

DEVONXTM 4KIDS



A mbot Workshop For Kids

By Simon Rininsland und Stefan Höhn

Note: Not all graphics are yet in english but you probably get along fine. We hope to have updated the slides soon completely.

What is where?

Stage

stage

The screenshot shows the mBlock software interface. The top window is titled 'mBlock - 创客工场(v3.2.2) - Unterbrechen - Nicht gespeichert'. It has a menu bar with 'Datei', 'Bearbeiten', 'Verbinden', 'Boards', 'Extensions', 'Sprache', and 'Hilfe'. The main area is divided into three sections: a stage on the left, a script area in the middle, and a component area on the right. The stage shows two characters, a panda and a penguin, with speech bubbles saying 'Hallo!'. The script area contains a list of blocks under the 'Bewegung' (Movement) category, including 'gehe 10 er-Schritt', 'drehe dich um 15 Grad', 'setze Richtung auf 90°', 'gehe zu x: -74 y: 40', 'gleite in 1 Sek. zu x: -74 y: 40', 'ändere x um 10', 'setze x auf 0', 'ändere y um 10', 'setze y auf 0', 'pralle vom Rand ab', and 'setze Drehtyp auf links-rechts'. The component area shows a motor block. A blue arrow points from the word 'Stage' to the stage area, and another blue arrow points from the word 'stage' to the script area. A third blue arrow points from the word 'Component area' to the component area.

Component area

2a

Chose a character

X: 151 Y: -180

New sprite:

Choose sprite from library

The screenshot shows a dialog box titled 'New sprite:'. It has a text input field with 'X: 151 Y: -180'. Below the input field are three icons: a blue character, a pencil, and a camera. A yellow button labeled 'Choose sprite from library' is highlighted. A black arrow points from the button to the 'Choose sprite from library' text.

Sprite Library

Category

- All
- Animals
- Fantasy
- People
- Things
- Transportation
- Favourite

Theme

- Castle
- City
- Flying
- Holiday
- Music and Dance
- Space
- Sports
- Underwater
- Walking

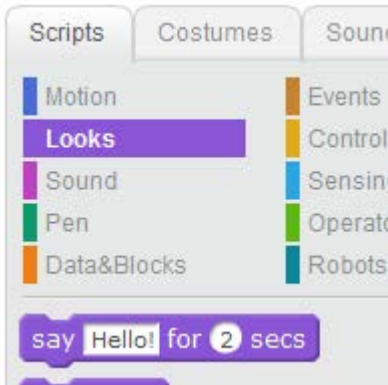
Type

- All
- Bitmap
- Vector

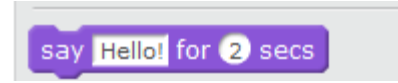
The screenshot shows the 'Sprite Library' window. It has a list of categories on the left: 'All', 'Animals', 'Fantasy', 'People', 'Things', 'Transportation', and 'Favourite'. Below the categories is a grid of sprites. The grid contains 24 sprites arranged in 4 rows and 6 columns. The sprites include: M-Panda, Amon, Anna, Ballerina, Bat1, Bat2, Boy2, Boy3, Boy3 Walking, Boy4, Boy5, Boy6, Calrell, Cassy, Cassy Dance, Crab, Dan, Dinosaur1, Dog1, Dog2, Dove1, Dove2, Dragon, Duck, Fox, Frog, Ghost1, Ghost2, Ghoul, and Girl1.

2b

Say Hello



and



Good Morning

I am the dino!

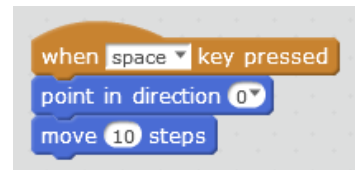
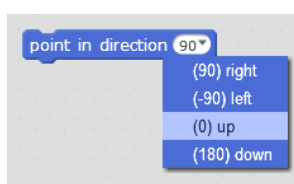
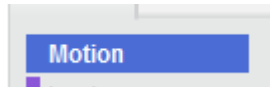
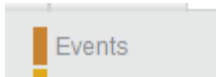
... for 5 seconds



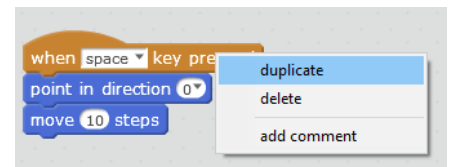
3a

I learn to walk...

and



Tip: Duplicate blocks
With right-click



Add a „when key“ with „down“ and direction down

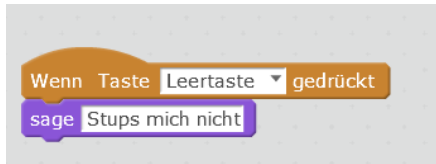
Use 20 instead of 10

Try all directions



3b

Control light



and



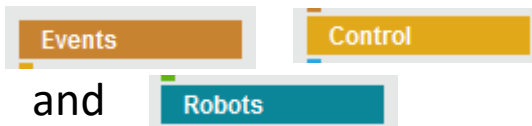
Switch off the light with a different key

Make music and use the light – like in a disco.

