Lesson 10 (60 minutes)

kojo

Kojo programming - Introduction to text programming
Objectives of the lesson: Get to know kojo - to program text

Preparations:
download kojo on the computers

Material

1. Computers with internet connection
2. Worksheets with different sequences (see appendix)

Copying

1. copy worksheets / commands in kojo / assignment booklet

Lesson overview

5 min Introduction (Meeting place)

● Greet everyone.
● Tell us what will happen during today's lesson.

10 min Introduction to the programming environment kojo

● My first program

20 min Different exercises around sequence and repetition in kojo

10 min Exercises in the hut where we learn new commands and have fun with kojo

10 min Movie: jam sandwich https://www.youtube.com/watch?v=leBEFaVHllE

5 min Rounding (Meeting place)

● The students leave to collect impressions from the students: what did you think of kojo
● Hi then until next week.

Teaching

1) information for the teacher:
If you choose the web version of kojo Link: http://kojo.lu.se/ or: http://ikojo.in/ all commands in the following lesson will work except the backward() command.
The web version is a simple version of the much stronger desktop version.
For the special chess commands in kojo which we introduce in the next programming lesson you need the desktop version of kojo.

download a desktop version here: https://www.kogics.net/kojo-download
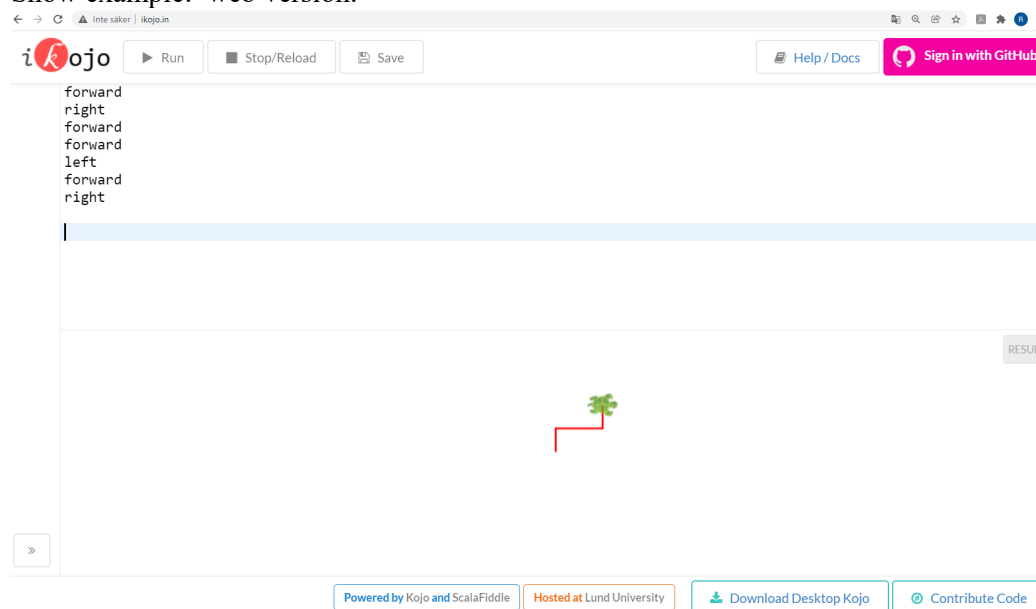and a short film for some guidance:
film 1 : •   Installing kojo: https://youtu.be/ThC0wpQAKUw

film 2: In the second film vi show you how to start using the kojo desktop version:
https://youtu.be/91OAIdqu1UU

2) Brief review by the teacher about kojo.

Distribute computers
 Projector

Show example: web version:

Show example: desktop version:

File Samples Showcase Window ■ Language Tools Help   The Kojo Learning Environment

■ Script Editor   — ⌐ ⊐ | Arithmetic Aerobics | ⊐ Drawing Canvas

```
1  clear
2  Forward
3  right
4  forward
5  forward
6  left
7  forward
8  right
```

