



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

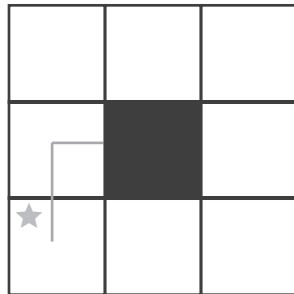
This is a Pixel Bots Javascript exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

Code Elements

up()
left()
paint()

down()
right()

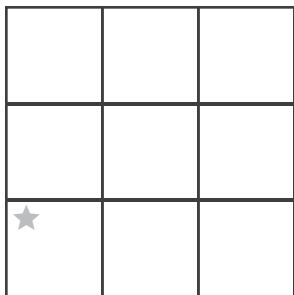
Example



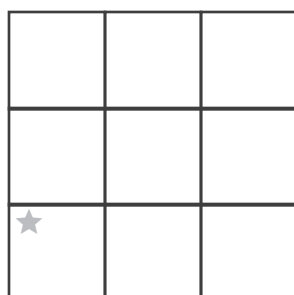
```
1 up()  
2 right()  
3 paint()
```

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

<code>up(steps)</code>	<code>down(steps)</code>
<code>left(steps)</code>	<code>right(steps)</code>
<code>paint(color)</code>	

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()

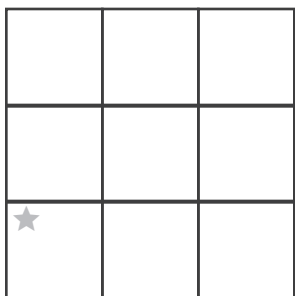
Example



```
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.



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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.



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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

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

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

<code>up()</code>	<code>down()</code>
<code>left()</code>	<code>right()</code>
<code>paint()</code>	

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

<code>up()</code>	<code>down()</code>
<code>left()</code>	<code>right()</code>
<code>paint()</code>	

Problem

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





Lesson 3 | Exit Ticket

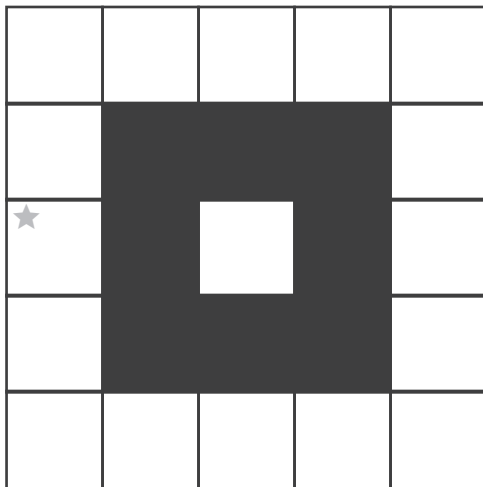
This is a Pixel Bots JavaScript exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

Code Elements

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

Problem

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



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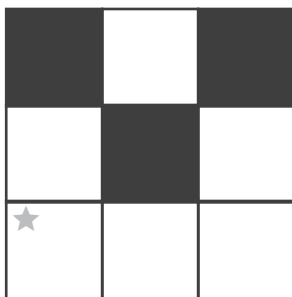


Lesson 4 | Worksheet 1

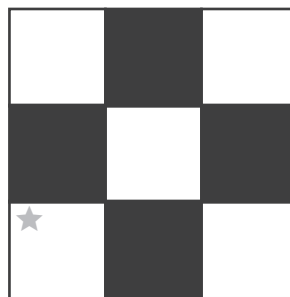
This is an online Pixel Bots exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

Problems

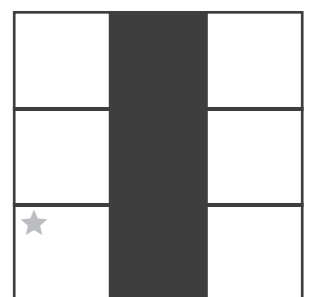
You are a coder. Write code to command the pixel bot to paint the pictures.



