

## Prepare for the Pet Monster Rescue Mission

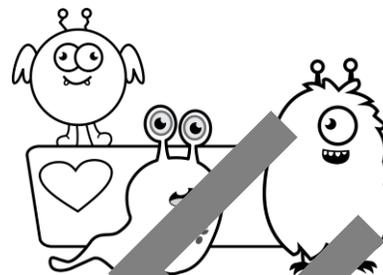
It is time for a new programming mission. You are going to create a program for the Pet Monster Rescue. Pet Monster Rescue is a group that finds loving homes for monsters.

The program will match people to their ideal pet. It will ask questions, store answers, and use logic to determine if there is a monster that meets the person's needs.

To successfully complete the mission, you must think logically. This is a valued trait in a programmer. People who are logical:

- carefully watch what is happening
- pay attention to details
- outline ideas clearly by breaking them down into parts
- study facts to determine if a statement is True or False

To complete the task, aside from being logical, you also need to know more about Python. Follow the instructions to write code to learn about strings, integers, and variables.



### Open the Python Shell

1. ▷ Open IDLE (Python).
- ▷ View the Python Shell:



### What is a String?

A string is text. It can be a word, phrase, or sentence. In Python, str is short for string. To learn about strings, type each line of code and then press ENTER to study the output.

2. ▷ A string must have brackets and quotes around it:

```
>>> print('a string is text')
```

- ▷ A string can have single or double quotes around it:

```
>>> print("must have quotes")
```

- ▷ Use double quotes if you want to use an apostrophe in the string:

```
>>> print("let's code")
```

- ▷ Use single quotes if you want to show someone talking in the string:

```
>>> print('he said "okay"')
```

- ▷ If you want both, you need to put a slash before the apostrophe:

```
>>> print('she said "let\'s start now"')
```

A string can have either double or single quotes around it.



- ▷ Be logical. Study the above code to determine how to complete each task:

- it's fun
- I said "wow"
- I said "wow, it's fun"

### What is an Integer?

An integer is a whole number such as 10 or 42. In Python, int is short for integer. To learn about integers, type each line of code and then press ENTER to study the output.

- 3. ▷ An integer must have brackets around it:

```
>>> print(5)
5
```

A string cannot be calculated as an integer can.

- ▷ An integer can be used to calculate values:

```
>>> print(6+4)
10
```

- ▷ If you put quotes around a number, it becomes a string:

```
>>> print('6+4')
6+4
```

- ▷ Think logically! Study the above code to determine how to complete each task.
  - show 10
  - calculate 6+4
  - show the equation 3+2=

### What is a Variable?

A variable stores a value that can change. It can be a number, or a list of items. To learn about variables, type each line of code and then press ENTER to study the output.

- 4. ▷ A variable has two parts – name and value.

```
>>> name=('value')
>>> print(name)
value
```

The print command lets you show the stored value of a variable.

- ▷ The variable value can change.

```
>>> name=('Student')
>>> print(name)
Student
```

The variable now has a new value. It is your name.

- ▷ Variable names are case specific. Type a capital N in the variable name:

```
>>> print(Name)
Traceback (most recent call last):
  File "<pyshell#11>", line 1, in <module>
    print(Name)
NameError: name 'Name' is not defined
```

Always check your spelling. The case of the letters matter. Python treats NAME, Name, and name as different variables.

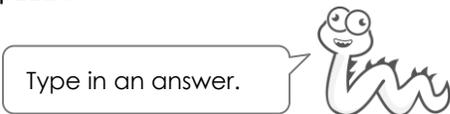
- ▷ A variable can store a string or integer. Think logically! Show the value using print:
  - weather=('sunny')
  - mood=('happy')
  - count=(5)

## Input a Variable Value

Sometimes the programmer will input a value for a variable. However, other times the user can input a value. This is done using the `input` command.

- 5. ▷ Ask the user a question:

```
>>>food=input('What food do you like?')
What food do you like?pizza
```



- ▷ The input is stored by the computer:

```
>>> print(food)
pizza
```

- ▷ The input can be used to have the program talk to the user:

```
>>> print('I also like', food)
I also like pizza
```

- ▷ Think logically! Study the above code to determine how to ask each question:

- What music do you like?
- What is your age?
- Do you like sports?

## Name a Variable

A variable name must be meaningful. It should describe its purpose. There are rules you must follow when assigning a variable name. To learn them, type each line of code and then press ENTER. Does the variable name follow the rules, or do you get an error?

