

Scratch – Simple Programming



Broadcast

Unit Overview

Objectives

Understand why computer programming scripts are used.

Understand the use of Variables as place holders for information.

Understand the use of the repeat, If Statements (Commands)

Understand the use of the Broadcast command

Outcomes

Time

Task 1	100M Record	
Task 2	School – House or Year Group	

Starter Broadcast (Discuss the Script)

```
when clicked
repeat until (answer = male or answer = female)
  ask Enter your gender? and wait
  if (answer = male)
    set Gender to answer
    broadcast male
  else
    if (answer = female)
      set Gender to answer
      broadcast female
    else
      say Please enter your gender for 2 secs
```

Male

```
when I receive male
ask What's is your fastest 100m time? and wait
set Best Time to answer
if (Best Time < 9.56)
  set Record Broken to Yes
  say join You have broken the male 100m record. The new record is Best Time for 2 secs
else
  say You have not beat the record. for 2 secs
```

Female

```
when I receive female
ask What's is your fastest 100m time? and wait
set Best Time to answer
if (Best Time < 11.56)
  set Record Broken to Yes
  say join You have broken the female 100m record. The new record is Best Time for 2 secs
else
  say You have not beat the record. for 2 secs
```

Using the **Broadcast script** can allow you to jump to a particular part of the script.

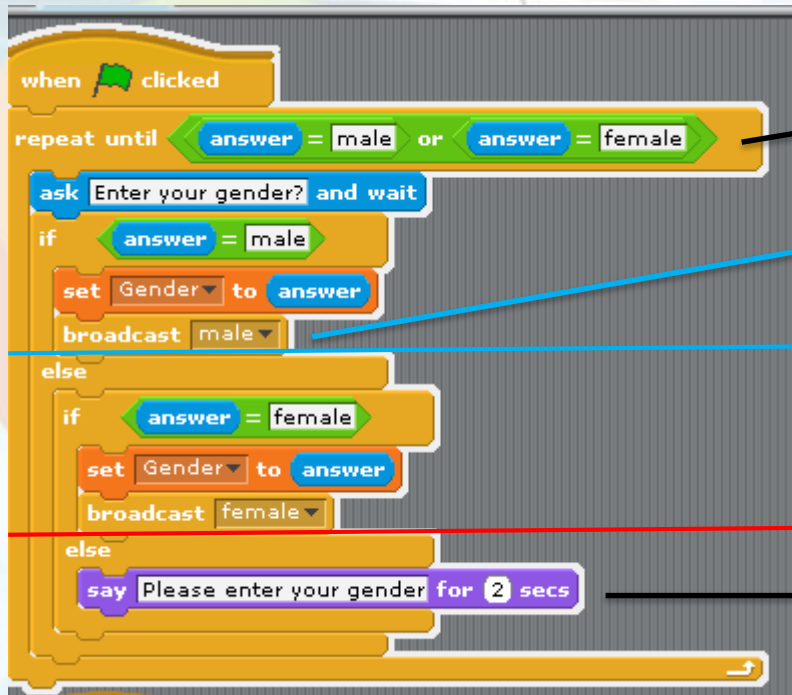
If the **Answer is = Male** >> Then the Script will jump to the part of the script which says: **When I Receive – "Male"**

```
broadcast male
```

```
when I receive male
```

Task 1 – 100M Record (Part 1)

1. You need to create a program to **which will calculate if you have broken the 100M record based on your gender.**
2. You need to create variables to store **the gender, best time and whether the record has been broken.**
3. If you are **male** then your record will be compared against the **Male Best Time.**
4. If you are **female** then your record will be compared against the **Female Best Time.**



```
when green flag clicked
  repeat until (answer = male or answer = female)
    ask Enter your gender? and wait
    if (answer = male)
      set Gender to answer
      broadcast male
    else
      if (answer = female)
        set Gender to answer
        broadcast female
      else
        say Please enter your gender for 2 secs
```

The user will be required to enter their gender when prompted. The answer has to be either **Male** or **female**. The **gender** will then be stored in the **variable**.

If the gender is **male** then the script will jump to **Male** section of the script.

If the gender is **female** then the script will jump to **female** section of the script.

If user input does not equal either **“male”** or **“female”** then the user will be prompted to enter their gender in again. This will repeat until the user has entered either **“male”** or **“female”**.

Task 1 – 100M Record (Part 2)

1. The user will be **prompted** to enter their **fastest time** which will be **stored in the best time variable**.
2. An **if statement** will have to determine whether the **best record has been broken**.
3. If the record has **been broken** then a **message including the new best time** will be **displayed**.

The image shows a Scratch script for a male 100m record. The script starts with a 'when I receive' block set to 'male'. It then asks 'What's is your fastest 100m time?' and waits for an answer. The answer is stored in a variable named 'Best Time'. An 'if' statement checks if 'Best Time > 9.4'. If true, it sets 'Record Broken' to 'Yes' and says 'You have broken the male 100m record. The new record is Best Time for 2 secs'. If false, it says 'You have not beat the record. for 2 secs'. Annotations with arrows point from the code to callouts on the right: a black arrow from the 'set Best Time to answer' block to 'Best time stored in variable'; a green arrow from the 'if Best Time > 9.4' block to 'Logical Test: Best Time > Record'; a green arrow from the 'say join' block to 'True: You have broken the record.'; and a red arrow from the 'say' block in the 'else' branch to 'False: You have not beat the record.'

```

when I receive male
ask What's is your fastest 100m time? and wait
set Best Time to answer
if Best Time > 9.4
  set Record Broken to Yes
  say join You have broken the male 100m record. The new record is Best Time for 2 secs
else
  say You have not beat the record. for 2 secs
  
```

Best time stored in variable

Logical Test: Best Time > Record

True: You have broken the record.

