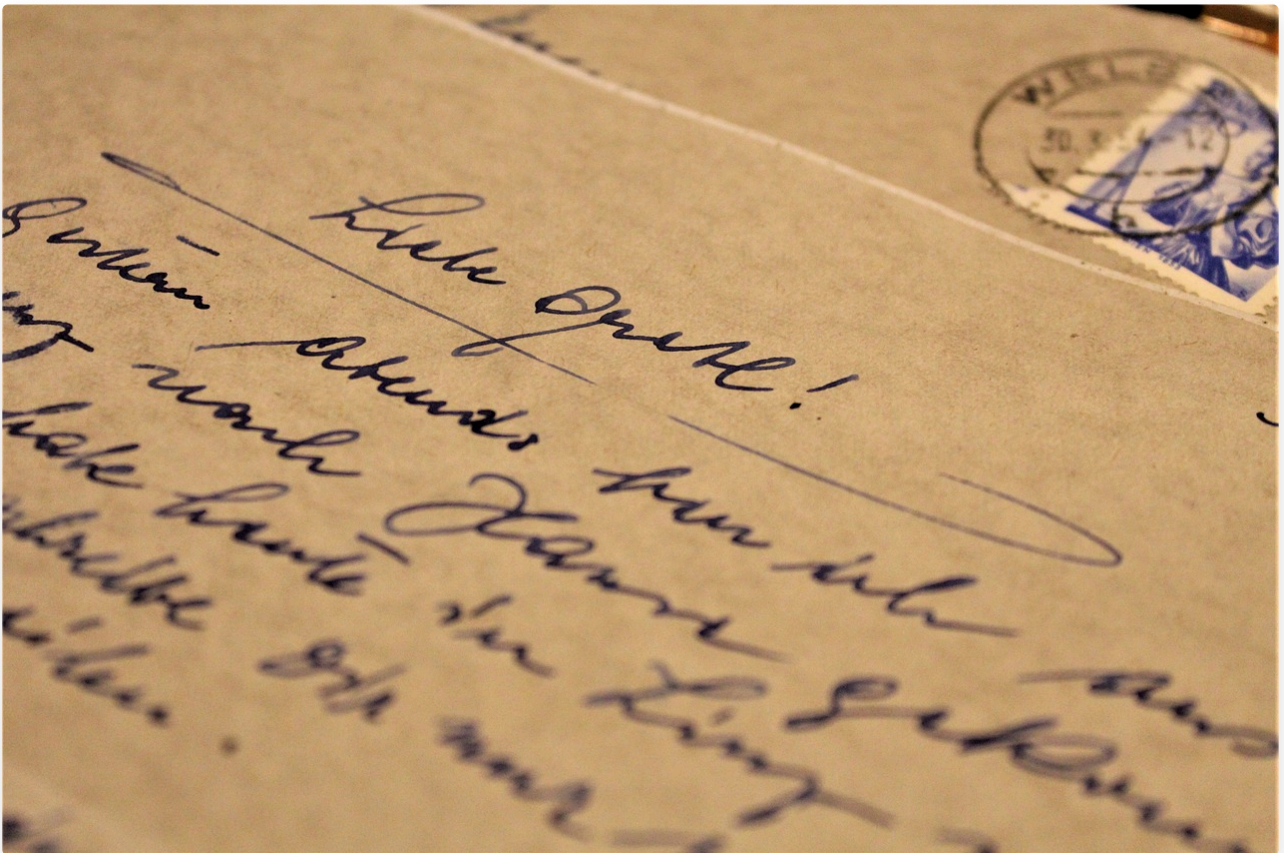


## Show Numbers and Strings

### Textbook

## Show Numbers and Strings



You can also show numbers and words on the micro:bit. In Python, numbers and words are different types of information. The correct way to write a number in Python is just plain.

```
1 4
2 10
3 203
4 7
```

Words in Python are actually called [strings](#). There are two correct ways to write strings in Python. You can use either one or two quotation marks, like this.

```
1 "Hello"
```

```
2 'Hello'
```

```
1 "Good morning!"  
2 'Good morning!'
```

Anytime you want to use words in Python, make sure to put those quotation marks around it.