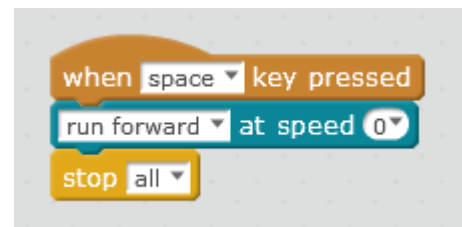
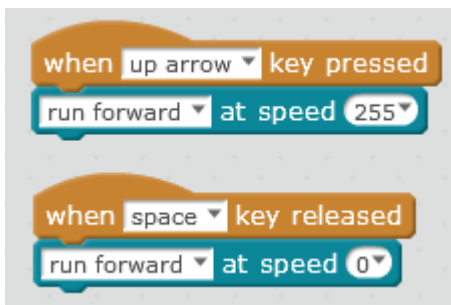


4a

mBot learns to walk



Emergency button!



Try all directions and different speeds



4b

Roboter

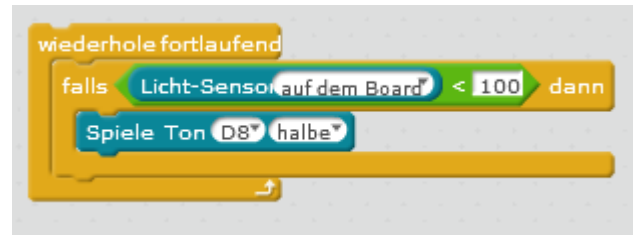
Operatoren

Steuerung

The character tells different
Number when dark



mbot shouts when dark



Combine with movement and stop mbot in the darkness
Switch on light in the darkness



5a

Roboter

Steuerung

und

Ereignisse

Operatoren



Close mbots eyes...

Mbot turns red when you get
too near...



Try different numbers and change light color



5b

mbot dances

Steuerung

Ereignisse

Operatoren

Roboter

Lead mbot with
your hand



Let mbot drive forward and back. Change the speed and add light to it.

Add a security behavior, so it does not drive into a wall.



6a

mbot does what it wants...

Roboter

Steuerung

und

Ereignisse

Operatoren

Mbot searches its
own way



If mbot notices the darkness let him start crying (=beeping)

If there is a blocking area let mbot drive into a different direction to find more space.



let mbot drive slowly if it gets dark

6b

Mentor Cheat-Sheet

1. Describe the setup of the mblock program (slide 2a)
2. Show mbot and explain the sensors and actors
3. Explain roughly what to do

BOTH children should choose a character and program the same after each other until 3b and then alternately continue.

Beschreibe den Kids den Aufbau des Programms (Folie 2a)

4. Let the kids decide whether clean up after each step or not. However after some time it might too untidy.

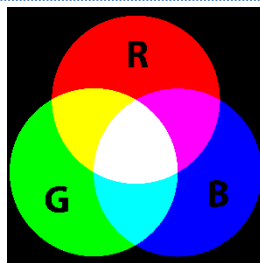
Warning: Do not use the same key twice!

5. Use Emergency Button after each try as a kind of „reset“

Note: stop loops after every change by clicking on it.

Save frequently from begin on

7a

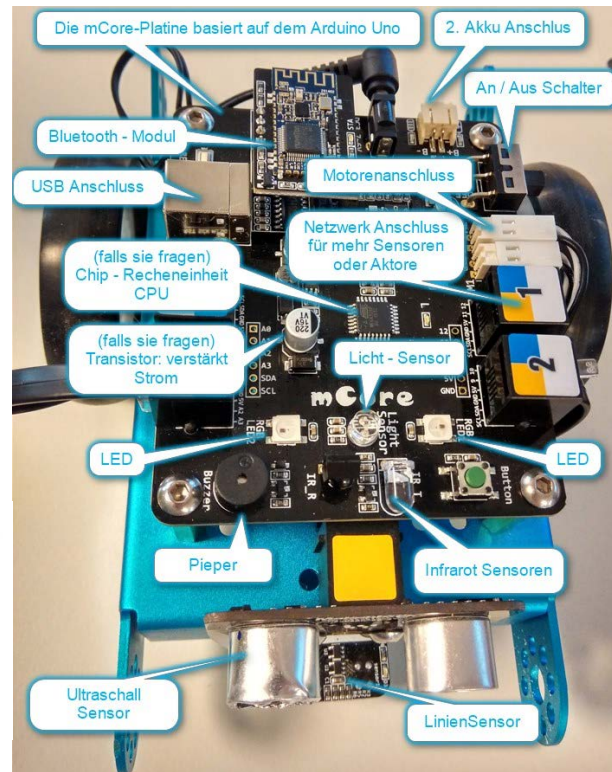
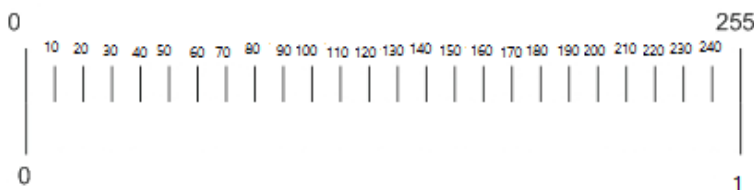


RGB

red – green – blue

All colors are possible like in a tv screen if you look very closely.

scale 0 - 255



7b