

Scratch – Simple Programming

If Statements

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Unit Overview

Objectives

Understand why computer programming scripts are used.

Understand the use of Variables as place holders for information.

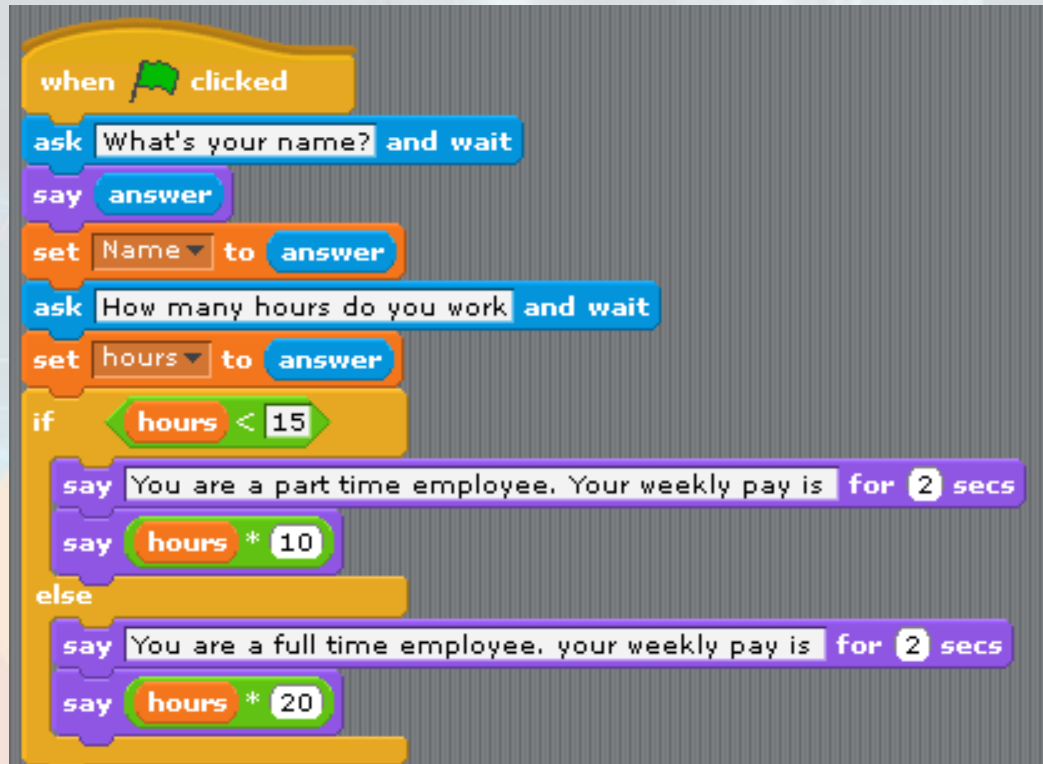
Understand the use of if and nested if statements in scratch.

Outcomes

Time

Task 1	Job Type	
Task 2	School Status	
Task 3	Phone Sales Target	
Task 4	Goal Bonus	
Task 5	Grades	
Task 6	Extension - Grades	

Starter 1 - Discuss this piece of code



```
when clicked
ask What's your name? and wait
say answer
set Name to answer
ask How many hours do you work and wait
set hours to answer
if hours < 15
say You are a part time employee. Your weekly pay is for 2 secs
say hours * 10
else
say You are a full time employee. your weekly pay is for 2 secs
say hours * 20
```

- 1) What will be stored in the variable?
- 2) What is the logical test?
- 3) What is the **True** Statement?
- 4) What is the **False** Statement?

Task 1 – Job Type **Part 1**

1. Create a simple script which will work out your **weekly pay**.
2. You will need to create **three variables** for your name, hours and pay per hour.
3. You will need to **calculate** and **print out** your weekly pay.

