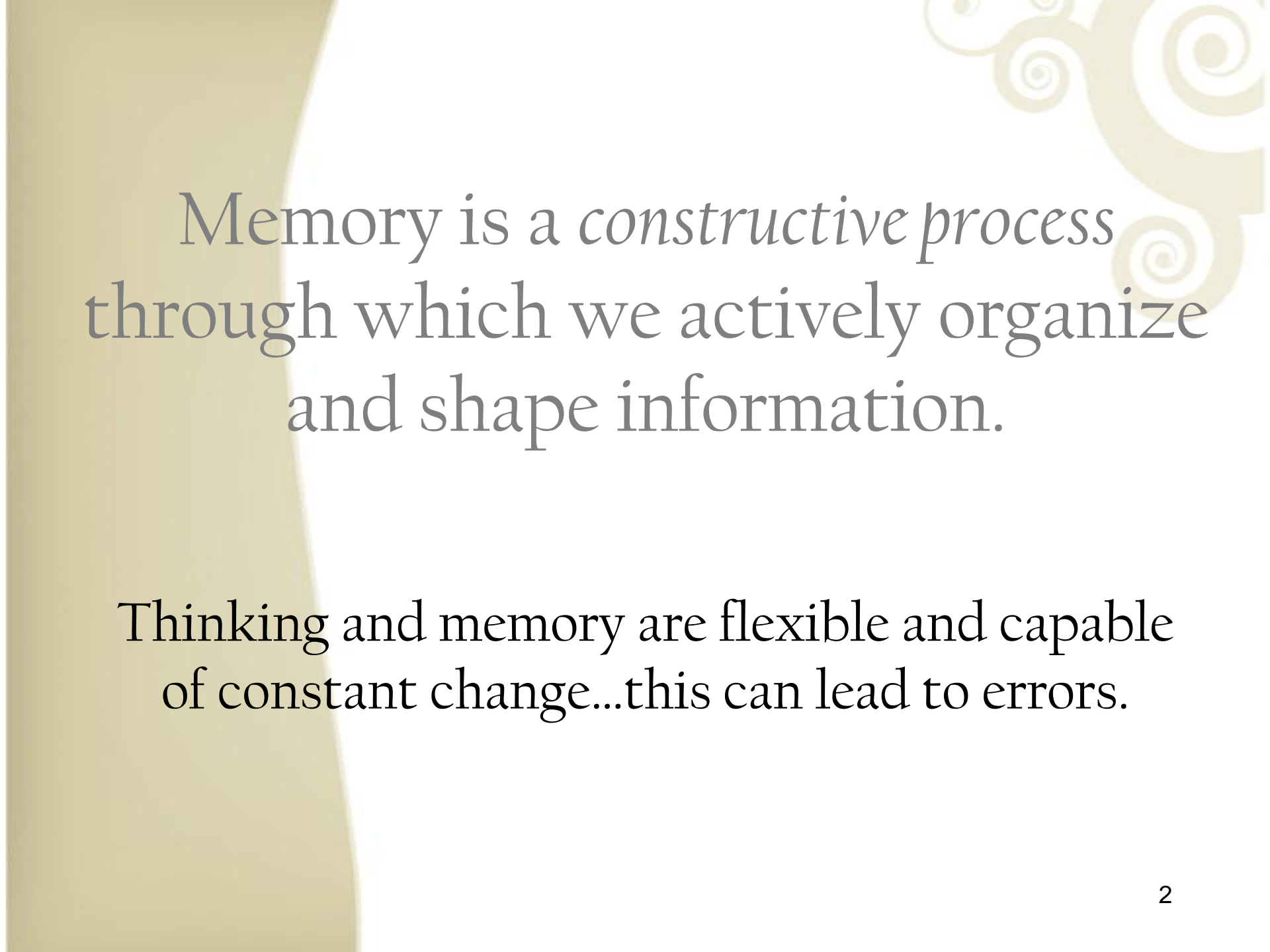


Memory

Objective's for Today's Class:

- Encoding memories
- Storing memories
- Retrieving memories



Memory is a *constructive process* through which we actively organize and shape information.

Thinking and memory are flexible and capable of constant change...this can lead to errors.

