

LTP - Synaptic Changes and storage

- Memories begin as impulses whizzing through the brain circuits, leaving a semi-permanent trace.
 - The more a memory is utilized, the more potential strength that neuron has, called **long-term potentiation (ltp)**.
 - This is the **neural basis for learning** and remembering associations.
 - **Stimulating neurons increases their speed and strengthens the neural pathway/network.**
(The more you utilize specific brain cells, the longer they last, and stronger they are.)
 - If you practice your foreign language and not algebra, you will better remember the foreign language.

This stuff gets super complicated...lets keep it simple for now



Stress and Memory

- Stress sets the stage for memory by triggering the release of the hormone *glucose*. These stress hormones alert the brain to important events.
- *(Similar to the idea of Flashbulb Memory.)*
- However, new research is suggesting the stress may limit memory of fine details.





60
MINUTES

Retrieval

How do we recall the information we thought we remembered?



Lets Jog Our Memory!!!!!!!



Recall versus Recognition

I probably cannot recall the Smurfs, but can I recognize them?



Lazy Smurf or Lethargic Smurf

Papa Smurf or Daddy Smurf

Handy Smurf or Practical Smurf

Brainy Smurf or Intellectual Smurf

Clumsy Smurf or Inept Smurf



Retrieval Cues

- Things that help us remember by activating our memory
- We often use a process called **priming** (the activation of associations in our memory) to help us retrieve information.



The wakening of
associations

- William James

Incomplete pictures activity

I will show you a series of incomplete pictures.

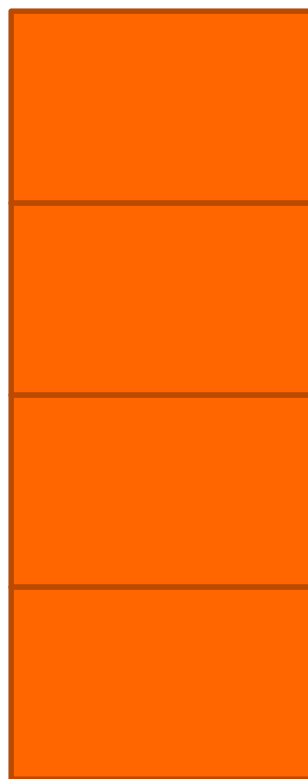
I will gradually reveal more complete versions of the pictures.

Note when you can tell what it is a picture of. (Did you get it at trial 1, 2, 3, 4, or 5?)

It is important that you do this independently.

**Do not shout out what it is, do not tell your neighbor,
let everyone discover it on their own. It is not a contest.**

Mark on your sheet how many trials it took you to identify the pictures.



Trial 5

Trial 4

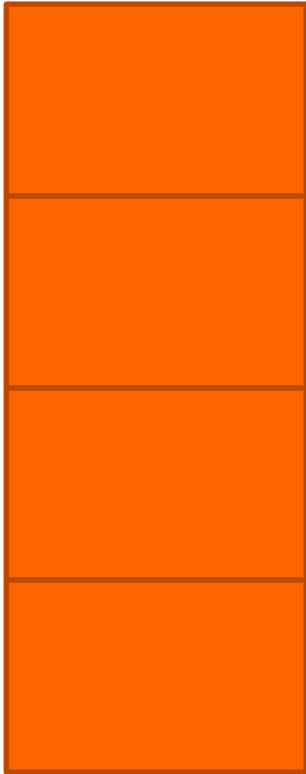
Trial 3

Trial 2



Trial 1

Picture 1



Trial 5

Trial 4

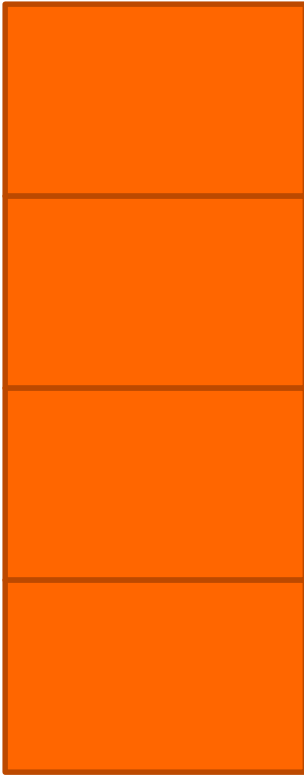
Trial 3

Trial 2

Trial 1



Picture 2



Trial 5

Trial 4

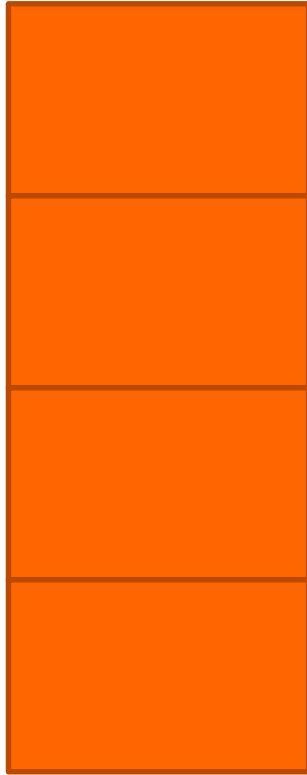
Trial 3

Trial 2

Trial 1



Picture 3

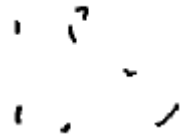


Trial 5

Trial 4

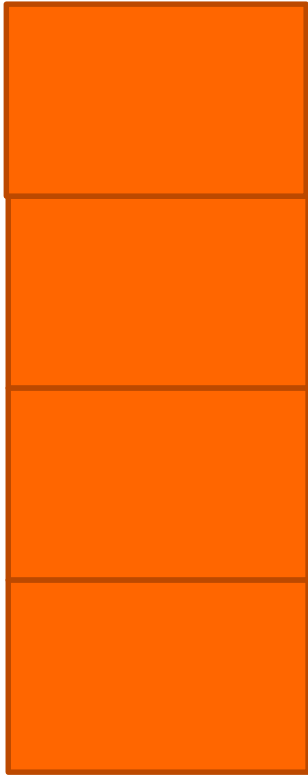
Trial 3

Trial 2



Trial 1

Picture 4

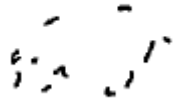


Trial 5

Trial 4

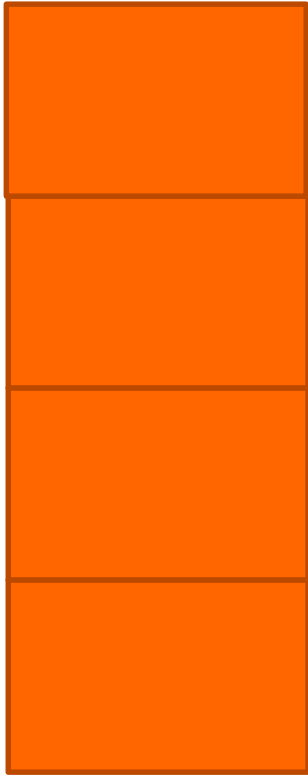
Trial 3

Trial 2



Trial 1

Picture 5

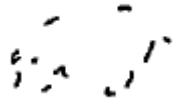


Trial 5

Trial 4

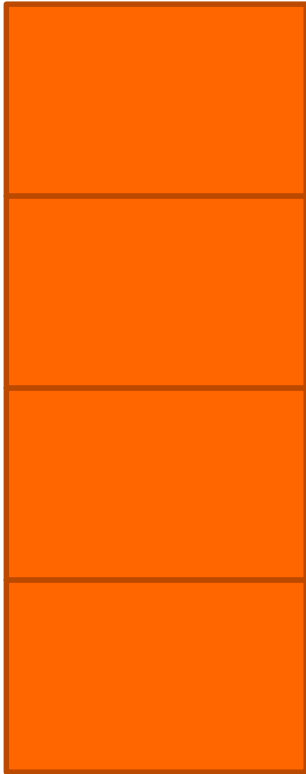
Trial 3

Trial 2



Trial 1

Picture 6



Trial 5

Trial 4

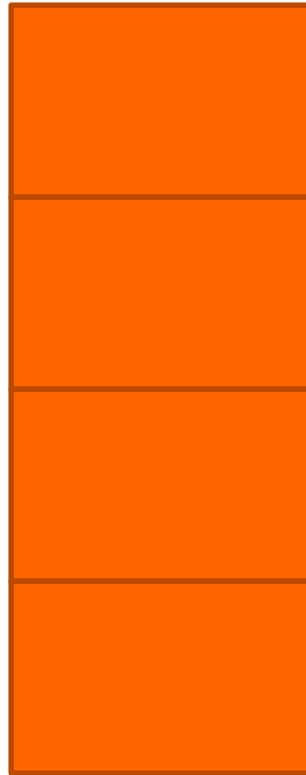
Trial 3

Trial 2

Trial 1



Picture 7



Trial 5

Trial 4

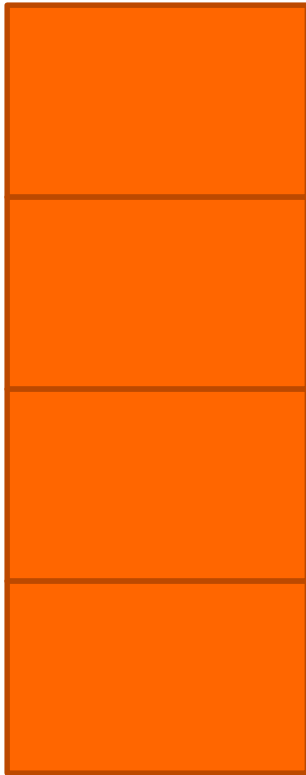
Trial 3

Trial 2



Trial 1

Picture 8



Trial 5

Trial 4

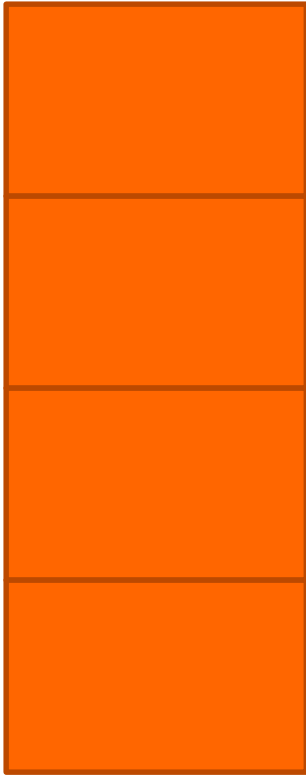
Trial 3

Trial 2



Trial 1

Picture 9

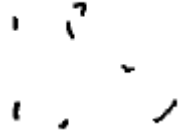


Trial 5

Trial 4

Trial 3

Trial 2



Trial 1

Picture 10