The image shows a Scratch code editor with a script for calculating weekly pay. The script is as follows:

```
when green flag clicked
  clear
  ask "What's your name?" and wait
  say answer
  set Name to answer
  ask "How many hours do you work" and wait
  set Hours to answer
  ask "What is you pay per hour" and wait
  set Pay Per Hour to answer
  say "Your weekly pay is" for 2 secs
  say "Hours * Pay per Hour" for 2 secs
```

The variables section shows:

- Name: yasar
- Hours: 5
- Pay Per Hour: 10

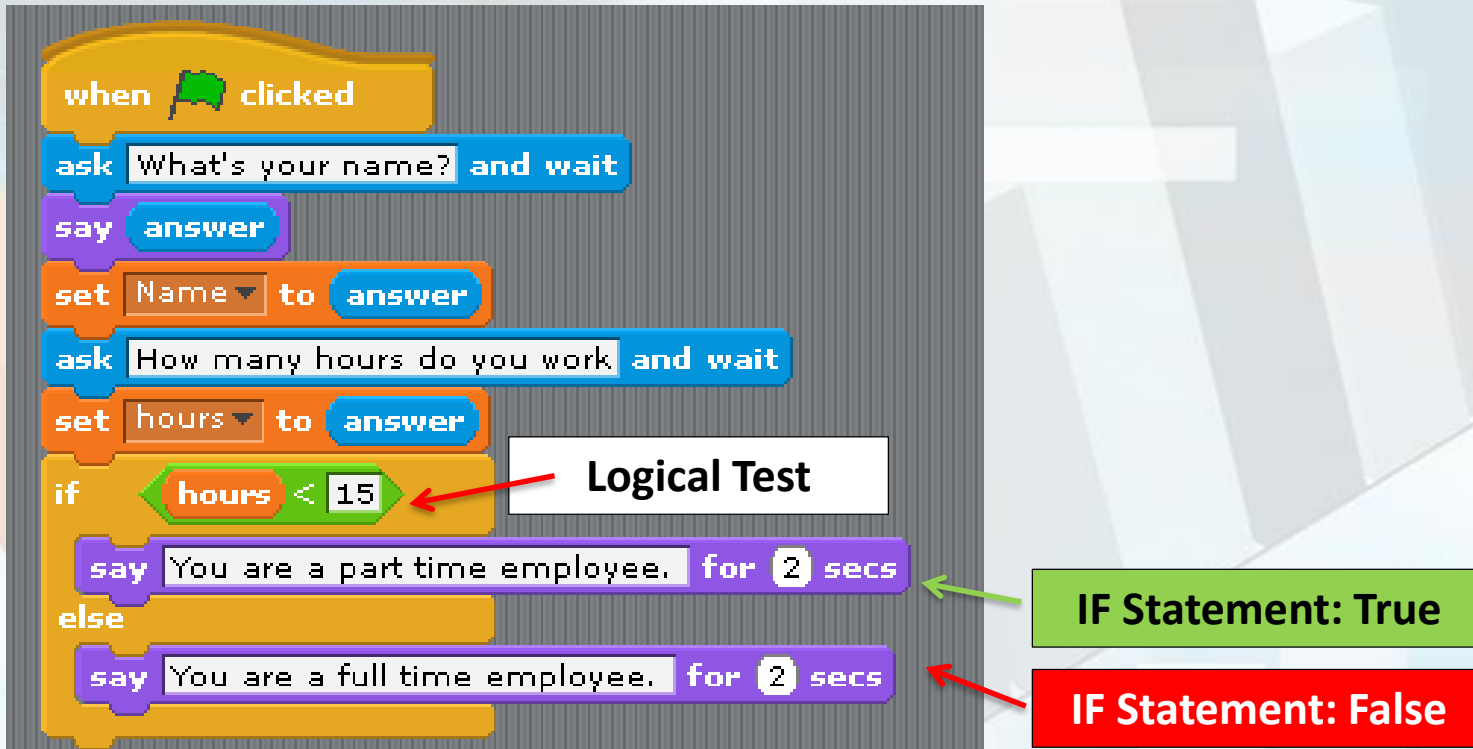
The cat sprite has a speech bubble saying "50".

Annotations:

- A box labeled "Variables" points to the variable section.
- A box labeled "Hours * Pay per Hour" points to the calculation in the script.
- A box labeled "Calculation and print out of weekly pay" points to the final say block in the script.