Information processing model
focuses on how information is
cognitively organized:

- Encoding
- Storage
- Retrieval

The Study of Memory

- ❑ How does information get into memory?
 - ENCODING

- ❑ How is information maintained in memory?
 - STORAGE

- ❑ How is information pulled back out of memory?
 - RETRIEVAL

Encoding

- ❑ *Encoding* is the organizing of sensory information so the brain can process it.
 - This is the first step in the flow of memory
- ❑ Learners must encode information to store it.
 - If encoding is successful we are able to retrieve the information from storage.

What did you say?

- ❏ Encoding requires attention
- ❏ Divided attention during encoding hurts performance on memory tasks, especially during retrieval.

Divided Attention Exercise

☞ Listen to the following recipe...



Do You Know the Answers?

1. How many times should you shake the shaker when making a Cosmopolitan?

Shake twice

2. What type of garnish is used to finish a Cosmopolitan?

lime twist

3. What type (s) of alcohol are used to make a Long Island Ice Tea?

gin, rum, tequila, triple sec, vodka

4. What type of glass is a Long Island Ice Tea served in?

highball glass

Information Processing Model
suggests that memory is very
similar to a computer

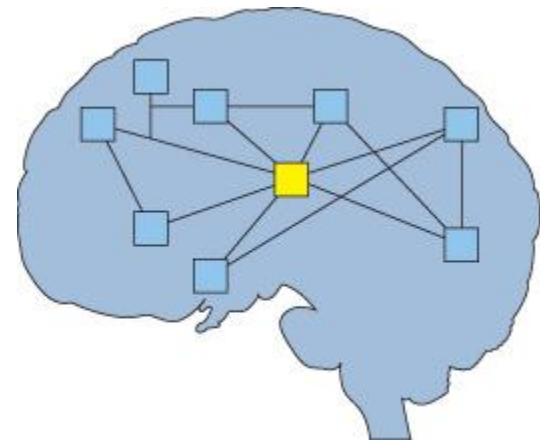


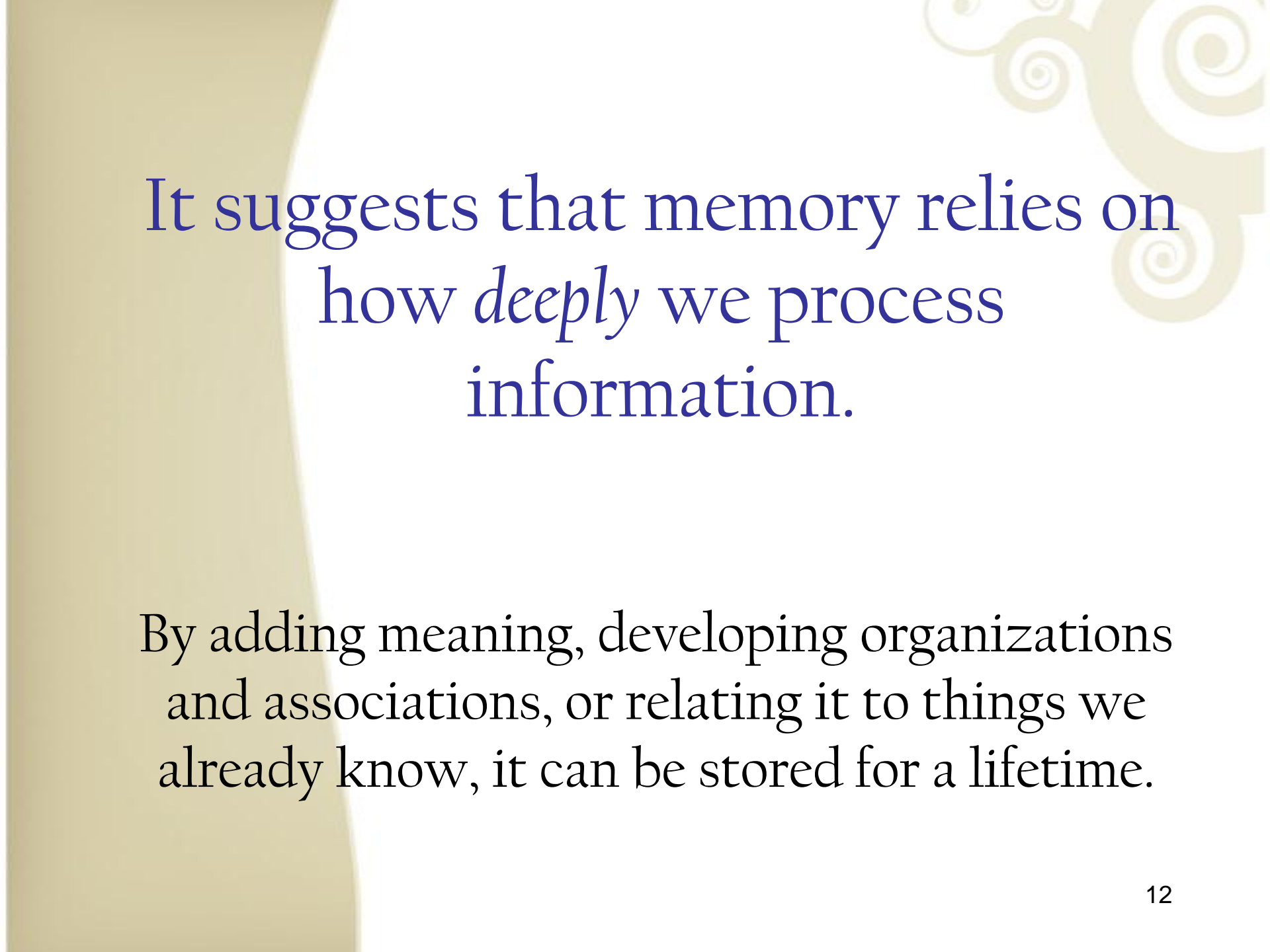
Limitations of the information processing model