## Show Numbers on the micro:bit

To make numbers show on the micro:bit, use the following syntax. Syntax is the way that code is written with parentheses, underscores, and punctuation.

```
1 basic.show_number(0)
```

You can replace the number in the parentheses with any number you want.

```
1 basic.show_number(8)  
2 basic.show_number(7824)
```

## Show Words/Strings on the micro:bit

This is how to make strings (or words) show on the micro:bit.

```
1 basic.show_string("Hello!")
```

You can replace the number in the parentheses with any word or phrase you want.

```
1 basic.show_string("Good morning!")  
2 basic.show_string("My name is Leslie")
```

Try showing some numbers or strings to the micro:bit!

*Adopted from microbit.org platform*

## Critical Thinking Questions

- Computers need to tell the difference between a number (like 5) and words (like "five"). Why is it important for computers to know exactly what kind of information they're working with when they process data?
- Imagine you're giving instructions to a robot. Why do you need to be very precise with how you tell it to show a message, like using special marks around words, but not around numbers? What problems could happen if you weren't precise?

- Think about places where you see digital displays every day, like a sports scoreboard or a bus schedule. What kinds of information are shown as numbers, and what kinds are shown as words? Why do we use both, and what key differences do they help communicate?

## Questions (10)

**1. A student wants to show their age (15) on the micro:bit display. Which code will work correctly?**

MULTIPLE CHOICE

**Choose the correct answer:**

- A. `basic.show_string(15)`
- B. `basic.show_number("15")`
- C. `basic.show_number(15)`
- D. `basic.show_string("15")`

**2. A student writes this code but gets an error. What's wrong with this code?**

MULTIPLE CHOICE

`basic.show_string(Good luck!)`

**Choose the correct answer:**

- A. The words good luck! should be in lowercase
- B. The words need quotation marks around them
- C. It should use `show_number` instead
- D. The parentheses are in the wrong place

**3. A student wants to display the message "Score: 100" on their micro:bit. Which approach would work best?**

MULTIPLE CHOICE

**Choose the correct answer:**

- A. `basic.show_string("Score: 100")`
- B. `basic.show_string("Score:")`
- C. `basic.show_number("Score: 100")`
- D. `basic.show_number("Score")`

**4. You see this code written by a classmate. What can you tell them about their code?**

MULTIPLE CHOICE

```
basic.show_string('Python is fun!')
```

**Choose the correct answer:**

- A. They must change to double quotes or it will not work
- B. They must remove the quotes completely
- C. Their code is correct - single quotes work for strings
- D. They need to add double quotes around the single quotes

**5. A student wants to show the temperature "72" on the micro:bit, but they are not sure if temperature should be treated as a number or string. Which question should they ask themselves?**

MULTIPLE CHOICE

**Choose the correct answer:**

- A. Do I want to do math with this temperature later?
- B. How many letters does '72' have?
- C. Should I use single or double quotes?
- D. Is 72 bigger than 100?

**6. You want to create a program that shows "Hello" followed by the number 5. Which code structure makes the most sense?**

MULTIPLE CHOICE

**Choose the correct answer:**

- A. `basic.show_string("Hello") basic.show_number(5)`
- B. `basic.show_number("Hello") basic.show_string(5)`
- C. `basic.show_string>Hello) basic.show_number("5")`
- D. `basic.show_string("Hello 5")`

**7. You want to show your favorite number (42) and your name (Sam) on the micro:bit. Which code uses the correct syntax for both?**

MULTIPLE CHOICE

**Choose the correct answer:**

- A. `basic.show_number("42") basic.show_string(Sam)`
- B. `basic.show_number(42) basic.show_string("Sam")`
- C. `basic.show_string(42) basic.show_number("Sam")`
- D. `basic.show_number('42') basic.show_string('Sam')`

**8. You want to create a countdown that shows 3, then 2, then 1. Which code structure is correct?**

MULTIPLE CHOICE

**Choose the correct answer:**

- A. `basic.show_string("3") basic.show_string("2") basic.show_string("1")`
- B. `basic.show_number(3) basic.show_number(2) basic.show_number(1)`
- C. `basic.show_number("3, 2, 1")`
- D. `basic.show_string(3, 2, 1)`

**9. A student writes this code but nothing appears on the micro:bit. What did they forget to include?**

MULTIPLE CHOICE

`basic.show_number()`

**Choose the correct answer:**

- A. Quotation marks around the parentheses
- B. A number inside the parentheses
- C. The word "basic" should be capitalized
- D. They should use `show_string` instead

**10. You want to show a phone number (555-1234) on the micro:bit. Even though it contains numbers, which command should you use and why?**

MULTIPLE CHOICE

**Choose the correct answer:**

- A. `basic.show_number(555-1234)` because it has numbers in it
- B. `basic.show_string("555-1234")` because you will not do math with it
- C. `basic.show_number("555-1234")` because phone numbers are always numbers
- D. Either command will work the same way

## Robotics Challenges (5)

### 1. Today's Weather

Challenge

Textbook

#### Today's Weather

Have you ever seen a sign around town that says the temperature? Create a program that will show the temperature. Remember that words are called strings in Python.

