

Scratch Concepts

Conditional



Conditional

What is a **Condition** ?

Conditional

Something that is
True or **False**

Conditional

True or False ?

$3 < 4$

Today is Friday

$x = 7$

Move 40 steps

Conditional

True or False ?

$3 < 4$: True
Today is Friday	: False
$x = 7$: perhaps
Move 40 steps	: ???

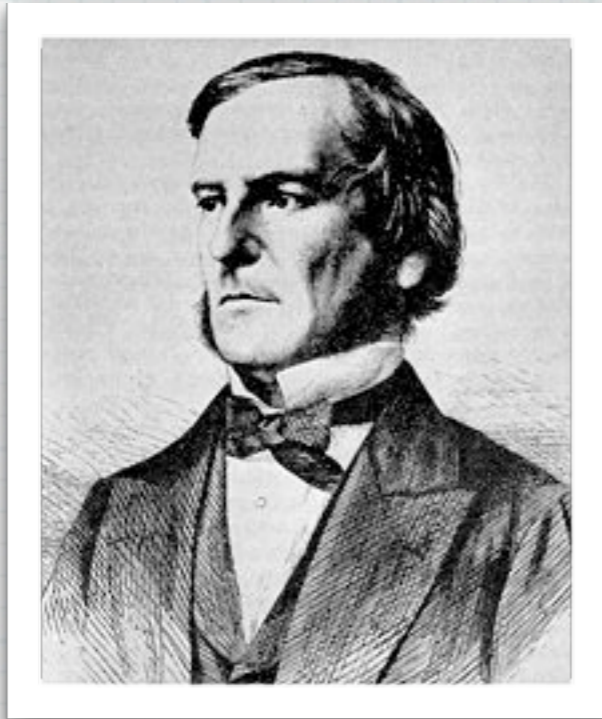
Conditional

A **Condition** is an **expression** that can be **evaluated** as **True** or **False**

Conditional

A **True/False** expression is known as a **Boolean expression**

Conditional



http://en.wikipedia.org/wiki/File:George_Boole.jpg

George Boole

1815 - 1854

English Mathematician &
Philosopher

The Laws of Thought

Conditional

IF

(Boolean expression)

???

Conditional

IF (**expression**)

True



do something

Conditional

IF (**x < 0**)

True



x is negative

Conditional

IF (**x < 0**)

True



x is negative

Conditional

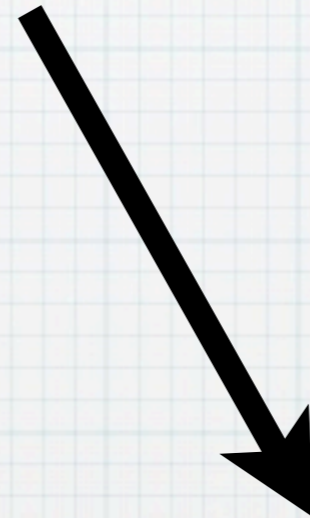
IF ($x < 0$)

True



x is negative

False



x is non-negative

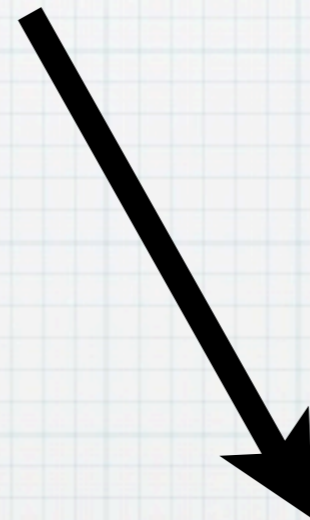
Conditional

IF (**expression**)

True



False



do something

do something else

Conditional

IF (**expression**)

True

False



do something

Conditional

```
IF ( expression is True ) THEN  
    ( do something )  
ELSE  
    ( do something else )
```


Conditional

IF (**expression** is **True**) **THEN**
(do something)

Conditional

Boolean expression

Conditional

Boolean expressions
can be compound

Conditional

IF (**expression1** is **True**) **AND**
(**expression2** is **True**)

Conditional

IF ((**expression1** is **True**) **AND**
(**expression2** is **True**))

Conditional

IF ((**expression1** is **True**) **OR**
(**expression2** is **True**))

