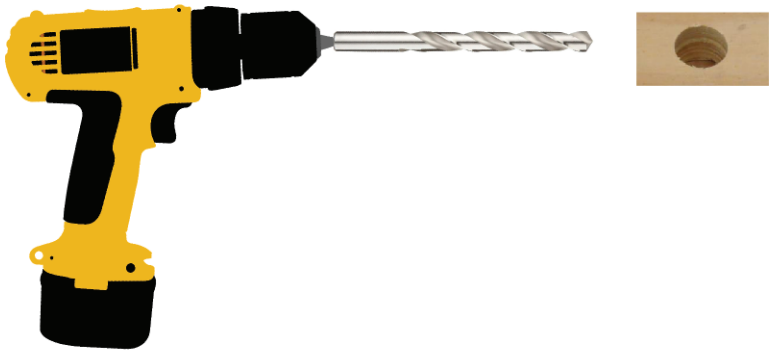
```
up()          down()
left()        right()
paint()
```

Problems

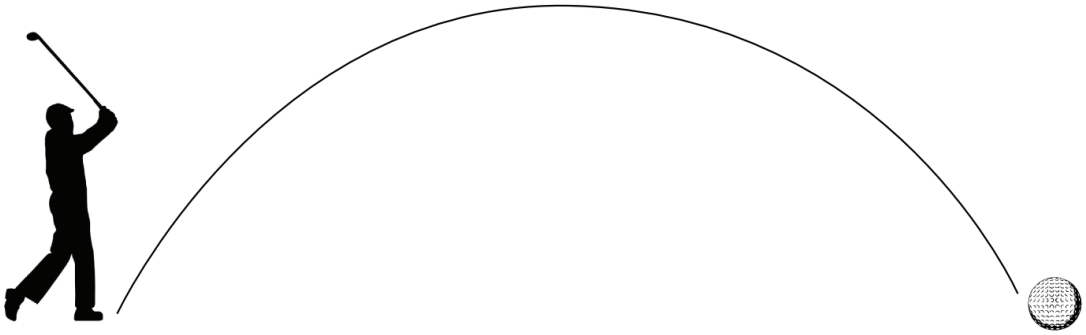
You are a coder. On the code line paper, write code to command the pixel bot to paint the picture.



Lesson 7 | 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? Bit creative.



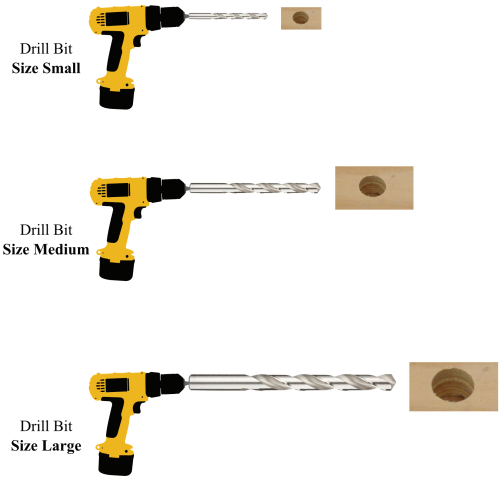
2) This is a golfer. A golfer hits a golf ball with a golf club. How would the golfer hit the ball further? Be creative.

Lesson 7 | Worksheet 1 (cont'd)

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

Code Elements

```
drill(size)
```



1
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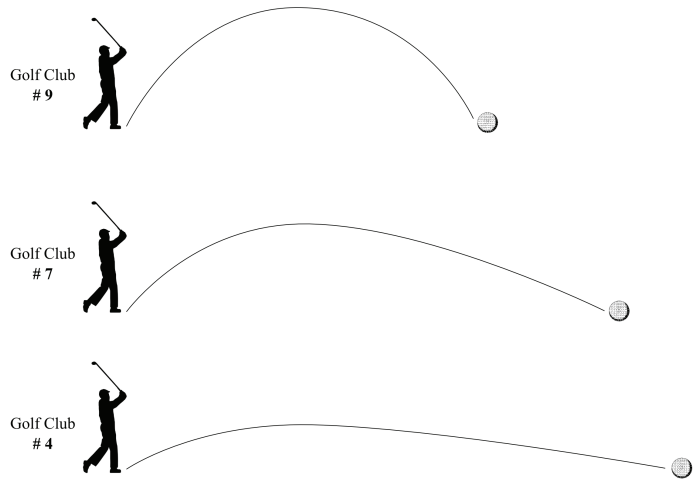
6

Program the golfer to hit the ball 3 different distances.