⊐ Output Pane

```
* To access the Context Actions for a window    → Right-Click on
to bring up its context menu
* To Pan or Zoom the Drawing Canvas             → Drag the left m
or Roll the mouse wheel
* To change Kojo's look and feel                → Use the 'File |
menu item
```
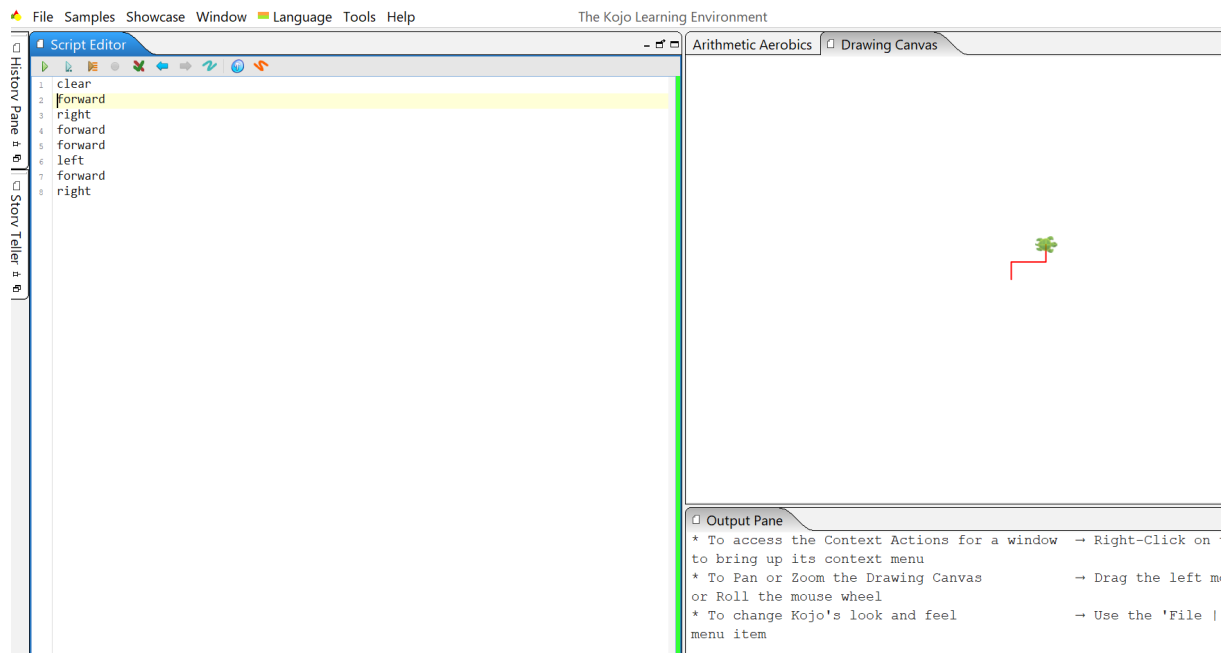
Students test for a while, make sure everyone has come to the right address http://ikojo.in/ or has starting the kojo desktop version on the computer.
make sure that everyone knows how to write, knows how to do it.

Show what happens when you type incorrectly. Give some examples and tips about the error message in the kojo window.

i ojo   ▶ Run   ■ Stop/Reload   💾 Save   📄 Help / Docs

```
1  forward
2  right
3  Forward
```

ScalaFiddle.scala:3: error: not found: value Forward
    Forward
    ^
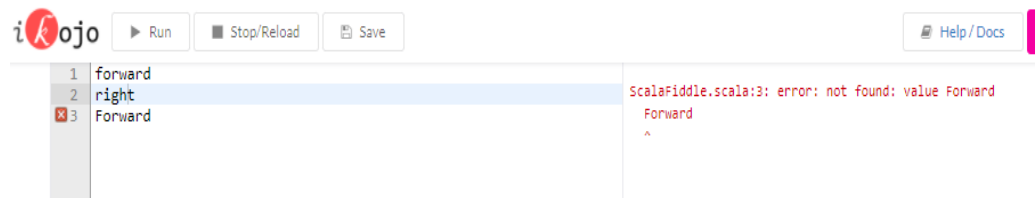
2) Distribute workbooks with assignments
The students solve assignments themselves. Feel free to work 2-2 or in small groups where students help each other.
(challenges 1-4)

 let the turtle draw
   a) a square
   b) a staircase
   c) a right block

possible solutions:
web version:

square:

```
forward
right
forward
right
forward
right
forward
right
```

Staircase:

```
forward
right
forward
left
forward
right
forward
left
forward
right
forward
left
```

```
forward
right
forward(100)
left
forward
right
forward(100)
left
forward
right
forward(100)
left
```
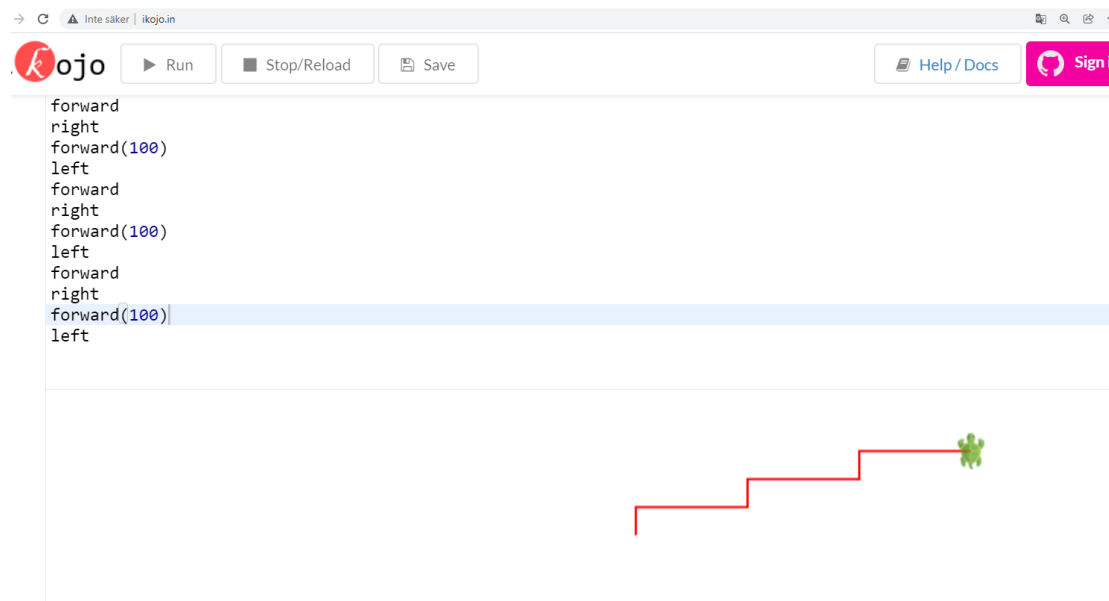
Right block:
When writing forward, the turtle goes 25 steps, if you want to go further, you can use for example forward (100) then the turtle goes 100 steps instead.


```
forward
right
forward(100)
right
forward
right
forward(100)
right
```
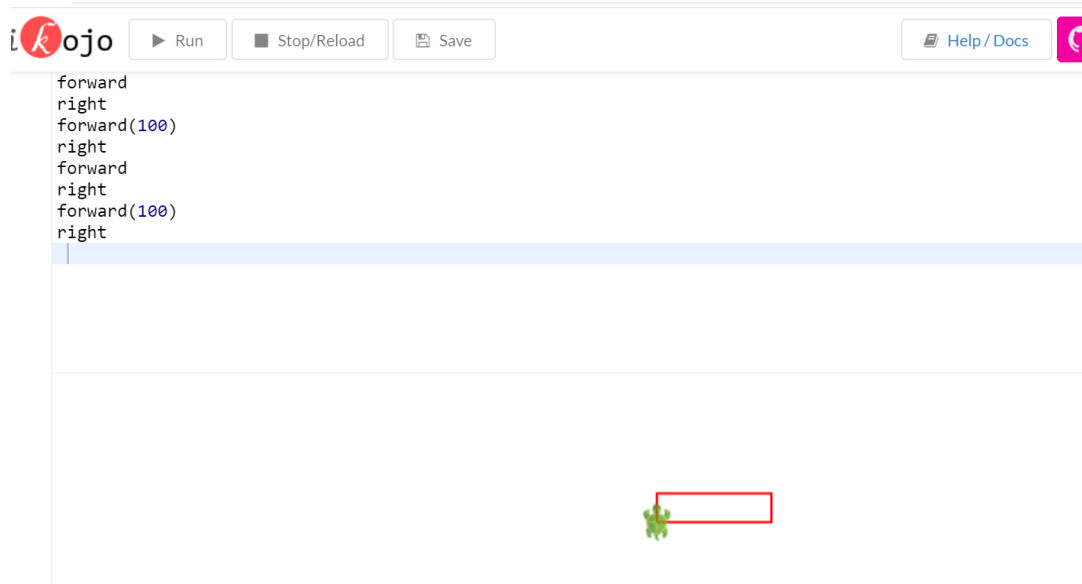
3) Continuation in the assignment booklet: We train on sequence and repetition in kojo:
 (challenges 5-8)

Same or similar exercises that were done during lessons 1 and 2 but now with kojo

If you use the desktop version:
For access to some special commands write the following code in line 1:
// #include /chess
If you use the web version: For using the backward command the students have to write
def backward() = forward(-25)
in line 1.

