

# **CourseForChildren Kan8 Learning System: Fundamentals**

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 **Pages 1-6: Introduction & Setup**

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**Page 1: Cover Page**

# **CourseForChildren Kan8 Learning System**

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**Let's Learn The Fundamentals of Programming and**

# Start Your Journey Today!

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## Page 2: Welcome / Project Overview

Welcome to the **Kan8 Learning System!** This book is your first step into the amazing world of computer programming.

Programming is like having a superpower! You get to tell the computer exactly what to do, and it does it! We are going to learn the **five most important secrets** that all programmers use.

We'll learn one thing at a time—like building a machine out of cogs. You'll practice lots of little exercises, then put them together to build something amazing!



## Page 3: Why Learn Programming?

### Why should you learn to code?

- **It's Fun!** It's like solving a giant puzzle or building with digital blocks.
- **It's Creative!** You can invent new games, stories, and tools.
- **It's Powerful!** You learn how the world around you works, from your favorite video game to the apps on your phone.

## Page 4: Our Learning Roadmap

Every time we learn a new secret, we follow the same path:

1. **TEACH IT!** (Teacher Icon) - We learn the concept.
2. **WATCH IT!** (Watch Icon) - We see how it works with examples.
3. **PRACTICE IT!** (Cog Icon) - You try it yourself with fun exercises.
4. **REMEMBER IT!** (Fireworks Icon) - We review the formula and celebrate your success!

## Page 5: The Five Secrets (Fundamentals Overview)

In this book, we will unlock the **Five Fundamental Secrets** of programming:

1. **VARIABLES:** The Secret of Storing Information
2. **DATA TYPES:** The Secret of Different Kinds of Information
3. **OPERATORS:** The Secret of Doing Math and Logic
4. **SEQUENCES:** The Secret of Doing Things in Order
5. **CONDITIONALS:** The Secret of Making Decisions

## Page 6: Setup (Getting Ready to Code)

- **What you need:** Just a computer and a simple text editor (like Notepad orTextEdit).
  - **Our Language:** We will use a simple, easy-to-read language to show our examples. Don't worry about installing anything yet—just read and write!
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## FUNDAMENTAL 1: VARIABLES (Pages 7-14)

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### Page 7: TEACH IT! The Secret of Storing Information

A **Variable** is like a labeled box where you can store one piece of information.

- You give the box a **name** (the variable name).

- You put a **value** inside the box (the information).

**Example:** If you want to remember your age, you make a box called `my_age` and put the number `10` inside it.

## Page 8: TEACH IT! Changing the Box

The great thing about a variable is that you can change what's inside the box!

- If your age changes next year, you just open the `my_age` box and put the number `11` inside.
- The old value is gone, and the new value is stored!

## Page 9: WATCH IT! Demonstration 1-2

### Demo 1: Making a Box

```
my_favorite_color = "blue"
```

The box is named `my_favorite_color`, and it holds the word “blue” .

### Demo 2: Looking Inside the Box

```
print(my_favorite_color)  
# Output: blue
```

The `print` command lets us see what's inside the box!

## Page 10: WATCH IT! Demonstration 3-5

### Demo 3: Changing the Box

```
score = 50  
score = 100 # The old 50 is gone!
```

The `score` box now holds `100`.

## Demo 4: Using the Box in a Sentence

```
pet_name = "Sparky"  
print("My dog's name is " + pet_name)  
# Output: My dog's name is Sparky
```

## Demo 5: Two Boxes

```
first_number = 5  
second_number = 2  
sum = first_number + second_number  
print(sum)  
# Output: 7
```

## Page 11: PRACTICE IT! Exercises 1-5

**Exercise 1: Your Name Box** Create a variable called `my_name` and store your name in it.

```
my_name = "_____"
```

**Exercise 2: Favorite Food** What is your favorite food? Store it in a variable called `food`.

```
food = "_____"
```

**Exercise 3: The Number Game** Create a variable `a` and store the number 15.

```
a = _____
```

**Exercise 4: Changing the Value** What will the final value of `points` be?

```
points = 10  
points = 20  
points = 5  
# Final value: _____
```

