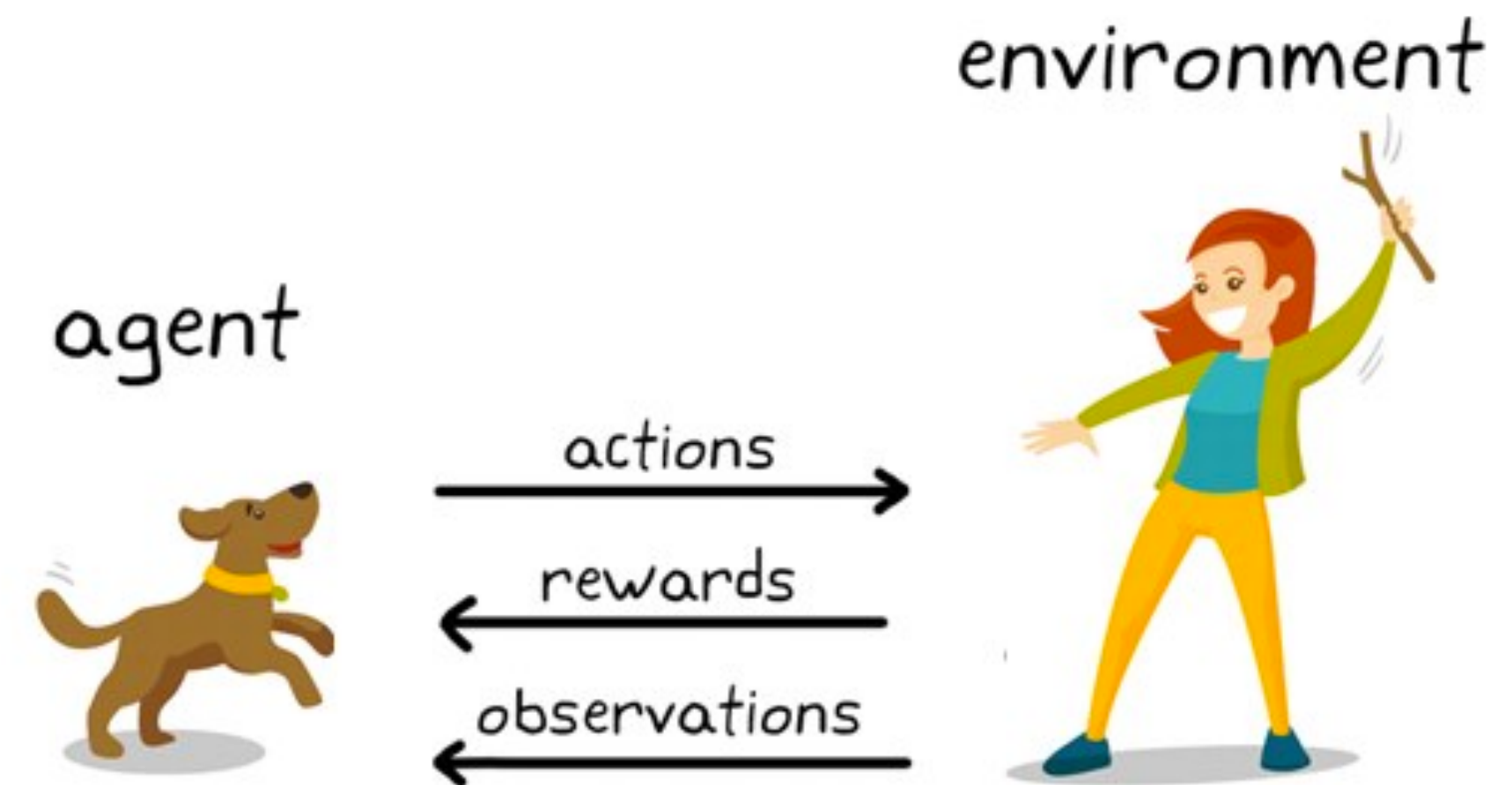# Reinforcement learning

- Training an agent to learn by interacting with its environment

- Agent learns by iterating through a cycle:

  - Observe environment

  - Take action

  - Receive reward

  - Update belief

How does a model "learn"?

- A model that "learns" from data can be viewed as an optimization process

- The "learning" occurs as the model optimizes its parameters to find a combination of parameters that produces a function that best fits the data

- "Best fit" is determined by a scoring criteria (ie. objective) that compares the model to the observed data, which is designed for a specific task

  - Example objective functions: Classification accuracy (supervised learning), distance to cluster centroid (unsupervised learning), reward function (reinforcement learning)