

## THINKING ABOUT PSYCHOLOGY AND LIFE

### Memory and Study Strategies

Candidly respond to the following items about your own memory and study strategies. Rate yourself on the following questions and then total your points.

	1	2	3	4	5
	Never	Some	Moderate	Almost always	always
1. I'm good at focusing my attention and minimizing distractions.					
2. I study for understanding rather than rote memorizing material.					
3. I organize information hierarchically as part of my memory strategy.					
4. I use mnemonic strategies when I have to memorize lists or specific facts.					
5. I ask myself questions about what I have read or about class activities.					
6. I spread out my studying and consolidate my learning.					
7. I cognitively monitor what I read and study.					
8. I am a good time manager and planner.					
9. I have a good note-taking system.					
10. I regularly review my notes.					
11. I use the SQ3R* or similar systematic study system.					

Total: \_\_\_\_\_

- If you scored 50 to 55 points, you likely use good memory and study strategies.
- If you scored 45 to 49 points, you likely have some reasonably good memory and study strategies.
- If you scored below 45, spend some time working on improving your memory and study strategies. Most colleges and universities have a study skills center where specialists can help you. If you are concerned about your study skills, visit Academic Learning Services.

\*SQ3R (Survey, Question, Read, Recite, Review)

## **Effortful Processing Strategies?**

We are going to look at some efficient and less efficient strategies to encode information.

- Chunking
- Mnemonics
- Hierarchies
- Distributed Practice (and self-testing / feedback)
- Levels of Processing and elaboration
- Making Material Personally Meaningful

Try to recall as many letters as possible in the order it is written

A. KLCISNE NVESE YNA NI CSTITIH

Try to recall as many letters as possible in the order it is written

B. NICKELS SEVEN ANY IN STITCH

Try to recall as many words as possible

C. NICKELS SEVEN ANY IN STITCH DON'T  
SAVES AGO A SCORE TIME AND  
NINE WOODEN FOUR YEARS TAKE

Try to recall as many words as possible

D. DONT TAKE ANY WOODEN NICKELS  
FOUR SCORE AND SEVEN YEARS AGO  
A STITCH IN TIME SAVES NINE

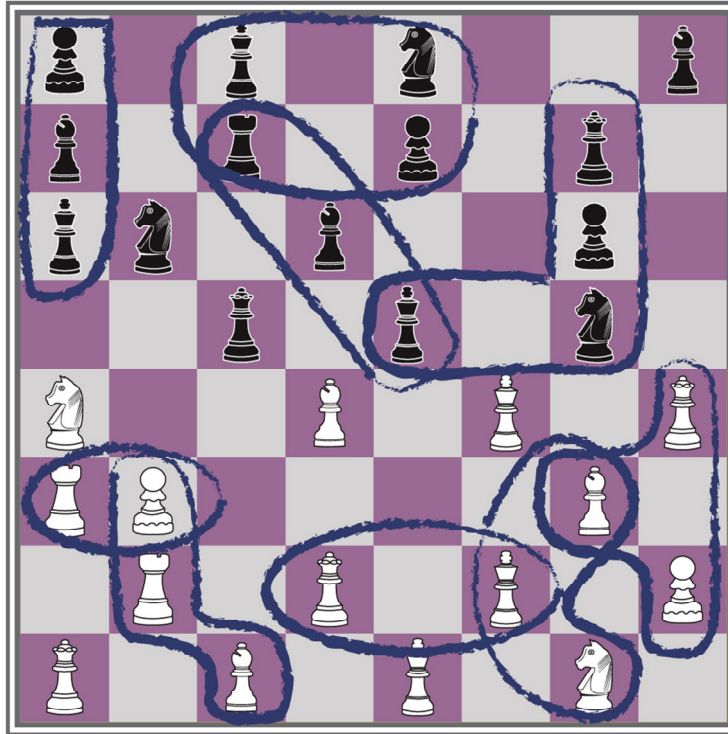
## Encoding: Chunking

Grouping related items together into a single unit or "chunk" to increase the amount of information that can be held in short-term memory (STM) of  $7 \pm 2$ .

When information is organized into meaningful units, such as letters, words and phrases, it is easier to recall. Likewise, if you can put a phone number into two "chunks" instead of seven numbers, it is easier to remember (4658165 versus 465-8165).