Code Elements

```
swing(club)
```



1
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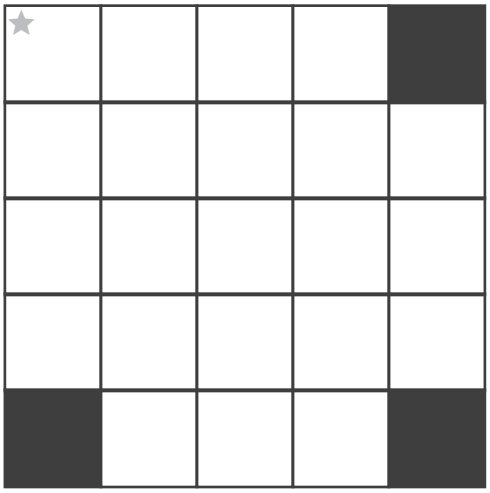
Lesson 7 | Worksheet 1 (cont'd)

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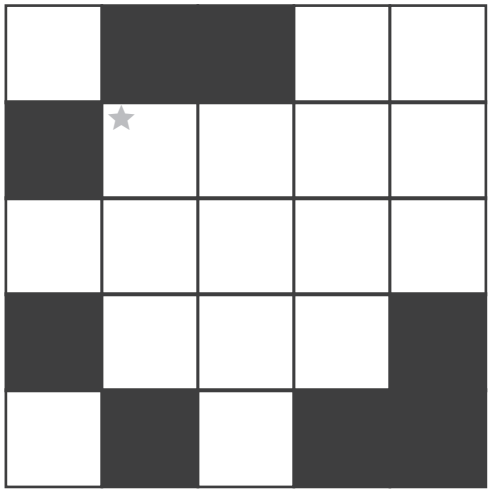
6) What are the similarities between drilling, golf, and moving the pixel bot multiple steps?

Lesson 7 | Worksheet 2

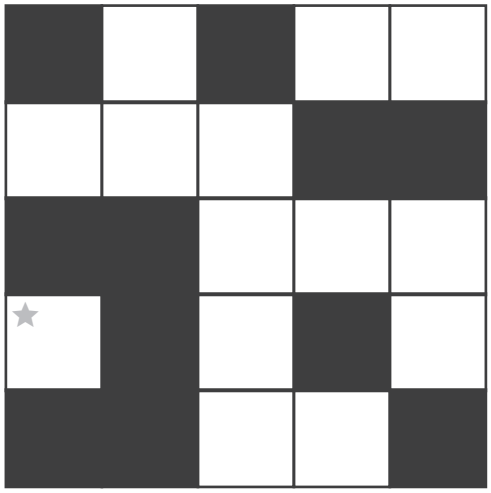
This is an online Pixel Bots exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

Problems

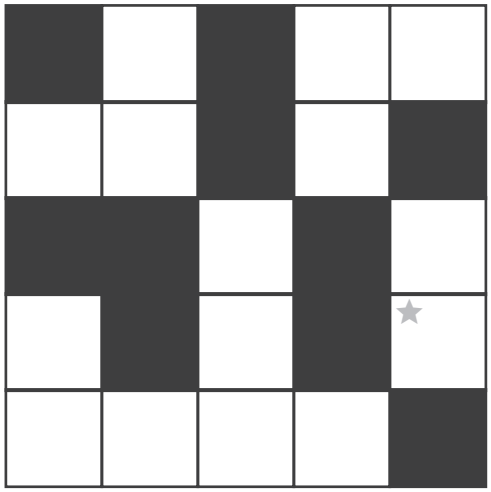
You are a coder. Write code to command the pixel bot to paint the pictures.



