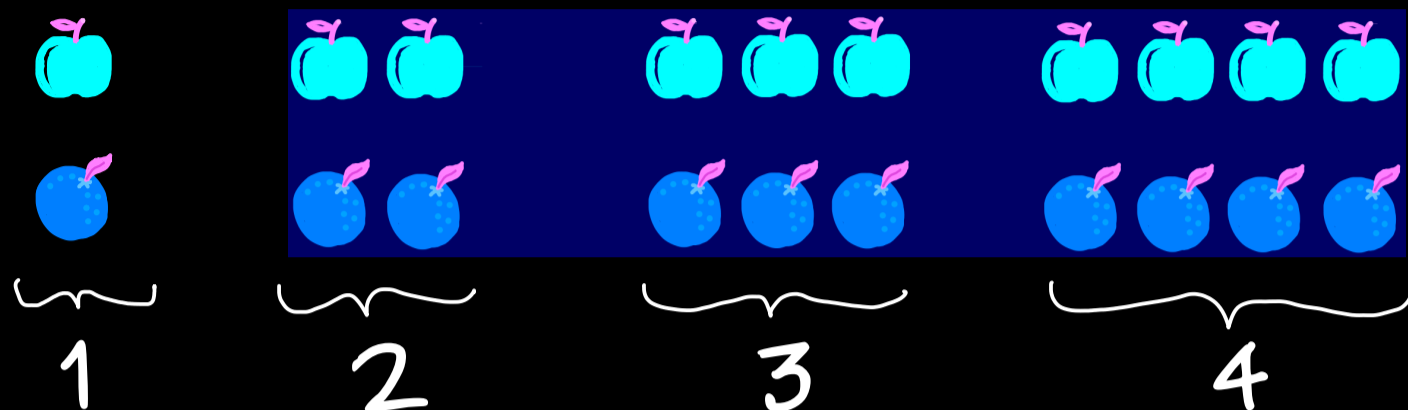


Start Learning Numbers - Part 1

Natural numbers



$$\mathbb{N} = \{1, 2, 3, 4, \dots\}$$

$$\mathbb{N}_0 = \{0, 1, 2, 3, 4, \dots\}$$

$0 := \emptyset$ empty set

$1 := \{0\}$ set with one element

$2 := \{0, 1\}$ set with two elements

$3 := \{0, 1, 2\}$ set with three elements

$4 := \{0, 1, 2, 3\} = 3 \cup \{3\}$

\vdots

Axiom: There is a set \mathbb{N}_0 with the properties:

(a) $0 \in \mathbb{N}_0$

(b) $\forall x: x \in \mathbb{N}_0 \rightarrow x \cup \{x\} \in \mathbb{N}_0$

And \mathbb{N}_0 is the smallest set having these two properties.

Successor map:

$$s: \mathbb{N}_0 \rightarrow \mathbb{N}_0$$
$$x \mapsto x \cup \{x\}, \quad s(6) = 7$$