Task 1 – Job Type – If Statement **Part 1**

1. Create a simple script to work whether employees are **part time** or **fulltime**.
2. **Logical Test:** Worked Hours less than 15
3. **True:** “**You are a part time employee**”
4. **False:** “**You are a full time employee**”



The image shows a Scratch script with the following blocks:

- when clicked
- ask "What's your name?" and wait
- say answer
- set Name to answer
- ask "How many hours do you work" and wait
- set hours to answer
- if **hours < 15** (Logical Test)
 - say "You are a part time employee." for 2 secs (IF Statement: True)
 - else
 - say "You are a full time employee." for 2 secs (IF Statement: False)

Annotations in the image include a white box labeled "Logical Test" pointing to the **hours < 15** condition, a green box labeled "IF Statement: True" pointing to the first say block, and a red box labeled "IF Statement: False" pointing to the second say block.

Task 1 – Job Type – If Statement **Part 3**

1. Create a simple script to work the employee's weekly wage.
2. If the employee is **part time** than he is paid **£10 per hour (True)**.
3. If the employee is **full time** than he is paid **£20 per hour (False)**.

Tip: You could create a variable to contain the numbers of hours worked.

Logical Test

IF Statement: True

IF Statement: False

```
when clicked
clear
ask "What's your name?" and wait
say answer
set Name to answer
ask "How many hours do you work" and wait
set hours to answer
if hours < 15
say "You are a part time employee. Your weekly pay is" for 2 secs
say hours * 10
else
say "You are a full time employee. your weekly pay is" for 2 secs
say hours * 20
```

Task 2 – School Status – Nested If (Extension)

1. Create a simple script to work out whether you are in primary, secondary or have left school.
2. Create **two variables** to contain your **name** and **age**.