**Exercise 5: Printing a Message** Use the variable `animal` to print the message: “I have a pet dog.”

```
animal = "dog"  
print("I have a pet " + _____)
```

## Page 12: PRACTICE IT! Exercises 6-10

**Exercise 6: The Math Box** What is the value of `result`?

```
x = 10  
y = 3  
result = x - y  
# result: _____
```

**Exercise 7: The Greeting** Fix the code to print “Hello, World!”

```
greeting = "Hello"  
place = "World!"  
print(greeting + place) # Fix this line!
```

**Exercise 8: The Empty Box** What happens if you try to print a variable you haven’t created? (Hint: It causes an error!)

```
# Try to print a variable that doesn't exist  
# What happens? _____
```

**Exercise 9: The Swap** How can you swap the values of `box_a` and `box_b`? (Hint: You need a third temporary box!)

```
box_a = "Red"  
box_b = "Blue"  
# Write your code here:  
# _____  
# _____  
# _____  
# box_a should be "Blue", box_b should be "Red"
```

**Exercise 10: The Story** Use variables to complete the story.

```
hero = "_____"  
location = "_____"  
print(hero + " went to the " + location + " to save the day!")
```

## Page 13: REMEMBER IT! Formula

### The Variable Formula

| Part       | What it is             | Example |
|------------|------------------------|---------|
| Name       | A label for the box    | age     |
| Assignment | The equals sign (=)    | =       |
| Value      | The information inside | 10      |

**FORMULA:** [Name] = [Value]

## Page 14: CELEBRATION!

You have completed Fundamental 1: **VARIABLES!** Give yourself a high-five!



1  
2  
3  
4

## FUNDAMENTAL 2: DATA TYPES (Pages 15-22)

### Page 15: TEACH IT! The Secret of Different Kinds of Information

Not all information is the same! A number is different from a word. These different kinds of information are called **Data Types**.

The three most common types are:

1. **Numbers (Integers)**: Whole numbers like 1, 100, 500.

2. **Words (Strings):** Any text, always wrapped in quotation marks, like "Hello" or "cat".

3. **True/False (Booleans):** Only two possible values: True or False.

## Page 16: TEACH IT! Why Types Matter

The computer needs to know the type so it knows what it can do with the information.

- You can **add** two **Numbers** (`1 + 1 = 2`).
- You can **join** two **Words** (`"cat" + "dog" = "catdog"`).
- You **cannot** add a Number and a Word! (`1 + "cat"` causes an error!)

## Page 17: WATCH IT! Demonstration 1-3

### Demo 1: Number Type

```
number_of_apples = 5
print(type(number_of_apples))
# Output: <class 'int'> (int is short for Integer)
```

### Demo 2: Word Type (String)

```
message = "Coding is fun!"
print(type(message))
# Output: <class 'str'> (str is short for String)
```

### Demo 3: Boolean Type (True/False)

```
is_sunny = True
print(type(is_sunny))
# Output: <class 'bool'> (bool is short for Boolean)
```

## Page 18: ⏱ WATCH IT! Demonstration 4-5

### Demo 4: Joining Strings (Concatenation)

```
first = "Super"  
last = "Coder"  
full_name = first + last  
print(full_name)  
# Output: SuperCoder
```

### Demo 5: Mixing Types (The Error)

```
age = 10  
phrase = "I am "  
# This will cause an error because you can't add a Number and a Word!  
# print(phrase + age)
```

## Page 19: 🔒 PRACTICE IT! Exercises 1-5

### Exercise 1: Identify the Type

What type of data is stored in each variable?

```
a = 42  
b = "The Answer"  
c = False  
# a: _____  
# b: _____  
# c: _____
```

### Exercise 2: String or Number?

Which of these is a **String**? Circle the correct one.