Conditional

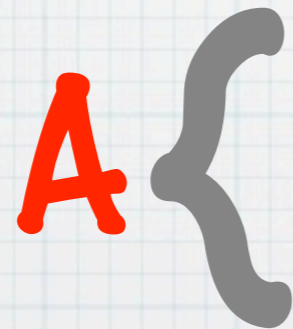
Boolean Algebra

AND
OR
NOT

Conditional

A AND B

B



&	TRUE	FALSE
TRUE	TRUE	FALSE
FALSE	FALSE	FALSE

Conditional

A OR **B**

B



A



I	TRUE	FALSE
TRUE	TRUE	TRUE
FALSE	TRUE	FALSE

Conditional

NOT **A**

	~	NOT A
A {	TRUE	FALSE
	FALSE	TRUE

Conditional

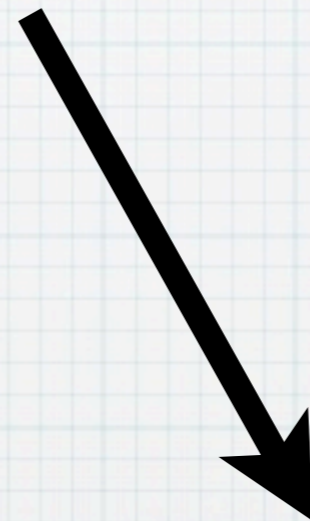
IF (expression1 AND expression2)

True



do something

False



do something else

Conditional

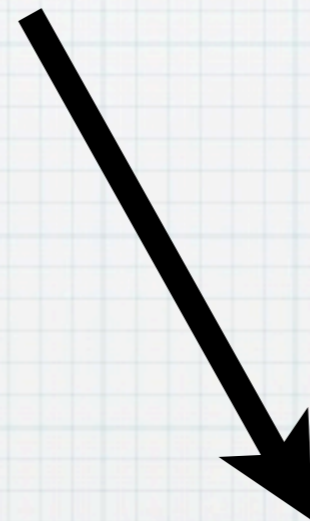
IF (substitute OR Friday)