Control your turtle with the following sequence:

Sequence 1	Sequence 2	Sequence 3 (write your own sequence and test)	Sequence 4 (write your own sequence and test)
forward right forward left forward right forward left	backward() right forward forward right backward() left forward forward forward left		

simplify the code using the repeat command and test in kojo:

the **film** shows you how to use the repeat command in kojo:

Make a loop in kojo: https://youtu.be/PM-SBTPTIa0

forward; right; right;forward;forward; left;forward; forward; forward;
backward();backward() ; right;forward;forward;forward; right;forward;forward;forward;forward;forward;forward; forward

enter your code directly in kojo: use repeat () { }

forward; repeat(2){right}; repeat(2){forward} …

Check the next film ·

Useful commands : https://youtu.be/2MgrQKfAZ-Q

for some more commands / Having fun with the turtle:

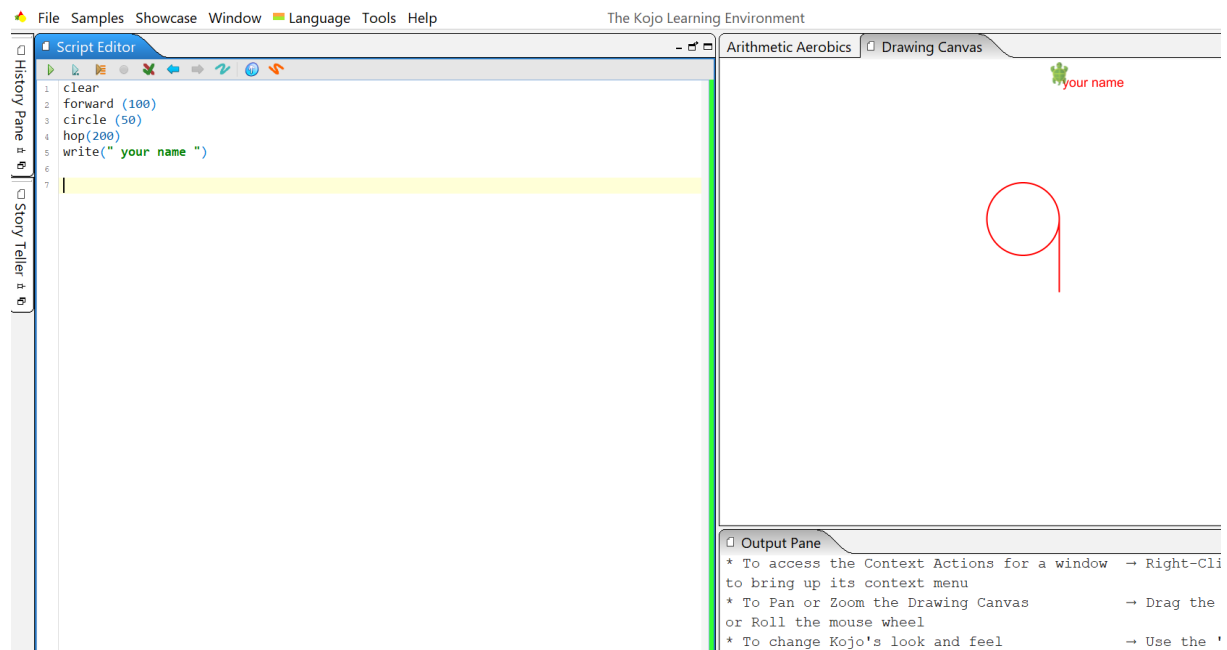Test the following command:
forward (100)
circle (50)
hop(200)
write(" your name ")
Now draw a picture of your choice, maybe a car or a face, or something else.

4) **10 min: it is important to be clear and correct:**
Movie: jam sandwich   https://www.youtube.com/watch?v=leBEFaVHllE
If there is time left do a similar one together with your students.

Rounding
When there are five minutes left in the lesson, tell the children to pack up and put everything in respective box. You gather at Samlingsplatsen and the teacher summarises what the children have learned during the lesson.
5 min Rounding (Meeting place)

●Repeat the concept of alternative and repetition
●Everyone does the sequence together:

stand - repeat (4) {jump; spin} - "Hello then" - jump - "thank you for today" - if (black shoes) wave otherwise {jump} - sit

●Hi then until next week.