Making med Micro:bit

Grundläggande utbildningen

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UTBILDNINGSSTYRELSEN FINANSIERAR PROJEKTET

INNOVATIONSPROCESSEN
I UNDERVISNINGEN

UTBILDNINGSSTYRELSEN FINANSIERAR PROJEKTET

co4 LAB

Innokas!

Olika stationer!

1) Nybörjare, testa Innokas material (https://www.innokas.fi/sv/materialer/)
2) Bygg en enkel bil med Micro:bit (https://youtu.be/rVI9u5vdQ6k)
3) Nat.vet. lärare Microbit- programmera en Voltmätare
4) Hummingbird robotics, testa material enligt deras guide (http://www.hummingbirdkit.com/learning/introduction-hummingbird-birdblox)

Vad behöver vi för utrustning i ett makerspace?

http://makerspace.vaggeryd.se/utrustning-och-material/

https://blogs.lawrence.edu/makerspace/documentation/equipment-and-tool-list/

https://www.hexlabmakerspace.com/tools-and-equipment-2/

https://www.makerspaces.com/27-makerspace-materials-supplies/

FREE, RECYCLABLE MATERIALS

- ❑ Plastic
- ❑ Clothespins
- ❑ Binder clips
- ❑ Popsicle sticks
- ❑ Cereal boxes
- ❑ Thread needles
- ❑ Wood blocks/scraps
- ❑ Packing supplies (bubble wrap, packing peanuts)
- ❑ Fabric
- ❑ Egg cartons
- ❑ Foam trays
- ❑ Metal hangers
- ❑ Yarn
- ❑ Toilet paper/towel rolls
- ❑ Broken toys
- ❑ Greeting cards
- ❑ Canisters
- ❑ Wallpaper samples

INEXPENSIVE THINGS TO BUY

- ❑ Buttons
- ❑ Ping pong balls
- ❑ Peg boards
- ❑ Craft items (pipe cleaners, pom poms, etc.)
- ❑ Hot glue guns and glue sticks
- ❑ Button batteries
- ❑ LED lights
- ❑ Small motors (robotics)
- ❑ Brass fasteners
- ❑ Scissors
- ❑ Tape
- ❑ Felt
- ❑ Rubber bands
- ❑ Beads
- ❑ Batteries
- ❑ Wire
- ❑ Goggles
- ❑ Bins/storage
- ❑ Wire cutters

THINGS THAT REQUIRE A BIT OF A BUDGET

- ❑ Hand tools (hammers, saws, screwdrivers, drills)
- ❑ Sewing machines
- ❑ Soldering irons
- ❑ Hummingbird Robotics kits
- ❑ K'NEX
- ❑ Makey Makey
- ❑ Lego Wedo/Mindstorms kits

Make it Digital

The How of Robotics: Making micro:bit Movie Stars

Olika projekt

Support

Projects

- Flashing heart
- Smiley buttons
- Love meter
- Rock paper scissors
- Magic button trick
- Coin Flipper
- Salute!
- Hack your headphones
- Banana keyboard
- Guitar
- Duct tape wallet
- Watch
- Soil Moisture
- Plant Watering

Here are some cool projects that you can build with your micro:bit!

Games

Fun games to build with your micro:bit.

Flashing Heart

Smiley Buttons

https://learn.adafruit.com/micro-bit-radio-controlled-puppet/code-the-two-micro-bits

https://cdn-learn.adafruit.com/downloads/pdf/micro-bit-radio-controlled-puppet.pdf

Del 1- Vad är en Micro:bit

Del 2-Loopen

Del 3- Variabler

Del 4- Sten sax påse

Del 5- Kompass

Del 6- Koppla ihop apparater

Del 7- Såhär används pinsen

Del 8- Avbrytare

Del 9- Servomotor

Del 10-Ljud

Del 11-Radiosignal

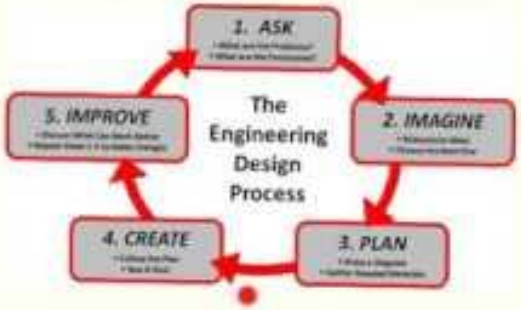
Del 12-Sensordata (finska)

Microbit handbok via Innokas

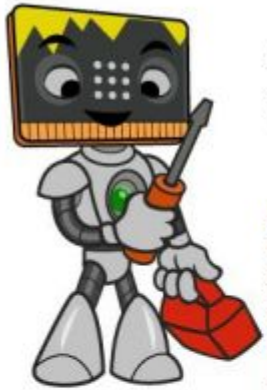
Bygg en egen spänningssensor och vindkraftverk

