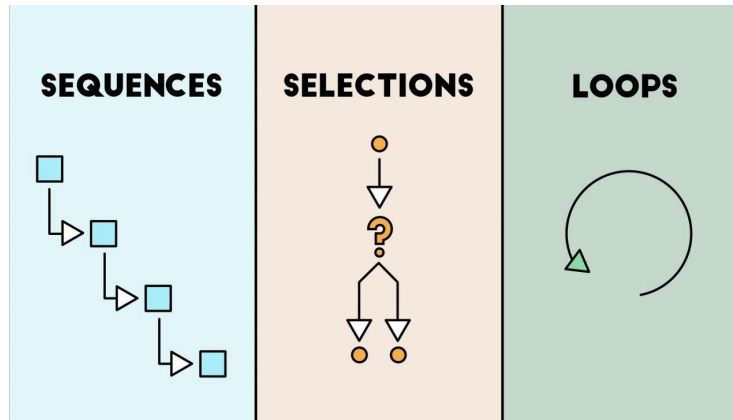



Selection



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- 
- A decorative curved line on the left side of the slide, transitioning from dark grey to light grey.
- The building blocks of programs are
 - Sequence of statements (steps for making a peanut butter sandwich activity)
 - Selection (making a decision : jelly or bananas?)
 - Looping (repetition: make another sandwich?)

- Selection: Technically, selection is using a Boolean expression to decide which path to follow in the program.
- Example:

```
If (it is raining) then
    wear boots to keep feet dry
Else
    wear flip-flops
```

What is a Boolean expression?

A Boolean expression can be assigned a value that is either TRUE or FALSE

Boolean expressions may use symbols like

< > = (Relational operators)
and or (Logical operators)

Relational Operators

> Greater than

< Less than

≤ Less than or equal

≥ Greater than or equal

= Equal

Examples of Boolean Expressions with Relational operators

$42 < 17$ -> False

$5 = 5$ -> True

"Hello" = "Hello" -> True

"ABC" > "XYZ" -> False

Logical Operators

AND, OR, NOT

a	b	a AND b
False	False	False
False	True	False
True	False	False
True	True	True

a	b	a OR b
False	False	False
False	True	True
True	False	True
True	True	True

a	NOT a
False	True
True	False

Examples of Boolean Expressions with Logical operators

$42 < 17 \text{ AND } 10 > 1 \rightarrow \text{False}$

$5 = 5 \text{ AND } 1 = 1 \rightarrow \text{True}$

$17 > 5 \text{ OR } 10 < 1 \rightarrow \text{True}$

$1 = 10 \text{ OR } 5 > 2 \rightarrow \text{False}$

In MakeCode,
we have a
drawer with
tools for
Selection

The image shows the MakeCode Logic drawer, which is a vertical sidebar containing various programming blocks. The drawer is titled "Logic" and has a search bar at the top. The blocks are organized into several categories:

- Conditionals:** Includes "if" blocks with a dropdown menu set to "true" and a "then" block. There are also "else" blocks and a "minus" button.
- Comparison:** Includes comparison operators like "=", "<", and "==" with dropdown menus and input fields.
- Boolean:** Includes logical operators like "and", "or", and "not" with dropdown menus and input fields.

The drawer also includes a search bar at the top and a list of categories on the left side:

- Basic
- Input
- Music
- Led
- Radio
- Loops
- Logic (highlighted)
- Variables
- Math
- Extensions
- Advanced