False: You have not beat the record.

The image shows a Scratch script for a female 100m record. The script starts with a 'when I receive' block set to 'female'. It then asks 'What's is your fastest 100m time?' and waits for an answer. The answer is stored in a variable named 'Best Time'. An 'if' statement checks if 'Best Time > 10.1'. If true, it sets 'Record Broken' to 'Yes' and says 'You have broken the female 100m record. The new record is Best Time for 2 secs'. If false, it says 'You have not beat the record. for 2 secs'. Annotations with arrows point from the code to callouts on the right: a black arrow from the 'set Best Time to answer' block to 'Best time stored in variable'; a green arrow from the 'if Best Time > 10.1' block to 'Logical Test: Best Time > Record'; a green arrow from the 'say join' block to 'True: You have broken the record.'; and a red arrow from the 'say' block in the 'else' branch to 'False: You have not beat the record.'

```

when I receive female
ask What's is your fastest 100m time? and wait
set Best Time to answer
if Best Time > 10.1
  set Record Broken to Yes
  say join You have broken the female 100m record. The new record is Best Time for 2 secs
else
  say You have not beat the record. for 2 secs
  
```

Best time stored in variable

Logical Test: Best Time > Record

True: You have broken the record.

False: You have not beat the record.

Task 2 – House or Year Group (Part 1)

1. You need to create a program to **work out the pupils house or year depending if they are in primary or secondary school.**
2. If Pupils are in **primary school** then they will be **prompted to enter their house.**
3. If Pupils are in **secondary school** then they will be **prompted to enter their year group.**
4. A **message will be printed** telling pupils either their **house master** or **year leader.**

```
when green flag clicked
repeat until (answer = Primary or answer = Secondary)
  ask "What school are you in?" and wait
  if (answer = Primary)
    set School to answer
    broadcast Primary
  else
    if (answer = secondary)
      set School to answer
      broadcast secondary
    else
      say "You can only type primary or secondary" for 2 secs
```

The user will be required to enter their school when prompted. The answer has to be either **Primary** or **Secondary**. The **school** will then be stored in the **variable**.

If the school is primary then the script will jump to primary section of the script.

If the school is secondary then the script will jump to secondary section of the script.

If user input does not equal either "**primary**" or "**secondary**" then the user will be prompted to enter their school in again. This will repeat until the user has entered either "**primary**" or "**secondary**".

Task 2 – House or Year Group (Part 2)

Primary - House

```
when I receive Primary
say welcome to the primary school. for 2 secs
repeat until (answer = Currie or answer = Bell or answer = Wright or answer = Edison)
ask What house are you in? and wait
if answer = Currie
set House to answer
set House master to Mr Ahmad
say join Your house master is House master for 2 secs
else
if answer = Bell
set House to answer
set House master to Mr Hassine
say join Your house master is House master for 2 secs
else
if answer = Wright
set House to answer
set House master to Mr Lawson
say join Your house master is House master for 2 secs
else
if answer = Edison
set House to answer
set House master to Mr Eissa
say join Your house master is House master for 2 secs
else
say You can only type the house name (Currie, Bell, Wright & Edison). for 2 secs
```

Nested IF

The script needs to include a **welcome message** and then a **prompt for the user to type in their House**. The script will repeat unless the user types in either **Currie, Bell, Wright or Edison**. The nested if statement will output the House Master.

The script then needs to include a nested IF:

- If House is Currie (Set to variable)
- House master variable to Mr Ahmad
- If House is Bell (Set to variable)
- House master variable to Mr Hassine
- If House is Wright (Set to variable)
- House master variable to Mr Lawson
- If House is Edison (Set to variable)
- House master variable to Mr Eissa
- **False: You can only type in house name - repeat**

Task 2 – House or Year Group (Part 2)

Secondary - Year

The script needs to include a **welcome message** and then a **prompt for the user to type in their Year**. The script will **repeat unless the user types in either 7,8,9,10 or 11**. The nested if statement will output the year tem leader.

The script then needs to include a nested IF:

- If year is 7 (Set to variable)
- House master variable to Mr Smith
- If year is 8 (Set to variable)
- House master variable to Mr Amin
- If year is 9 (Set to variable)
- House master variable to Mrs Carr
- If year is 10 (Set to variable)
- House master variable to Mr Brady
- If year is 11 (Set to variable)
- House master variable to Ms Yalda

Nested IF

```
when I receive secondary
say welcome to the secondary school. for 2 secs
repeat until answer = 7 or answer = 8 or answer = 9 or answer = 10 or answer = 11
ask What year are you in? and wait
if answer = 7
  set Year to answer
  set HOY to Mr Smith
  say join Your head of year is HOY for 2 secs
else
  if answer = 8
    set Year to answer
    set HOY to Mr Amin
    say join Your head of year is HOY for 2 secs
  else
    if answer = 9
      set Year to answer
      set HOY to Mrs Carr
      say join Your head of year is HOY for 2 secs
    else
      if answer = 10
        set Year to answer
        set HOY to Mr Brady
        say join Your head of year is HOY for 2 secs
      else
        if answer = 11
          set Year to answer
          set HOY to Ms Yalda
          say join Your head of year is HOY for 2 secs
        else
          say You can only type a year group (7,8,9,10,11) for 2 secs
```


Task 2 - Extension

**Can you make your own
program containing a
Broadcast and nested if
statement**

<http://www.yahmad.co.uk/>

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 the repeat, If Statements (Commands)

Understand the use of the Broadcast command

Plenary Task (Q&A)

Peer assess each other scripts.

Discuss the levels pupils have achieved for this task.

Question: What is the purpose of the **broadcast script**?

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