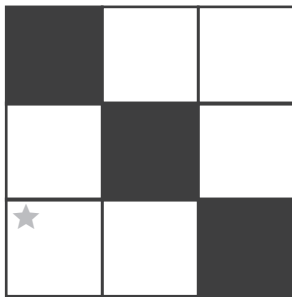
- ☐ done
- ☐ explained



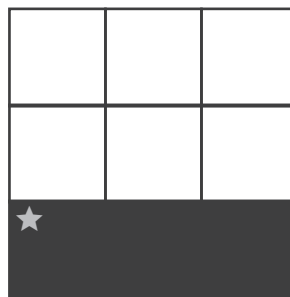
- ☐ done
- ☐ explained



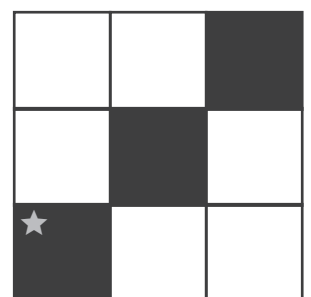
- ☐ done
- ☐ explained



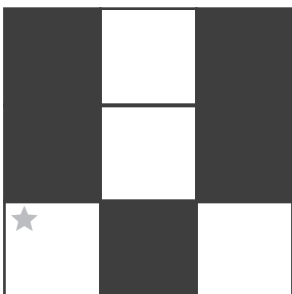
- ☐ done
- ☐ explained



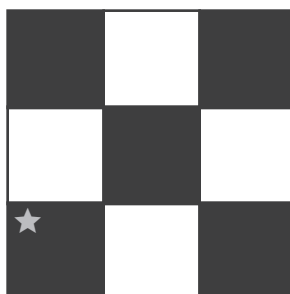
- ☐ done
- ☐ explained



- ☐ done
- ☐ explained



- ☐ done
- ☐ explained



- ☐ done
- ☐ explained





Lesson 4 | Exit Ticket

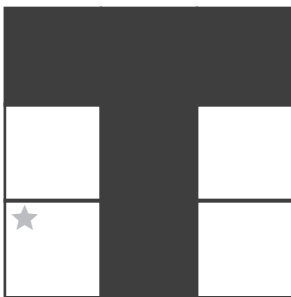
This is a Pixel Bots JavaScript exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

Code Elements

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

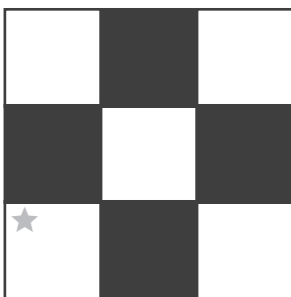
Problem

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



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Lesson 5 | Warm-up

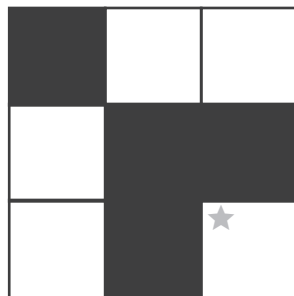
This is a Pixel Bots JavaScript exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

Code Elements

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

Problems

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



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Lesson 5 | Exit Ticket

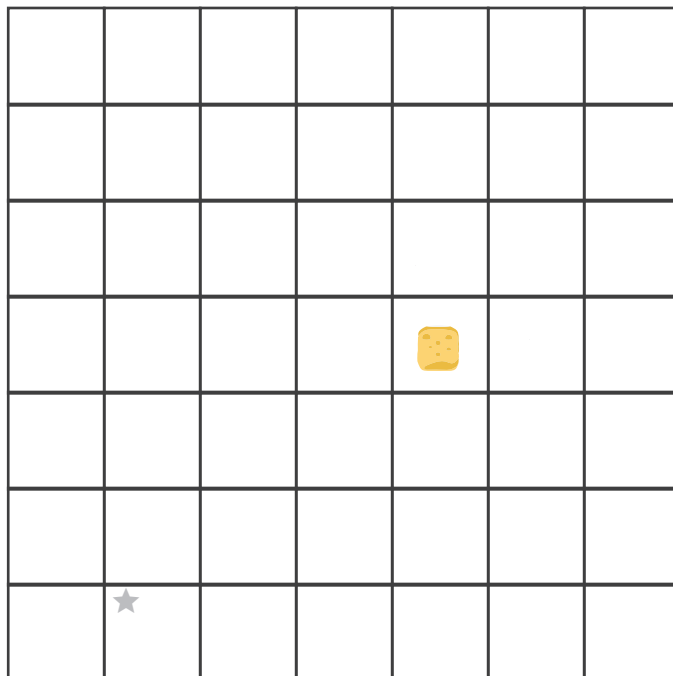
This is a Mouse Bot JavaScript exercise. In Mouse Bot we program the bot to eat the cheese.

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

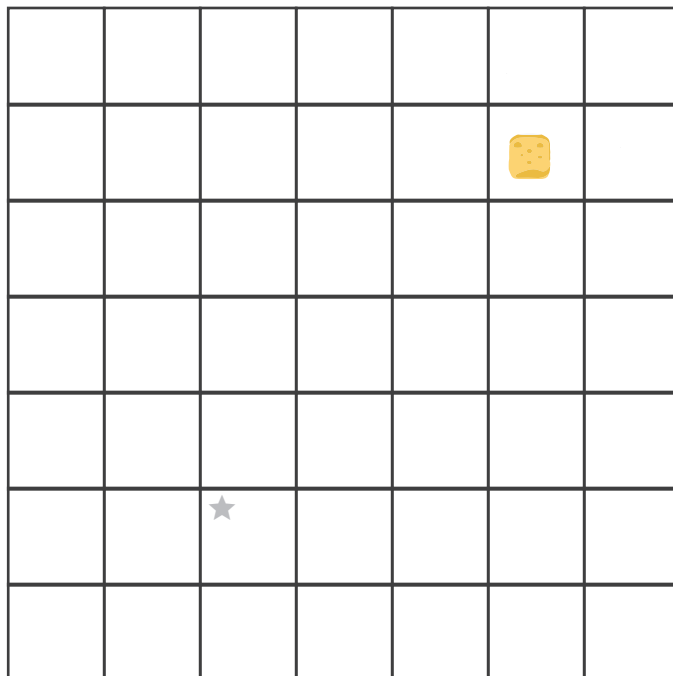
This is a Mouse Bot JavaScript exercise. In Mouse Bot we program the bot to eat the cheese.