- ❑ Memories are described as literal, “hard” data stored on a computer disk or hard drive.
- ❑
 - But human memories are often fuzzy and fragile.
- ❑ Also, computers process one piece of data at a time ,while human memory can process a lot of information at the same time

Parallel Distributed Processing (PDP)

The brain performs multiple, *parallel* operations all at once, allowing memory is spread (distributed) throughout a network of processing units





It suggests that memory relies on
how *deeply* we process
information.

By adding meaning, developing organizations
and associations, or relating it to things we
already know, it can be stored for a lifetime.

STORAGE:

Maintaining Information in Memory

- Three-Stage Memory Model

Storage

■ Storage involves maintaining the information available in memory

- Whenever people have access to information they no longer sense, memory is involved

It's a memory when...

- Example- if you look up a phone number, go to the telephone, and dial the number then memory is involved- even if for only seconds.

There are 3 Separate Memory Stores

- ❑ Sensory Memory performs the initial encoding of sensory information for a brief time, usually only a fraction of a second.
- ❑ The sensory memory recodes a complete memory of the image, but it fades too rapidly for people to “read”



People have a special capacity for
briefly retaining relatively large
amounts of information

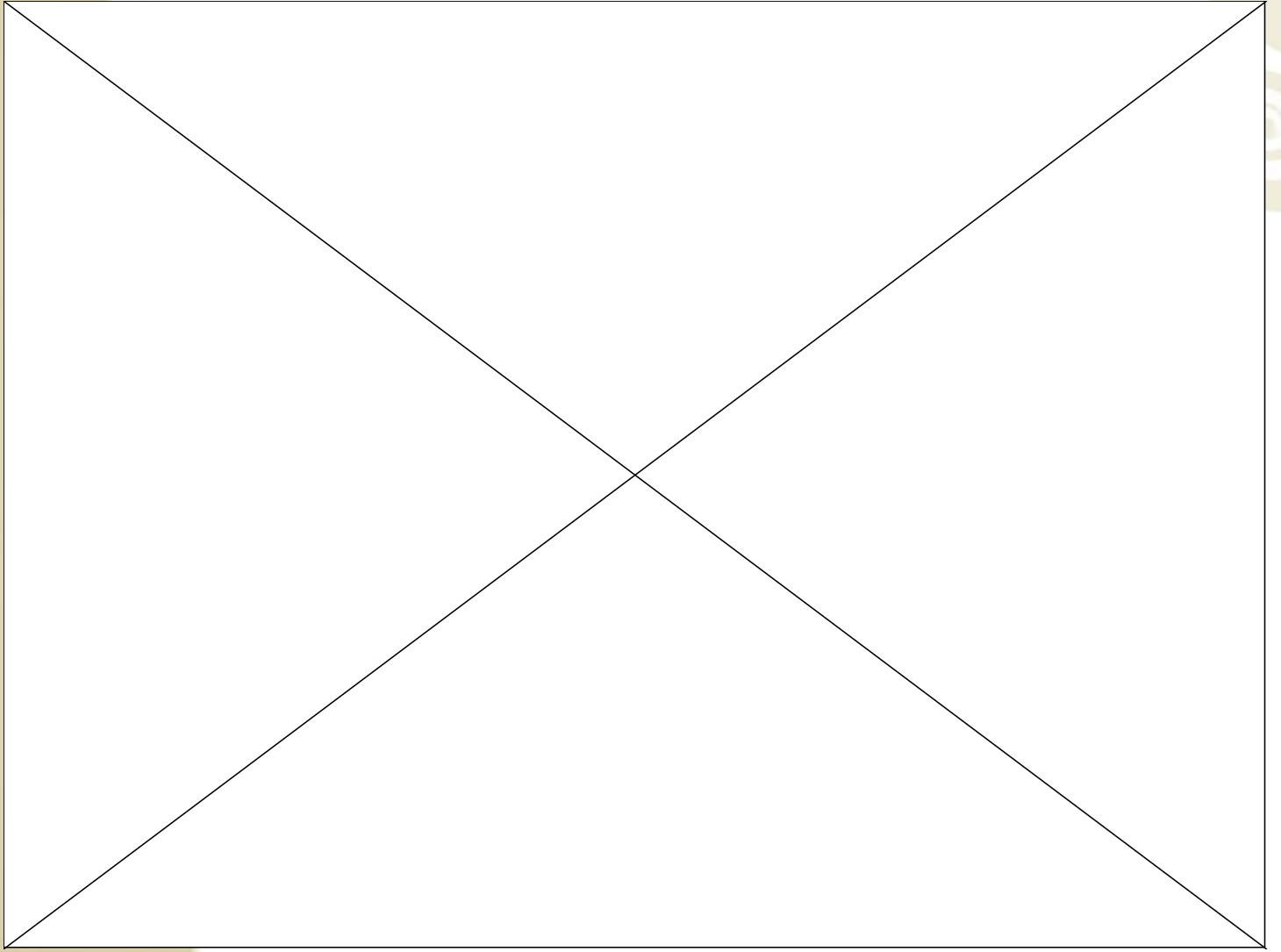
This capacity is called the Sensory Memory

Sensory Memory

- Preserves information in its original sensory form for a brief time – usually only a fraction of second
- Iconic Memory is a visual icon of the original visual stimulus
 - Capacity: 4 ± 2 bits of info
- Echoic Memory is the auditory sensory memory
 - Capacity: about 6 bits of info

Test Your Sensory Memory!

F	P	W	J
Y	K	M	A
R	Z	O	F
E	A	B	Q
X	C	S	N





Working memory is where active thinking occurs.

