

## Downloading from the micro:bit and File Management

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### Textbook

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## Downloading from the micro:bit and File Management



Now we will bring your creations to life! In this lesson, you will learn how to download your code to the physical micro:bit. You will finally program your very own robot! Let's learn how to place our custom code onto our micro:bit robots.

### Downloading to the micro:bit

Once you have finished coding your program on the platform, it's time to try it on the micro:bit! You can do this by following 2 basic steps.

Watch this video to learn how and refer to the instructions below as a reminder:



## Instructions

1. Download your program from the code editor onto your computer. Your program needs to download as a **.hex** file.
2. Transfer the program from your computer to the micro:bit, where it is stored in the micro:bit's memory. We call this "flashing," because the micro:bit stores it in its flash memory. To do this, plug the USB cable into the USB port at the top of the micro:bit.
3. Then, plug the other end of the cable into the USB socket of your computer. You should see the micro:bit appear on your computer like a USB drive. Look for **MICROBIT**.
4. As the program is copying over, you'll see a light blinking on the micro:bit. When the light stops blinking you can test out your programming creation!

Important note: **DO NOT DELETE** the two files in the MICROBIT extension.

*Adopted from microbit.org platform*

## File Management

A [file](#) is similar to a digital container that holds information, like documents, pictures, music, and more, on a computer. This "container" organizes the information in a way that makes it easy for the computer to find and use.

## File Extensions

The letters on the end of a file are especially important, because they tell you what kind of information is in the file. For example, if you downloaded a Google Doc or Word Doc, it will say .doc at the end because it is a document. See the table below for the different file type abbreviations and their description.

File Type	Description
.hex	Used for computer instructions, like code
.doc	Used for text documents

.png .jpg	Used for images
.ppt	Used for slideshows and PowerPoints
.mp4	Used for audio files and video files
.pdf	Used for documents when you want them to look like an image

Computers only have a certain amount of storage space to hold all of your documents, pictures, and more. The type of data being stored will take up different amounts of storage space on your computer.

For example, saving a document (.doc) will take up less space on the computer because it only has text. However, a slideshow might take up more space because there could be text, images, videos, and more all in the same file.

## Version Control

Version control is when you update your apps or software to the latest version made. These updates fix bugs and prevent hackers from getting into the programs. It's important to always update apps or programs you are using so it is the safest version to use.

## Critical Thinking Questions

1. Imagine you have a box of toys, and each kind of toy has its own special label (like cars, blocks, or dolls). How is this like how a computer uses different "file types" (like .jpg for pictures or .mp4 for videos) to organize information?
2. Why is it a good idea to keep your secret diary locked up or hidden? How is this similar to why you should use a strong password with numbers and letters for your computer accounts?
3. Think about your favorite video game. If the game makers never updated it, what problems might happen? How is this like why it's important for people to update their computer apps?

## Questions (5)

**1. You finished your program and want to put it on your micro:bit. What kind of file do you need to download first?**

MULTIPLE CHOICE

**Choose the correct answer:**

- A. .doc
- B. .hex
- C. .jpg
- D. .ppt

**2. When you connect the micro:bit to your computer, what should you look for to know it's ready to copy your program?**

MULTIPLE CHOICE

**Choose the correct answer:**

- A. A blinking light on the computer screen
- B. A new drive named MICROBIT appearing on your computer
- C. The USB cable changing color
- D. A message saying "Error"

**3. True or False: You can delete one of the two files downloaded and the micro:bit will still run fine.**

MULTIPLE CHOICE

**Choose the correct answer:**

- A. False
- B. True

**4. You want to move your program from the computer to the micro:bit. What is the first thing you should do?**

MULTIPLE CHOICE

**Choose the correct answer:**

- A. Plug the USB cable into the micro:bit and computer
- B. Turn off your computer
- C. Delete files on the micro:bit
- D. Download your program as a .doc file

**5. What happens when the light on the micro:bit stops blinking when downloading micro:bit programs?**

MULTIPLE CHOICE

**Choose the correct answer:**

- A. The micro:bit is ready to test your program
- B. The micro:bit is broken
- C. The USB cable is unplugged
- D. The computer is turned off

## Games (2)

### 1. Downloading from the micro:bit and File Management Typing


Full Screen

Audio

Instructions

Restart

Pause



0s 100%

A file is similar to a digit

### 2. Downloading from the micro:bit and File Management Matching

Full Screen

Audio

Instructions

Answer Key

Pause

Clear All

Check Matches

Attempts: 0

.hex

.doc

.ppt

.mp4

.pdf


Used for audio files and video files

Used for documents when you want them to look like an image

Used for computer instructions, like code

Used for slideshows and PowerPoints

Used for text documents



# Robotics Challenges (7)

## 1. Triangle

Challenge

Textbook

Triangle

Code the micro:bit to show a triangle when you press play.

Requirements

Use the 'on start' block and show a triangle

Answer Key

Submit

Step 1

Begin with the **on start** block.

Triangle Step 1 of 4

1

Next

Toolbox

Search...

Basic

Input

Music

Led

Radio

Loops

Logic

Variables

Math

Extensions

Advanced

on start

forever

micro:bit

Download

...

## 2. From X to Check

Challenge

Textbook

From X to Check

Code the micro:bit to show an X and then a checkmark.

Requirements

Show an X and then a checkmark

Answer Key

Submit

From X to Check

micro:bit

Download

...

Toolbox

Search...

Basic

Input

Music

Led

Radio

Loops

Logic

Variables

Math

Extensions

Advanced

on start

forever

micro:bit

Download

...

### 3. Diamond and Square

Challenge

Textbook

## Diamond and Square

Code the micro:bit to show a diamond and then a square.

