

IF statements, like many structures in programming, can be placed inside one another. This is called a **nested** structure.

The code on the right shows how a **nested IF statement** can be used to tell the user whether they have entered an incorrect username or an incorrect password.

Within IF statements it is possible for the condition to contain full **Boolean expressions** or use brackets. This can often save having to write lots of nested IF statements. For example:

```
IF username = "smithp" THEN
  IF password = "awer" THEN
    OUTPUT "Logged in"
  ELSE
    OUTPUT "Incorrect password"
ELSE
  OUTPUT "Incorrect username"
END IF
```

```
gameOver = False
score = 2500
IF gameOver AND score >= 2000 THEN
  OUTPUT "That's a fantastic score"
ELSE
  OUTPUT "Not too good"
END IF
```

If we wanted to give a different message to the user for every day of the week, we could do an IF statement for each day. This causes a lot of typing and isn't that clear to read.

```
INPUT dayOfWeek
IF dayOfWeek = "Monday" THEN
  OUTPUT "Hate Mondays"
ELSE
  IF dayOfWeek = "Tuesday" THEN
    OUTPUT "Great, Monday's over"
  ELSE
    IF dayOfWeek = "Wednesday" THEN
      ...
```

There is another structure that does branching called **CASE-SELECT**. An example is shown below that will give seven different outputs depending on which day of the week is entered.

```
INPUT dayOfWeek
SELECT CASE dayOfWeek OF
  "Monday":      OUTPUT "Hate Mondays"
  "Tuesday":     OUTPUT "Great, Monday's over"
  "Wednesday":  OUTPUT "Middle of the week"
  "Thursday":   OUTPUT "Almost Friday"
  "Friday":     OUTPUT "Great, Friday"
OTHERWISE      OUTPUT "Lie in"
END SELECT
```

In other languages these may be called **SWITCH-CASE**. The name is different but the way they work is the same.

Nested IF & CASE-SELECT Statements - Questions

1. When an IF statement is placed inside another IF statement it is known as what? Fill in one circle. [1]

- Embedded IF statement Nested IF statement

2. Look at the code on the right and answer the questions about it below.

```

playerName = "Jim"
playerScore = 23
IF playerName = "Jim"
    IF playerScore > 50
        OUTPUT "Great score"
    ELSE
        OUTPUT "Keep trying"
ELSE
    OUTPUT "You're not Jim!"
    
```

- a) The first IF statement checks which condition? Fill in one circle. [1]
 playerScore > 50 playerName = "Jim" playerScore = 23
- b) The nested IF statement checks which condition? Fill in one circle. [1]
 playerScore > 50 playerName = "Jim" playerScore = 23
- c) What will the output be from the program? [1]

d) If playerScore was changed to the following scores, what would the output be from the program? [3]

playerScore	Output
49	
50	
51	

e) If the first line of code were: playerName = "jim" What would the output be from the program? [1]

3. If a great score were greater than or equal to 50, what would the condition be in line 4? [1]

4. If a great score were greater than or equal to 50 and less than 100, what would the condition be? [1]

5. Look at the following code on the right and answer the questions about it below.

```

OUTPUT "What input device moves a mouse
pointer?"
INPUT answer
SELECT CASE answer OF
    "mouse": OUTPUT "Correct"
    "keyboard": OUTPUT "That's for letters"
    OTHERWISE OUTPUT "Incorrect"
END SELECT
    
```

a) For each of the following inputs for the answer variable, write what the output would be from the program. [3]

answer	Output
mouse	
Keyboard	
graphics tablet	

b) If you wanted to include "graphics tablet" as a "Correct" choice, what would the extra line of code need to be? [1]

6. Look at the code on the right. For each of the inputs below what will the output(s) from the program be? [6]

a	b	Output(s)
5	3	
-3	-5	
-5	-3	
5	5	
20	12	
22	13	

```

INPUT a
INPUT b
IF a > b AND
    (a < 20 OR b >= 13) THEN
    OUTPUT "A"
ELSE
    OUTPUT "B"
    IF b = a THEN
        OUTPUT "C"
    
```

Year 7 Art Homework 4: 'Colour and Pattern'

hue	a pure colour without tint or shade
tint	a colour lightened by adding white
shade	a colour darkened by adding black
complementary colours	colours directly opposite each other on the colour wheel
analogous colours	colours next to one another on the colour wheel
emotive	arousing feeling or emotion
composition	how the elements of art are arranged in an artwork
geometric shapes	structured, precise shapes
organic shapes	free-flowing irregular shapes
relief	when elements are raised up from a background
sculpture	a three-dimensional art form
juxtaposition	placing elements with opposite/contrasting effects next to one another
asymmetrical	when elements within something are unevenly arranged / are not symmetrical

The **primary colours** are: **red**, **blue** and **yellow**.

They are special because: you **cannot make them from other colours** and when you mix them together in different quantities you can **make many other colours**.

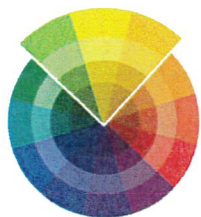
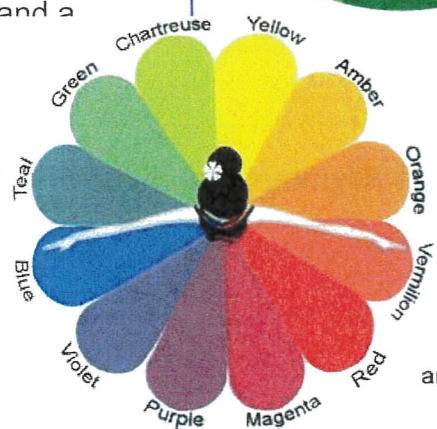
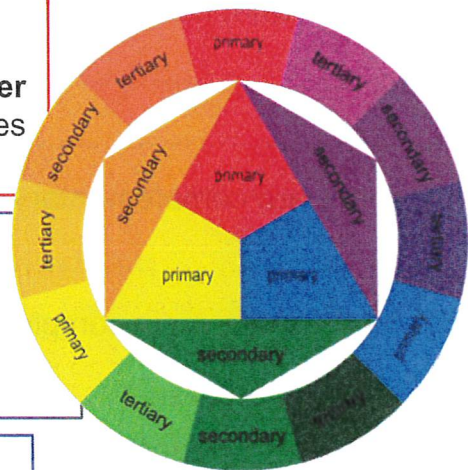
To make a **secondary colour** you mix two primary colours together.

Example: red + yellow = orange

The **secondary colours** are: **purple**, **green** and **orange**.

Tertiary colours are made by mixing a primary and a secondary colour together.

An example of a **tertiary colour** is red-orange-also known as 'vermillion'.



Analogous

Analogous colours have colour ingredients in common and create a harmonious appearance. They are usually used in groups of three.



Complementary

Complementary colours make each other look more vibrant when placed next to one another than they do next to other colours. They contrast each other and are often used to grab attention.

The main complementary pairs are: yellow and purple, blue and orange and red and green.

*Use the information on the knowledge organiser to complete the questions below.
Learn the answers as you will be tested on this next lesson!*

1) List the three primary colours:

.....

2) Explain what is special about the primary colours:

.....
.....

3) List the three secondary colours:

.....

4) How are tertiary colours made?

.....
.....

5) What is added to a colour to create a tint?

.....

6) Explain what composition means

.....
.....

7) Where are complementary colours found on the colour wheel?

.....

8) List the three main complementary colour pairs

.....

9) What does juxtaposition mean?

.....
.....

10) What does asymmetrical mean?

.....
.....