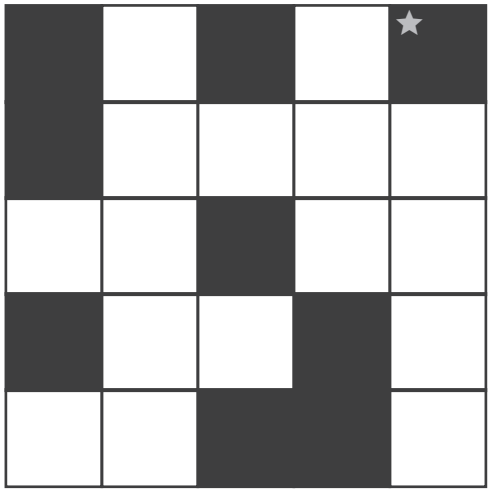
☐ done
☐ explained



☐ done
☐ explained



☐ done
☐ explained



☐ done
☐ explained

Lesson 8 | Warm-up

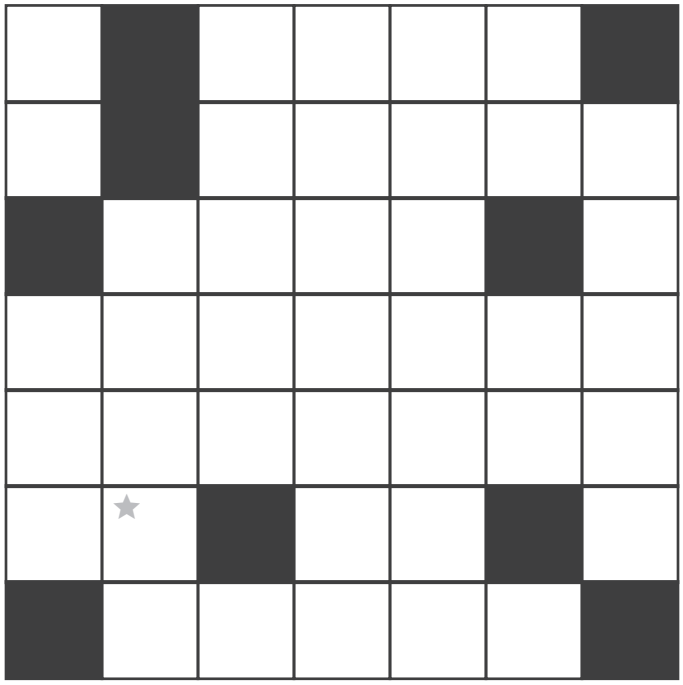
This is a Pixel Bots JavaScript exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

Code Elements

```
up(steps)        down(steps)
left(steps)      right(steps)
paint()
```

Problems

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



Lesson 8 | Worksheet 1

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

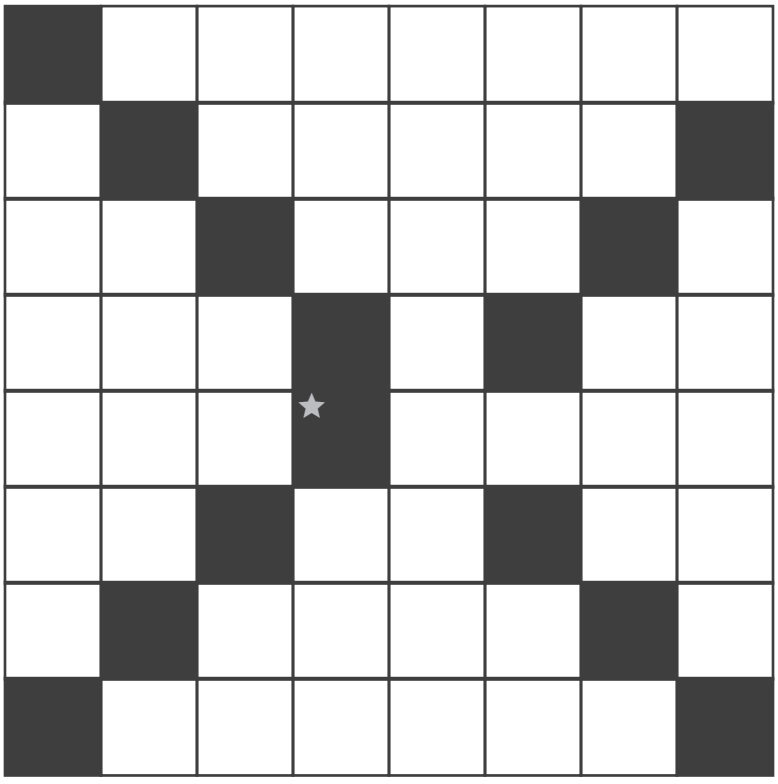
Code Elements

```
up(steps)          down(steps)
left(steps)        right(steps)
paint()
```