- A. KLCISNE NVESE YNA NI CSTITIH
- B. NICKELS SEVEN ANY IN STITCH
- C. NICKELS SEVEN ANY IN STITCH DON'T  
SAVES AGO A SCORE TIME AND  
NINE WOODEN FOUR YEARS TAKE
- D. DONT TAKE ANY WOODEN NICKELS  
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## Encoding: Chunking



## **Encoding: Mnemonics and Acronyms**

A mnemonic and acronym are memory strategies for placing information in an organized context to facilitate memory.

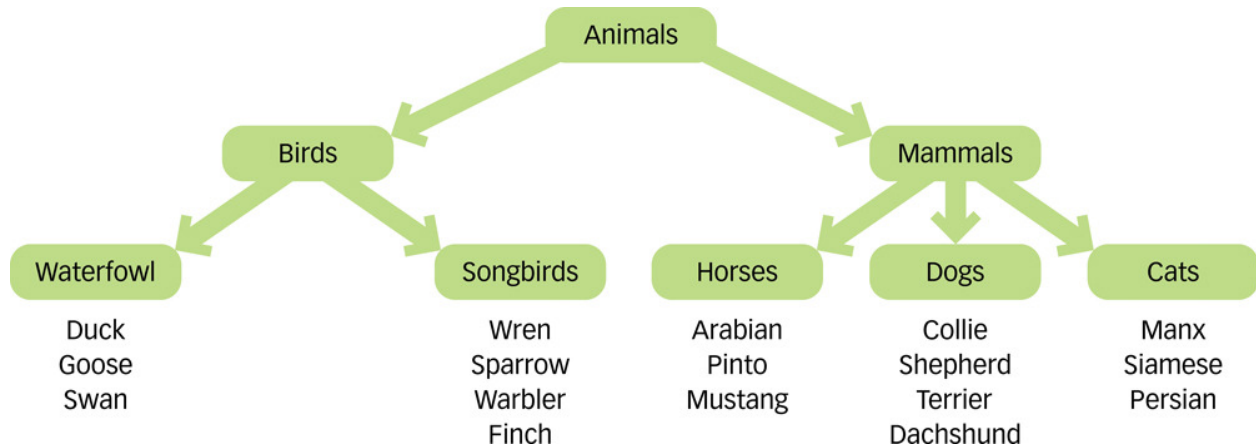
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What are the Great Lakes?	HOMES
Do you add acid to water, or water to acid? (do you add hydrofluoric acid (HF) to the water, or the other way around?)	AAA
When checking vital signs, what is the sequence in which you check?	ABC
What are the five personality factors in “The Big Five” model of personality?	OCEAN or CANOE
What is the relationship between sine, cosine, tangent and the length of each side of a triangle?	SOH CAH TOA
What are the nine “planets”?	My Very Earnest Mother Just Showed Us Nine Planets
What are the colors of the spectrum?	ROY G. BIV
What are the color codes for resistors?	BBROYGBVW

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## Encoding: Hierarchies

### Example #1:



### Example #2:

## Learning

Classical Conditioning	Operant Conditioning	Observational Learning
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### Example #3:

## The Brain

Brainstem	Limbic System	Cerebral Cortex
Medulla	Amygdala	Frontal Lobe
Thalamus	Hypothalamus	Parietal Lobe
Reticular Formation	Hippocampus	Occipital Lobe
Cerebellum		Temporal Lobe
		Association Areas
		Corpus Callosum



## Encoding: Hierarchies

Spades	Hearts	Diamonds	Clubs		Spades	Hearts	Diamonds	Clubs
A♠	6♥	K♦	8♣		A♠	8♠	5♠	3♥
8♠	3♥	5♦	7♣	vs	K♦	7♣	5♦	2♣
5♠	2♥	4♦	2♣		8♣	6♥	4♦	2♥

Study the list for about a minute to try to memorize as many words on this list.

broccoli	apple	parsley
elevator	bus	submarine
bicycle	potato	grapes
watermelon	lemon	turnip

How many could you recall?

Study the list for about a minute to try to memorize as many words on this list.

watermelon	broccoli	elevator
apple	potato	bicycle
lemon	parsley	bus
grapes	turnip	submarine

How many could you recall?

