Reference to Robbot Resources

Year 9 Computer Science – Computational Thinking

Data Types

Data Type	Meaning
Integer	whole number e.g. 1,2,3,4
Real	Decimal number e.g. 1.2, 3.7
Character	A single character e.g. %, (, &
String	Ordered sequence of characters
Boolean	Produces a TRUE or FALSE output – AND, OR, NOT

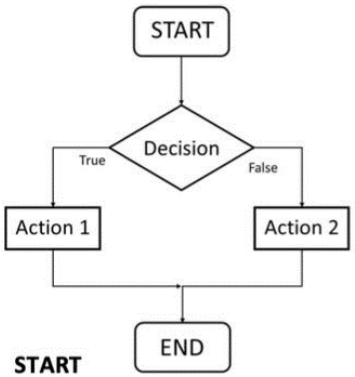
Boolean Operators

Operator	Meaning
>	Greater than
<	Less than
==	Equal to
!=	Not equal to
AND	Both conditions are true
OR	At least one condition is true

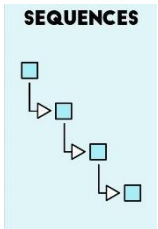
Key Words

Key Word	Meaning
Computational Thinking	The ability to solve problems logically
Variable	A memory location where values are stored – locally or globally
Sequence	A set of instruction or actions in order
Selection	A decision which has one input and two possible answers
Iteration	Repeating actions a number of times (FOR) or until a condition is met (WHILE)
Syntax Errors	Mistakes in the way the code is written
Logic Errors	The logic is correct but the output is wrong
Runtime Errors	When a program is asked to do something it cannot – it crashes
Debugging	Identification and amendment of errors

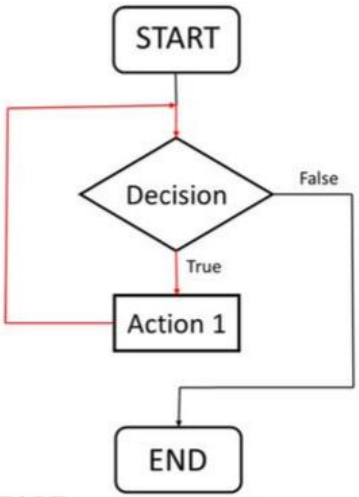
Selection (IF)



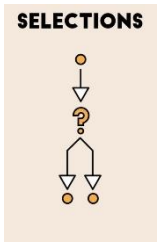

```
START
IF Decision = TRUE
  Go to Action 1
ELSE
  Go to Action 2
END IF
END
```



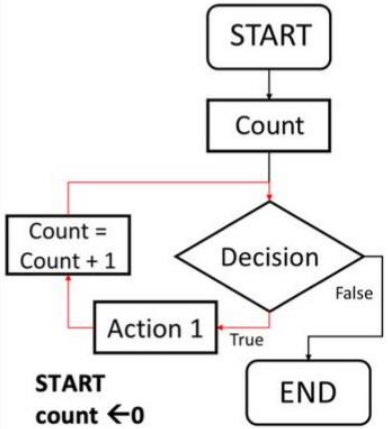
WHILE Loop



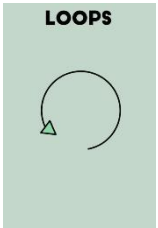

```
START
WHILE Decision = TRUE
  Go to Action 1
END WHILE
END
```



FOR Loop




```
START
count ←0
REPEAT
  Go to Action 1
  count ← count + 1
UNTIL Decision is TRUE
END
```



Computational Thinking

Decomposition	Pattern Recognition	Abstraction	Algorithm Design
Breaking down a problem into smaller, more manageable parts	Looking for similarities within problems	Focus on the important information only, ignoring irrelevant details	The creation of a step by step solution to the problem
			

Mathematical Operators

Addition	Subtraction	Multiplication	Division
+	-	*	/