- 123
- "123"
- True

### Exercise 3: Fix the Join

Fix the code so it prints “My favorite number is 7” . (Hint: The number needs to be a string!)

```
fav_num = 7  
print("My favorite number is " + fav_num)
```

**Exercise 4: Boolean Question** Create a variable `is_raining` and set it to `True` or `False` based on the weather outside right now.

```
is_raining = _____
```

**Exercise 5: The Full Name** Use two variables, `first_name` and `last_name`, to create a third variable `full_name` that holds your full name.

```
first_name = "_____"  
last_name = "_____"  
full_name = _____
```

## Page 20: PRACTICE IT! Exercises 6-10

**Exercise 6: Joining with Space** How can you join the two strings to include a space in the middle?

```
word1 = "Code"  
word2 = "Fun"  
# print: "Code Fun"  
print(word1 + _____ + word2)
```

**Exercise 7: The Price Tag** What type of data should `price` be?

```
price = 9.99  
# Type: _____
```

**Exercise 8: The Double Quote** What happens if you forget the closing quotation mark on a string?

```
message = "Oops, I forgot the end  
# What happens? _____
```

**Exercise 9: The Boolean Logic** If `is_morning` is `True`, what is the opposite of `is_morning`?

```
is_morning = True  
is_night = not is_morning  
# is_night: _____
```

**Exercise 10: The Address** Create variables for your street number (Number) and street name (String), and then print them together.

```
street_number = 123  
street_name = "Main Street"  
# Print: "123 Main Street"  
print(_____)
```

## Page 21: REMEMBER IT! Formula

### The Data Type Formula

| Type                                 | What it stores   | Example |
|--------------------------------------|------------------|---------|
| <b>Integer</b> ( <code>int</code> )  | Whole numbers    | 50      |
| <b>String</b> ( <code>str</code> )   | Text (in quotes) | "Hello" |
| <b>Boolean</b> ( <code>bool</code> ) | True or False    | True    |

**REMEMBER:** You can add Numbers, and you can join Strings, but you cannot mix them!

## Page 22: CELEBRATION!

You have completed Fundamental 2: **DATA TYPES!** You are a master of information!



## **+** FUNDAMENTAL 3: OPERATORS (Pages 23-30)

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**Page 23:**  TEACH IT! The Secret of Doing Math and Logic

**Operators** are special symbols that tell the computer to do something with your variables.

We have two main kinds:

- 1. Math Operators:** For adding, subtracting, multiplying, and dividing.

**2. Logic Operators:** For comparing things (is this bigger than that?)

## Page 24: TEACH IT! Math Operators

| Operator | What it does   | Example | Result |
|----------|----------------|---------|--------|
| +        | Addition       | 5 + 3   | 8      |
| -        | Subtraction    | 10 - 4  | 6      |
| *        | Multiplication | 2 * 6   | 12     |
| /        | Division       | 10 / 2  | 5      |

## Page 25: WATCH IT! Demonstration 1-3

### Demo 1: Simple Math

```
result = 10 * 5 + 2
print(result)
# Output: 52 (Multiplication happens before Addition!)
```

### Demo 2: Using Variables

```
cookies = 20
friends = 4
cookies_per_friend = cookies / friends
print(cookies_per_friend)
# Output: 5.0
```

**Demo 3: The Remainder (%)** The `%` operator gives you the remainder after division.

```
left_over = 10 % 3
print(left_over)
# Output: 1 (10 divided by 3 is 3 with 1 left over)
```

## Page 26: ⏱ WATCH IT! Demonstration 4-5

**Demo 4: Logic Operator (Greater Than)** Logic operators always give you a **Boolean** answer ( True or False ).

```
is_big = 10 > 5
print(is_big)
# Output: True
```

**Demo 5: Logic Operator (Equal To)** We use **two** equals signs ( == ) to check if two things are the same.

```
is_same = 7 == 7
print(is_same)
# Output: True
```