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

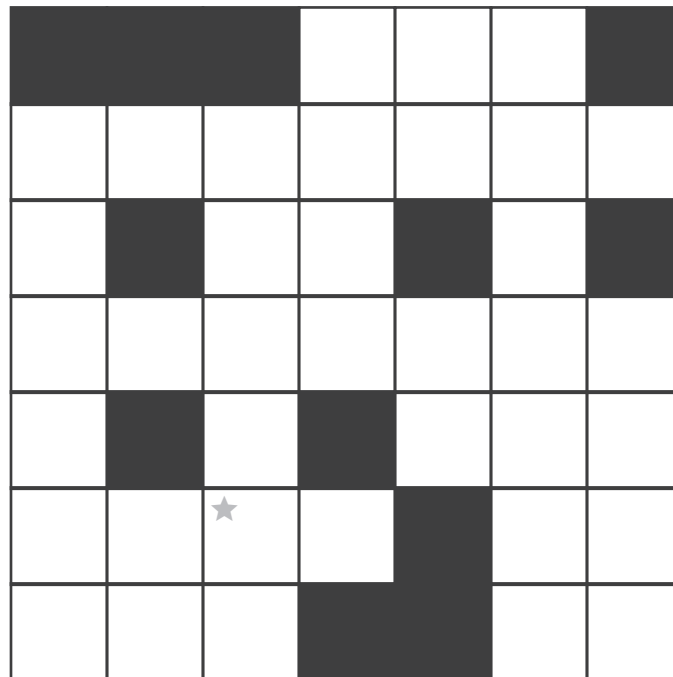
This is a Pixel Bots JavaScript exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

Code Elements

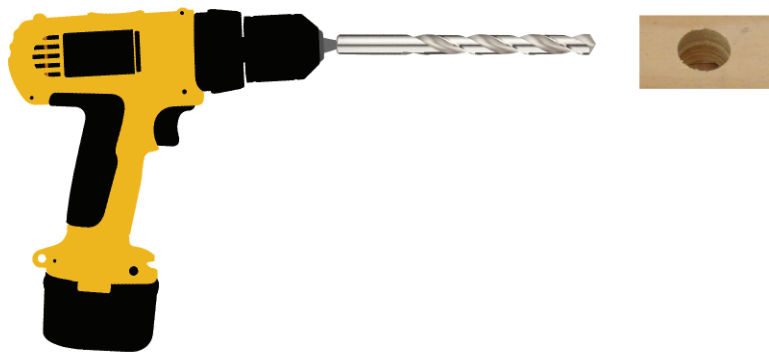
up() down()
left() right()
paint()

Problems

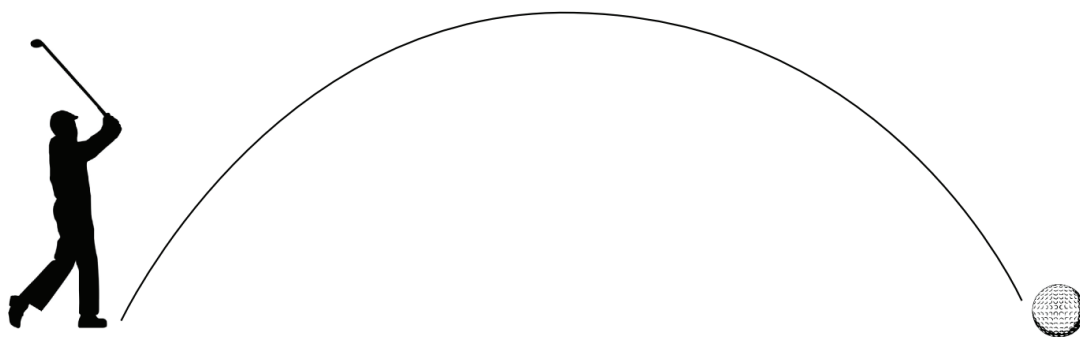
You are a coder. On the code line paper, write code to command the pixel bot to paint the picture.



{ } 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)`

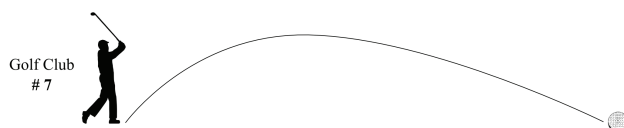
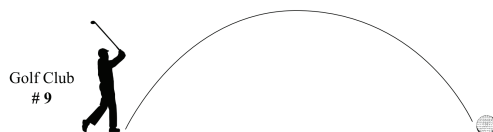


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Program the golfer to hit the ball 3 different distances.

Code Elements

`swing(club)`

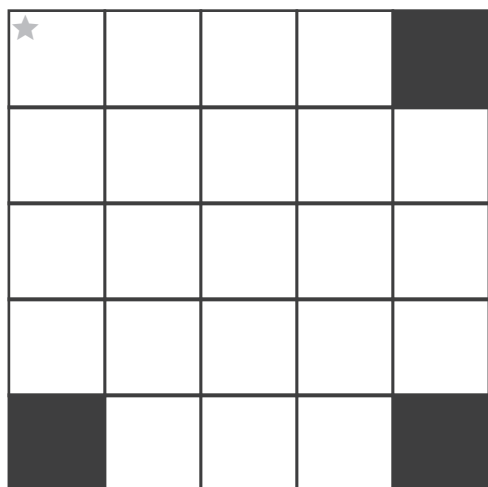


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Lesson 7 | Worksheet 1 (cont'd)

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.



