Worksheets provide guidance throughout the program creation.

Mind the following symbols that:

- structure your work progress and show subgoals.
- provide help, mark and explain challenging and important notes.
- include assignments and activities.

**Jigsaw method: Motion and Drawing**

shows you how to program figures, which are later on animated and able to act.

Curious? Let’s get started!

**Let the cat run:**

In our program, the cat is supposed to run whenever you click the little green flag above the stage.
In order to determine the **start conditions**, click the drop-down button “Scripts”, select **Events** and choose the “when-little-green-flag-is-clicked-on”- mask. You can simply drag the mask into the **programming interface**.

Now choose "Scripts" from the drop-down menu and select **Motion**. Choose the **function** "go-10-step" and drag it exactly under your starting condition (so that the puzzle pieces snap into each other).

⚠️ **Test your program** by clicking on the **little green flag** above the stage. 🐱

You can always move the cat 🐱 to any position within the stage after it has run.
Scratch – Jigsaw method
Motion and Drawing

- Write it down: !
- Then, test your program.

What do you have to do, if I should do more or less than 10 steps forward?
Can you make me move in a different way, too?

Now let the cat run on the stage to the right edge. Use the function loop, so that your program does not have to run until the cat reaches the edge. In order to do this, select "forever" from the Control and drag it under the start condition.
What do you think? List your considerations here:

- If the cat now touches the edge of the stage, it should bounce off, change direction and continue.
- Think about with what puzzle pieces from the Motion function you can let the cat change its direction before it reaches the edge of the stage.
- Put your thoughts into practice and test your program.
- The cat should now be moved with the arrow keys. Create a new program for this!
  - Attention: Now we have to change the starting condition!
  - Find the appropriate starting condition from the mask Events
  - then the two jigsaw pieces of Motion that fit our goal
The cat can also run to a certain spot on the stage you choose. It is oriented towards a coordinate plan.

You can display the coordinate positions from the Motion, to find out where your cat is on the stage right now. Just click on it.

You can also get my position through dragging the mouse over the stage.
1. Let 🐱 run to the right or to the left.

2. At what coordinates does it stop? Note:

3. Select a random x- and any y-coordinate on the stage and let your cat 🐱 go there. Use different commands from the Motion mask.

4. What does the term “coordinate” mean? Explain:

Please, keep in mind:
Everything you drag into the loop is performed permanently - without any break constantly repeated. 🔁
The loop can be used during its execution, by clicking on the point above your stage.

Well done! Let’s take a short break and go to the final spurt!
Let the cat go up and down:

If a cat touches the edge of the stage, it should reappear on the opposite side and continue. So do not collide with the edge anymore, or run over the edge.

The appropriate statement for this purpose can be found in the Control:

![if-then-command]

If the cat has arrived at the right edge, then it should reappear at the left edge again continuing running.

Since we want to prevent the cat from running over the edge, we now compare its current position with the position from the right edge of the stage.

Do you still remember how the x-coordinate's count?

For this comparison the "larger-than-operator" forms the basic framework.

You will find this function under Operators. You are now supposed to draw the x-position from the Motion and write the x-coordinate of the right edge behind the ">"-mark.

From the Motion mask you need the following assignment:

The x-coordinate lets the cat reappear at the left edge (x: -240).

- Let the cat now run towards the right edge of your stage and let it reappear at the left edge.
- In addition to the commands you are already familiar with, use commands from the areas Control, Operators and Motion mentioned above.
Now it's going to be creative:

In order to be able to track which way the cat runs, you can have the trail tracked.

For this purpose, simply select "switch-on" from the Pen function and drag it into your program interface. You can determine the size of the pen and the pen colour yourself.

It is more complicated to have the cat paint a flower...

What ideas do you have? Try it out!

Congratulations!
You have reached your goal!