

Coding Without Computers

Winter Scavenger Hunt

Programming Problems Using
Basic Command Blocks

Example of how to do work on paper at end of packet

Algorithms

An algorithm is a list of steps that will get run to complete a specific task. When you write code for your projects you will often use multiple algorithms to complete each task.

There are 3 main types of algorithms:

1. Sequence algorithm – this algorithm will run a list of commands from the top to the bottom.
2. Selection algorithm – this type of algorithm uses if and else/if statements. If a condition is true the line of code will get run.
3. Iteration algorithm – this type of algorithm is made up of repeat blocks or loop blocks. The block of code will run for a specific number of times while the condition is true.

When you complete the coding activities in this lesson you will be learning about **sequence algorithms**.

Each worksheet has a short program that uses basic robot commands (move forward, turn left, turn right) and repeat blocks. Read the code from top to bottom and plot the movement of the player for each of the 3 scenarios on the right side of the code.

Algorithms

A list of steps that are used to complete a specific task.

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Sequence Algorithm

This type of algorithm is made up of a list of steps. The list of steps/commands will get run from the top to the bottom.

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Student Direction Page

The **kids** are enjoying a great time playing a scavenger hunt game. Run the same code for each grid on the page to determine the path that the boy or girl took. The arrow indicates the direction that he/she is facing and will begin to move. Color the squares that show the path they took.

- **Move Forward** means to advance 1 square.
- **Turn Right** means to turn right 90 degrees while staying in the same square.
- **Turn Left** means to turn left 90 degrees while staying in the same square.
- **Repeat Blocks (Green)** means to repeat the command inside the block of code that number of times.

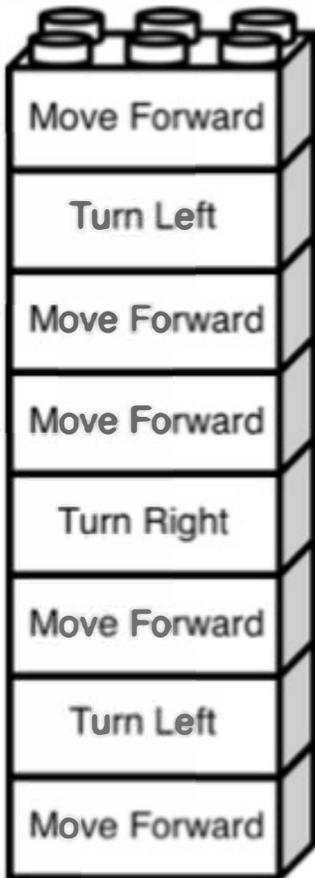


Mission 1

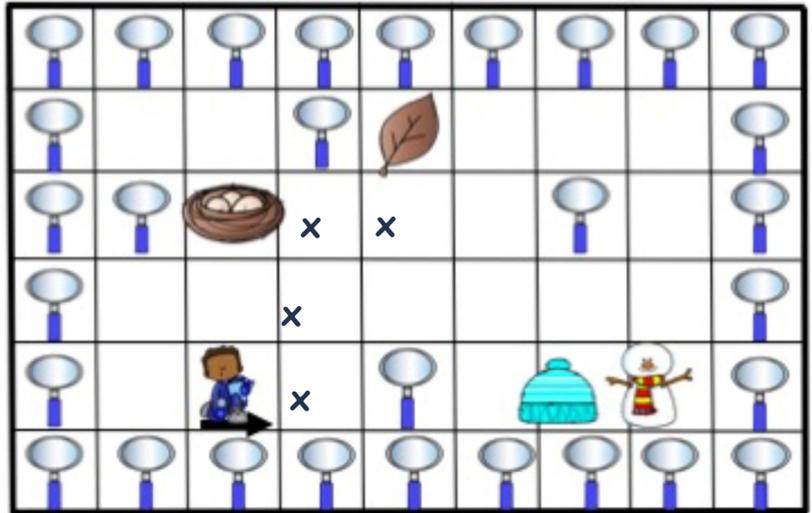
Run the code sequentially from top to bottom. When you come to a **turn** command, you will either **turn left** or **right** while staying in that same square. Adlai is looking for a:

- Hat
- Snowman
- Bird nest
- Leaf

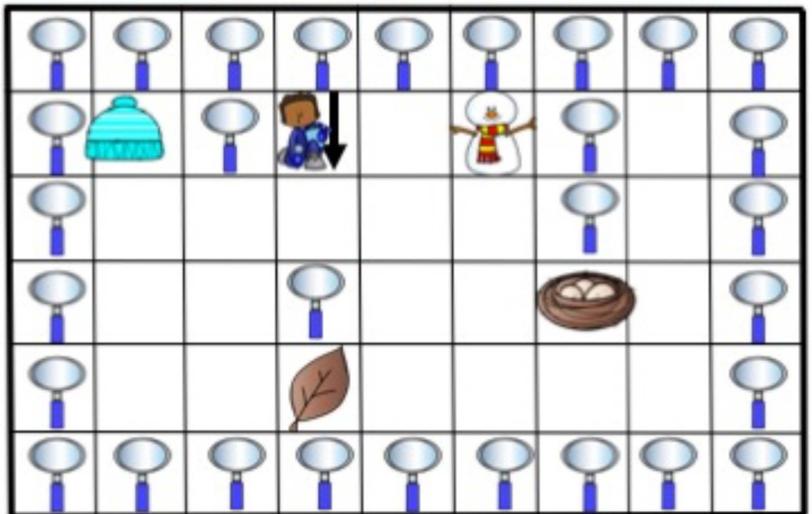
Run the blocks of code for each grid and place an X in the squares to show your path. See which items he can find on his list.



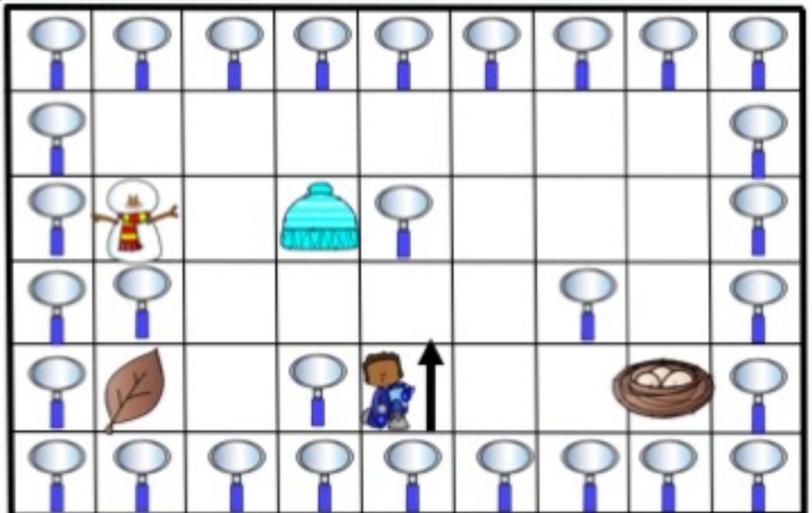
Did Adlai find the snowman, the bird nest, the hat, or the leaf? LEAF



Did Adlai find the snowman, the bird nest, the hat, or the leaf?



Did Adlai find the snowman, the bird nest, the hat, or the leaf?



Mission 2

Run the code sequentially from top to bottom. Remember to stay in your square when making a turn. Ambrosia is on a scavenger hunt for the items listed below:

- Mushroom
- Racoon
- Berries
- Tree

Run the blocks of code for each grid and place an X in the squares to show the correct path.

Move Forward
Move Forward
Move Forward
Turn Right
Move Forward
Move Forward
Turn Left
Move Forward
Turn Right
Move Forward



Did Ambrosia find the mushroom, racoon, berries, or the tree?

Did Ambrosia find the mushroom, racoon, berries, or the tree?

Did Ambrosia find the mushroom, racoon, berries, or the tree?

Mission 3

Run the code sequentially from top to bottom. Delano is on a scavenger hunt for the following items:

- Gingerbread man
- Candy house
- Candy cane
- Lollipop

Run the code to trace his path on the grid to help him find his items. Place an X in the squares to show the correct path.

Turn Left
Move Forward
Turn Right
Move Forward
Move Forward
Turn Right
Move Forward
Move Forward
Turn Right
Move Forward
Turn Left
Move Forward



Did Delano find the gingerbread man, the candy house, the candy cane, or the lollipop?.

Did Delano find the gingerbread man, the candy house, the candy cane, or the lollipop?.

Did Delano find the gingerbread man, the candy house, the candy cane, or the lollipop?.

Mission 4

Run the code sequentially from top to bottom. Melina is on a scavenger hunt and is looking for the following items:

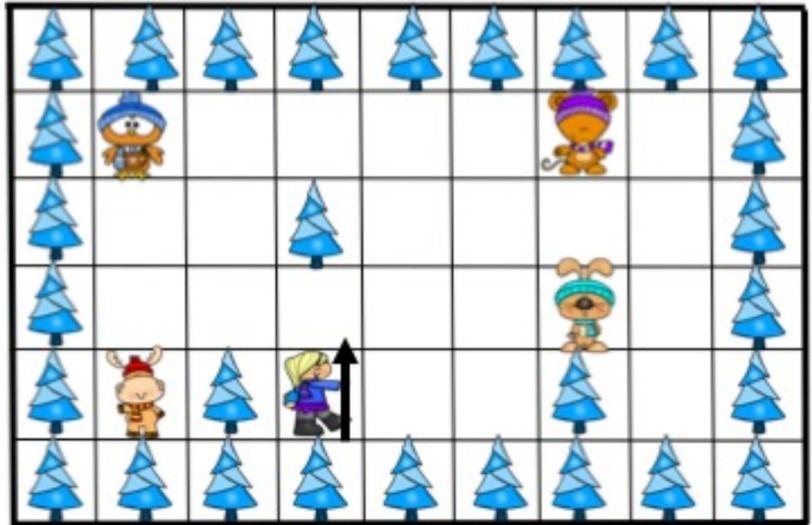
- A bear
- An owl
- A rabbit
- A moose.