Problems

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

lines of code: 27



Lesson 8 | Worksheet 2

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

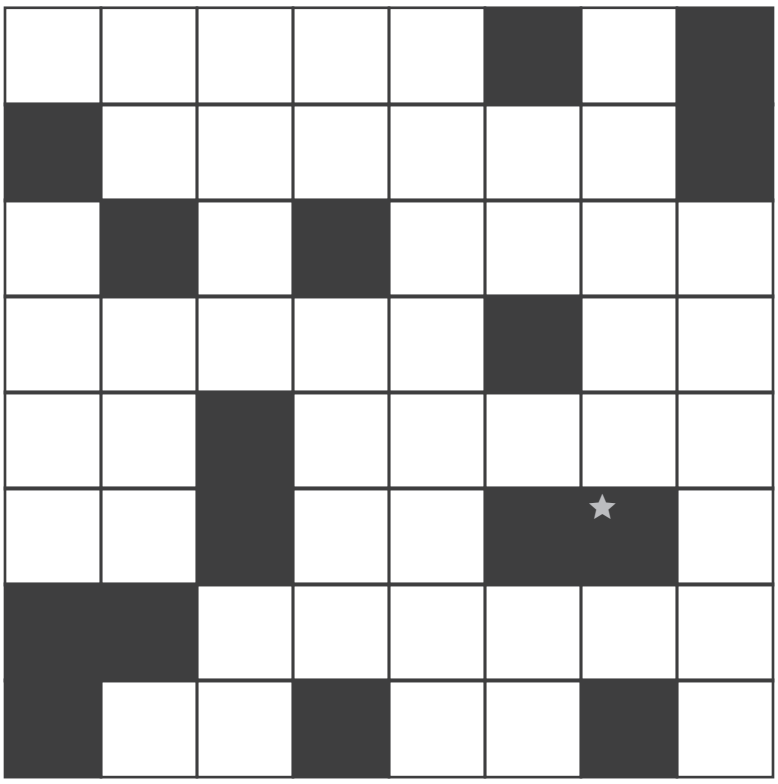
Code Elements

```
up(steps)        down(steps)
left(steps)      right(steps)
paint()
```

Problems

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

lines of code: 31



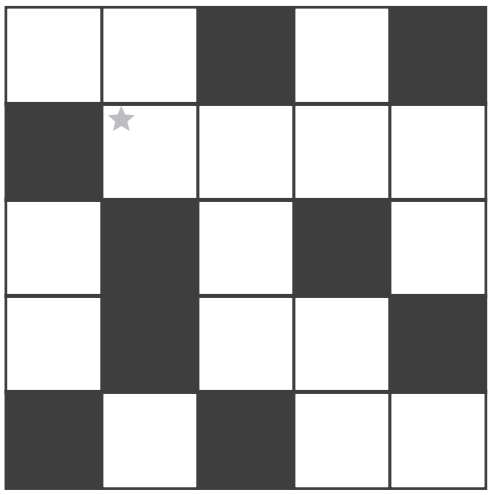
Lesson 8 | Worksheet 3

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

Problems

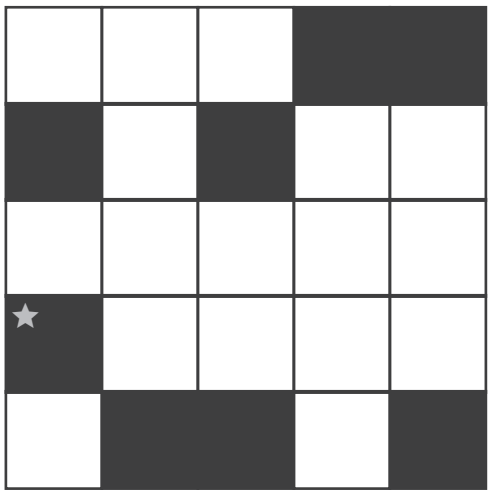
You are a coder. Write code to command the pixel bot to paint the pictures.