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

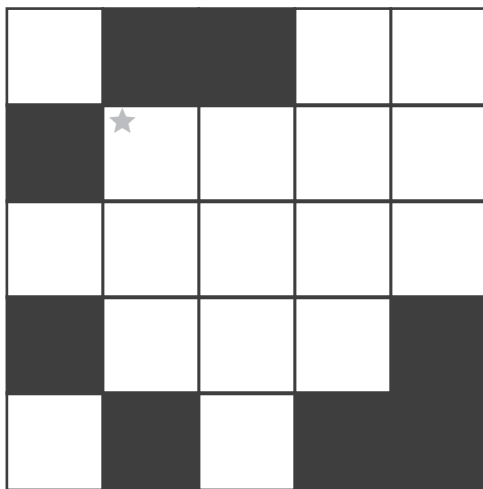


Lesson 7 | Worksheet 2

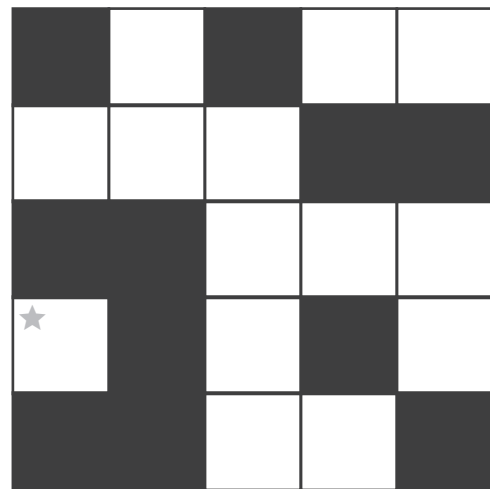
This is an online Pixel Bots exercise. In Pixel Bots we program bots to paint pictures using Code Elements.

Problems

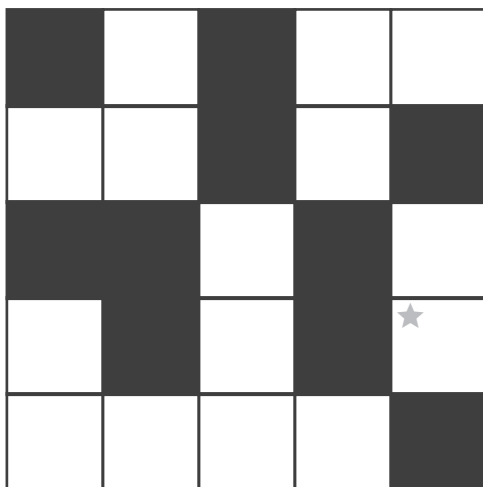
You are a coder. Write code to command the pixel bot to paint the pictures.



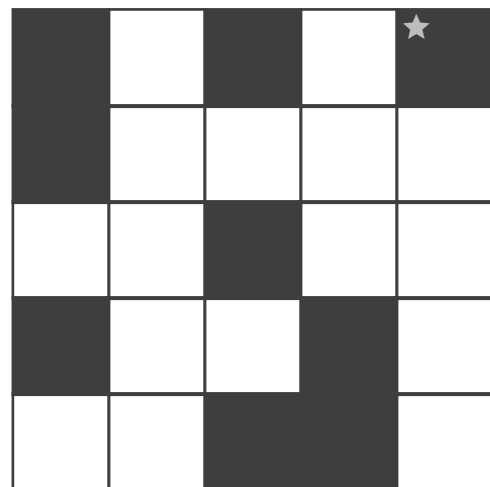
- ☐ done
- ☐ explained



- ☐ 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)`