Run the code to trace her path on the grid and help her find her items. Place an X in the squares to show the correct path.

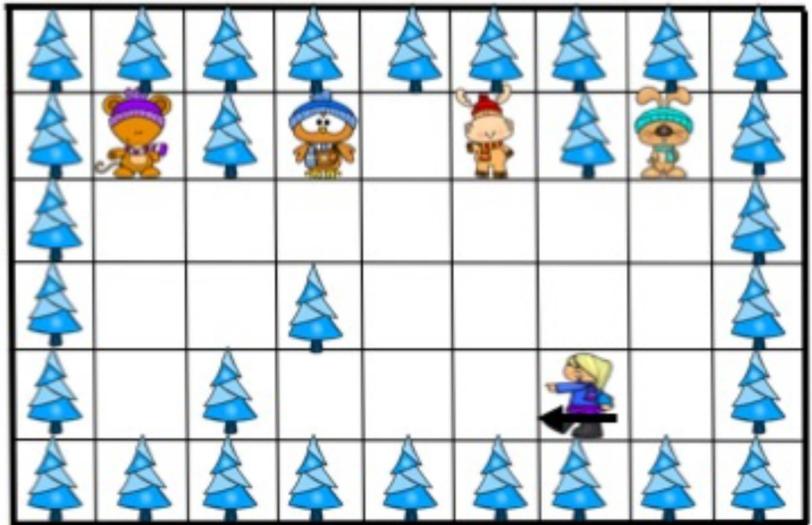
Move Forward
Turn Right
Move Forward
Turn Left
Move Forward
Turn Right
Move Forward
Move Forward
Turn Left
Move Forward



Did Melina find a mouse, an owl, a rabbit, or the moose?



Did Melina find a mouse, an owl, a rabbit, or the moose?



Did Melina find a mouse, an owl, a rabbit, or the moose?



Mission 5

Run the code sequentially from top to bottom. When you come to a **turn block** make sure to stay in the same square when making your turn. Noe is on a scavenger hunt and is looking for the items listed below:

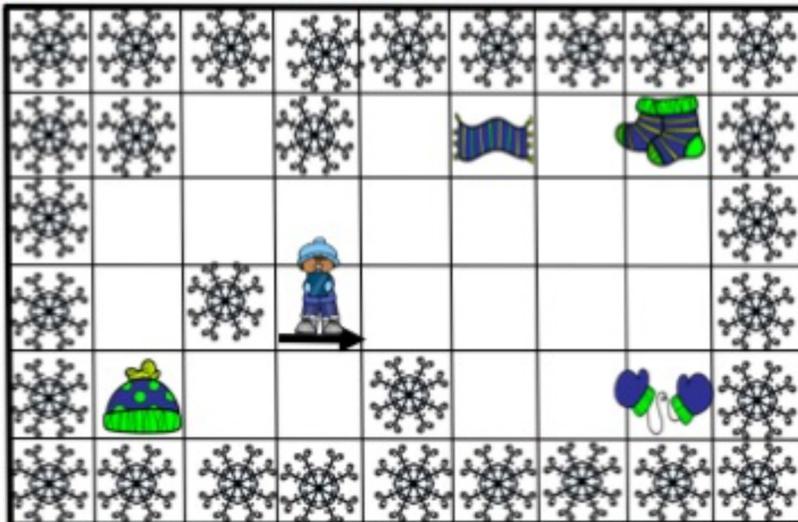
- Gloves
- Hat
- Scarf
- Booties

Run the blocks of code for each grid to determine which items Noe found. Place an **X** in the squares to show your path.