## Page 27: 🚀 PRACTICE IT! Exercises 1-5

**Exercise 1: The Total** What is the value of total ?

```
price1 = 5
price2 = 8
total = price1 + price2 * 2
# total: _____
```

**Exercise 2: The Leftovers** If you have 17 candies and share them equally among 5 friends, how many are left over?

```
candies = 17 % 5
# candies: _____
```

**Exercise 3: True or False?** What is the result of this comparison?

```
is_correct = 20 < 10  
# is_correct: _____
```

**Exercise 4: The Double Check** What is the result of this comparison?

```
is_equal = 4 * 2 == 8  
# is_equal: _____
```

**Exercise 5: Not Equal** The `!=` operator means “not equal to.” What is the result?

```
is_different = "apple" != "orange"  
# is_different: _____
```

## Page 28: PRACTICE IT! Exercises 6-10

**Exercise 6: The Parentheses** Parentheses `()` make that part of the math happen first. What is the result?

```
result = (5 + 5) * 2  
# result: _____
```

**Exercise 7: The Logic Chain** What is the result of this complex logic?

```
is_tall = True  
is_fast = False  
is_ready = is_tall and is_fast  
# is_ready: _____
```

**Exercise 8: The OR Operator** The `or` operator is True if **at least one** side is True. What is the result?

```
has_money = False  
has_card = True  
can_buy = has_money or has_card  
# can_buy: _____
```

### Exercise 9: The String Check

What is the result of this comparison?

```
check = "A" == "a"  
# check: _____ (Hint: Computers care about capitalization!)
```

### Exercise 10: The Final Calculation

Calculate the final value of `final_score`.

```
start = 100  
bonus = 25  
penalty = 10  
final_score = start + bonus - penalty  
# final_score: _____
```

## Page 29: REMEMBER IT! Formula

### The Operator Formula

| Type  | Operator          | Meaning                | Result Type          |
|-------|-------------------|------------------------|----------------------|
| Math  | + , - , * , / , % | Calculate a new number | Number               |
| Logic | > , < , == , !=   | Compare two values     | Boolean (True/False) |

**REMEMBER:** Use `==` to check if things are equal, and `*` for multiplication!

## Page 30: CELEBRATION!

You have completed Fundamental 3: **OPERATORS!** You are a logic master!



## → FUNDAMENTAL 4: SEQUENCES (Pages 31-38)

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Page 31:  TEACH IT! The Secret of Doing Things in Order

A computer program is just a list of instructions. The computer always follows these instructions in a **Sequence: one after the other, from top to bottom.**

This is the most fundamental rule of programming!

## Page 32: TEACH IT! The Importance of Order

If you mix up the order, the result will be wrong!

### Example:

1. Put on socks.
2. Put on shoes. (Correct!)
3. Put on shoes.
4. Put on socks. (Wrong!)

The computer is very literal and always follows the sequence exactly.

## Page 33: WATCH IT! Demonstration 1-3

### Demo 1: Simple Sequence

```
print("First, I wake up.")  
print("Second, I eat breakfast.")  
print("Third, I go to school.")  
# The output is always in this exact order.
```

### Demo 2: Sequence with Variables

```
x = 5  
x = x + 1 # x is now 6  
x = x * 2 # x is now 12  
print(x)  
# Output: 12 (The computer does the steps one by one)
```

### Demo 3: The Variable Overwrite

```
message = "Hello"  
print(message) # Prints "Hello"  
message = "Goodbye"  
print(message) # Prints "Goodbye"
```

## Page 34: ⏱ WATCH IT! Demonstration 4-5

**Demo 4: The Missing Step** If you forget a step, the computer doesn't guess!

```
# The goal was to add 5 and 10, but the addition step is missing!  
num1 = 5  
num2 = 10  
# print(num1 + num2) # Missing this line!
```

**Demo 5: A Function Sequence** Sometimes, one line of code can run a whole sequence of steps inside a **Function**.

```
# The 'sort' function runs a sequence of steps to put the list in order.  
numbers = [3, 1, 2]  
numbers.sort()  
print(numbers)  
# Output: [1, 2, 3]
```