1. Show the word/string Temp.
2. Show the number 75
3. Show the word/string Degrees

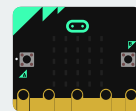
*Note: for this challenge, don't find the actual temperature. Just use the example temperature of 75.*

#### Requirements

- ☐ Show the word/string Temp.
- ☐ Show the number 75
- ☐ Show the word/string Degrees

Q

```
1 def on_forever():
2     pass
3     basic.forever(on_forever)
4
```



Explorer

Download

## 2. Count to Ten

Challenge

Textbook

### Count to Ten

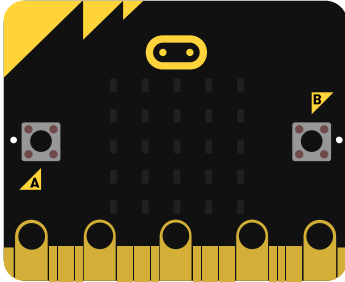
Create a program that counts to 10 on the micro:bit.

**Requirements**

- Show the numbers 1-10

Answer Key

Submit



Basic

start

forever

Download

## 3. Names and Ages

Challenge

Textbook

### Names and Ages

Choose 3 people. On your micro:bit, display their name as a string and then their age as a number. Do this for all 3 people.

**Requirements**

- Display the names of 3 people.
- Display the ages of 3 people using the `show_number()` code.

Answer Key

Submit

#### Step 1

Display the name of the first person.

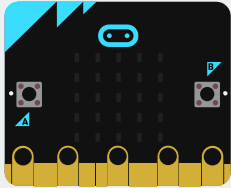
Names and Ages Step 1 of 3

1 Next

Toolbox

Search

```
1 def on_forever():
2     pass
3     basic.forever(on_forever)
4
```



## 4. Haiku

Challenge

Textbook

### Haiku

A haiku is a Japanese poem that has seventeen syllables.

1. The first line has five syllables.
2. The second line has seven syllables.
3. The third line has five syllables.

These poems often are about nature.

Here is an example of a Haiku.

*Snow is falling now*

*Crystal magic everywhere*

*Tickling my nose*

Create a program that is a haiku.

1. Display the number 5 (for 5 syllables)
2. Display the first line of the poem
3. Display the number 7
4. Display the second line of the poem
5. Display the number 5

Step 1

Display the number 5

Haiku Step 1 of 6

1

Next

Download

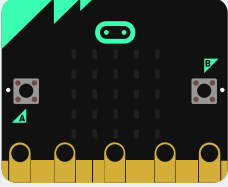
Toolbox

1 def on\_forever():

2 pass

3 basic.forever(on\_forever)

4



## 5. Rating Scale

Challenge

Textbook

### Rating Scale

Create a scale 1-5 that has an icon for each number.

For example, the icon to go with the number 1 could be a ghost.

1. Display the number 1
2. Display an icon to go with number 1
3. Repeat steps 1-2 with the numbers 2, 3, 4, and 5. Give each number an icon.

Step 1

Display the number 1

Rating Scale Step 1 of 3

1

Next

Download

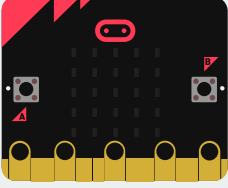
Toolbox

1 def on\_forever():

2 pass

3 basic.forever(on\_forever)

4



Requirements

Display numbers 1-5 using the show\_number() code.

Display the icons to go with each number

Answer Key



## Answer Keys & Solutions

### Questions

1. A student wants to show their age (15) on the micro:bit display. Which code will work correctly?

MULTIPLE CHOICE

Correct Answer:

- A. `basic.show_string(15)` ✗ Incorrect
- B. `basic.show_number("15")` ✗ Incorrect
- C. `basic.show_number(15)` ✓ Correct
- D. `basic.show_string("15")` ✗ Incorrect

#### Explanation:

Age is a number, so use the command that displays numbers without quotes.