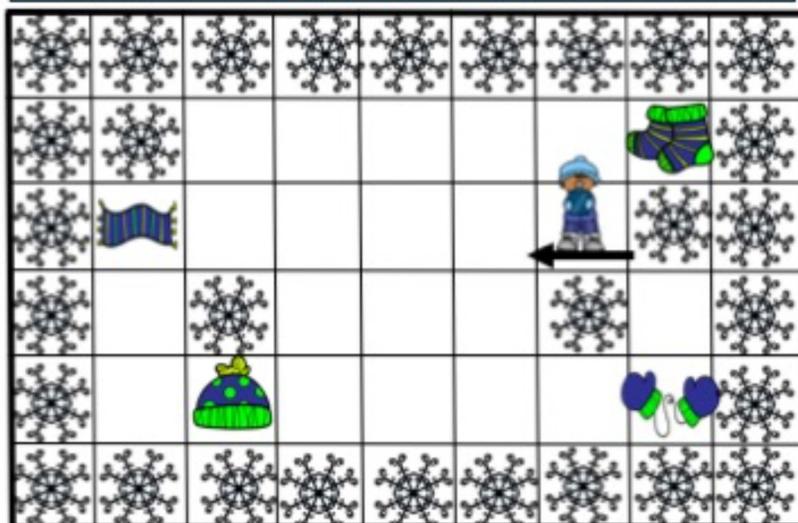
Move Forward
Move Forward
Turn Right
Move Forward
Turn Left
Move Forward
Turn Left
Move Forward
Move Forward
Move Forward
Turn Right
Move Forward



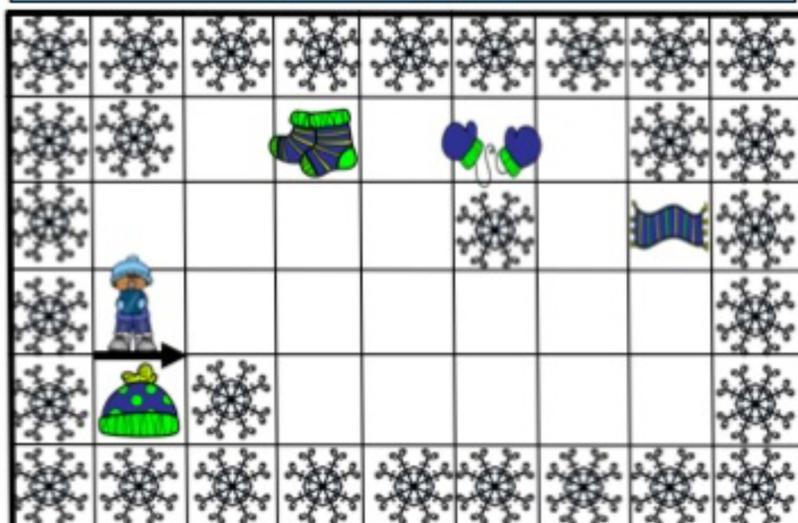
Did Noe find the gloves, the hat, the scarf, or the booties?



Did Noe find the gloves, the hat, the scarf, or the booties?



Did Noe find the gloves, the hat, the scarf, or the booties?



Mission 6

Run the code sequentially from top to bottom. When you come to a **turn block** make sure to stay in the same square when making your turn. Sage is on her scavenger hunt and is looking for the items below:

- A Leaf
- A Branch
- A Bird
- A Paw Print.

Run the blocks of code for each grid to determine which items Sage found. Place an X in the squares to show your path.

