



# Long-Term Memory

The vast storage system where we retain information for extended periods. Many theorists believe we never truly forget—we simply lose the ability to retrieve information.

	FUNCTION	CAPACITY	DURATION
Sensory register	Receives initial stimuli; sight, sound, taste, smell, touch	Potentially huge	Very brief
Working (short-term) memory	Sorts through new stimuli and existing knowledge to find what is relevant; sorting and connecting new information with existing knowledge	5–9 items	About 12 seconds
Long-term memory	Stores knowledge, skills, and other memories and organizes them for easy retrieval	Virtually unlimited	Very long, perhaps forever



# Episodic Memory

Contains images of experiences organized by when and where they occurred.  
Combines sensory information, emotions, and spatial knowledge into personal stories.



## Space and Time Cues

Location and temporal details help retrieve episodic memories effectively.



## Flashbulb Memory

Important events create vivid, lasting visual and auditory memories that remain accessible.



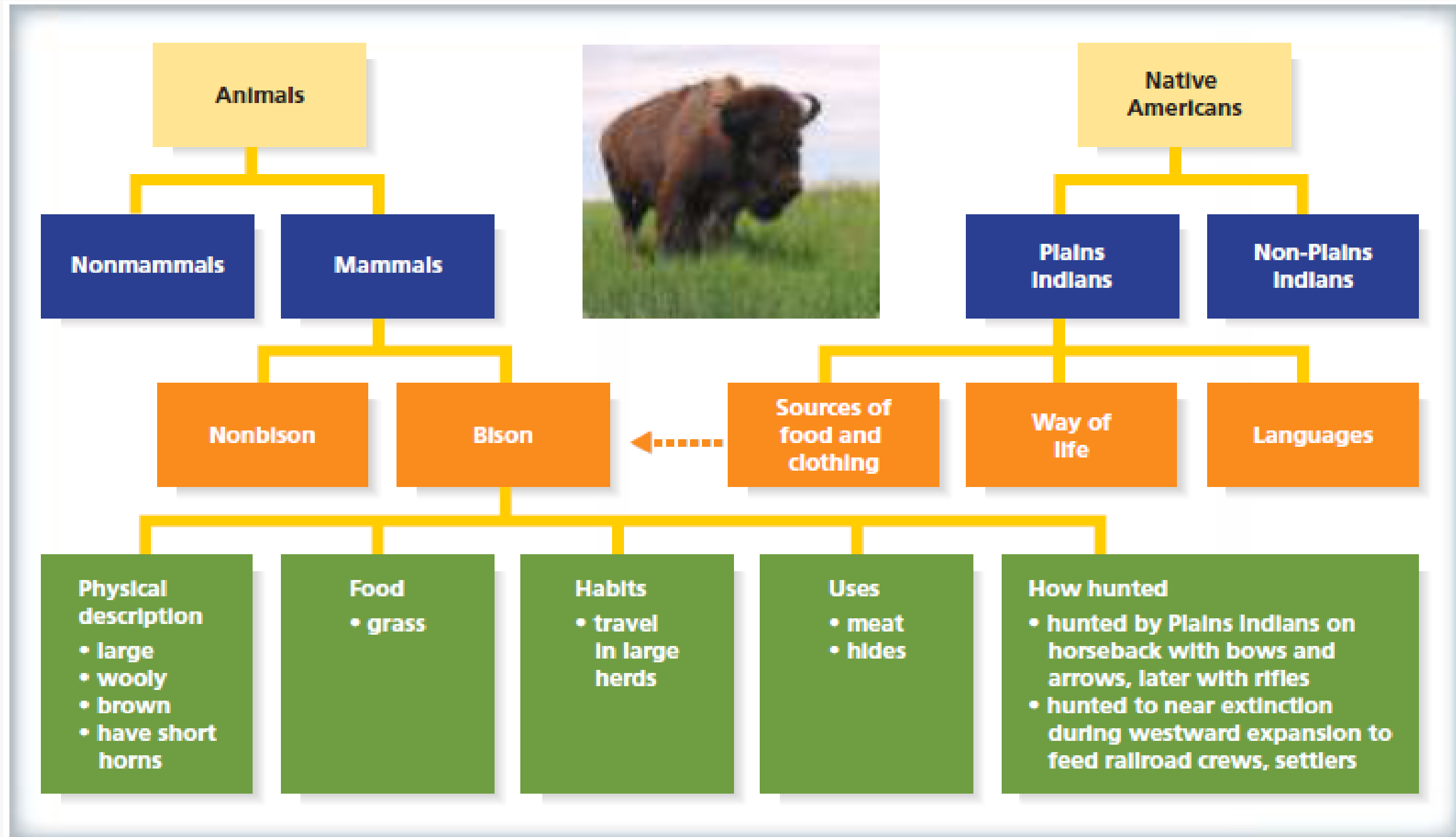
## Enhancement Through Imagery

Projects, simulations, and visual aids create memorable events that improve retention.



# Semantic Memory Organization

Organized as networks of connected ideas called schemata—cognitive frameworks that help us understand and incorporate new information.  
Like an outline with concepts grouped under larger categories.





# Procedural Memory

The ability to recall how to perform physical tasks, stored as stimulus-response pairings. Stored in the cerebellum, unlike semantic and episodic memories stored in the cerebral cortex.



Cycling

Balance and coordination maintained through automatic responses.



Typing

Muscle memory enables rapid keystroke sequences without conscious thought.



Handwriting

Motor patterns remain accessible even after extended periods without practice.



## Retrieving Memories

1

### Recognition

Identifying whether something is familiar. Multiple-choice tests reveal knowledge not shown on essays.

2

### Recall

Active reconstruction of information.  
Requires retrieving each word and detail separately from memory.