- 6. ▷ A variable name must start with a letter or underscore, but not a symbol or number. Put a checkmark ✓ beside the variable names that work:

- color = ('red')
- 2color = ('red')
- \_color = ('red')
- !color = ('red')

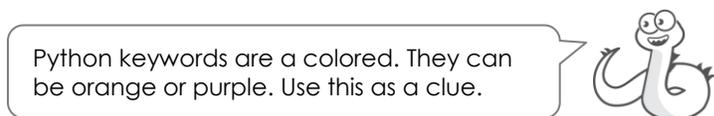


- ▷ A variable name must be one word with no spaces. Put a checkmark ✓ beside the variable names that work:

- game\_score = (0)
- game score = (0)
- gamescore = 0

- ▷ A variable name cannot be a Python keyword. Keywords are color-coded. Put a checkmark ✓ beside the variable name that works:

- answer = ('yes')
- True = ('yes')
- import = ('yes')



## Close the Python Shell

## About the Pet Monster Rescue Mission

In this programming mission, you design a program for the Pet Monster Rescue. It is a group that helps people adopt pet monsters in need of loving homes.

To start, you will apply what you know about strings and variables to inform others about the Pet Monster Rescue. To personalize the adoption process, you will ask questions.

Be logical. Write the program one part at a time. Test it as you go.



To interact with the user, you will use the following code:

CODE	PURPOSE
<code>print('Type text here.')</code>	show text
<code>print("Let's use an apostrophe.")</code>	use double quotes around text to show an apostrophe
<code>name='value')</code>	create a variable and set the value to text
<code>name=input('What is the question?')</code>	create a variable that holds the user input the value
<code>print('Type text', name)</code>	make a sentence that includes the variable value
<code>print('Type text', name+'.')</code>	remove the space between the variable value and text

### Open IDLE and Create a New File

- Open IDLE (Python).
  - From the File menu, select New File.
  - From the File menu, select Save. Type **monster** as the filename. Click Save.

### Inform Others About the Pet Monster Rescue

- A comment is a note to the programmer. Organize your code:

```
#about the rescue mission
```

Comments divide a program into logical parts.



Inform others about the Pet Monster Rescue program:

```
#about the rescue mission
print('Answer questions to find a pet.')
print('Let's get started.')
```

Use "double quotes" if you have an apostrophe in a word.

- From the File menu, select Save or press CTRL + S.
  - From the Run menu, select *Run Module*.
  - Read the text:
 

```
Answer questions to find a pet.
Let's get started.
>>>
```
  - Close the Python Shell.

### Create a Variable to Store the Value 'Pet Monster Rescue'

- 4. ▷ At the top of the program add a section for variables:

```
#variables

#about
print('Answer questions to find a pet.')
print("Let's get started.")
```

- ▷ Create a variable to store the name of the place:

```
#variables
place=('Pet Monster Rescue')
```

- ▷ Use the variable to show a title in the *about* section:

```
#variables
place=('Pet Monster Rescue')

#about
print(place)
print('Answer questions to find a pet.')
print("Let's get started.")
```

A variable can save you time and make things easier. You can use it again and again.

- ▷ Save the changes. From the Run menu, select *Run Module*.

- ▷ When done, close the Python Shell.

### Use the Variable Value in Sentences

- 5. ▷ You can include the value of a variable in a sentence:

```
#about
print('Answer questions to find a pet.')
print('Welcome to', place)
print('Answer questions to find a pet.')
print("Let's get started.")
```

The comma adds a space between the text and the value of the variable.

- ▷ Apply your skills to view the changes.

```
Pet Monster Rescue
Welcome to Pet Monster Rescue
Answer questions to find a pet.
Let's get started.
>>>
```

- 6. ▷ You can include the value of a variable in the middle of a sentence:

```
print("Let's get started.")
print('Thanks for visiting', place, 'where pets are family.')
```

The program will show a syntax error if you forget the commas around the variable.

- ▷ Apply your skills to view the changes.

### Ask a Question to Get to Know the Pet Owner

7. You can have the user input the value of a variable. Ask the person's name using `input`:

```
#variables
place=('Pet Monster Rescue')

#about
print(place)
print('Welcome to', place)
print('Answer questions to find a pet.')
print("Let's get started.")
print('Thanks for visiting', place, 'where pets are family.')

#pet owner
name=input('What is your name?')
```

The answer can be used to have the program talk to the user:

```
#pet owner
name=input('What is your name?')
print('Hello', name)
```

Apply your skills to view the changes. Type the answer to the question.

```
Pet Monster Rescue
Welcome to Pet Monster Rescue
Answer questions to find a pet.
Let's get started.
Thanks for visiting Pet Monster Rescue where pets are family.
What is your name?Alex
Hello Alex
>>>
```

To make it easier to read, you need a space between the question and answer. You should also add a period after the name in the greeting.

### Make the Text Easier to Read

8. Add a space between the question and the answer:

```
#pet owner
name=input('What is your name? ')
print('Hello', name)
```

add a space before the quote

add a period to a sentence you must use a plus sign:

```
#pet owner
name=input('What is your name? ')
print('Hello', name+'.')
```

add a plus sign + to remove space between a variable and text

A comma before or after a variable creates a space.  
A plus sign before or after a variable removes any space.

Apply your skills to view the changes.