lines of code: 18



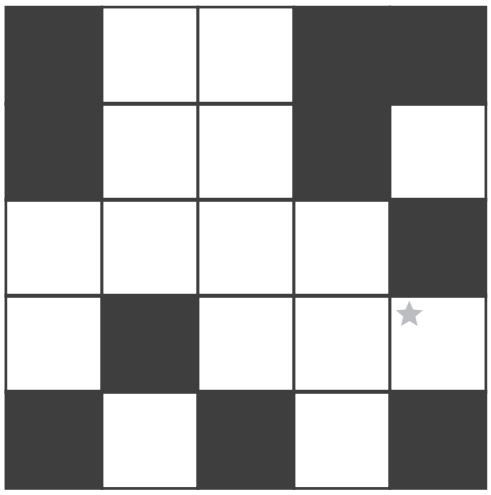
☐ done
☐ explained

lines of code: 15



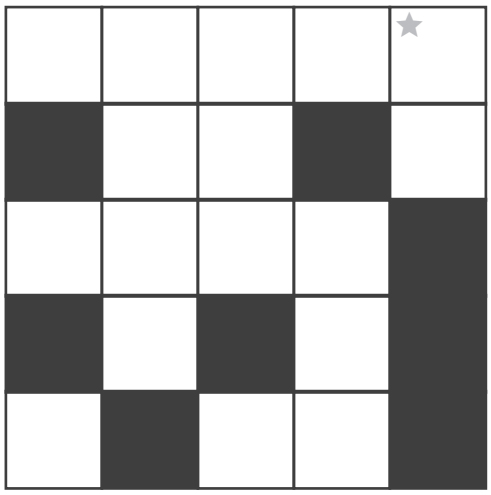
☐ done
☐ explained

lines of code: 21



☐ done
☐ explained

lines of code: 17



☐ done
☐ explained

Lesson 9 | Warm-up

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

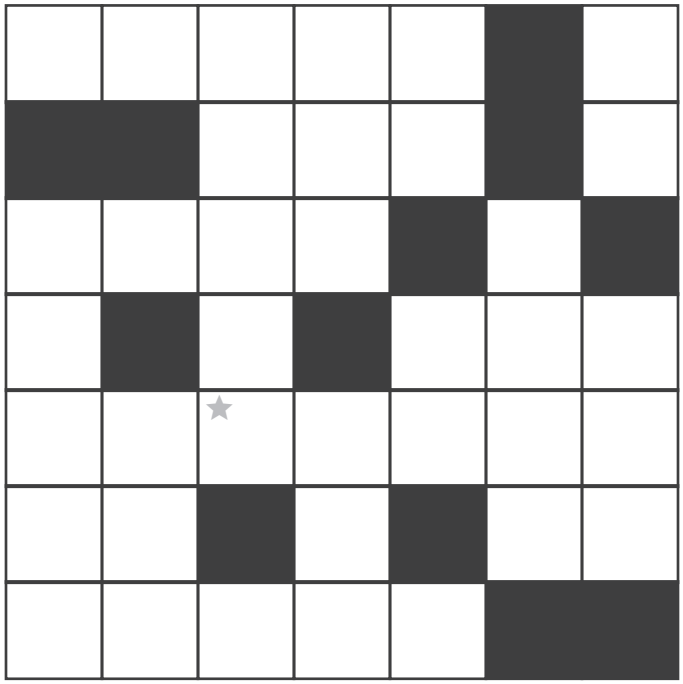
Code Elements

```
up(steps)        down(steps)
left(steps)      right(steps)
paint()
```

Problems

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

lines of code: 24



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

