



Department of  
Education

# Year 12 SELF Cognition Memory



U3ATPSY

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# Year 12 SELF – Cognition Memory

## **Syllabus points covered:**

- *psychological concepts and processes associated with memory and their relationship to behaviour*
- *multi store model of memory – Atkinson and Shiffrin, 1968*
- *sensory register*
  - *duration, capacity, encoding*
- *short-term memory (working memory)*
  - *duration, capacity and encoding*
  - *working memory model – Baddeley and Hitch, 1974*
- *long-term memory*
  - *duration, capacity and encoding*
  - *procedural memory*
  - *declarative memory – semantic and episodic*
- *recall, recognition, re-learning*
- *forgetting: retrieval failure, interference, motivated forgetting, decay.*

### **Instructions:**

Carefully read and make notes on the following material.  
Complete all activities.



## MEMORY

Memory is the **organisation, storage and retrieval** of information. There are three main ways of measuring what a person has remembered:

- **recall** – retrieving information from memory without prompts
- **recognition** – identifying information from a number of alternatives (recognition is easier than recall – e.g. multiple choice questions easier than short answer questions)
- **relearning** – involves relearning information previously learned. If the information is learned quickly it is assumed that some information has been retained from previous learning.

## STAGES OF MEMORY FORMATION

Memory is complex and involves paying attention to sensory input, converting that into a form that can be stored and then retrieving it when needed. Three important stages of memory formation are:

- **encoding** - refers to the conversion of sensory information into a form that can be processed by the brain eg. extracting meaning
- **storage** - refers to the retention of information via a network of neurons
- **retrieval** - central to memory is the recovering of information from the brain. If it cannot be retrieved it cannot be shown to have ever existed.

Click here to view an image of the memory process:

<http://3.bp.blogspot.com/-7fSAuC3i0Cc/UUNKWhk2OMI/AAAAAAAHAfU/eTdEuaI3Xyc/s640/AESR+Heading+3.jpg>



## MULTI-STORE MODEL OF MEMORY – Atkinson and Shiffrin

Atkinson and Shiffrin (1968) developed the staged model of memory where memory is split into -

- **Sensory Memory / Sensory Register**
- **Short-term Memory**
- **Long-term Memory**

Click here to view an image of the Atkinson and Shiffrin model:

[http://www.savingstudentsmoney.org/psychimg/stangor-fig08\\_005.jpg](http://www.savingstudentsmoney.org/psychimg/stangor-fig08_005.jpg)

### ACTIVITY 1

1. Complete the table below summarising the multi-store model of memory.

Memory Stage	Duration	Capacity	Encoding
Sensory Memory			
Short-term Memory			
Long-term Memory			

### Research Supporting the Theory

Sensory memory is where information is encoded rapidly and stored very briefly. Information is only retained for less than 2-3 seconds unless attended to and passed to the short term memory. **Sperling** (1960) researched how long sensory memory lasts using a matrix of 9 letters. His research demonstrated the existence of iconic memory and that its length is only about  $\frac{1}{4}$  of a second.

K	Z	R
Q	B	T
S	G	N

Short term memory is where information is stored for about 30 seconds, but it may be rehearsed to keep it longer. Some may be transferred to long-term memory. It is the thoughts, words, images that are available for decision making and problem solving and only retained for a brief period and has a limited capacity. **Millar** (1956) proposed '**the magical 7 plus or minus 2**' numbers are retained. This means that we can hold about 7 (plus or minus 2) items in our short term memory for about 30 seconds.

Read more about their research here

<https://lumen.instructure.com/courses/170090/pages/memories-as-types-and-stages>

## Encoding

Central to the memory model is the concept of encoding. When information comes into our memory system (from sensory input), it needs to be changed into a form that the system can cope with, so that it can be stored. The types of encoding depend on the stimulus. Encoding can be:

- **semantic** encoding - encoding of meaning (including meaning of words)
- **acoustic** encoding - encoding of sounds
- **visual** encoding - encoding of picture images.

Encoding can also occur in an automatic or effortful way.

- Automatic encoding:
  - unconscious encoding of incidental information
  - already well-learned information
  - we can learn automatic processing, eg reading backwards.
- Effortful encoding:
  - requires attention and conscious effort
  - can be achieved in a variety of ways, including rehearsal, chunking, mental pictures, acronyms and mnemonics.

## Effortful Encoding

**Rehearsal** of information is one of the best ways to encode. There are two kinds of memory rehearsal:

- maintenance rehearsal – to say a phone number aloud or in your head for immediate use but will not transfer to long term memory
- elaborative rehearsal – actively process information to make it more meaningful, associate information with other material, so that it can be stored for later use.

**Mental pictures** are a powerful aid to effortful processing, especially when combined with semantic encoding.

**Chunking** is another way to increase short term memory storage. Material is combined into large meaningful groups based on patterns or regularities – e.g. phone numbers.

**Acronyms** are sorting content under a symbol. The key is to make the sequence easy to remember and attach the information to something familiar. eg. when trying to remember a short shopping list - Raspberries, Oranges, Potatoes, Eggs = ROPE

**Mnemonics** is talking the first letter and making a catchy sentence eg. Order of the planets – “My Very Educated Mother Just Served Us Nine Pizzas”

### Research on Encoding and Improving Processing

Hermann Ebbinghaus (1885) researched the rate of forgetting memories. He founded what is known as the “**spacing effect**”. This is that distributed practice yields better long- term retention than massed practice. So don’t cram for exams!