## **Encoding: Hierarchies**

Organize these minerals in a way that make it easier to remember these minerals. There are different many different ways to organize the information.

emerald    marble    slate    ruby

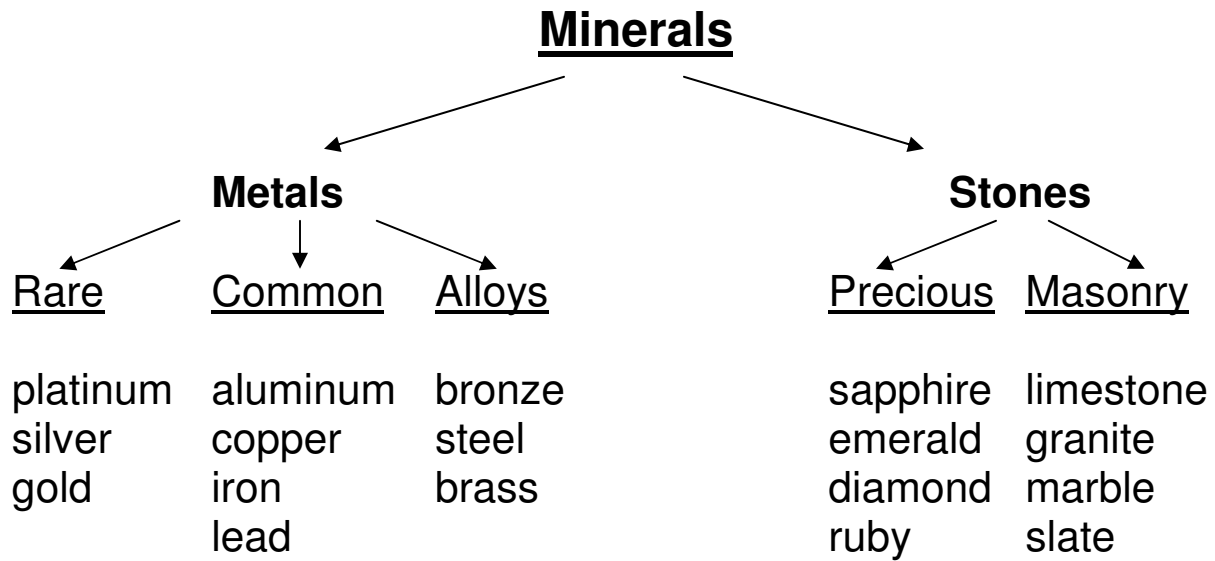
silver    limestone    diamond    aluminum

