Dictionaries

Recall lists:

          0   1   2   3
['kumquat', 'orange', 'strawberry', 'grape']

we can think of this like a function / map from indices
to items:

$$0 \longrightarrow \text{'kumquat'}$$
$$1 \longrightarrow \text{'orange'}$$
$$2 \longrightarrow \text{'strawberry'}$$
$$3 \longrightarrow \text{'grape'}$$
$$\text{⑦} \longrightarrow \ldots \quad ?$$

A **dictionary** (map) lets us associate <u>values</u> with arbitrary <u>keys</u>.

e.g.

$$2 \longrightarrow \text{'grape'}$$
$$99 \longrightarrow \text{'strawberry'}$$
$$5 \longrightarrow \text{'kiwi'}$$

OR

$$\text{'kitchen'} \longrightarrow \text{'grape'}$$
$$\text{'dining room'} \longrightarrow \text{'kiwi'}$$
$$\vdots$$

Frequency counting

$$\text{'apple'} \longrightarrow [1, 0, 0, 0, 1, 0, \ldots]$$

Annoying! Hard to read, hard to generalize.

Better: { 'a': 1, 'p': 2, 'l': 1, 'e': 1, '!': 1 }