Designa och testa vindturbinen

Fundera på...
Vingarnas antal, profil, vinkel, längd,
sammanlagda vikt och material



Mr Bit sensorer

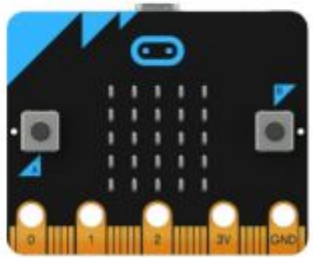


MR BIT EXPERIMENTS WITH SENSORS AND DEVICES

Mr Bit experiments are designed to help younger pupils get started with connecting sensors and devices to the BBC micro:bit. They are useful 'warm-up' activities before attempting *Mr Bit Projects* involving building and controlling models. The experiments use a temperature sensor, a light sensor, a buzzer and a triple set of LEDs. Connections are made to the pin sockets on the micro:bit using leads with 4mm plugs. All the components are inexpensive and easily assembled using the instructions given here.

Inputs and outputs

Pins 0, 1 and 2 may be used as inputs or outputs, according to the program code that has been flashed to the micro:bit. A sensor provides an electrical signal, and should be connected to a pin configured as an input. In contrast, a device is expected to take electrical power from the micro:bit, and as such should be connected to a pin configured as an output.



Pins P0 P1 P2

Mr Bit projekt, 2D modeller

MR BIT 'MAKER' PROJECTS AND 2D MODELS

Mr Bit 'Maker' projects are designed to work with the ***BBC micro:bit*** in a practical way: you control real models containing sensors and devices which are connected to the micro:bit. Each project involves building a simple 2-dimensional model and creating a control system.

Connections to the micro:bit may be made in several different ways:

1. Directly to the micro:bit (allowing a maximum of three inputs or outputs)
2. Via the *ScienceScope* 'Breakout Board' (providing 12 inputs and outputs with 4mm plug connections)
3. Via the *ScienceScope* 'Control Board' (providing 3 inputs and up to 6 enhanced current outputs and a motor driver output with 4mm plug connections.)

The sensors (push buttons, switches, temperature sensors etc.) and devices (LEDs, buzzers, motors etc.) may be mounted on an A4 size board displaying the Mr Bit scenario from the *Scene* view, thus creating a 2-dimensional working model. These notes describe nine such models which can be made from inexpensive materials and components. The models are:

1. Dream bedroom
2. Kitchen gadgets
3. Motorbike
4. Car dashboard
5. Drinks machine
6. Heating system
7. Greenhouse
8. Pelican crossing
9. Petrol Station

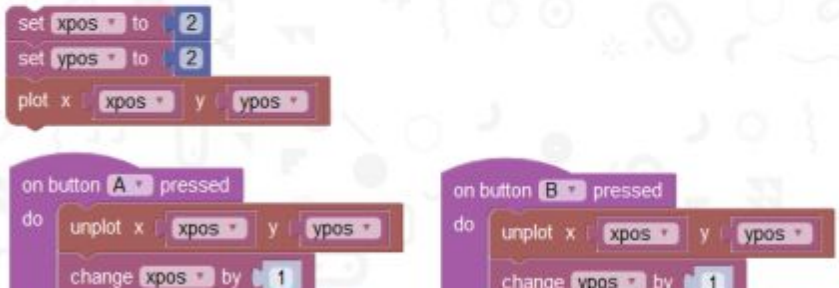
Väderstation

Villkorssatser: Vi skapar ett program som flyttar en enskild LED-lampa runt i 5x5-matrisen. Genom att trycka på A-knappen flyttas markören ett steg åt höger och genom att trycka på B-knappen flyttas den ett steg nedåt. Villkorssatser används för att börja om från rad 0 respektive kolumn 0.