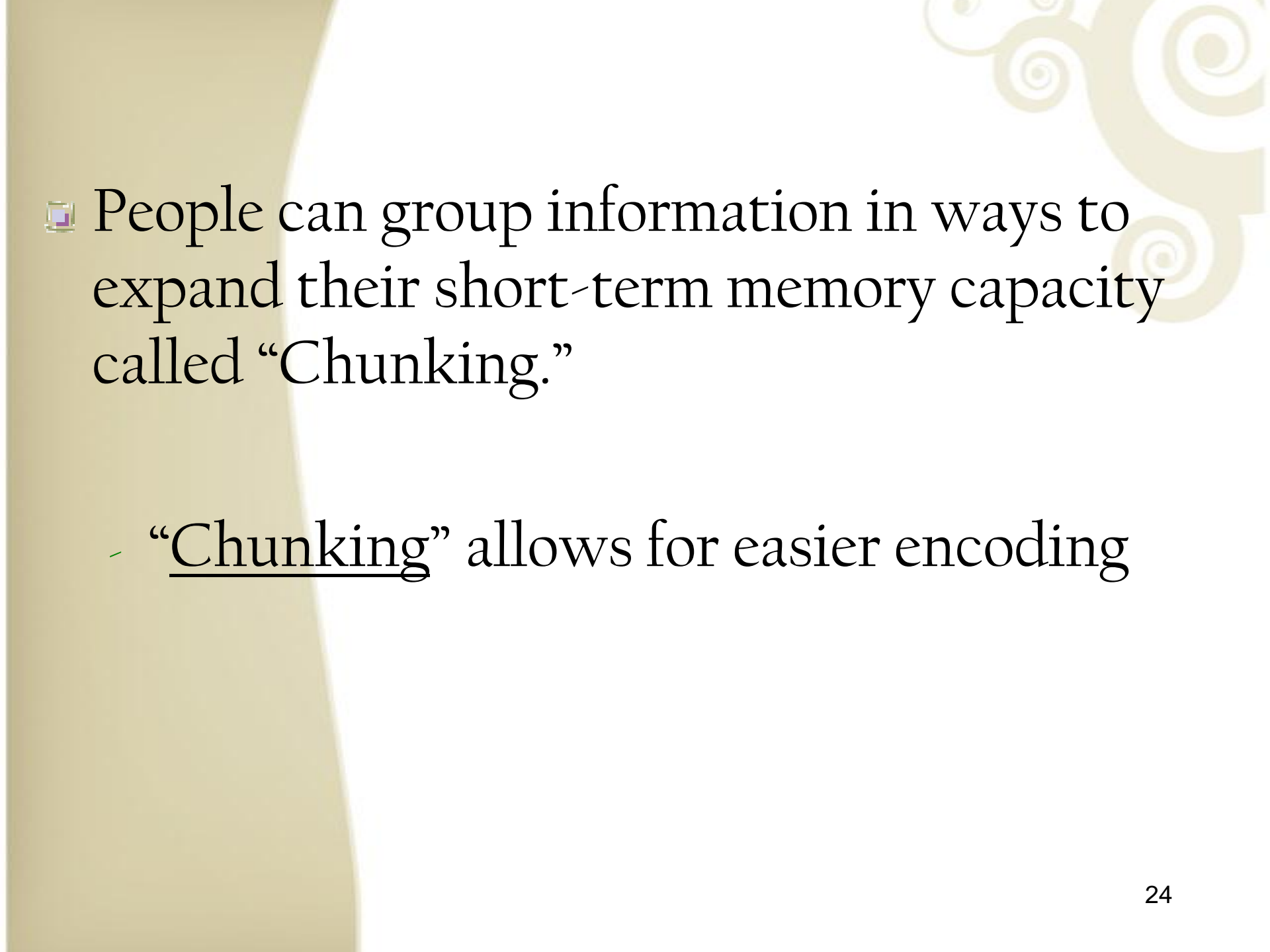
- Computing solutions to math problems
- Allows you to comprehend what you are reading
- Figure out the meaning of what has just been said to you in a conversation.

The working memory has many limitations

- ❑ Short-term (working) memory is a limited-capacity store that can maintain unrehearsed information up to 30 seconds
- ❑ Capacity:
 - “The magic number” (George Miller)
 - Humans have the ability to retain 7 ± 2 items of information (in adults).

Why is it that...?

- Phone numbers are 7 digits?
- Social security numbers are 9 digits?
- Commercials use words in the phone numbers?



❏ People can group information in ways to expand their short-term memory capacity called “Chunking.”

- “Chunking” allows for easier encoding

How could you chunk these examples?

18002255288

1-800-225-5288

1-800-CALL-ATT

CBSIRSM TVPBS DMV

CBS IRS MTV PBS DMV

1-4-9-2-1-7-7-6-1-9-9-9-2-0-0-5

1492-1776-1999-2005

How long can this information stay in STM?

- ❑ Memories disappear unless:
 - You continually rehearse them
 - They are really meaningful so they get stored quickly into long-term memory

- ❑ Rehearsal:
 - The process of repetitively verbalizing or thinking about information



What do you remember?