## Page 35: 🛡 PRACTICE IT! Exercises 1-5

**Exercise 1: What is the final value?**

```
start = 10  
start = start + 5  
start = start - 2  
# Final value of start: _____
```

**Exercise 2: Fix the Order** The goal is to print “The answer is 42”. Fix the order of the lines.

```
# Line 1: print("The answer is " + str(answer))
# Line 2: answer = 42
# Correct Order: _____
```

**Exercise 3: The Story Sequence** What is the final message printed?

```
word = "Coding"
word = word + " is"
word = word + " fun!"
print(word)
# Final message: _____
```

**Exercise 4: The Swap Revisited** Use a temporary variable `temp` to swap the values of `a` and `b`.

```
a = 1
b = 2
# Write the 3-step sequence here:
#
#
#
# a should be 2, b should be 1
```

**Exercise 5: The Error** What is the error in this sequence?

```
# Line 1: print(total)
# Line 2: total = 10 + 5
# Error: _____
```

## Page 36: PRACTICE IT! Exercises 6-10

**Exercise 6: The Recipe** What is the final value of `flour` ?

```
flour = 100
flour = flour / 2
flour = flour + 50
# Final value of flour: _____
```

### Exercise 7: The Message

What is the final message printed?

```
msg = "Hi"
msg = "Hello"
msg = "Goodbye"
print(msg)
# Final message: _____
```

### Exercise 8: The Step-by-Step

If the computer runs these lines, what is the value of `y` after each line?

```
x = 1
y = x + 1 # y is now: _____
x = 5
y = x + 1 # y is now: _____
```

### Exercise 9: The List

What is the list `colors` after the second line?

```
colors = ["red", "blue"]
colors.append("green")
# colors: _____
```

### Exercise 10: The Print Order

What is the order of the numbers printed?

```
a = 1
print(a)
a = a + 1
print(a)
# Order: _____
```

## Page 37: REMEMBER IT! Formula

### The Sequence Formula

*The computer always executes instructions one at a time, from the top line to the bottom line, in the exact order they are written.*

**REMEMBER:** Order matters! If you change the order of the steps, you change the result of the program.

## Page 38: CELEBRATION!

You have completed Fundamental 4: **SEQUENCES**! You know the flow of the program!



## ?

# FUNDAMENTAL 5: CONDITIONALS (Pages 39-46)

## Page 39: TEACH IT! The Secret of Making Decisions

**Conditionals** allow your program to make decisions. They ask a question, and based on the **Boolean** answer (`True` or `False`), they choose which set of instructions to run.

The main conditional is the **IF** statement.

## Page 40: TEACH IT! The IF Statement

The structure is simple:

```
IF [a condition is True]:  
    DO THIS  
ELSE:  
    DO THAT
```

### Example:

```
IF it is raining:  
    Take an umbrella  
ELSE:  
    Leave the umbrella at home
```

## Page 41: WATCH IT! Demonstration 1-3

### Demo 1: Simple IF

```
score = 10  
if score > 5:  
    print("You win!")  
# Output: You win!
```

## Demo 2: IF and ELSE

```
age = 8
if age >= 10:
    print("You can ride the roller coaster.")
else:
    print("You must ride the teacups.")
# Output: You must ride the teacups.
```

## Demo 3: The Logic Check

```
is_hungry = True
if is_hungry == True:
    print("Time to eat!")
# Output: Time to eat!
```

## Page 42: ⏳ WATCH IT! Demonstration 4-5

**Demo 4: Multiple Choices (ELIF)** `ELIF` (short for “Else If”) lets you check more than one condition.

```
grade = 85
if grade >= 90:
    print("A")
elif grade >= 80:
    print("B")
else:
    print("C")
# Output: B
```

**Demo 5: Nested IF** You can put an IF statement inside another IF statement!

```
is_sunny = True
is_weekend = True
if is_sunny:
    if is_weekend:
        print("Go to the park!")
# Output: Go to the park!
```