steel    brass    bronze    iron

granite    sapphire    gold    lead

platinum    copper

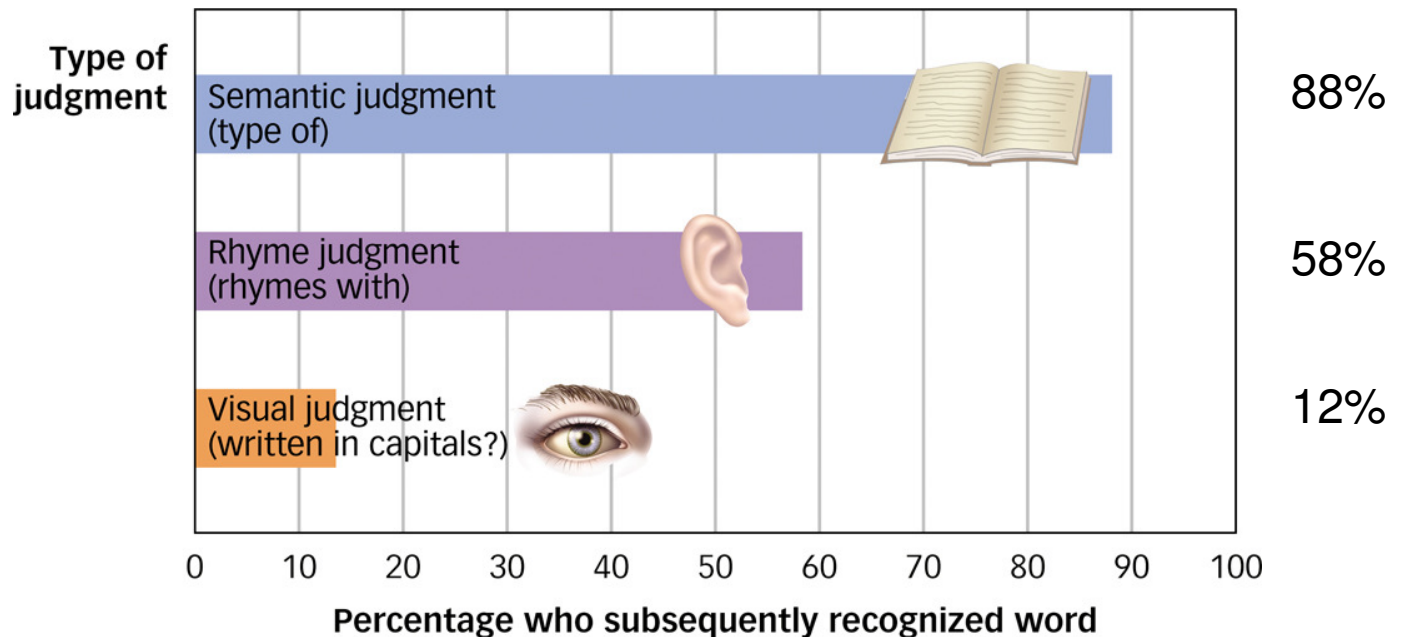
## Encoding: Hierarchies



Role of organization in memory (from Baron, Psychology, p226)

# **Encoding: Distributed Practice and Testing**

## Encoding: Elaborative Encoding (Depth of Processing)



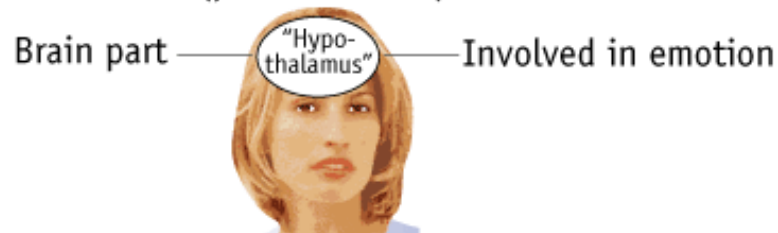
The type of judgment task influenced how you think about each word. The thinking strategies affect what you remember. When you can put meaning behind a memory, it makes it more likely that your memory will endure.

- What do these results suggest about bad strategies for studying information?
- What do these results suggest about good strategies for studying information?

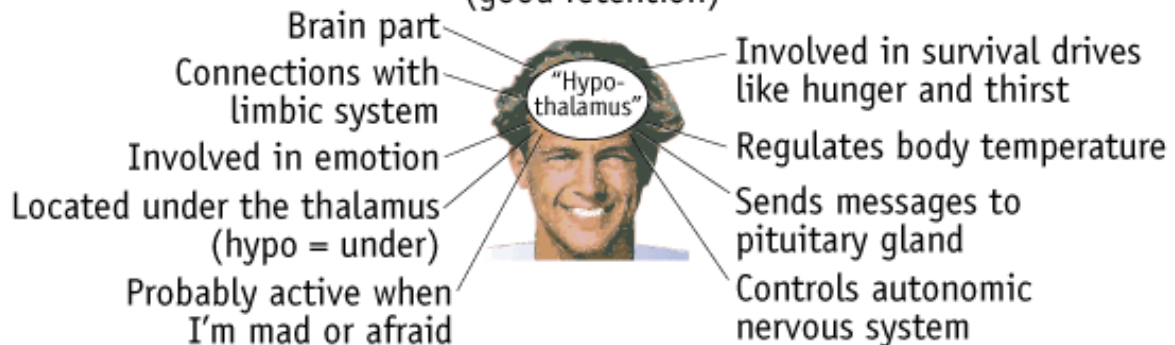
## Encoding: Elaborative Encoding

If you can elaborate on the information and connect it with information you already know that is relevant, it increases the likelihood you will remember the information.

### **IMPOVERISHED ENCODING** (poor retention)



### **ELABORATE ENCODING** (good retention)



## **Encoding: Elaborative Encoding (types of Rehearsal)**

Rehearsal or Maintenance Rehearsal: The process of keeping information in short term memory by mentally repeating it ( ).

- hypothalamus, hippocampus, amygdala are all parts of the limbic system\*
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\*your book breaks the limbic system down differently

Elaborative Encoding or Elaborative rehearsal: Encoding by actively relating new information to knowledge that is already in memory ( ).