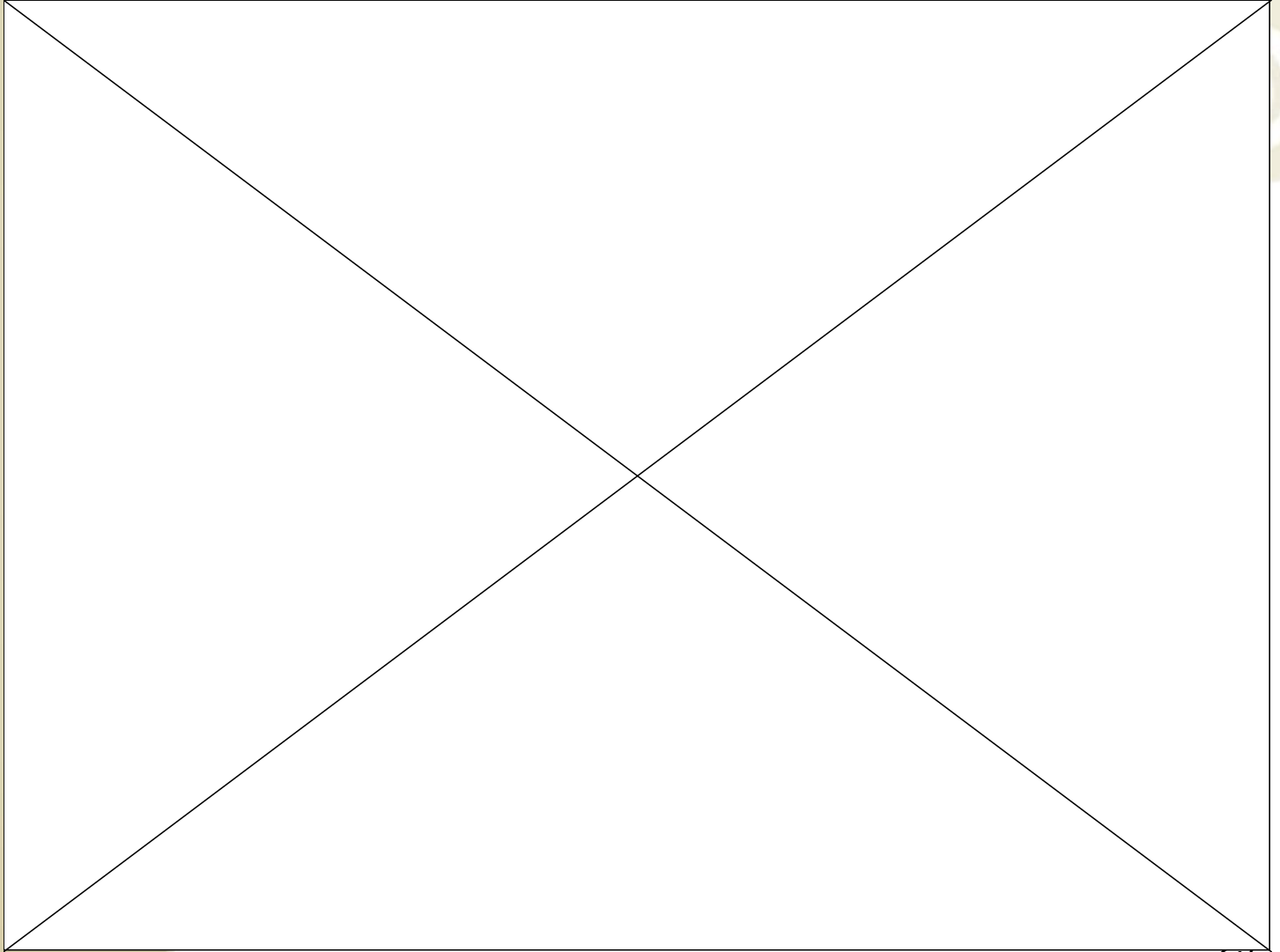
Long Term Memory

■ An unlimited capacity store that can hold information over length periods of time

- Capacity: Unlimited
- Duration: Relatively permanent

■ Information can be stored in separate units and some information can be retrieved without retrieving others

- Tip of the tongue phenomenon (temporarily inaccessible)



Next class

How Do We Get Information
Out of Memory?

RETRIEVAL

Ch.7-Memory