2. A student writes this code but gets an error. What's wrong with this code?

MULTIPLE CHOICE

Correct Answer:

- A. The words good luck! should be in lowercase ✗ Incorrect
- B. The words need quotation marks around them ✓ Correct
- C. It should use `show_number` instead ✗ Incorrect
- D. The parentheses are in the wrong place ✗ Incorrect

#### Explanation:

Python needs a special way to recognize words versus other types of information.

3. A student wants to display the message "Score: 100" on their micro:bit. Which approach would work best?

MULTIPLE CHOICE

**Correct Answer:**

- A. `basic.show_string("Score: 100")` ✓ Correct
- B. `basic.show_string("Score:")` ✗ Incorrect
- C. `basic.show_number("Score: 100")` ✗ Incorrect
- D. `basic.show_number("Score")` ✗ Incorrect

**Explanation:**

Think about whether you need the number to be separate or if everything can be treated as text.

**4. You see this code written by a classmate. What can you tell them about their code?**

MULTIPLE CHOICE

**Correct Answer:**

- A. They must change to double quotes or it will not work ✗ Incorrect
- B. They must remove the quotes completely ✗ Incorrect
- C. Their code is correct - single quotes work for strings ✓ Correct
- D. They need to add double quotes around the single quotes ✗ Incorrect

**Explanation:**

The passage mentions two correct ways to write strings in Python.

**5. A student wants to show the temperature "72" on the micro:bit, but they are not sure if temperature should be treated as a number or string. Which question should they ask themselves?**

MULTIPLE CHOICE

**Correct Answer:**

- A. Do I want to do math with this temperature later? ✓ Correct
- B. How many letters does '72' have? ✗ Incorrect
- C. Should I use single or double quotes? ✗ Incorrect
- D. Is 72 bigger than 100? ✗ Incorrect

### Explanation:

Think about whether you need the temperature for calculations or just for display.

**6. You want to create a program that shows "Hello" followed by the number 5. Which code structure makes the most sense?**

MULTIPLE CHOICE

### Correct Answer:

- A. `basic.show_string("Hello") basic.show_number(5)` ✓ Correct
- B. `basic.show_number("Hello") basic.show_string(5)` ✗ Incorrect
- C. `basic.show_string(Hello) basic.show_number("5")` ✗ Incorrect
- D. `basic.show_string("Hello 5")` ✗ Incorrect

### Explanation:

Use the right command for each type of information you want to show.

**7. You want to show your favorite number (42) and your name (Sam) on the micro:bit. Which code uses the correct syntax for both?**

MULTIPLE CHOICE

### Correct Answer:

- A. `basic.show_number("42") basic.show_string(Sam)` ✗ Incorrect
- B. `basic.show_number(42) basic.show_string("Sam")` ✓ Correct
- C. `basic.show_string(42) basic.show_number("Sam")` ✗ Incorrect
- D. `basic.show_number('42') basic.show_string('Sam')` ✗ Incorrect

### Explanation:

Numbers stand alone, but words need quotation marks.

**8. You want to create a countdown that shows 3, then 2, then 1. Which code structure is correct?**

MULTIPLE CHOICE

**Correct Answer:**

- A. `basic.show_string("3") basic.show_string("2") basic.show_string("1")` ✗ Incorrect
- B. `basic.show_number(3) basic.show_number(2) basic.show_number(1)` ✓ Correct
- C. `basic.show_number("3, 2, 1")` ✗ Incorrect
- D. `basic.show_string(3, 2, 1)` ✗ Incorrect

**Explanation:**

A countdown uses actual numbers that could be used for math operations.

**9. A student writes this code but nothing appears on the micro:bit. What did they forget to include?**

MULTIPLE CHOICE

**Correct Answer:**

- A. Quotation marks around the parentheses ✗ Incorrect
- B. A number inside the parentheses ✓ Correct
- C. The word "basic" should be capitalized ✗ Incorrect
- D. They should use `show_string` instead ✗ Incorrect

**Explanation:**

The command needs to know what specific information to display.

**10. You want to show a phone number (555-1234) on the micro:bit. Even though it contains numbers, which command should you use and why?**

MULTIPLE CHOICE

**Correct Answer:**

- A. `basic.show_number(555-1234)` because it has numbers in it ✗ Incorrect
- B. `basic.show_string("555-1234")` because you will not do math with it ✓ Correct
- C. `basic.show_number("555-1234")` because phone numbers are always numbers ✗ Incorrect
- D. Either command will work the same way ✗ Incorrect

**Explanation:**

Consider whether the phone number is used for mathematical calculations or just for display.