

Programming Kara

What you need to know to program Kara for the exercises on this Sheet:

Actions

You program Kara, you write a list of actions that will be processed in order. The available actions are:

<code>move();</code>	move one step in the current direction
<code>turnLeft();</code>	change direction 90° to the left
<code>turnRight();</code>	change direction 90° to the right
<code>putLeaf();</code>	put a leaf on the current position
<code>removeLeaf();</code>	remove leaf from the current position

To use them, you just put them one after another into your program.

Sensors and the If-Statement (Conditional)

Kara can react to its environment using sensors.

The available sensors are:

<code>onLeaf()</code>	returns true if the current tile contains a leaf
<code>treeFront()</code>	returns true if the next tile in the current direction contains a tree
<code>treeLeft()</code>	returns true if tile to the left – again relative to current direction contains a tree.
<code>treeRight()</code>	Same for <code>treeRight</code> , only to the right.
<code>mushroomFront()</code>	true if the next tile in the current direction contains a mushroom.

If-Statement:

To use the sensors, you need a conditional statement, the Java if-statement (the else part can be omitted)

Example:

```
if (onLeaf()) {  
    // put the commands that should be executed if onLeaf() is true here  
} else {  
    // put the commands that should be executed otherwise here  
}
```

Example without else-case:

```
if (onLeaf()){
    removeLeaf();
}
```

Defining own actions for Kara (Methods)

(you won't need this before exercise 6)

If you need to do the same set of actions repeatedly, you can define an own action for Kara by defining a Java method:

This is especially useful in Exercise 6, where you need to walk around a tree several times. So you would define a method named "walkAroundTree" in Java like so:

```
public void walkAroundTree(){
    //put instructions to walk around tree here
}
```

You can then use the method as any other action listed above:

```
walkAroundTree();
move();
walkAroundTree();
move();
move();
....
```

This worksheet is adapted and condensed from CodeMakery's Greenfoot Kara tutorial which can be found here: <https://code.makery.ch/de/library/greenfoot-kara/chapter1/>