Turn Right

Turn Right

Move Forward

Move Forward

Turn Left

Move Forward

Move Forward

Turn Left

Move Forward

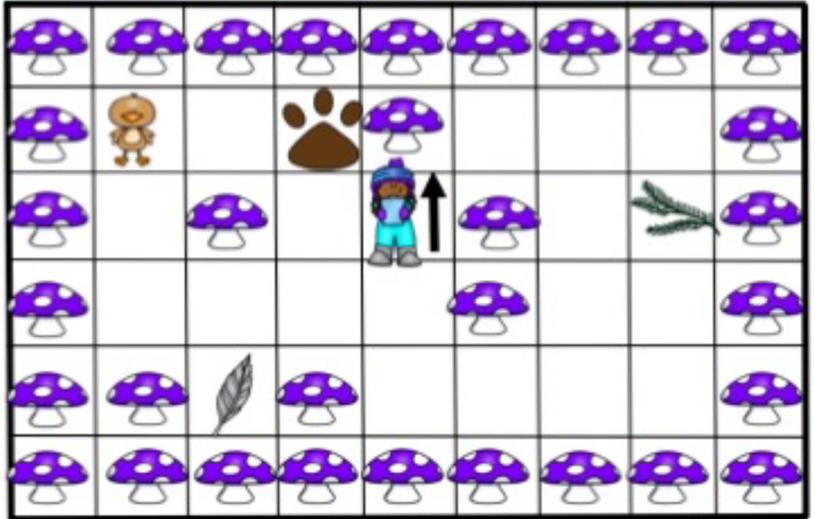
Move Forward

Turn Right

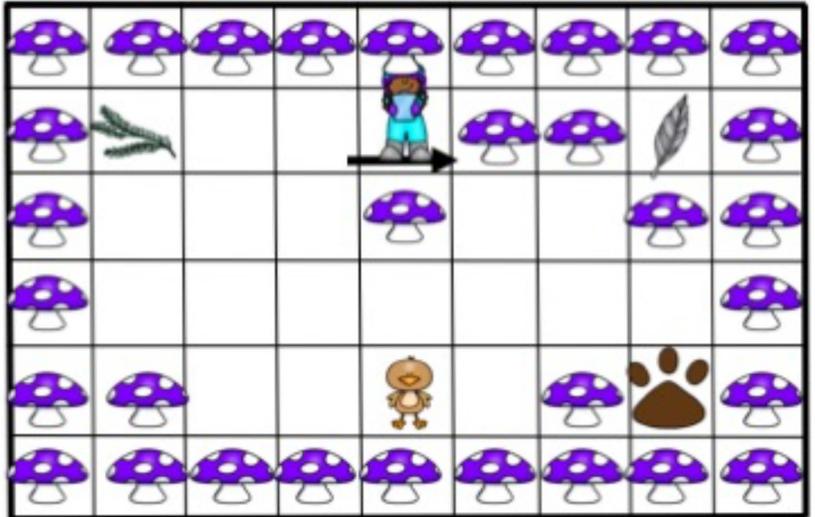
Move Forward



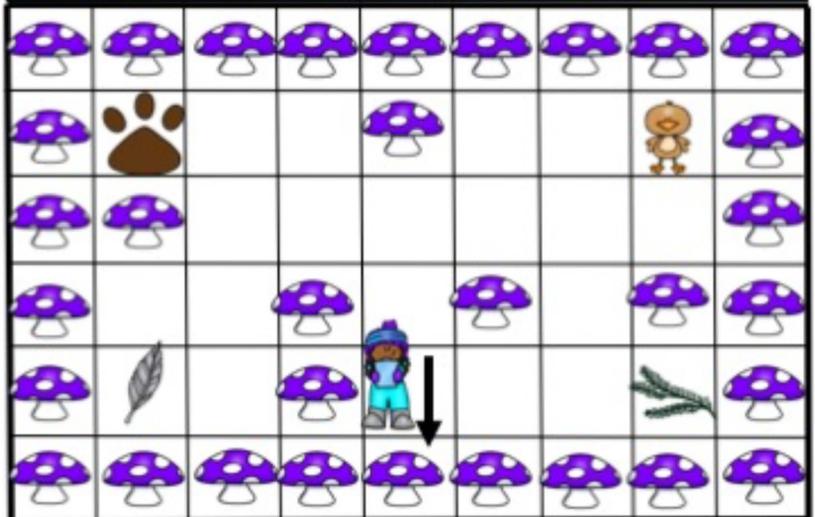
Did Sage find the leaf, the branch, the bird, or the paw print?



Did Sage find the leaf, the branch, the bird, or the paw print?



Did Sage find the leaf, the branch, the bird, or the paw print?



Algorithms

A list of steps that are used to complete a specific task.

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Sequence Algorithm

This type of algorithm is made up of a list of steps. The list of steps/commands will get run from the top to the bottom.

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Iteration Algorithms

This type of algorithm is made up of repeat blocks or loop blocks. The repeat block runs a specific number of times.

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Student Direction Page

The **boys and girls** are enjoying a great time playing in the woods. Run the same code for each grid on the page to determine the path that the boy or girl took. The arrow indicates the direction that he/she is facing and will begin to move. Color the squares that show the path they took.

- **Move Forward** means to advance 1 square.
- **Turn Right** means to turn right 90 degrees while staying in the same square.
- **Turn Left** means to turn left 90 degrees while staying in the same square.
- **Repeat Blocks (Green)** means to repeat the command inside the block of code that number of times.



Mission 1

Run the code sequentially from top to bottom. When you come to the iteration make sure you run the code inside the repeat block the designated number of times. Raymond is getting ready to go hiking. Help him locate his map, compass, and flashlight so that he can have a safe hike. Run the blocks of code for each grid and place an X in the squares to show your path.

```

Move Forward
Turn Right
Move Forward
Repeat
3 Turn Left
Move Forward
Move Forward
Times
Turn Right
Move Forward
    
```



Help Raymond find his way to his map.

Tree	Tree	Tree	Tree	Tree	Tree	Tree	Tree	Tree
Tree								Tree
Tree	Tree		Tree		Tree			Tree
Tree			Map				Tree	Tree
Tree			Tree	Tree	Raymond	Tree		Tree
Tree	Tree	Tree	Tree	Tree	Tree	Tree	Tree	Tree

Help Raymond find his way to his compass.