`left(steps)`

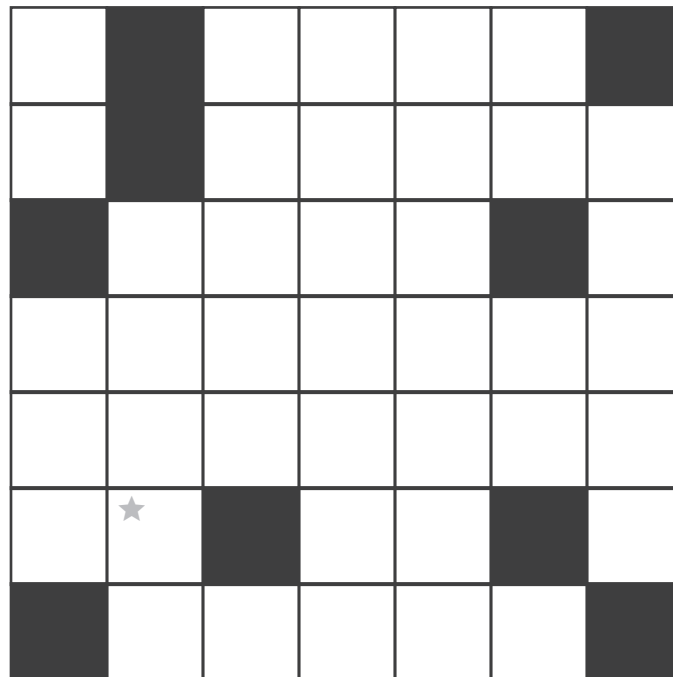
`paint()`

`down(steps)`

`right(steps)`

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)`

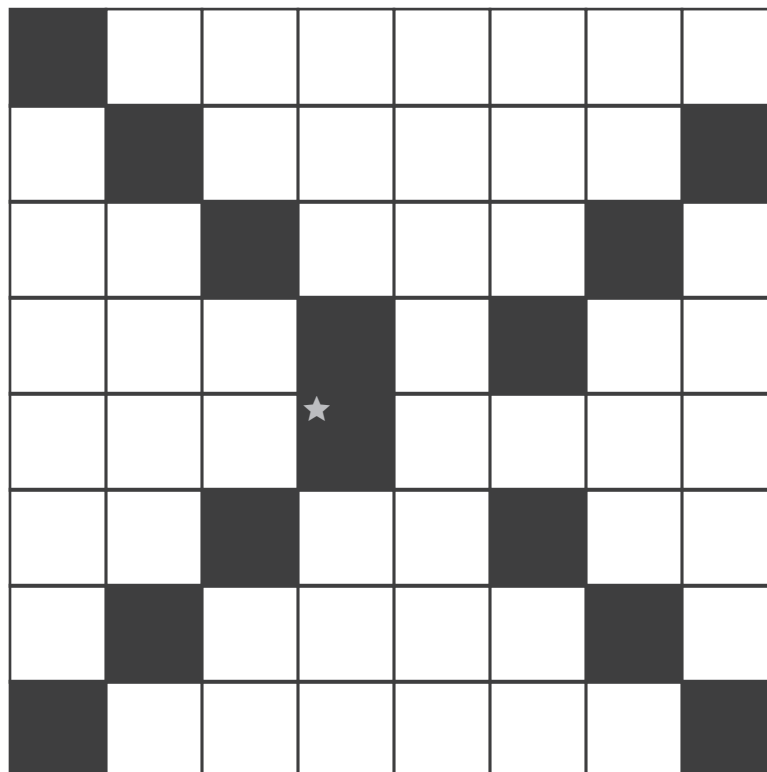
`right(steps)`

`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.

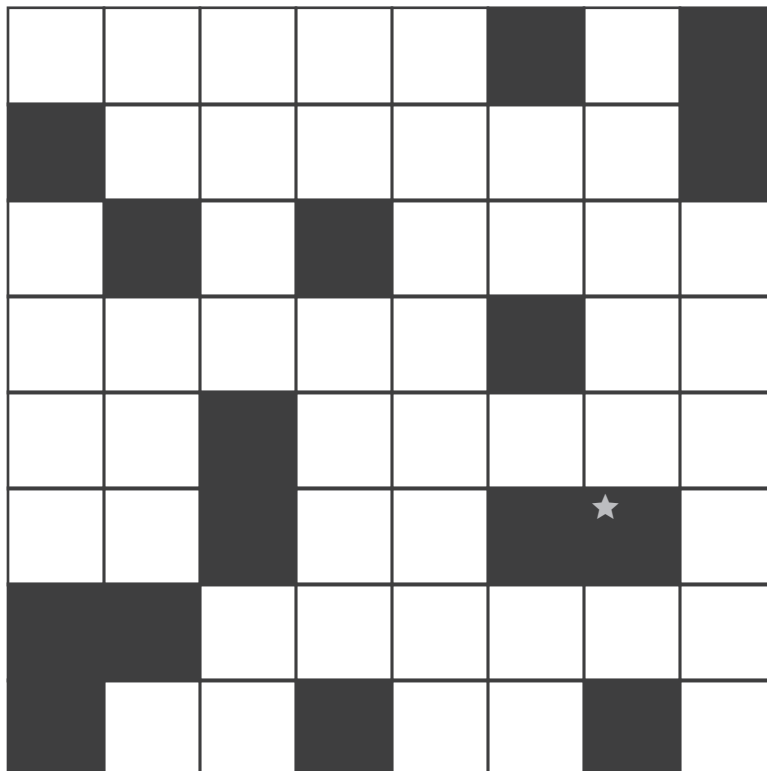
Code Elements

`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





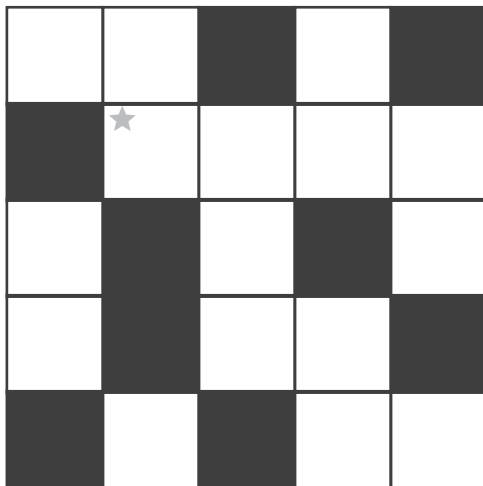
Lesson 8 | Worksheet 3

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.