### Requirements

Show a diamond and then a square icon.

Answer Key

Submit

Search...

Basic

Input

Music

Led

Radio

Loops

Logic

Variables

Math

Extensions

Advanced

forever

Download

## 4. Build a Human

[Challenge](#)
[Textbook](#)

### Build a Human

Code the micro:bit to show a stick figure so the micro:bit logo on the robot looks like a head.

**Requirements**

Use the 'on start' block and show a stick figure body, making the micro:bit logo look like a head.

Answer Key

Submit

## 5. The Zoo

**Challenge**
Textbook

### The Zoo

Code the micro:bit to show three different animals – a giraffe, a snake, then a duck.

**Requirements**

- ☐ Show a giraffe icon
- ☐ Show a snake icon
- ☐ Show a duck icon

Answer Key

Submit

Search...

Basic Input Music Led Radio Loops Logic Variables Math Extensions Advanced

Download

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## 6. Face It

Challenge

Textbook

Face It

Code your micro:bit to show a face—like happy, sad, or surprised—on the LED screen.

### Requirements

Use the 'on start' block and show a face that represents your feelings today

Submit

Search...

- Basic
- Input
- Music
- Led
- Radio
- Loops
- Logic
- Variables
- Math
- Extensions
- Advanced

Download



## 7. Make a Pattern

Challenge

Textbook

### Make a Pattern

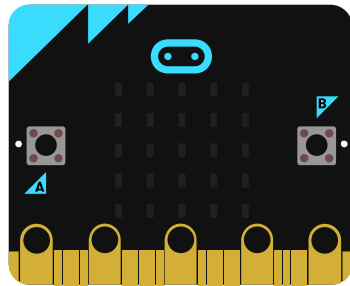
Code the micro:bit to show a pattern of 4 icons using the show icon blocks. For example, happy, sad, happy, sad.

#### Requirements

Show a pattern of 4 icons on the micro:bit

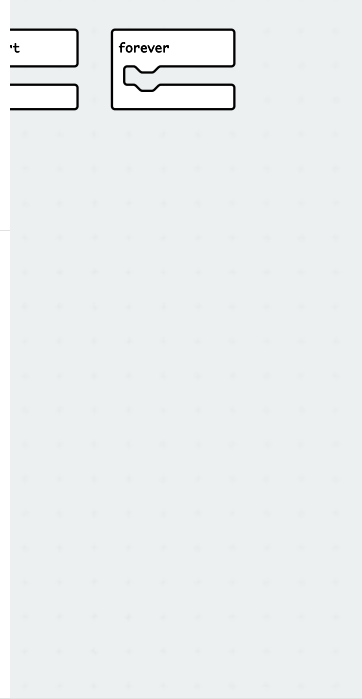
Answer Key

Submit



Search...

- Basic
- Input
- Music
- Led
- Radio
- Loops
- Logic
- Variables
- Math
- Extensions
- Advanced



Download



## Answer Keys & Solutions

### Questions

1. You finished your program and want to put it on your micro:bit. What kind of file do you need to download first?

MULTIPLE CHOICE

Correct Answer:

- |         |             |
|---------|-------------|
| A. .doc | ✗ Incorrect |
| B. .hex | ✓ Correct   |
| C. .jpg | ✗ Incorrect |
| D. .ppt | ✗ Incorrect |

#### Explanation:

Which letters are at the end of the micro:bit files?

2. When you connect the micro:bit to your computer, what should you look for to know it's ready to copy your program?

MULTIPLE CHOICE

Correct Answer:

- |  |             |
|--|-------------|
| A. A blinking light on the computer screen               | ✗ Incorrect |
| B. A new drive named MICROBIT appearing on your computer | ✓ Correct   |
| C. The USB cable changing color                          | ✗ Incorrect |
| D. A message saying "Error"                              | ✗ Incorrect |

#### Explanation:

The micro:bit shows up like a USB drive.

**3. True or False: You can delete one of the two files downloaded and the micro:bit will still run fine.**

MULTIPLE CHOICE

**Correct Answer:**

- |          |             |
|----------|-------------|
| A. False | ✓ Correct   |
| B. True  | ✗ Incorrect |

**Explanation:**

Those files help the micro:bit work properly.

**4. You want to move your program from the computer to the micro:bit. What is the first thing you should do?**

MULTIPLE CHOICE

**Correct Answer:**

- |   |             |
|---|-------------|
| A. Plug the USB cable into the micro:bit and computer | ✓ Correct   |
| B. Turn off your computer                             | ✗ Incorrect |
| C. Delete files on the micro:bit                      | ✗ Incorrect |
| D. Download your program as a .doc file               | ✗ Incorrect |

**Explanation:**

Connecting the micro:bit with a USB cable lets you transfer your program.

**5. What happens when the light on the micro:bit stops blinking when downloading micro:bit programs?**

MULTIPLE CHOICE

**Correct Answer:**

- |  |             |
|--|-------------|
| A. The micro:bit is ready to test your program | ✓ Correct   |
| B. The micro:bit is broken                     | ✗ Incorrect |
| C. The USB cable is unplugged                  | ✗ Incorrect |
| D. The computer is turned off                  | ✗ Incorrect |

**Explanation:**

When blinking stops, it's signaling something.

**Games**

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**1. Downloading from the micro:bit and File Management Typing**

*Typing game - no answer key needed. Students practice typing the provided content.*

**2. Downloading from the micro:bit and File Management Matching****Matching Game Solutions:**

1. →
2. →
3. →
4. →
5. →

*Students must drag items from the left to match with corresponding items on the right.*