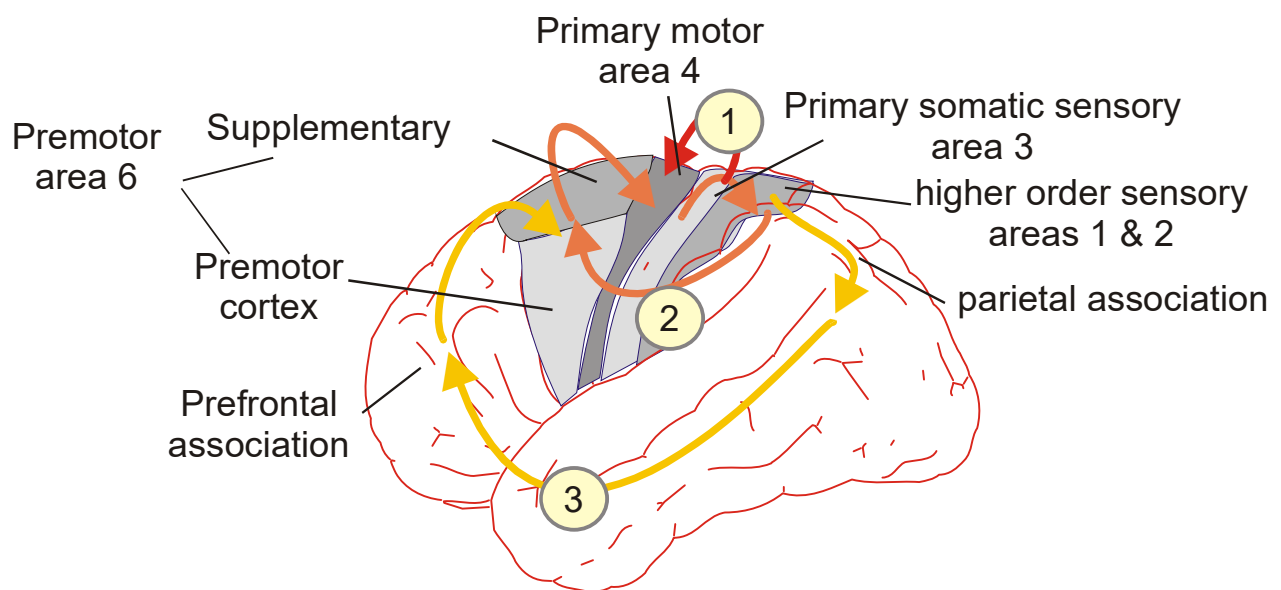


An example of 3 cortical pathways that contribute to picking up a cup



Loop 1: this short cortical loop is used for simple acts, like quickly regulating the pressure on the cup

- > area 3a signals finger position from muscle afferents
- > area 3b: sense pressure
- > area 4: contracts individual muscles

Loop 2: this longer loop is used in more complex acts like selecting a muscle synergy (which fingers to contract together) to lift the cup.

- > higher order areas contribute recognition object shape and texture by touch eg a cup
- > the premotor area selects the synergy appropriate for the particular object.

Loop 3: this longest loop is used for still more complex acts like reaching for the cup

- > eg when reaching for a cup, the parietal association integrates touch and vision & focuses our attention on cup.
- > working memory, of where things are, in prefrontal association area, helps to plan the reach