Tree	Tree	Tree	Tree	Tree	Tree	Tree	Tree	Tree
Tree			Raymond					Tree
Tree	Tree				Compass		Tree	Tree
Tree			Tree				Tree	Tree
Tree								Tree
Tree	Tree	Tree	Tree	Tree	Tree	Tree	Tree	Tree

Help Raymond find his way to his flashlight.

Tree	Tree	Tree	Tree	Tree	Tree	Tree	Tree	Tree
Tree								Tree
Tree	Tree			Tree		Raymond		Tree
Tree								Tree
Tree			Tree	Tree	Flashlight		Tree	Tree
Tree	Tree	Tree	Tree	Tree	Tree	Tree	Tree	Tree

Mission 2

Run the code sequentially from top to bottom. Since you are starting with the iteration make sure you run the code inside the repeat block before repeating the designated number of times. The kids are trying to find their way back to the cabin. Help them find the right path home. Run the blocks of code for each grid and place an X in the squares to show the correct path.



Repeat	
2	Move Forward
	Move Forward
	Turn Left
	Move Forward
	Turn Right
	Move Forward
Times	

Help Serena find her way home.

Tree	Tree	Tree	Tree	Tree	Tree	Tree	Tree	Tree
Tree						Tree		Tree
Tree					Tree		Cabin	Tree
Tree		Tree					Tree	Tree
Tree	Person			Tree				Tree
Tree	Arrow	Tree	Tree	Tree	Tree	Tree	Tree	Tree

Help Raymond find his way home.

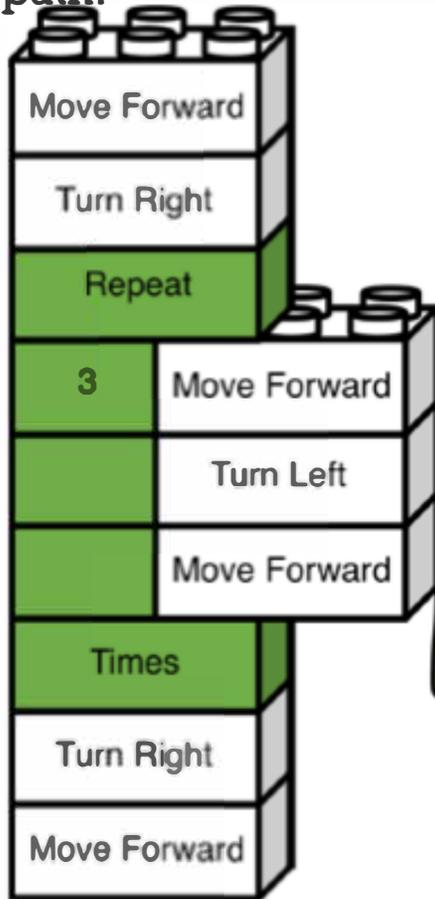
Tree	Tree	Tree	Tree	Tree	Tree	Tree	Tree	Tree
Tree				Tree			Person	Tree
Tree	Tree					Tree	Tree	Tree
Tree	Cabin			Sign			Tree	Tree
Tree								Tree
Tree	Tree	Tree	Tree	Tree	Tree	Tree	Tree	Tree

Help Tommy find his way home.

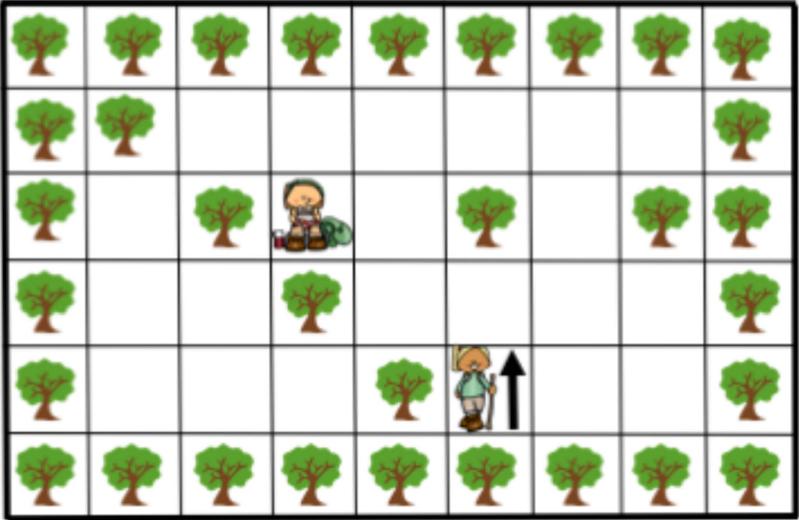
Tree	Tree	Tree	Tree	Tree	Tree	Tree	Tree	Tree
Tree	Tree				Tree	Tree		Cabin
Tree								Tree
Tree		Person						Tree
Tree		Tree						Tree
Tree	Tree	Tree	Tree	Tree	Tree	Tree	Tree	Tree