## Page 43: 🔑 PRACTICE IT! Exercises 1-5

**Exercise 1: The Passing Grade** If the passing score is 70, what is printed?

```
my_score = 65
if my_score >= 70:
    print("Pass")
else:
    print("Fail")
# Output: _____
```

**Exercise 2: The Door** If the password is “secret”, what is printed?

```
password = "hello"
if password == "secret":
    print("Welcome")
else:
    print("Access Denied")
# Output: _____
```

**Exercise 3: The Big Number** Write an IF statement that prints “Big” if `num` is greater than 100.

```
num = 150
# Write your code here:
# _____
# _____
```

**Exercise 4: The Traffic Light** If the light is “red”, what is printed?

```
light = "red"
if light == "green":
    print("Go")
elif light == "yellow":
    print("Slow Down")
else:
    print("Stop")
# Output: _____
```

### Exercise 5: The AND Check What is printed?

```
has_key = True
is_door_locked = True
if has_key and is_door_locked:
    print("Unlock the door")
# Output: _____
```

## Page 44: PRACTICE IT! Exercises 6-10

### Exercise 6: The OR Check What is printed?

```
is_tired = False
is_bored = True
if is_tired or is_bored:
    print("Take a break")
# Output: _____
```

### Exercise 7: The Nested Choice What is printed?

```
day = "Saturday"
weather = "rainy"
if day == "Saturday":
    if weather == "sunny":
        print("Beach day!")
    else:
        print("Movie day!")
# Output: _____
```

**Exercise 8: The Age Check** Write an IF statement that prints “Child” if `age` is less than 13, and “Teen” otherwise.

```
age = 15
# Write your code here:
# _____
# _____
# _____
```

**Exercise 9: The Error** What is wrong with this code?

```
# if 10 > 5
# print("Correct")
# Error: _____ (Hint: Look at the first line!)
```

**Exercise 10: The Final Decision** What is the final output?

```
money = 5
if money > 10:
    print("Buy a toy")
elif money > 3:
    print("Buy candy")
else:
    print("Go home")
# Output: _____
```

## Page 45: REMEMBER IT! Formula

### The Conditional Formula

| Keyword           | What it does  |
|-------------------|---|
| <code>if</code>   | Checks the first condition.   |
| <code>elif</code> | Checks a second (or third, etc.) condition only if the first was False. |
| <code>else</code> | Runs if ALL conditions above it were False.                             |

**REMEMBER:** Conditionals use **Logic Operators** (like `>` or `==`) to get a **Boolean** (`True` / `False`) answer!

## Page 46: CELEBRATION!

You have completed Fundamental 5: **CONDITIONALS!** You can make your program smart!



## 🤝 Pages 47-48: Combining Section

### Page 47: Putting the Pieces Together

Now that you know all five secrets, let's see how they work together! All programs use all five fundamentals at the same time.

**Combined Exercise 1: The Shopping Trip** Use Variables, Operators, and Conditionals to decide if you can afford a toy.

```
# Variables and Data Types
my_money = 20
toy_price = 15

# Operator and Conditional
if my_money >= toy_price:
    print("I can buy the toy!")
    my_money = my_money - toy_price # Sequence
    print("Money left: " + str(my_money))
else:
    print("I need to save up.")
```

**Combined Exercise 2: The Password Check** Use **Variables**, **Sequences**, and **Conditionals** to check a password.

```
# Variables and Data Types
correct_password = "code"
user_input = "Code" # User types this

# Conditional and Logic Operator
if user_input == correct_password:
    print("Access Granted")
else:
    print("Try again!")
# Output: Try again! (Because of case sensitivity!)
```

## Page 48: Combined Exercises

**Combined Exercise 3: The Scoreboard** Use all five fundamentals to update a game score.

```

score = 100 # Variable
is_level_up = True # Boolean Data Type

if is_level_up: # Conditional
    score = score + 50 # Operator and Sequence
    print("New score: " + str(score))
else:
    score = score - 10
# Final score: _____