Checking Age Variable

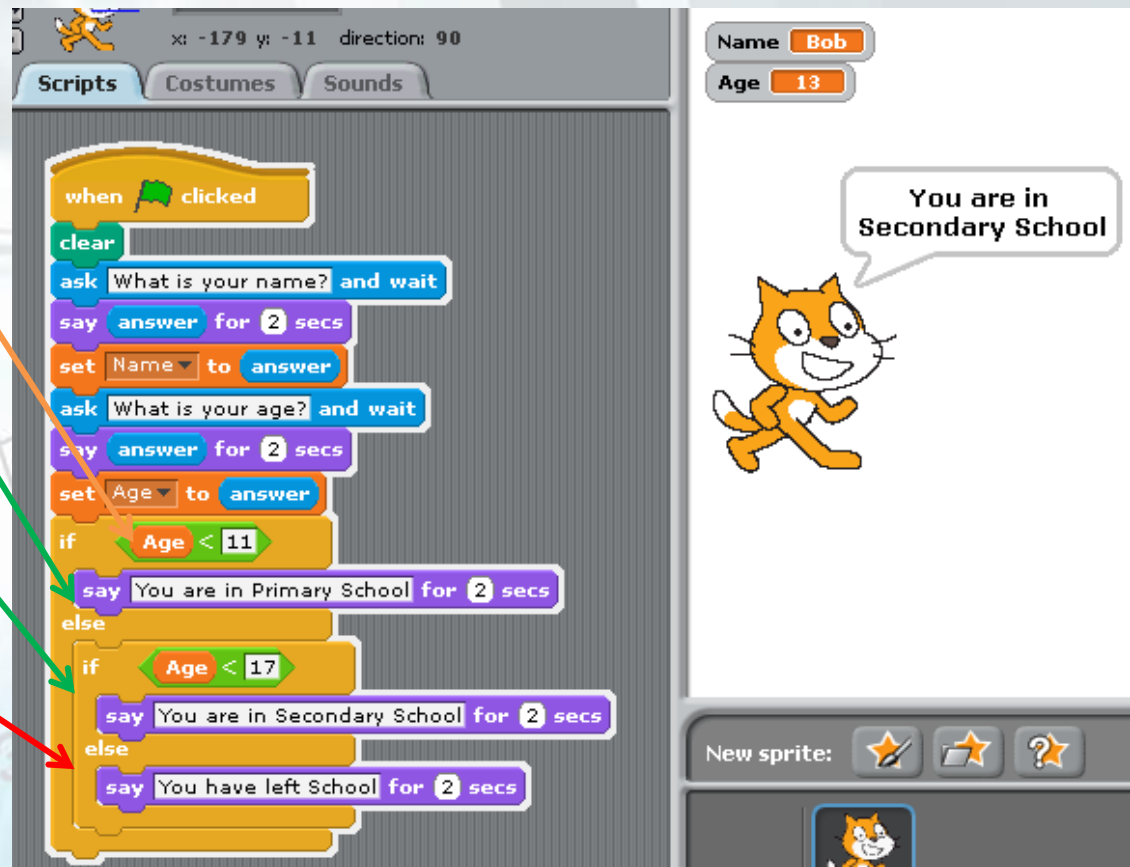
1st True Statement

<11 – You are in Primary School

2nd True Statement

<17 – You are in Secondary School

False: You have Left School



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Task 3 – Phone Sales Target

1. Create a simple script to work out the expected sales for the iPhone and S5 phone.
2. Create **two variables** to contain the **sales person name** and **phone name**.

Checking Phone Variable

1st True Statement
Phone = "iphone"
10 Sales this week

2nd True Statement
Phone = "s5"
15 Sales this week

False: 7 sales this week (This is for any other phone you type in)

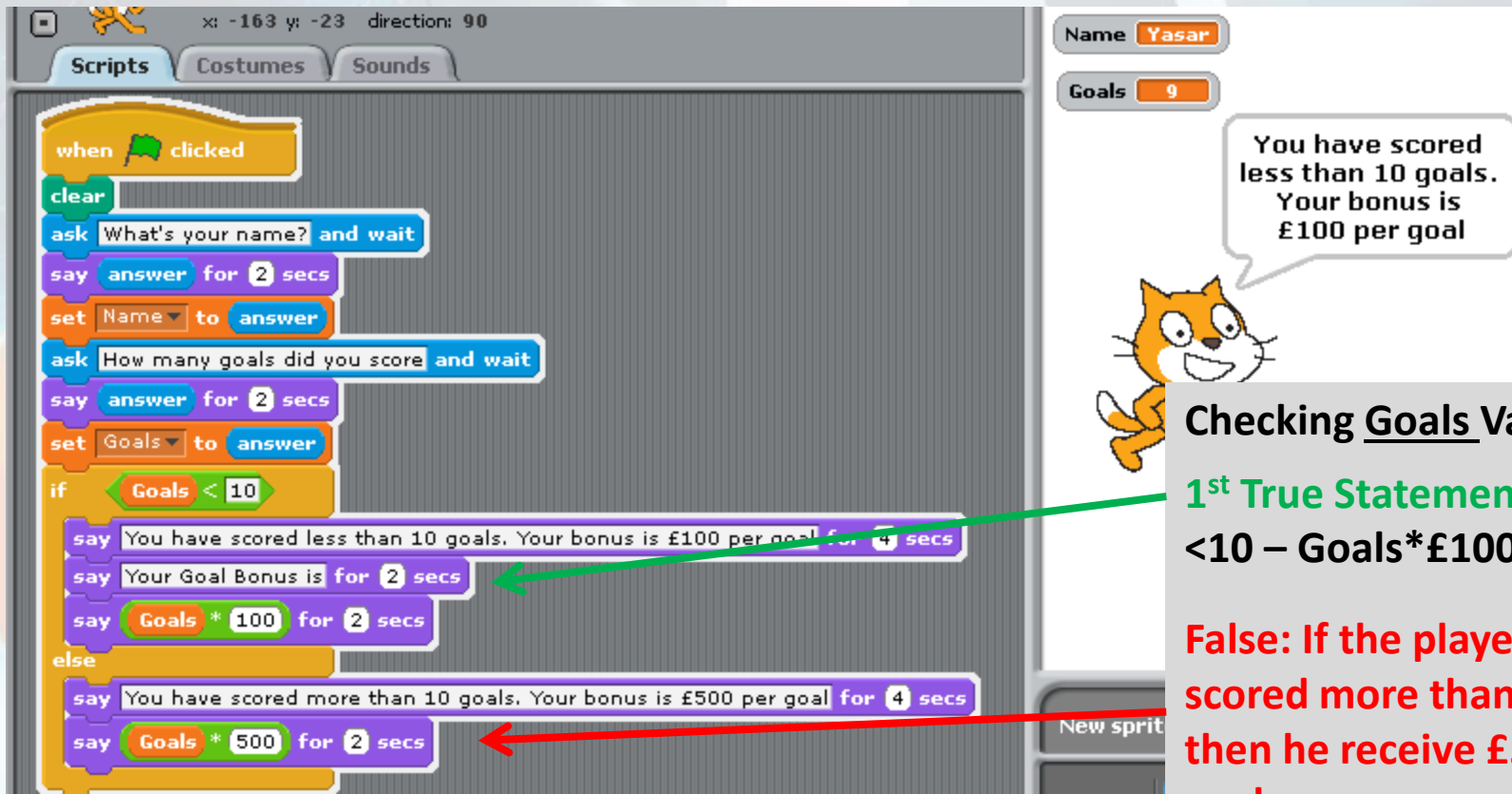
The image shows the Scratch script editor with the following script:

```
when clicked
  clear
  ask "What's your name?" and wait
  say answer
  set Name to answer
  ask "Enter name of Phone" and wait
  say answer
  set Phone to answer
  if Phone = iphone
    say "You are expected to make 10 sales this week" for 2 secs
  else
    if Phone = s5
      say "You are expected to make 15 sales this week" for 2 secs
    else
      say "You are expected to make 7 sales this week" for 2 secs
```