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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

getCoding

Coding Paper

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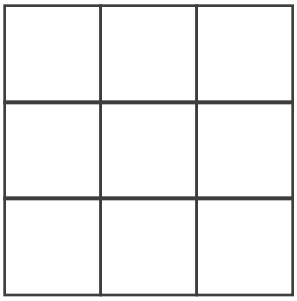
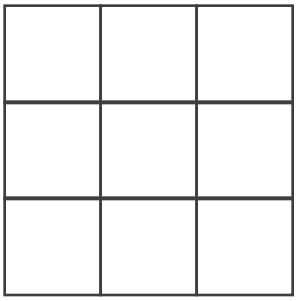
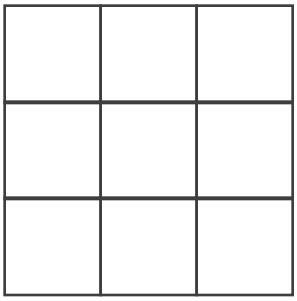
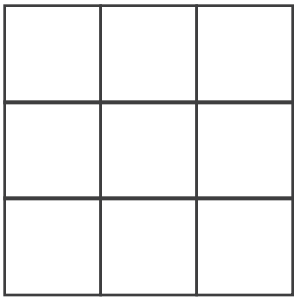
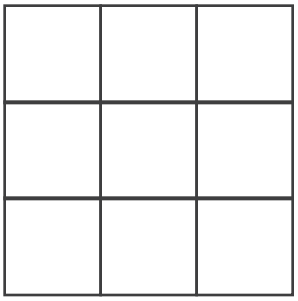
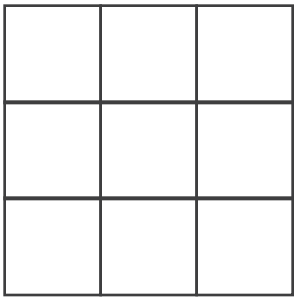
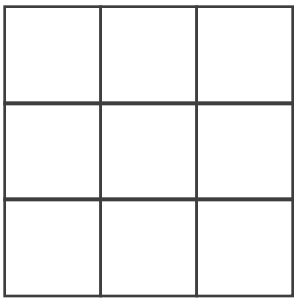
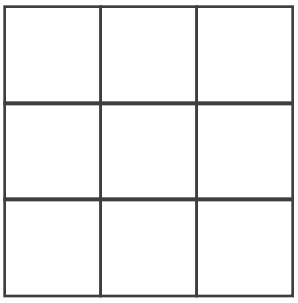
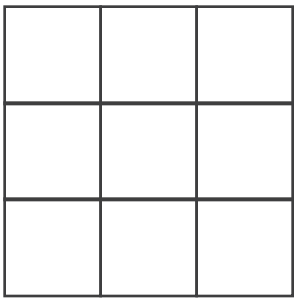
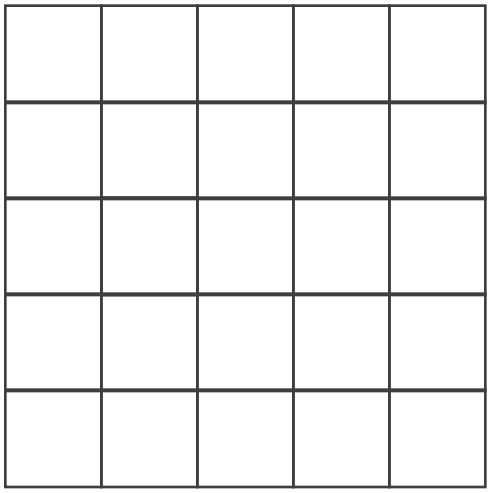
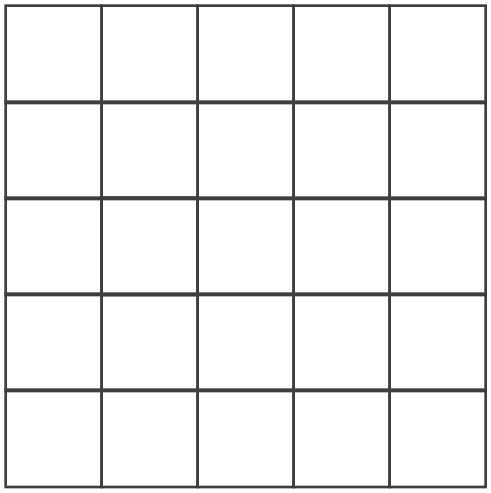
getC{}ding