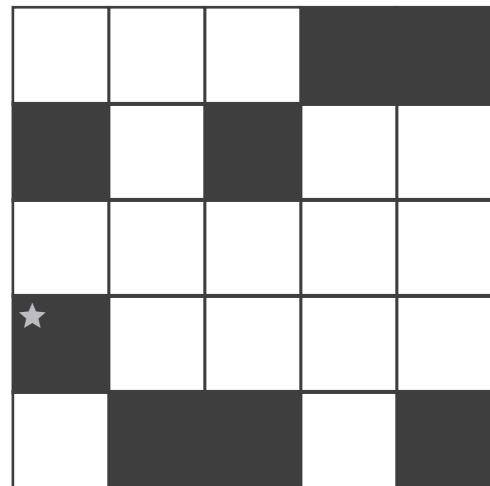
lines of code: 18



☐ done

☐ explained

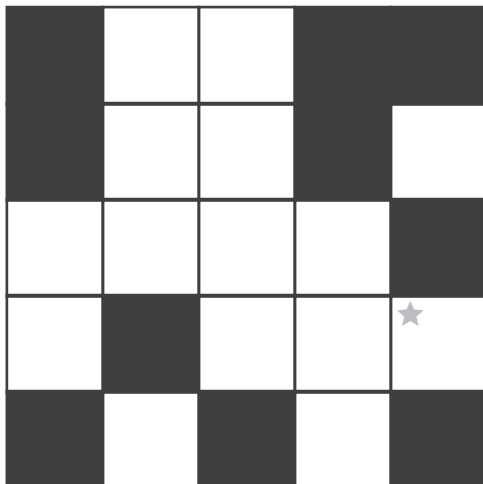
lines of code: 15



☐ done

☐ explained

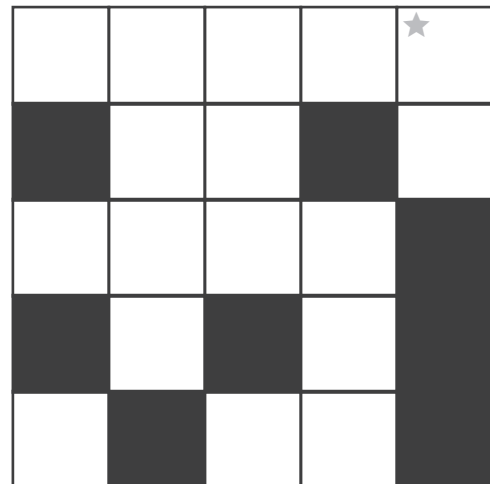
lines of code: 21



☐ 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)`

`left(steps)`

`paint()`

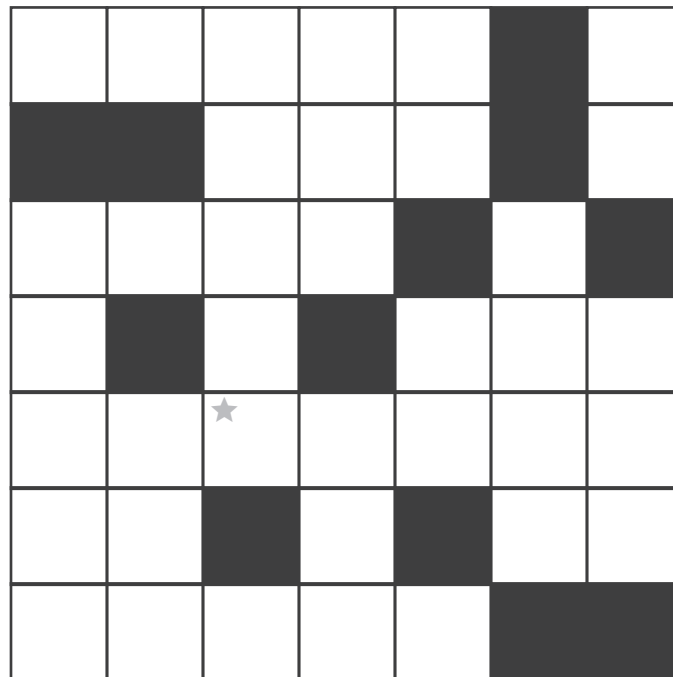
`down(steps)`

`right(steps)`

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

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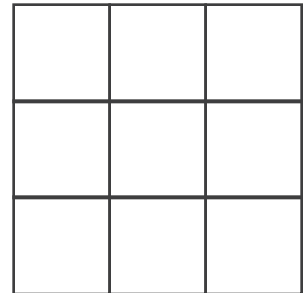
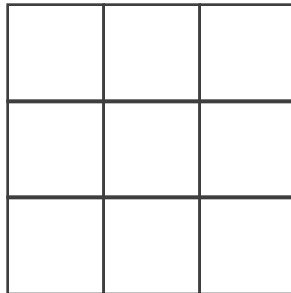
