

Inequalities

- Sometimes we want to *ask questions* about data. For example, is `x` greater than `y` ? Is one string equal to another? These questions can't be answered with a Numbers. Instead, they are answered with a new datatype called a **Boolean**.
- Video games use Booleans for many things: asking when a player's health is equal to zero, whether two characters are close enough to bump into one another, or if a character's coordinates put it off the edge of the screen.
- A Boolean value is either `true` or `false` . Unlike Numbers, Strings, and Images, Booleans have only two possible values.
- You already know some functions that produce Booleans, such as `<` and `>` ! Our programming language has them, too:
`(< 3 4)` , `(> 10 2)` , and `(= -10 19)` .
- We also have ways of writing **Compound Inequalities**, so we can ask more complicated questions using the `and` and `or` functions.
 - `(and (> 3 4) (< 10 2))` translates to "three is less than four *and* ten is less than two". This will evaluate to `false` , since the `and` function requires that both sub-expressions be `true` .
 - `(or (> 3 4) (< 10 2))` , which translates to "three is less than four *or* ten is less than two". This will evaluate to `true` , since the `or` function only requires that one sub-expression be `true` .
- The Circles of Evaluation work the same way with Booleans that they do with Numbers, Strings and Images:

