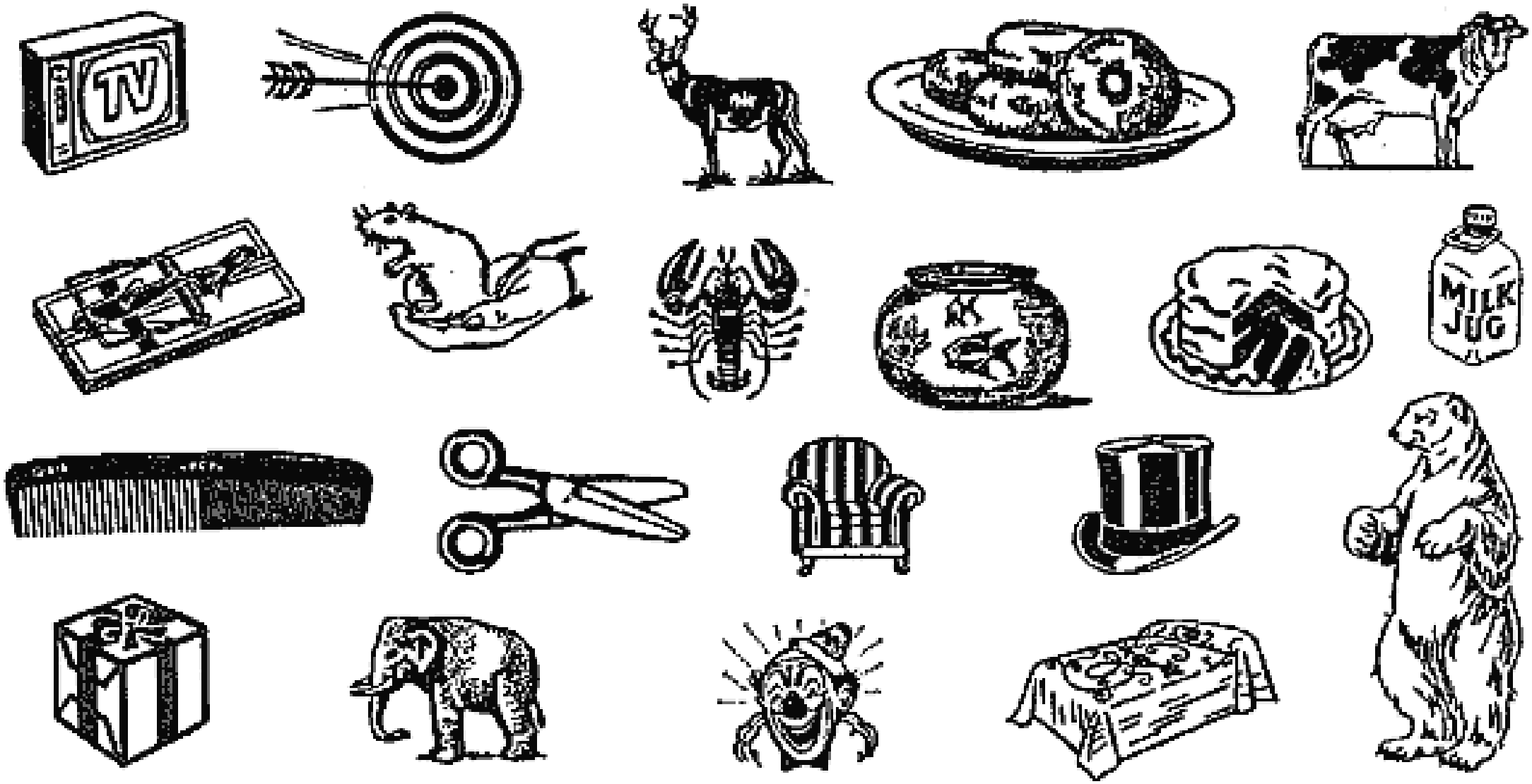
Memory

Learning Intention:

- Define memory
- Explain the three stages of memory

Test Your Memory!

- You will have 90 seconds to look at the following slide
- There are 20 pictures on the slide
- No writing, no speaking out loud, you may only look at the imagine
- After the timer goes off, write down as many of the 20 images as you can remember


TV
MILK JUG

Write down as many as you can remember

NO CHEATING!

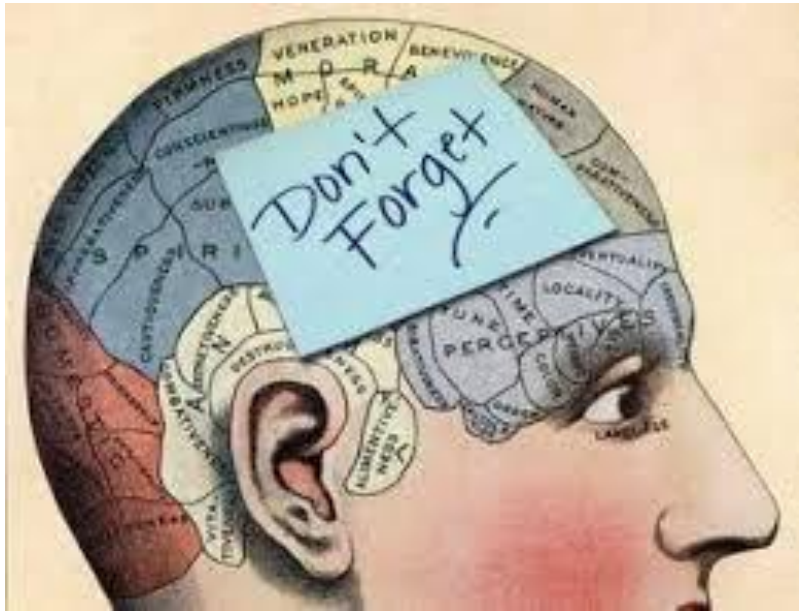
1) Place your score on the board

2) Write down all scores

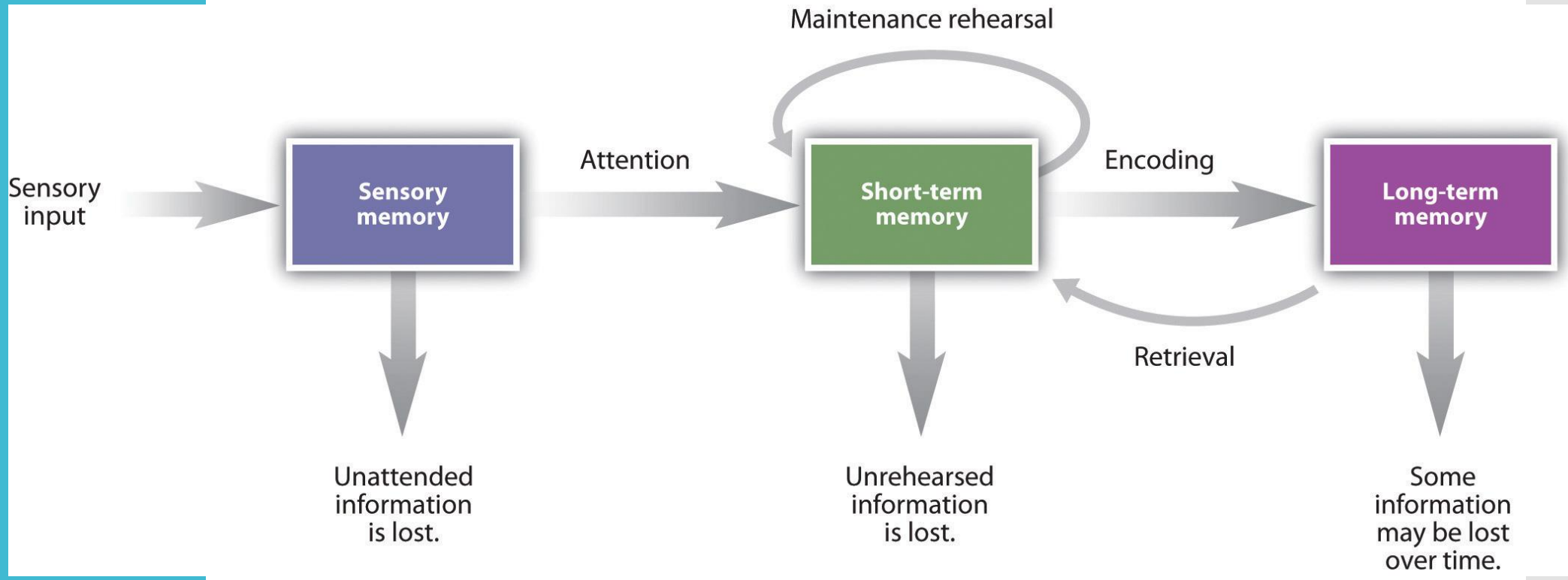
3) Calculate average from the numbers on the board – keep this for later (add all scores together, then divide this by the number of scores)

Definition of Memory

Memory is the process of encoding, storing, and retrieving experiences and knowledge after the original information is no longer present.



Stages of Memory



Sensory Memory

- First stage of memory formation
- Holds memories for up to 4 seconds
- Recall of a sensory experience
  - Sight
  - Hearing
  - Taste
  - Touch
  - Smell

Sensory memory is a quick snapshot of what you just experience that quickly disappears.

Sensory Memory Examples

- Consider the light trails that we see when we swing a sparkler. Our visual sensory memory lasts up to a half-second and the sparkler moves faster than the rate we can process the movement of the light. The impression of light along the sparkler's path remains in our iconic memory creating the illusion of a trail of light behind the sparkler.

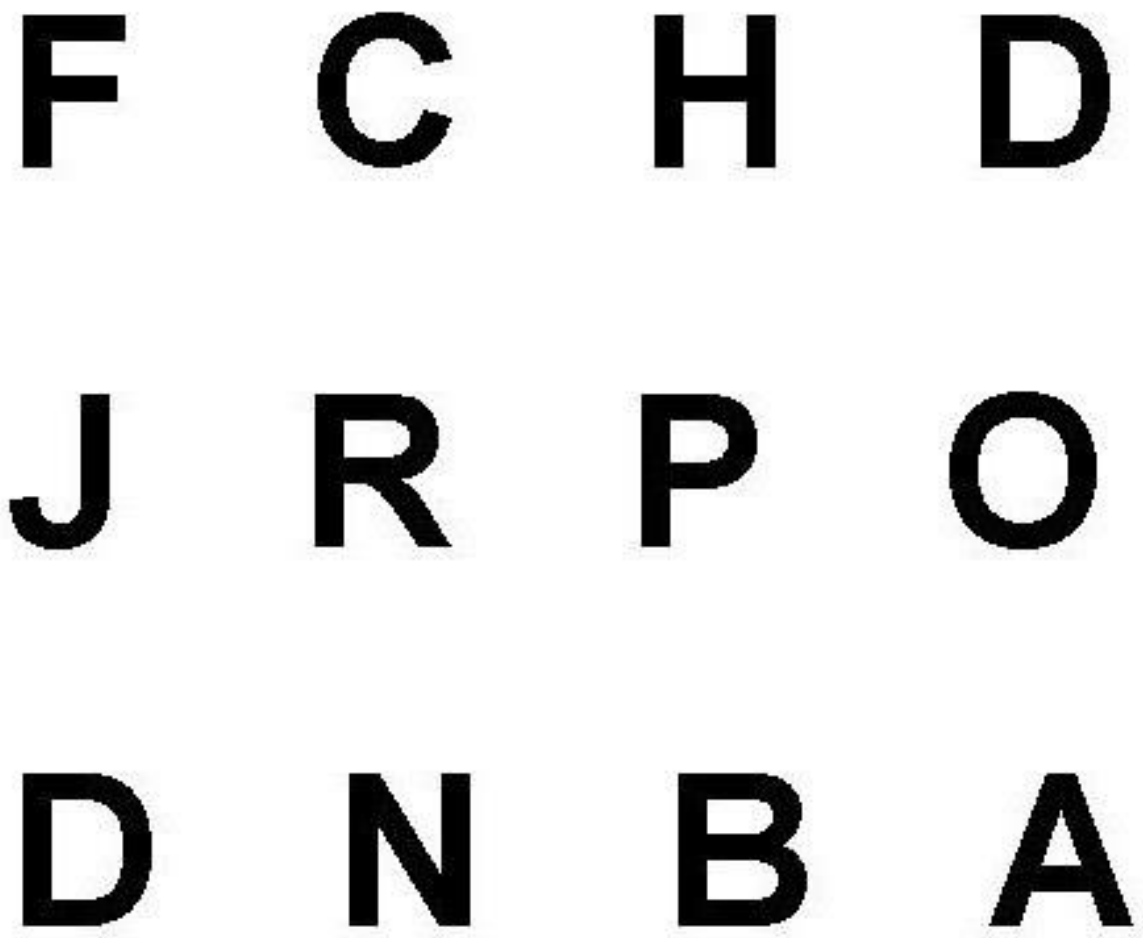
Sensory Memory Experiment…

Sperling's Experiments

- You will be shown a set of 12 letters extremely quickly, see how many you can recall by writing them down immediately….

Sensory Memory Experiment…

Sperling's Experiments



Sensory Memory Experiment…

Sperling's Experiments

- How many letters did you get down?
- Could you see all the letters and not remember them?
- Or did you fail to see all the letters in the given time?

Sensory Memory Experiment...

Sperling's Experiments

The duration of sensory memory was first investigated during the 1960s by psychologist George Sperling. In a classic experiment, participants stared at a screen and rows of letters were flashed very briefly—for just 1/20th of a second. Then, the screen went blank.

The participants then immediately repeated as many of the letters as they could remember seeing.

While most of the participants were only able to report about 4 or 5 letters, some insisted that they had seen all the letters but that the information faded too quickly as they reported them.

Sensory Memory Experiment...

Sperling's Experiments

Sperling then performed a slightly varied version of the same experiment. Participants were shown the three rows of four letters per row letters for 1/20th of a second, but immediately after the screen went blank, participants heard either a high-pitched, medium-pitched or low-pitched tone.

If subjects heard the high-pitched tone, they were to report the top row, those who heard the medium-pitched were to report the middle row and those who heard the low-pitched were to report the bottom row.

Sperling found that participants were able to recall the letters if the tone was sounded within one-third of a second of the letter display.

When the interval was extended to over one-third of a second, the accuracy of the letter reports declined significantly, and anything over one-second made it virtually impossible to recall the letters

Reported characters are indicated with a glow, cued row indicated by an arrow.

Whole report: subjects are presented with a matrix of alphanumeric characters for 15-500ms. When asked to report all of the characters they can remember, subjects can report on average 4-5 /12 characters, an accuracy of 33-40%.

Partial report: However, if subjects are cued to report just on *one particular row* (top, middle, or bottom) subjects can correctly remember 3-4 characters from that row, an accuracy of 75-100%, but few if any others. This effect persisted for up to 1000ms in Sperling's original experiment.

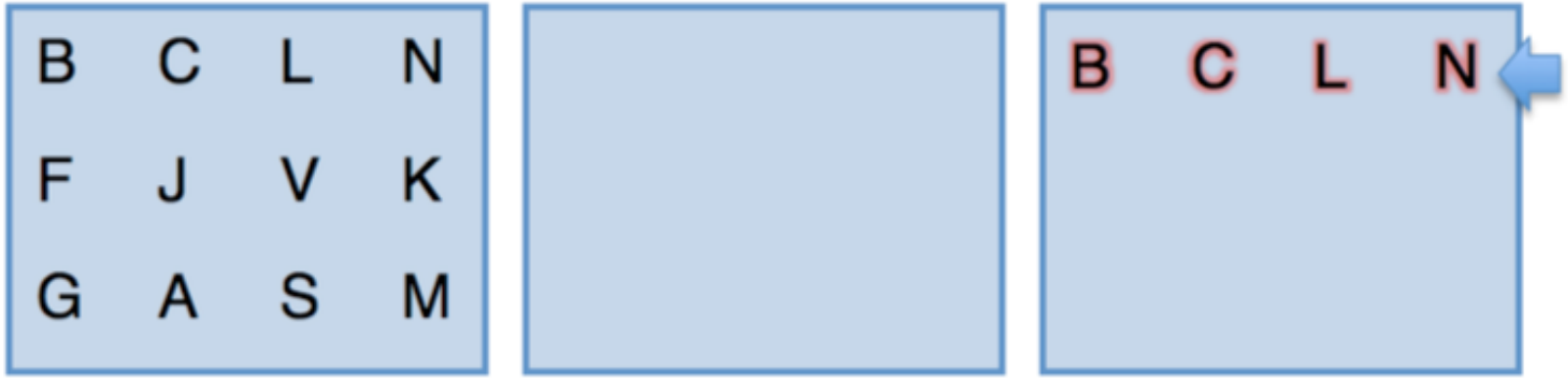
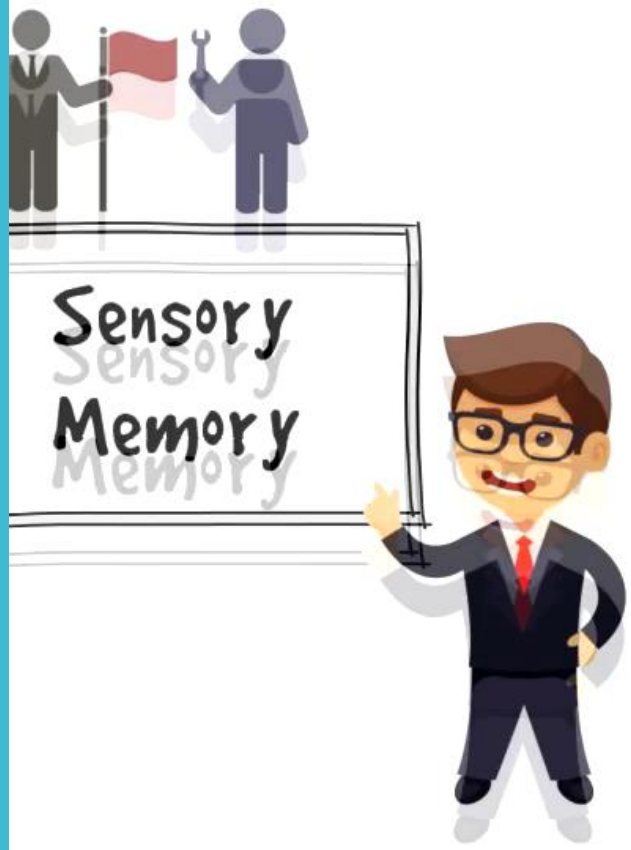
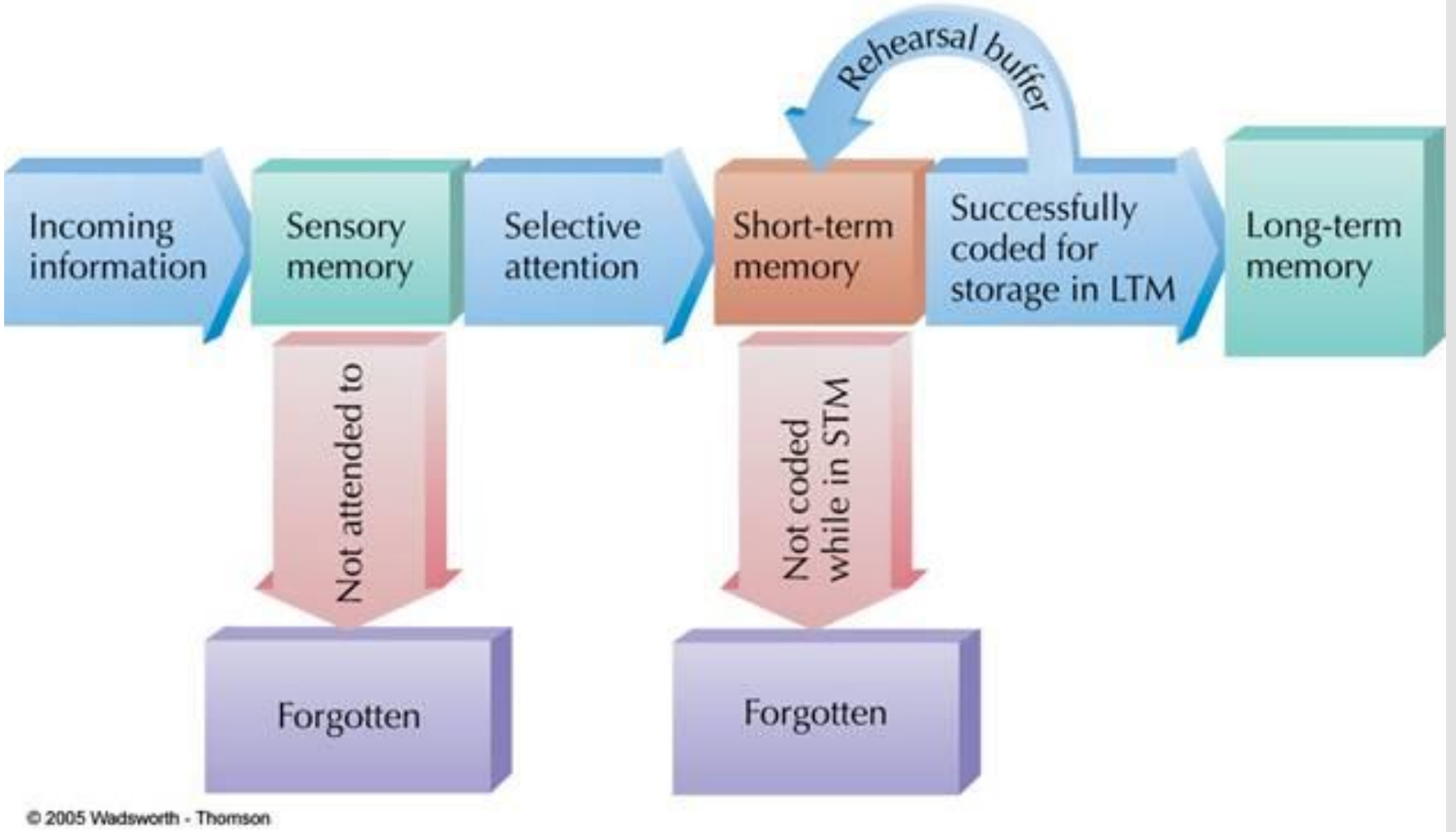


Figure 1. The Sperling Test (1960).

Sensory Memory



From Sensory Memory to Short Term Memory



Short-Term Memory

- Second stage of memory formation
- Holds memories from 20-30 seconds, rarely longer
- Helps process thoughts and plans, as well as carries out ideas
- Has limited capacity – 5 to 9 items only

Increasing short term memory –

Memorization Cues

- Story Telling / Associations
- Mnemonics (never eat soggy wheatbix)
- Repetition (reread, cluster, flashcards)
- Acronyms (MRS GREN)
- Songs and Rhythm

Test Your Memory!

- You will have two minutes to look at the following slide
- There are 20 pictures on the slide
- No writing, no speaking out loud, you may only look at the imagine
- Link the images together with a story!
- After the timer goes off, write down as many of the 20 images as you can remember

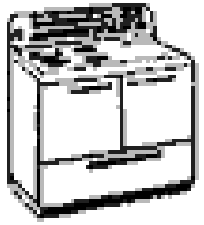
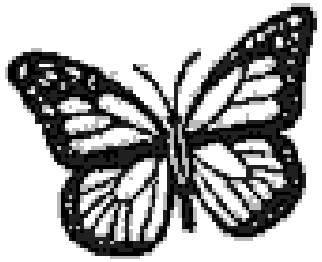
C



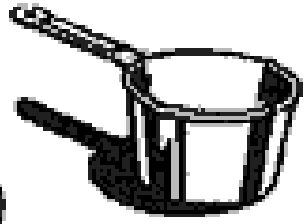




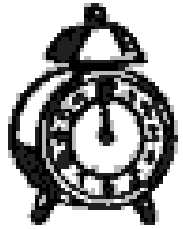











Write down as many as you can remember

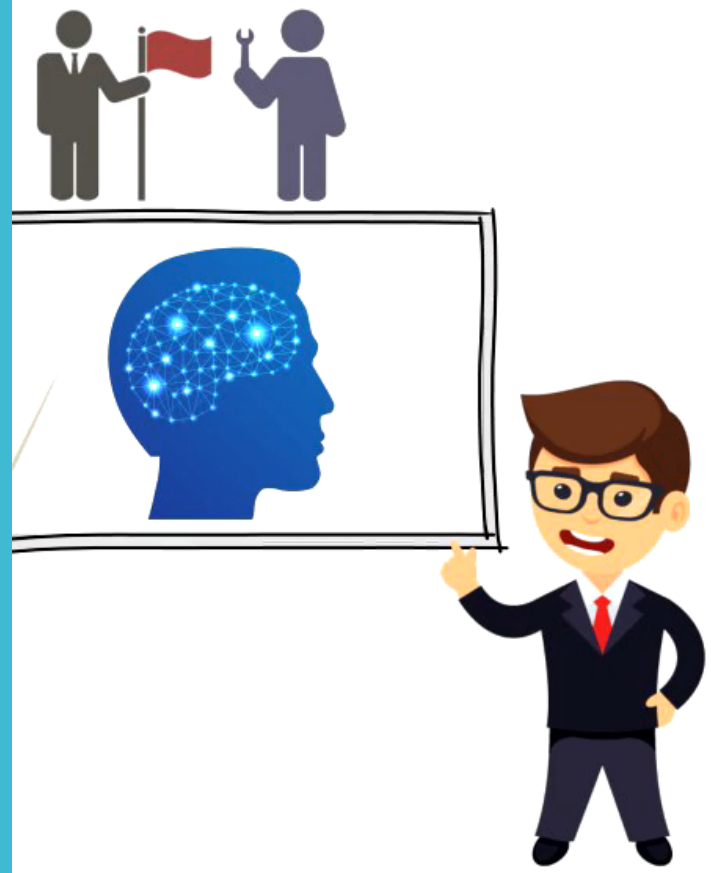
1) Place your score on the board

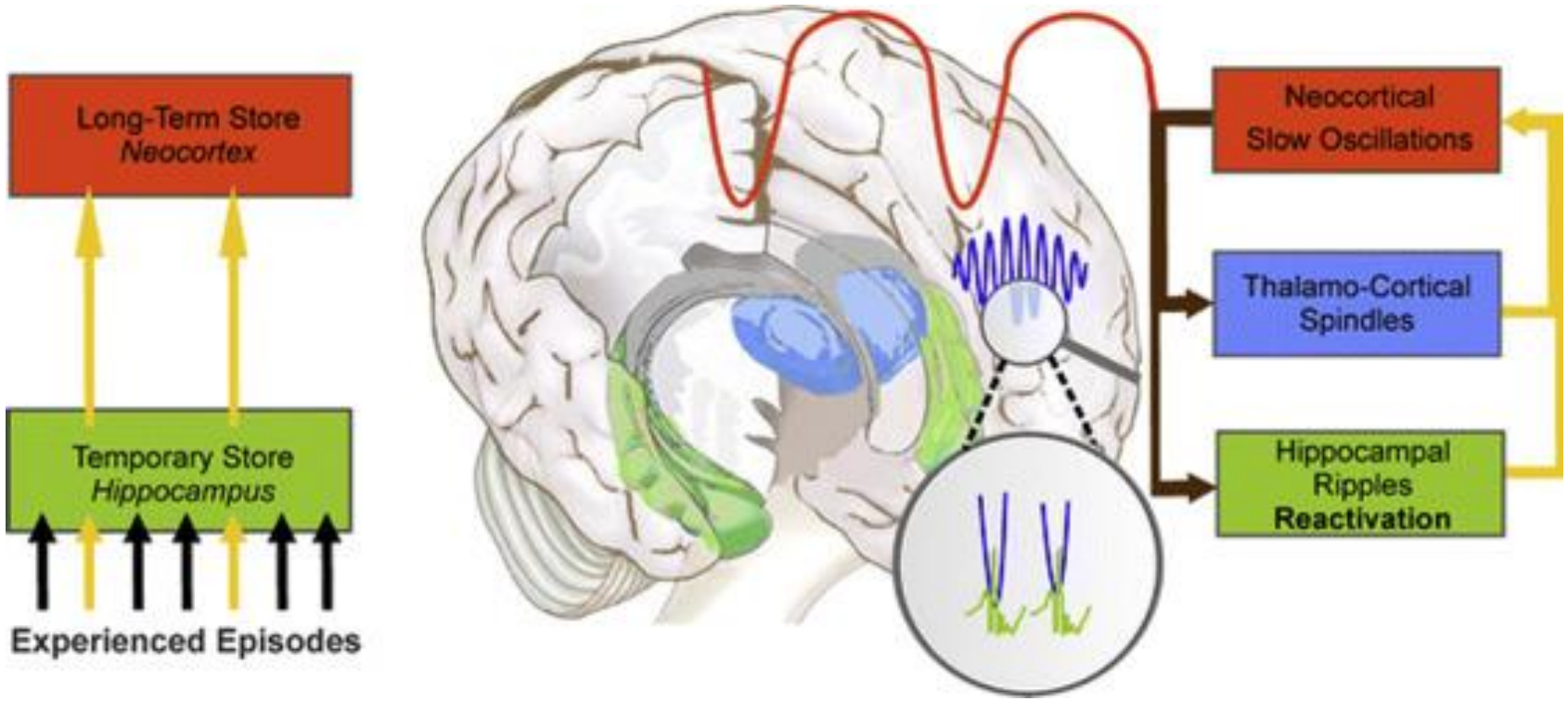
2) Write down all scores

3) Calculate Average

- In your books:
- How do these results compare to the first set of results?
- If there was a difference, why did this exist?

Short-Term Memory





Short term – Long term Memory Consolidation

Long-Term Memory

- Final stage of memory formation
- Holds memories from days to life
- This is where memories are stored for successful learning
- Unlimited capacity
- Rehearsal or retrieval is needed to maintain the memory.

Long-Term Memory