On the right, the character's name is "Yasar" and the phone variable is set to "iphone". A speech bubble from the character says: "You are expected to make 10 sales this week".

Task 4 – Goal Bonus

1. Create a simple script to work out the goal bonus based on goals scored.
2. Create **two variables** to contain the **player's name** and **number of goals scored**.



The image shows a Scratch script and its execution. The script is as follows:

```
when clicked
  clear
  ask "What's your name?" and wait
  say answer for 2 secs
  set Name to answer
  ask "How many goals did you score" and wait
  say answer for 2 secs
  set Goals to answer
  if Goals < 10
    say "You have scored less than 10 goals. Your bonus is £100 per goal" for 4 secs
    say "Your Goal Bonus is for" for 2 secs
    say Goals * 100 for 2 secs
  else
    say "You have scored more than 10 goals. Your bonus is £500 per goal" for 4 secs
    say Goals * 500 for 2 secs
```

The stage shows the character's name as "Yasar" and the number of goals as "9". A speech bubble says: "You have scored less than 10 goals. Your bonus is £100 per goal".

Checking Goals Variable

1st True Statement
 $<10 - \text{Goals} * \text{£}100$

False: If the player has scored more than 10 goals then he receive £500 per goal.

Task 5 – Grades

```
when clicked
ask What's your name? and wait
say answer for 2 secs
set Name to answer
ask What is your raw grade from your English Paper? MAX 100 Marks and wait
say answer for 2 secs
set English to answer
ask What is your raw grade from your Maths Paper? MAX 100 Marks and wait
say answer for 2 secs
set Maths to answer
ask What is your raw grade from your Science Paper? MAX 100 Marks and wait
say answer for 2 secs
set Science to answer
set Total Marks to English + Maths + Science
say Your total marks is for 2 secs
say Total Marks for 2 secs
if Total Marks > 250
say Your Grade is A. Well done for 5 secs
else
if Total Marks > 200
say Your grade is B. Good job. for 5 secs
else
if Total Marks > 150
say Your Grade is C. for 5 secs
else
say You have Failed for 5 secs
```

Create a simple script to work out the pupils **final grade** based on their **English, Maths and Science Marks**.

You need to create **5 variables** including one to store the **total marks**.

Checking Total Marks Variable

1st True Statement

>250, A Grade

2ND True Statement

>200, B Grade

3rd True Statement

>150, C Grade

False: anything less than 150 - Fail



Task 6 – Extension

1. Create a simple script to work out the pupils grade.
2. Create **two variables** to contain the **pupils name** and **grade** out of **100**.

Checking Grade Variable

1st True Statement

>90, A* Grade

2nd True Statement

>80, A Grade

3rd True Statement

>70, B Grade

4th True Statement

>60, C Grade

5th True Statement

>50, D Grade

False: anything less than 50 - Fail

Plenary – Refer to the Lesson Objectives

Objectives

Understand why computer programming scripts are used.

Understand the use of Variables as place holders for information.

Understand the use of if and nested if statements in scratch.

Plenary Task (Q&A)

Peer assess each other scripts.

Discuss the levels pupils have achieved for this task.

Question: What is the purpose of variables?

Question: What is the difference between and if and nested if statement?