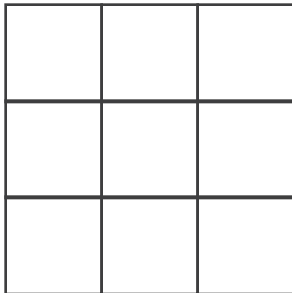
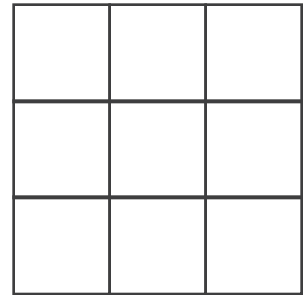
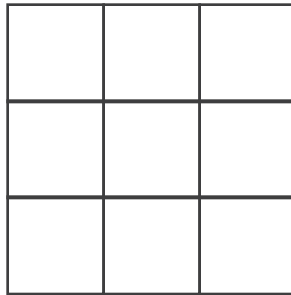
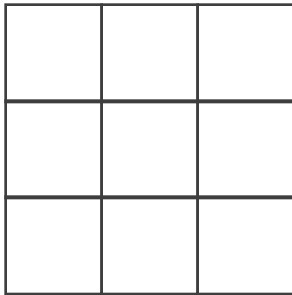
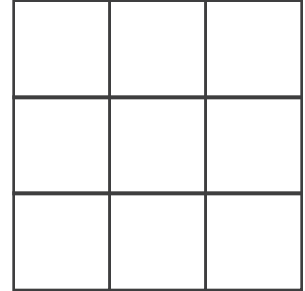
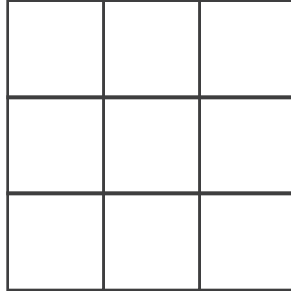
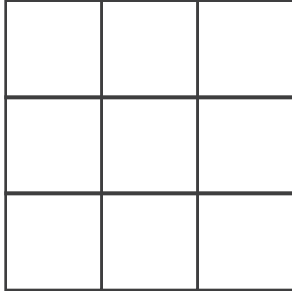


Coding Paper

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7		37		67	
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10		40		70	
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13		43		73	
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21		51		81	