Mission 3

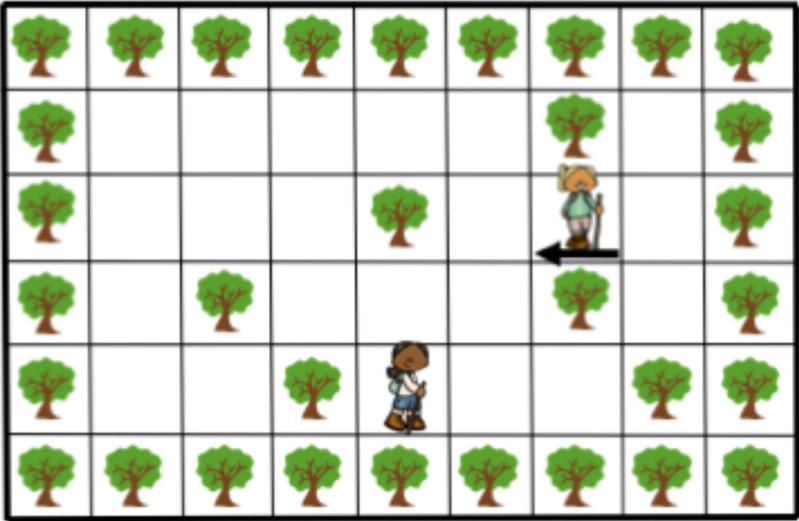
Run the code sequentially from top to bottom. When you come to the iteration make sure you run the code inside the repeat block the designated number of times. Julie is searching for her friends in the forest. Run the code to trace her path on the grid and help her find her friends. Place an X in the squares to show the correct path.



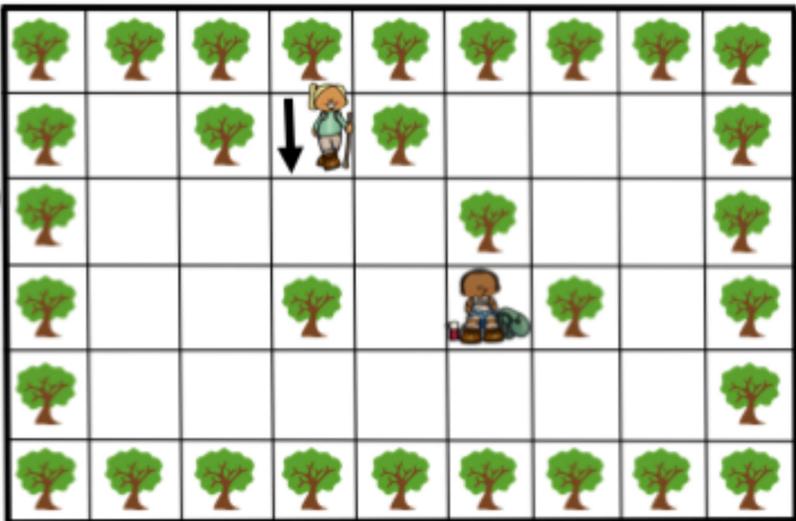
Help Julie find her friend Harper.



Help Julie find her friend Olivia.

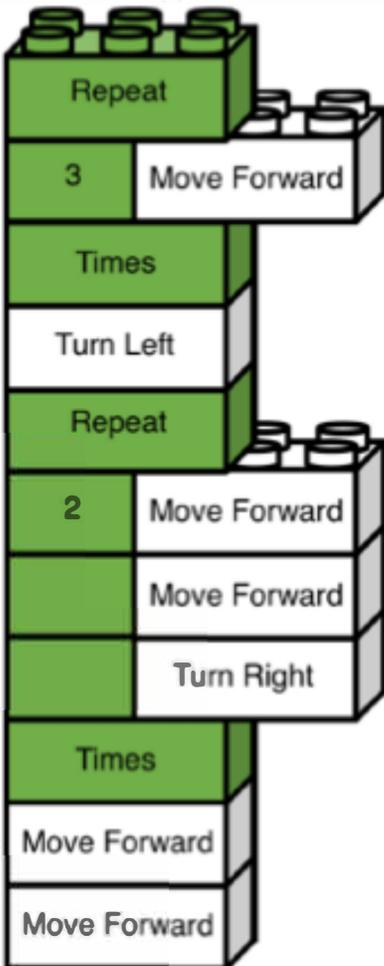


Help Julie find her friend Lucas.