True



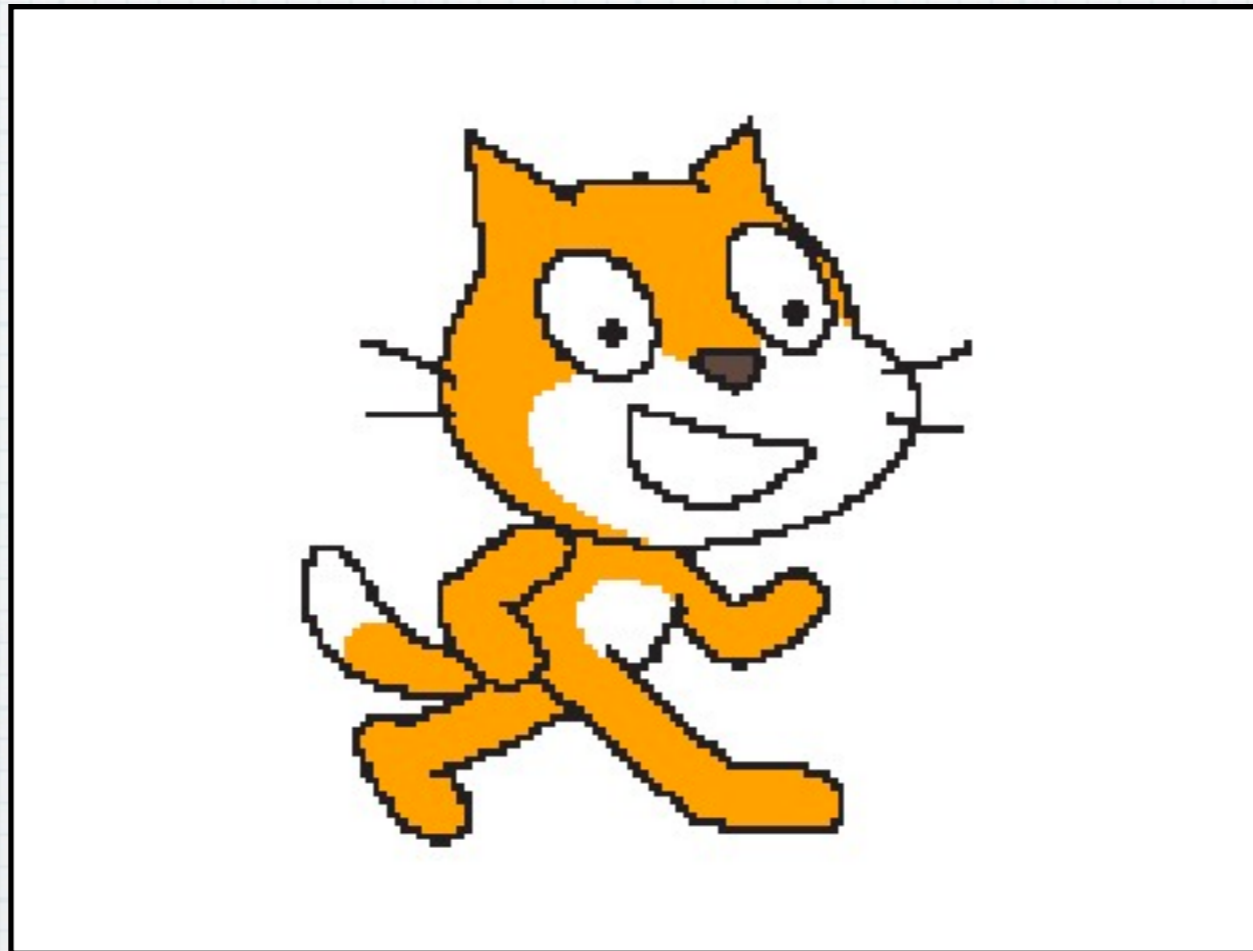
skip class

False

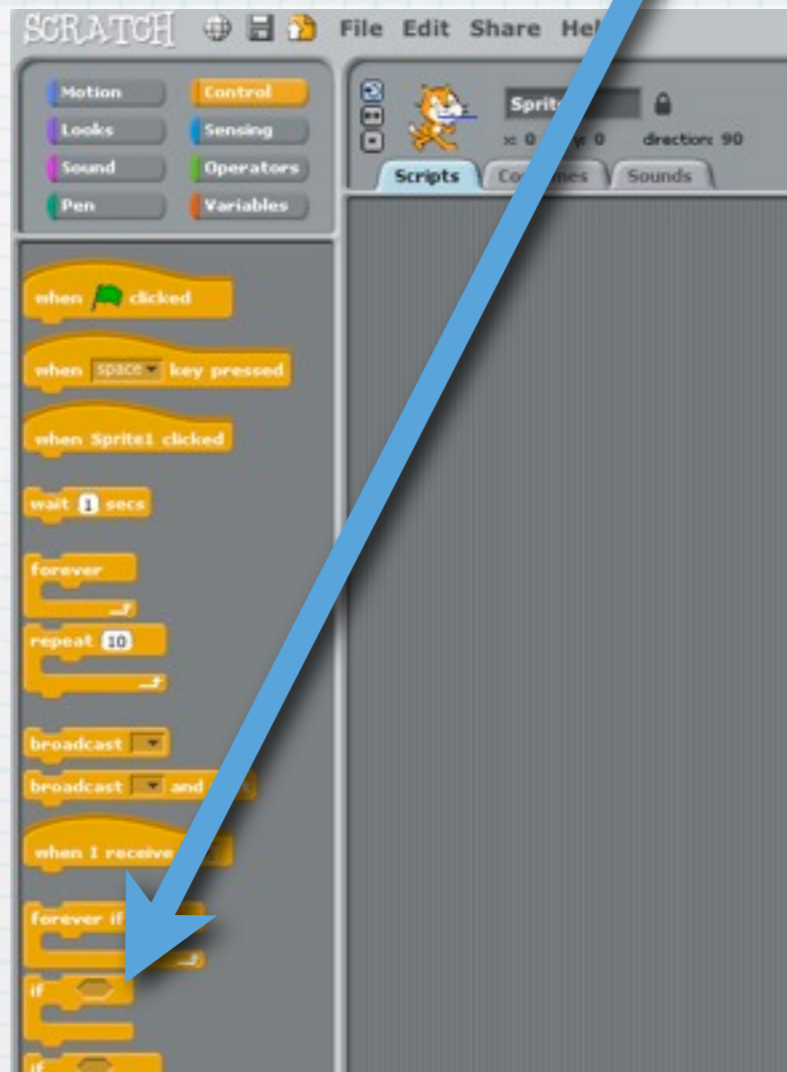