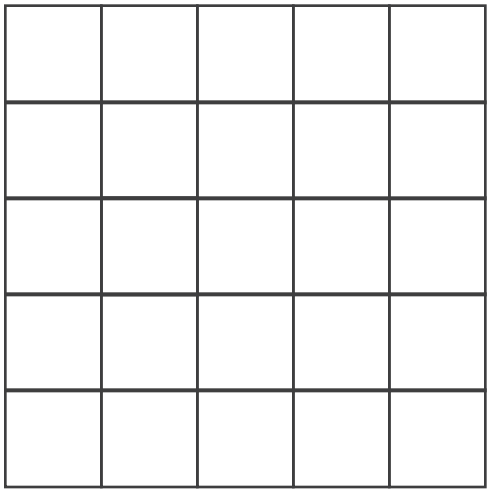
Small Pixel Grids

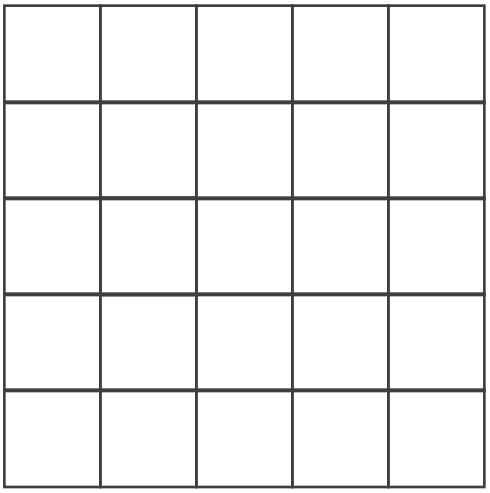










Medium Pixel Grids

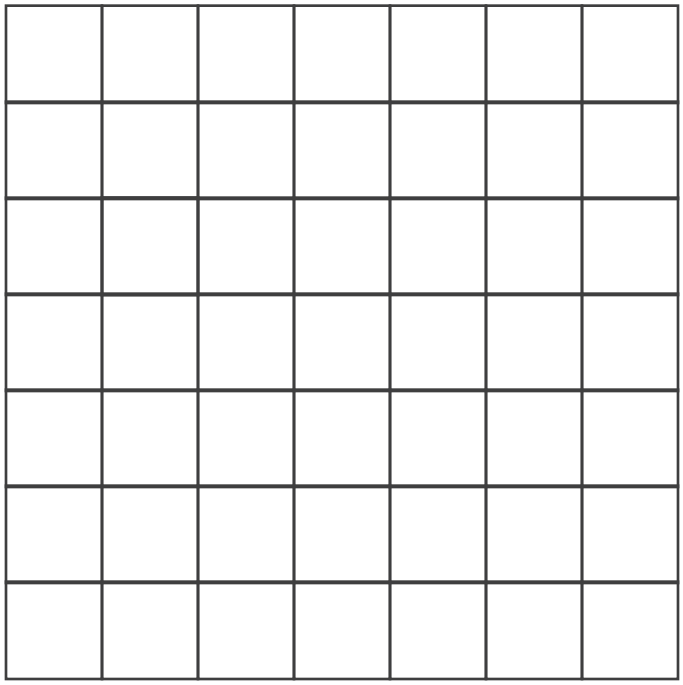


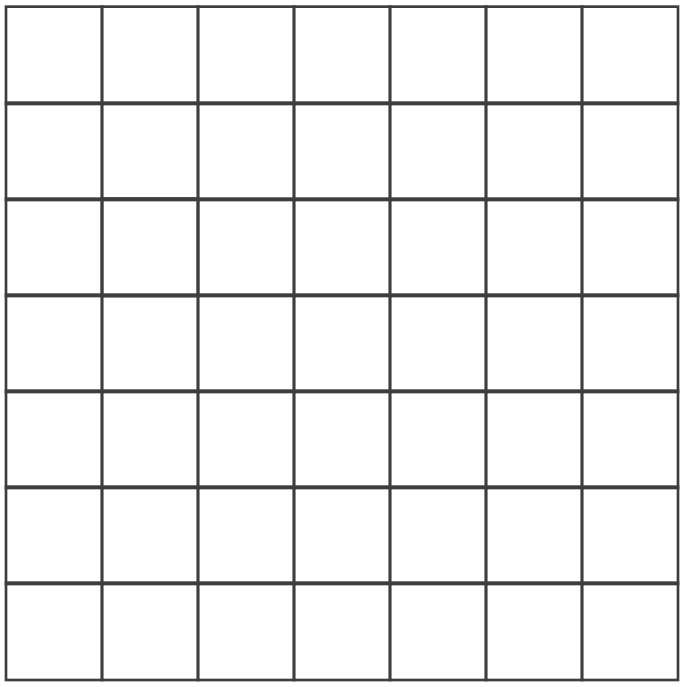