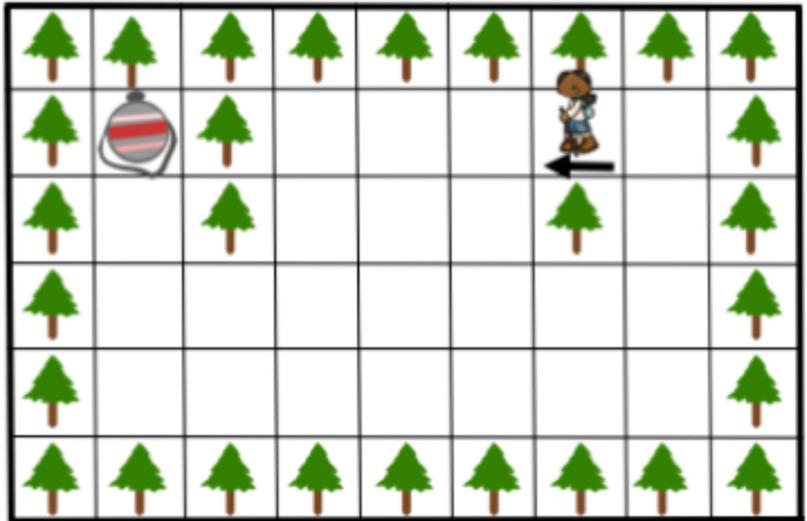


Mission 4

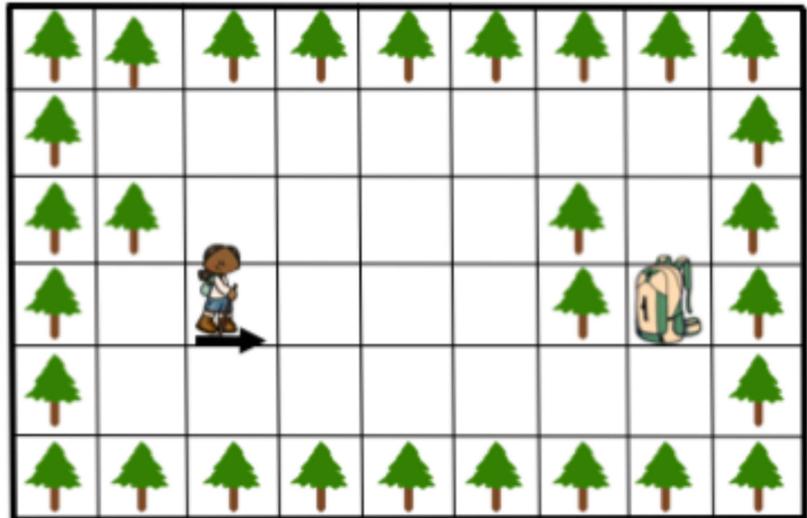
Run the code sequentially from top to bottom. When you come to the iteration make sure you run the code inside the repeat block the designated number of times before advancing to the next line. Ava has lost some of her camping gear. She is searching for her gear in the forest. Run the code to trace her path on the grid and help her find her gear. Place an X in the squares to show the correct path.



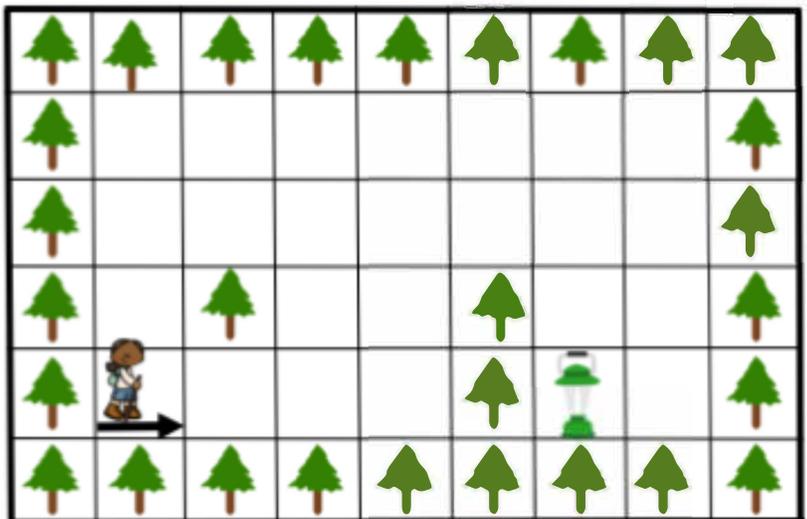
Help Ava find her way to her canteen.



Help Ava find her way to her backpack.



Help Ava find her way to her lantern.



Morin

(Example)

Monday

Mission 1 page 5 - Adlai finds the leaf (I did this one for you)

Mission 2 - Adlai finds the _____ (you do this one :))

Mission 3 - Adlai finds the _____

Mission 1 page 6 - Ambrosia finds the _____

Mission 2

Mission 3

Mission 1 page 7

Mission 2

Mission 3

Mission 1 page 8

Mission 2

Mission 3

Tuesday

(Begin Tuesday's work here)