suffer in school

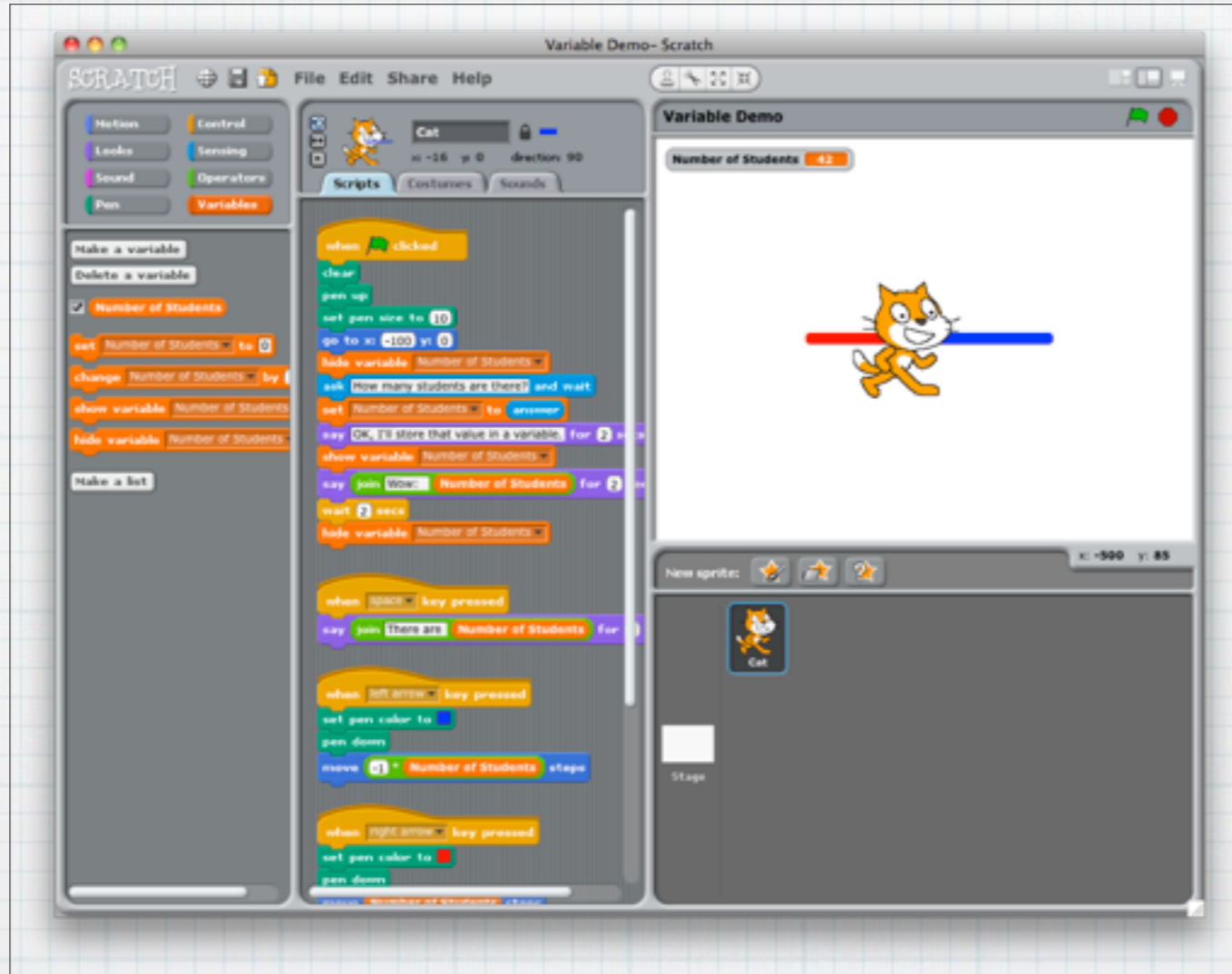
Conditional



Conditional



Conditional



Number of Students