```

**Combined Exercise 4: The Weather Decision** Use all five fundamentals to decide what to wear.

```

temp = 25 # Variable (Number)
is_sunny = True # Variable (Boolean)

if temp > 20 and is_sunny: # Conditional and Logic Operator
    print("Wear a T-shirt")
elif temp > 10:
    print("Wear a light jacket")
else:
    print("Wear a heavy coat")
# If temp is 25 and is_sunny is True, what is printed? _____

```



## Pages 49-50: Sweet Factory Intro & Reflection

### Page 49: The Sweet Factory! (Your Next Project)

You have learned the five secrets! Now you are ready to build something real: **The Sweet Factory!**

The Sweet Factory will be a program where you can:

- Use **Variables** to store the number of candies you have.
- Use **Operators** to mix ingredients.
- Use **Conditionals** to decide if a candy is ready.

This is what you will build next! But first...

## **Page 50: Final Reflection: Are You Ready?**

You have mastered:

- 1. Variables** (The Box)
- 2. Data Types** (What's in the Box)
- 3. Operators** (Doing things with the Box)
- 4. Sequences** (The Order of the Boxes)
- 5. Conditionals** (Deciding which Box to open)

You are now ready to be a **Super Coder!**



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**STOP! FLIP THE BOOK OVER FOR ANSWERS!**

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**🔑 Answer Key (Upside-Down Section)**

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## FUNDAMENTAL 1: VARIABLES

Exercise 1-5 Answers:

```
1. my_name = "Your Name"  
2. food = "Pizza" (or your favorite food!)  
3. a = 15  
4. Final value: 5  
5. print("I have a pet " + animal)
```

### Exercise 6-10 Answers:

```
1. result: 7  
2. print(greeting + ", " + place)  
3. Error: The computer doesn't know what the variable is.  
4. temp = box_a, box_a = box_b, box_b = temp  
5. print(hero + " went to the " + location + " to save the day!")
```

## FUNDAMENTAL 2: DATA TYPES

### Exercise 1-5 Answers:

```
1. a: Integer, b: String, c: Boolean  
2. "123"  
3. fav_num = "7" (or str(fav_num))  
4. is_raining = True or False  
5. full_name = first_name + " " + last_name
```

### Exercise 6-10 Answers:

```
1. print(word1 + " " + word2)  
2. Type: Float (a number with a decimal)  
3. Error: The computer expects the string to end.  
4. is_night: False  
5. print(str(street_number) + " " + street_name)
```

## FUNDAMENTAL 3: OPERATORS

### Exercise 1-5 Answers:

1. total: 21 ( $8 * 2 = 16, 16 + 5 = 21$ )
2. candies: 2
3. is\_correct: False
4. is\_equal: True
5. is\_different: True

### Exercise 6-10 Answers:

1. result: 20
2. is\_ready: False
3. can\_buy: True
4. check: False
5. final\_score: 115

## FUNDAMENTAL 4: SEQUENCES

### Exercise 1-5 Answers:

1. Final value of start: 13
2. Correct Order: Line 2, Line 1
3. Final message: Coding is fun!
4. temp = a, a = b, b = temp
5. Error: total is used before it is created.

### Exercise 6-10 Answers:

1. Final value of flour: 100
2. Final message: Goodbye
3. y is now: 2, y is now: 6
4. colors: ["red", "blue", "green"]

5. Order: 1 , 2

## FUNDAMENTAL 5: CONDITIONALS

### Exercise 1-5 Answers:

1. Output: Fail
2. Output: Access Denied
3. `if num > 100: print("Big")`
4. Output: Stop
5. Output: Unlock the door

### Exercise 6-10 Answers:

1. Output: Take a break
  2. Output: Movie day!
  3. `if age < 13: print("Child") else: print("Teen")`
  4. Error: Missing the colon ( : ) at the end of the `if` line.
  5. Output: Buy candy
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