In this activity you are asked to find examples of functions. In each case, the domain should be $X = \{1, 2, 3, 4\}$. Your job is to specify a codomain Y and define the function with the given properties. Your choice of Y can (must) change for each example.

1. $f : X \to Y$ is bijective.

2. $f : X \to Y$ is injective but not surjective.

3. $f : X \to Y$ is surjective but not injective.

4. $f : X \to Y$ is neither injective nor surjective.

If you finish early, think about this: for each of the situations above, fixing your choice of Y, *how many* different examples of $f : X \to Y$ would work?

Want even more? What different choices of Y could you make in each example?