3

### Relearning

Measure of both declarative and procedural memory. Relearning is faster than initial learning.

# Why We Forget

When information stored in long-term memory cannot be retrieved, it is forgotten. Three primary causes: decay, interference, and repression.

## Decay

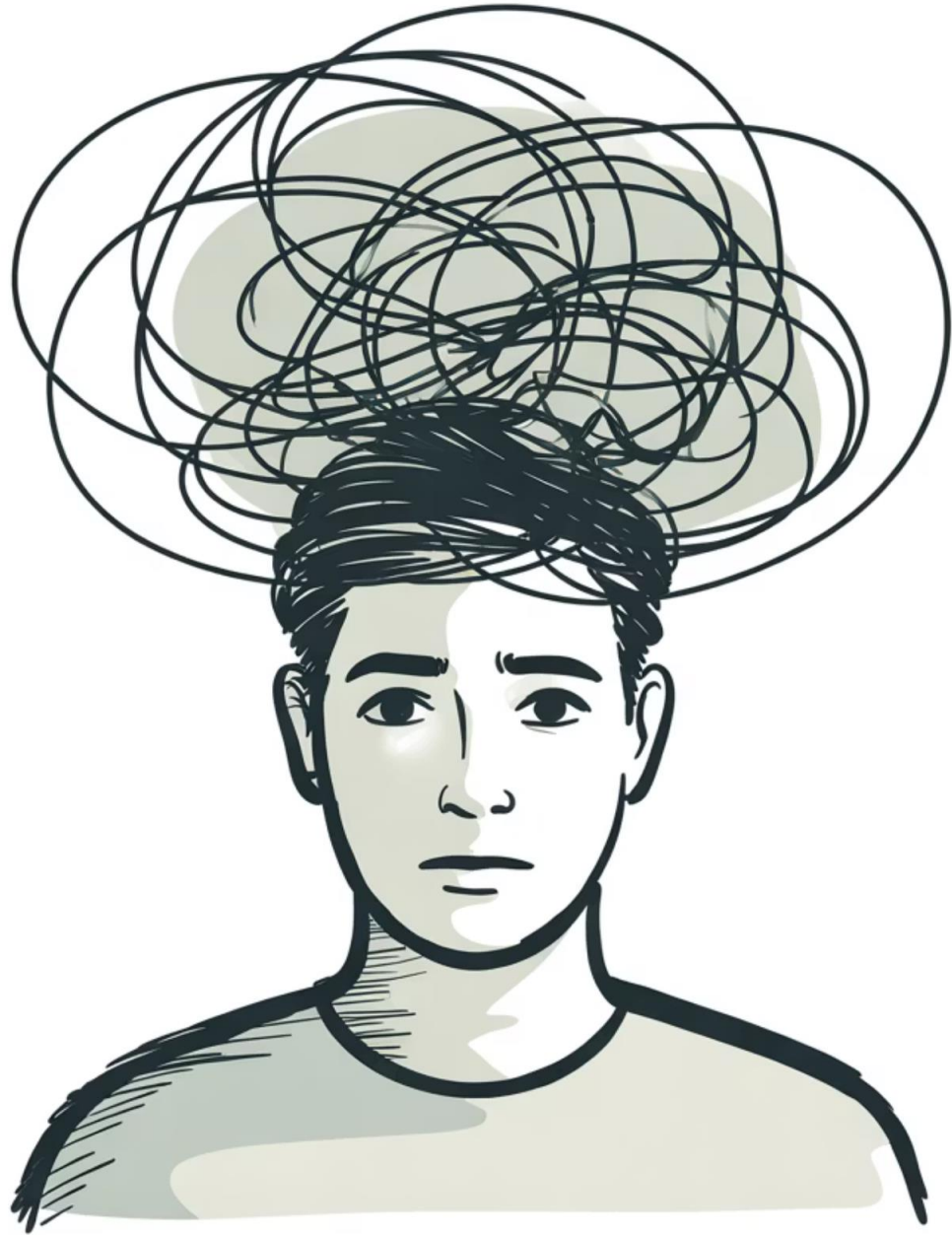
Information fades over time. Uncertain if long-term memories truly decay or if interference masks them.

## Interference

New information mixes with or displaces existing memories, preventing mental rehearsal and retrieval.

## Repression

Subconscious blocking of embarrassing or frightening experiences, making them inaccessible.



# Interference Effects

Information gets mixed up with or pushed aside by other information, causing forgetting. Two main types affect memory differently.

## Retroactive Inhibition

New learning interferes with previously learned information. Learning letter "d" confuses recognition of "b." Most important cause of forgetting.

## Proactive Inhibition

Previous knowledge interferes with new learning. North American drivers struggle learning left-side driving due to ingrained right-side habits.



# Amnesia and Memory Loss

Loss of memory resulting from brain damage, head trauma, drug use, or severe psychological stress. Memories may become completely inaccessible despite neurological recovery.

- Causes

Head injury, electrical brain stimulation, drug use, or extreme psychological trauma.

- Pattern

Recent memories are typically lost first; older memories often remain intact.

- Recovery Potential

Some forgotten information recovers through meditation, hypnosis, or brain stimulation.



# Optimizing Memory Retention

Strategic approaches enhance long-term memory storage and retrieval across all three memory types.

01

## Create Memorable Events

Use projects, simulations, and active learning to generate vivid visual and auditory images.

02

## Incorporate Visual Aids

Pictures illustrating text help children remember content even after images are removed.

03

## Allow Mental Rehearsal

Provide time for students to absorb and practice new information before introducing additional material.

04

## Encourage Mental Imagery

Students who create their own mental pictures demonstrate improved retention of studied material.