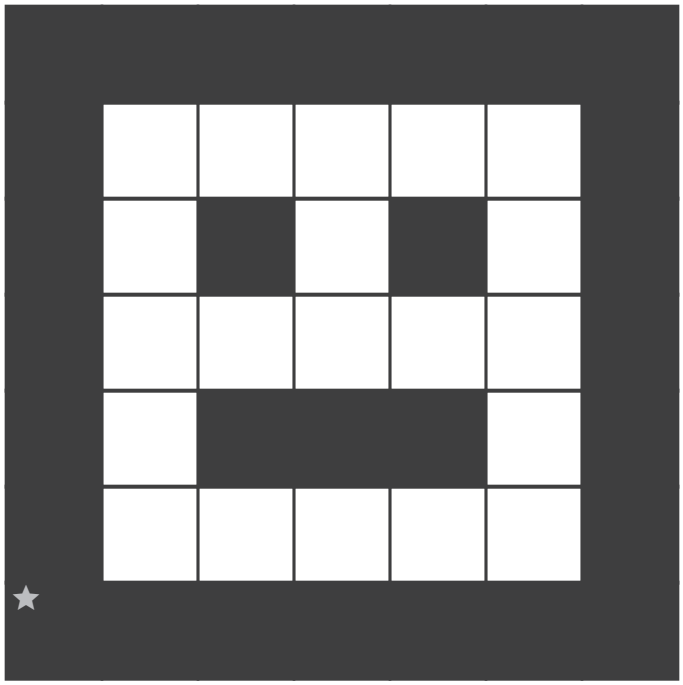


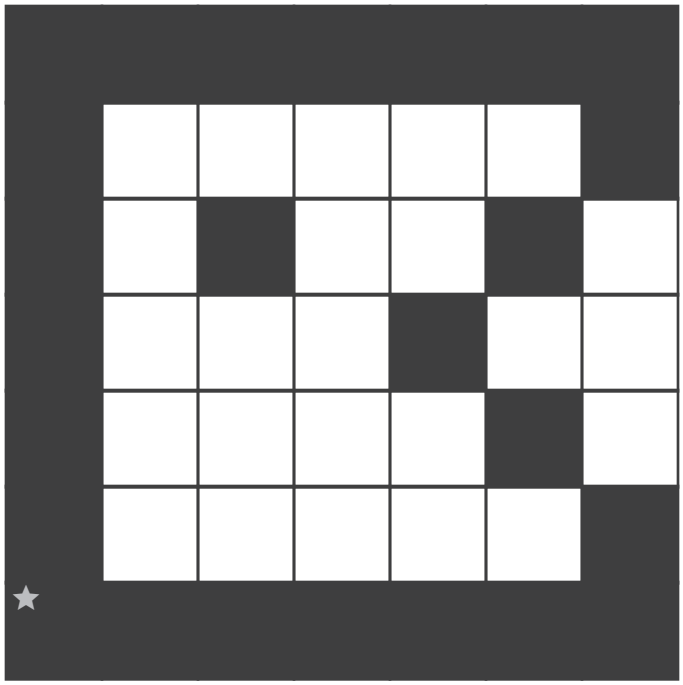
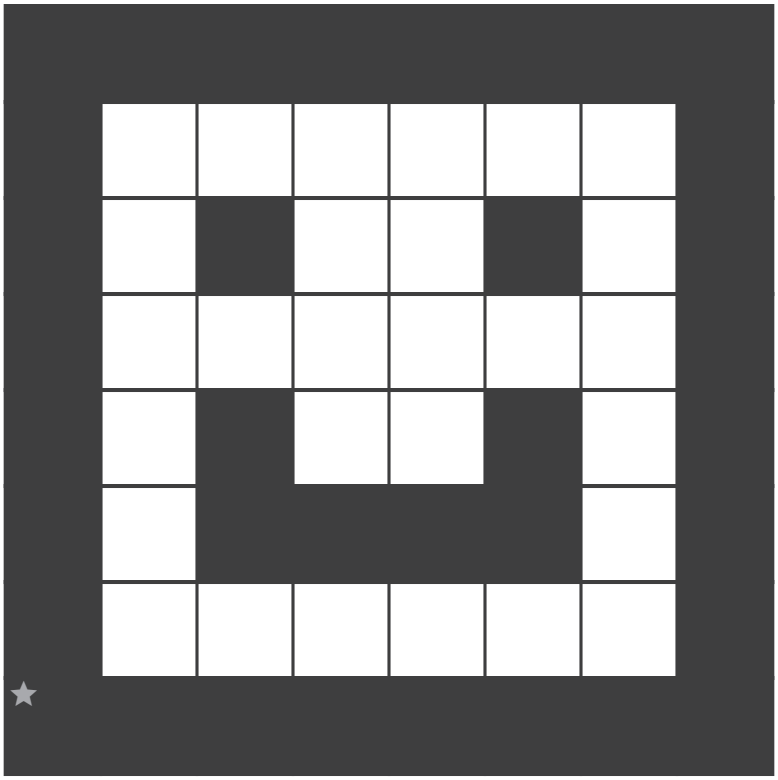
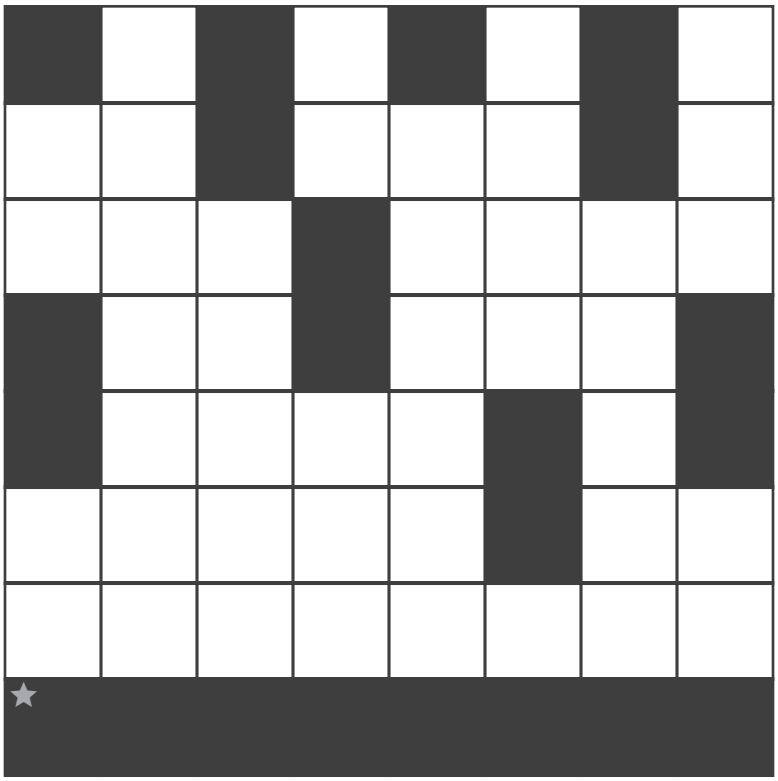
Large Pixel Grids





Challenge Problems - 1





Challenge Problems - 2