22		52		82	
23		53		83	
24		54		84	
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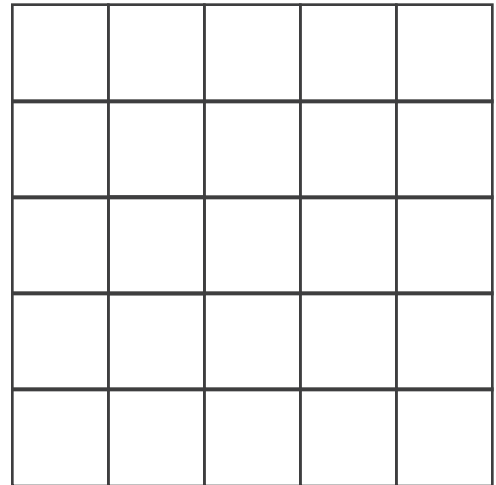
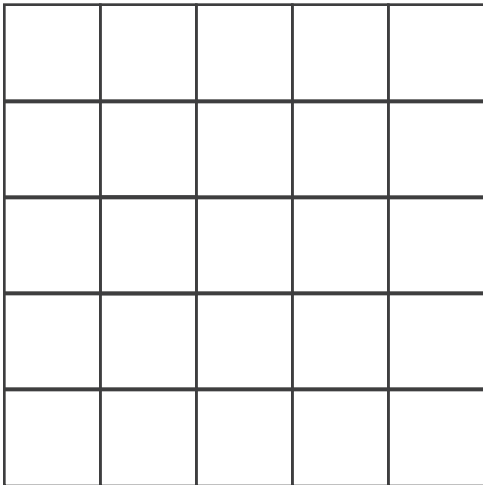
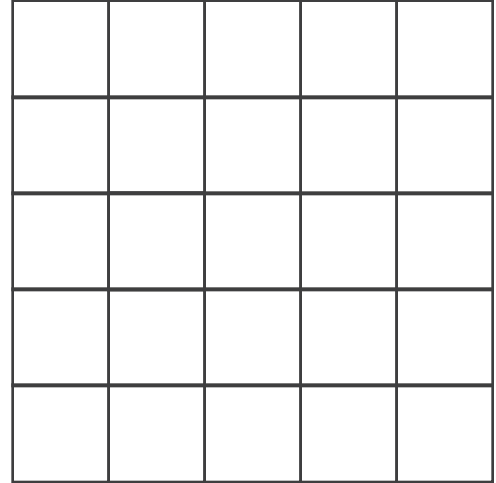
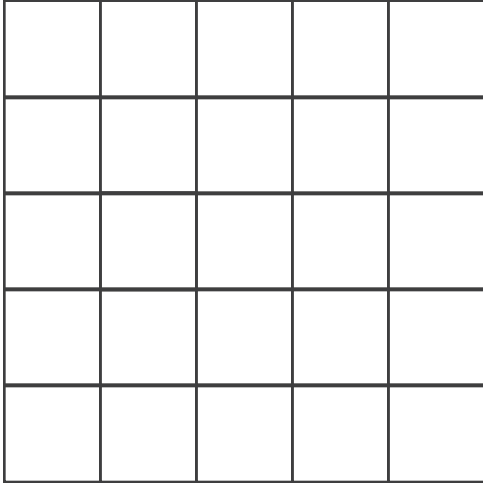


Small Pixel Grids



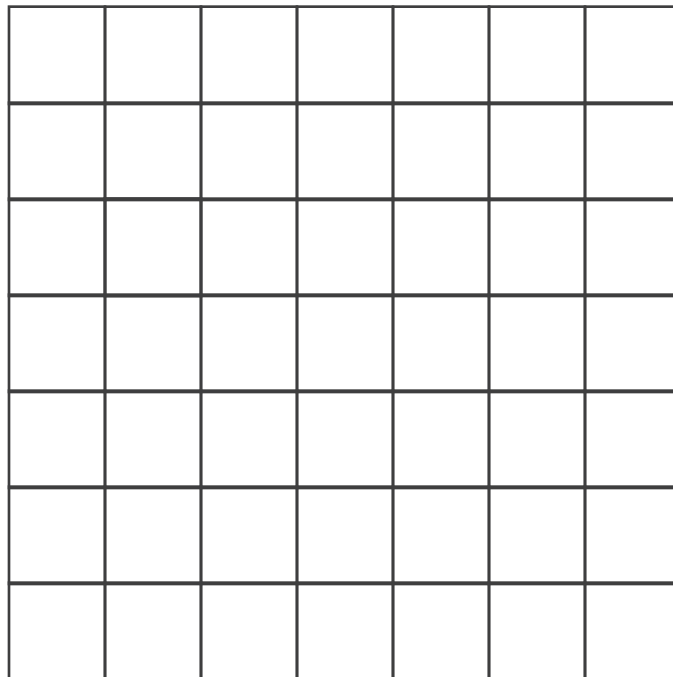
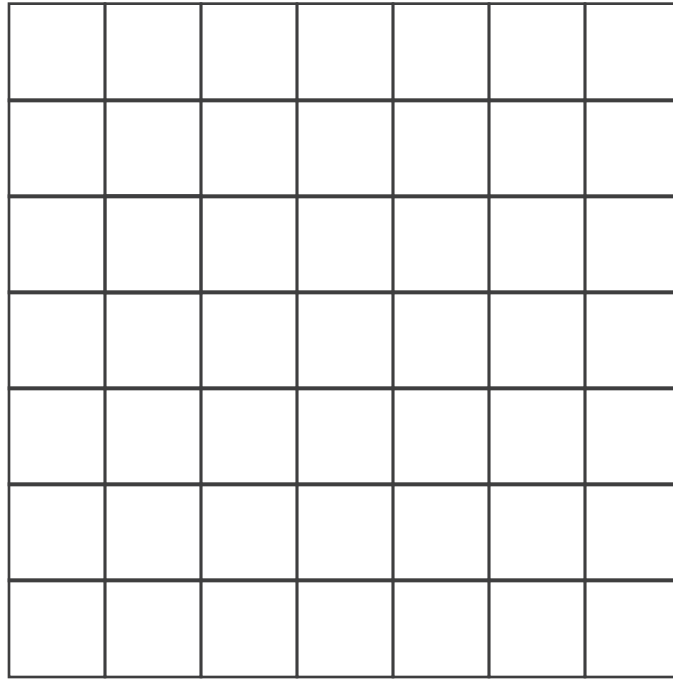


Medium Pixel Grids



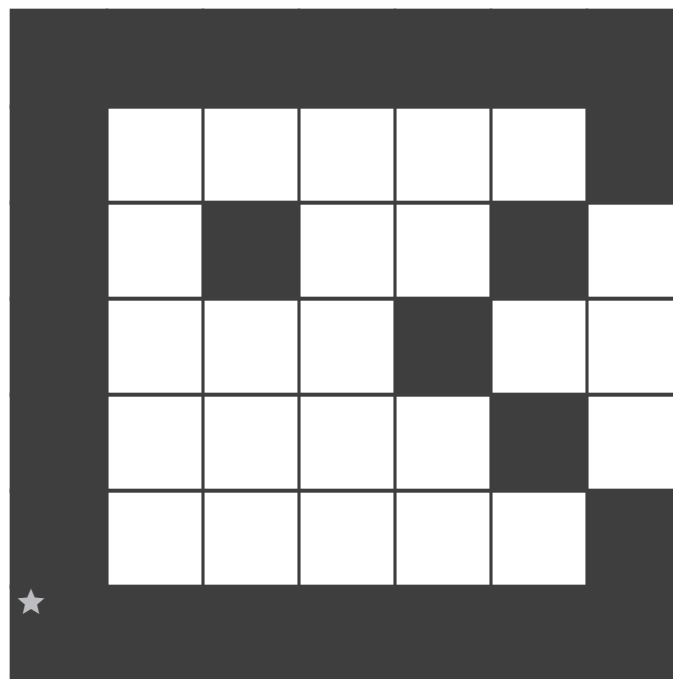
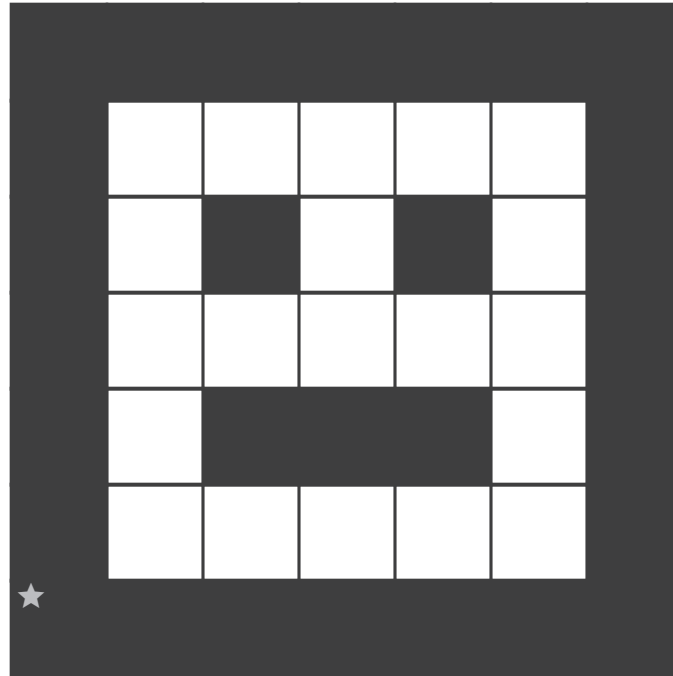


Large Pixel Grids





Challenge Problems - 1





Challenge Problems - 2