Initialisering av aktiv LED

Händelse för tryck på knapp A

- Släck aktiv LED



Micromaker

MICRO:BIT LESSONS

HOME / DIGITAL MAKING / MICRO:BIT LESSONS

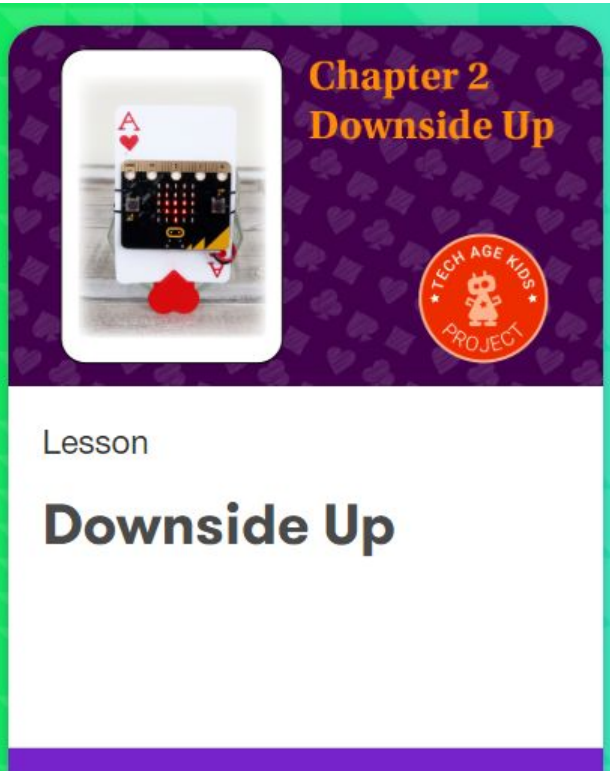
< RETURN TO PREVIOUS PA

EMBARK ON A JOURNEY OF EXPLORATION AND DISCOVERY TODAY!

TREK THE GROVE AND DISCOVER A LANDSCAPE OF DIGITAL MAKING ADVENTURES!

PARTAKE ON DESTINATIONS TO CONTINUE ON YOUR DIGITAL MAKIN JOURNEY!

Alice i underlandet

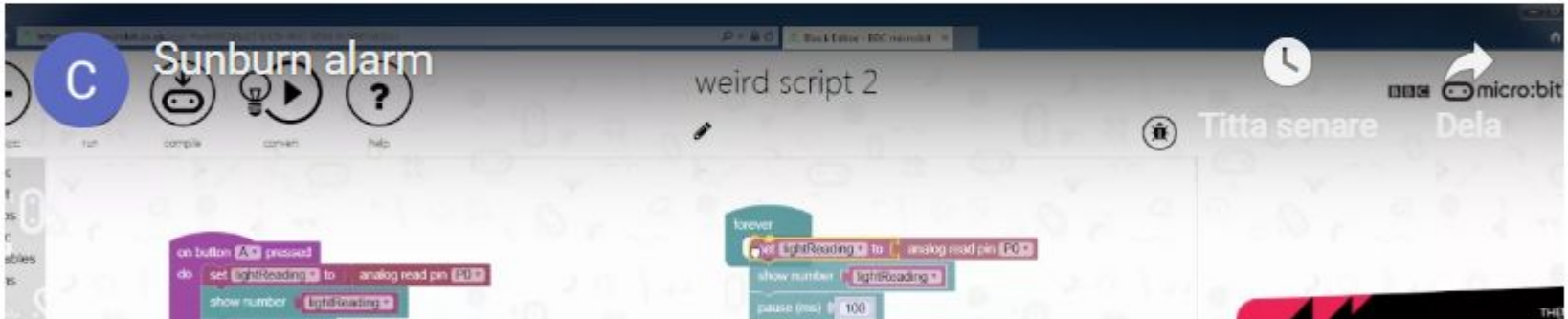


Episode, norska Microbit filmer

Solbränd?

You will need an external light sensor and a buzzer for each product development team.

This is a Ruff-n-Ready™ video of the programming steps:



Microbit och elektronik med Bertil, för erfarna makers

https://youtu.be/MDBA3sQrzHs

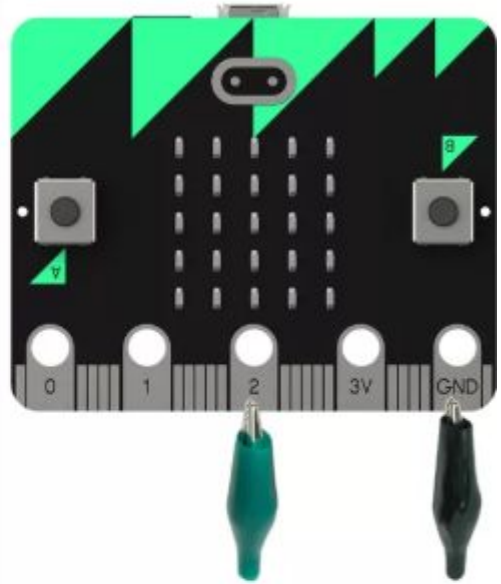
Bevattning

A small submersible pump designed for Ph neutral, ambient temperature, non-sticky liquids, ie water. It has a transistor interface with current limiting resistor to the micro:bit output and needs ~6V power to run.

The black lead goes on to GND, the green lead goes on to the Pin 0, 1 or 2 that is being used. The red lead goes to the battery +V and the battery 0V (aka GND or minus) connecting to the micro:bit GND to provide a common ground. See circuit below.

Further details can be found at http://microbit-learning.co.uk/bbc-microbit-plant-watering/

It can generate a 10cm head. Its main use would be for plant / greenhouse watering projects. This shows the pump in the bottom half of a 2 litre bottle.



IET lektioner