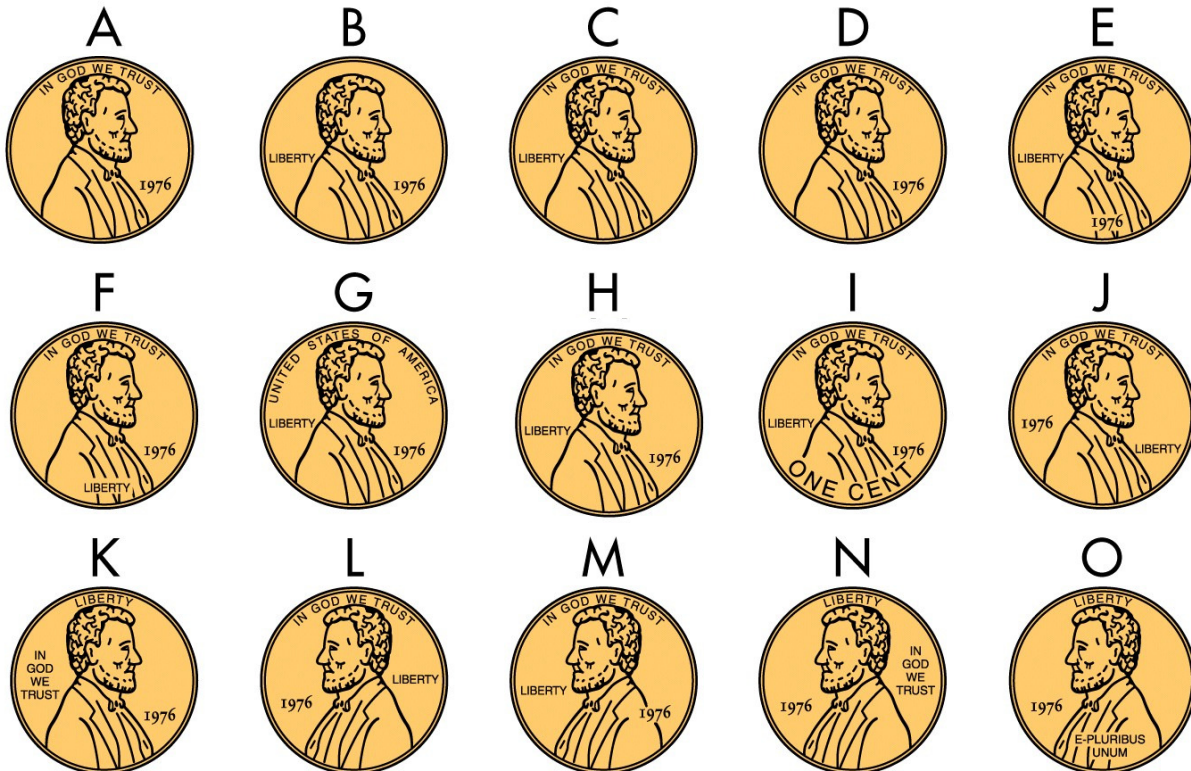
- “I knew it was lunchtime because my hypothalamus told me I was hungry, thirsty and cold. My hippocampus helped me remember a new restaurant on campus, but I got there and had to wait in line, which my amygdala made me angry.

1. What are other examples of these rehearsal strategies?
2. Why does elaborative rehearsal work better than maintenance rehearsal for remembering information?



## Encoding Failure

Which coin portrays a real penny?



The reason why most people can't pick out the correct penny is due to encoding failure—the tendency to not encode ALL the features of the penny.

We might not be paying attention to all the details for a variety of reasons. We may not care about the specific details, we may be anxious, tired, unable to concentrate or distracted (e.g. texting).

If we know in advance what details we are expected to pay attention to, we are more likely to pay attention to it, encode it, and remember it.

## **Strategies to Encoding Information--Getting Information into Memory**

Before we can have a memory to retrieve, it needs to be encoded and stored. If you don't effectively encode information, it will be more difficult to retrieve that information.

### Effective strategies:

- Chunking
- Mnemonics
- Hierarchies
- Distributed Practice (and self-testing / feedback)
- Levels of Processing and elaboration
- Making Material Personally Meaningful

### Less Effective strategies:

- Encode with superficial characteristics
- Maintenance rehearsal (extends short-term memory)

### Reasons why we might forget:

- Encoding failure
  - Multitasking
- 
- What were examples of these strategies?
  - How can you use these strategies?
  - Why is understanding these strategies important?