Click here to view an image of Ebbinghaus’s Forgetting Curve:

<http://hosting1.disentropy.net/ptblog/wp-content/uploads/2011/04/forgettingcurve.png>

Click here to view a graphic representation of Ebbinghaus’s Forgetting Curve:

<https://classesteaching.files.wordpress.com/2017/12/mtr5.png>

Murdock (1962) showed that when participants are presented with a list of words, they tend to remember the first few and last few words and are more likely to forget those in the middle of the list. This research became known as the **Serial Position Effect**.

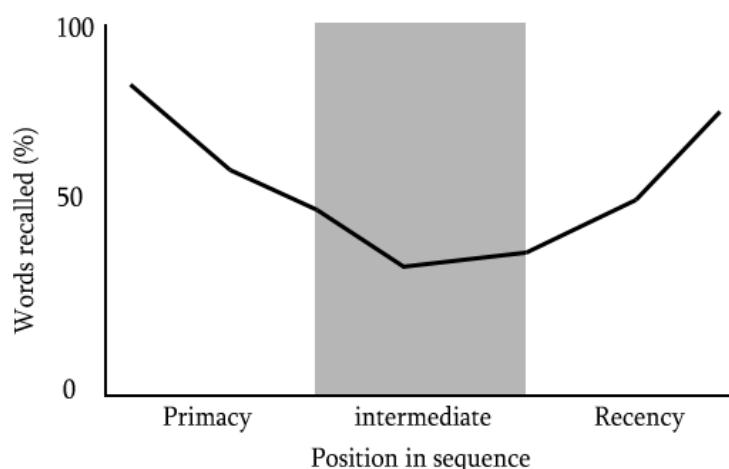


Image by Obli at the English language Wikipedia, CC BY-SA 3.0, <https://commons.wikimedia.org/w/index.php?curid=61092398>

## Long Term Memory

Long term memory is a large, relatively permanent store of information and it is considered to be unlimited. Long term memory refers to any memory longer than 30 seconds up to forever.

Two types of long term memory can be distinguished:

- **procedural memory** - 'how to' memory, sometimes called **implicit** memory because it is not a conscious memory process e.g. how to swim
- **declarative memory** - 'what' of memory, sometimes called **explicit** memory.  
There are two types of declarative memory:
  - **episodic memory** - memory of past specific events, linked to particular feelings and sensations at the time
  - **semantic memory** – knowledge of facts and information based on understanding and interpretation.



**ACTIVITY 2**

1. List two characteristics that distinguish short-term memory from long-term memory.

2. Match the psychological terms from the list below with their meaning by writing each term in the correct box.

*procedural memory, declarative memory, episodic memory, semantic memory*

Term	Definition
	Memory for past personal events and it is an internal representation of your own interpretation of an experience in your life
	Stores the way you do things. The 'how to' of memory
	Knowledge of facts and information, based on understanding and interpretation, often of spoken or written material
	The 'what' of memory. Sometimes called explicit memory and requires conscious effort for retrieval

3. Decide whether each of the following statements best describes sensory memory or short-term memory.

	Information is forgotten in less than a second.
	Information can be stored indefinitely through the process of rehearsal.
	Information is stored as a virtually exact copy of the external message.
	Capacity is improved through chunking.

4. For each of the following, decide whether the relevant memory is episodic, semantic or procedural.

	The capital city of Australia is Canberra
	Breakfast yesterday was Coco pops and a banana
	My mum's maiden name (name before she got married) was Jones
	Executing a perfect racket swing when playing tennis
	Tying your shoelaces

## WORKING MEMORY MODEL – Baddeley & Hitch

'Working Memory' now preferred to short term memory. This emphasises the active nature of processing memories. Working memory model (Baddeley & Hitch 1974) focuses on the central executive which organises the information and co-ordinates the 'slave' systems

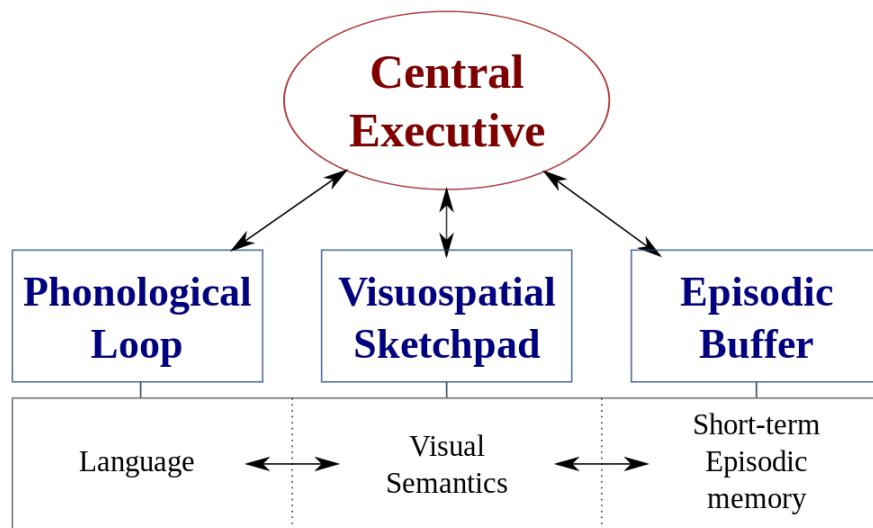


Image by Mirek2 - CC0

<https://commons.wikimedia.org/w/index.php?curid=12843390>

The Baddeley & Hitch model (1974) consists of three main components:

- **central executive** which acts as supervisory system and controls the flow of information from and to its slave systems
- **phonological loop** stores verbal content
- **visuo-spatial sketchpad** caters to visual data.

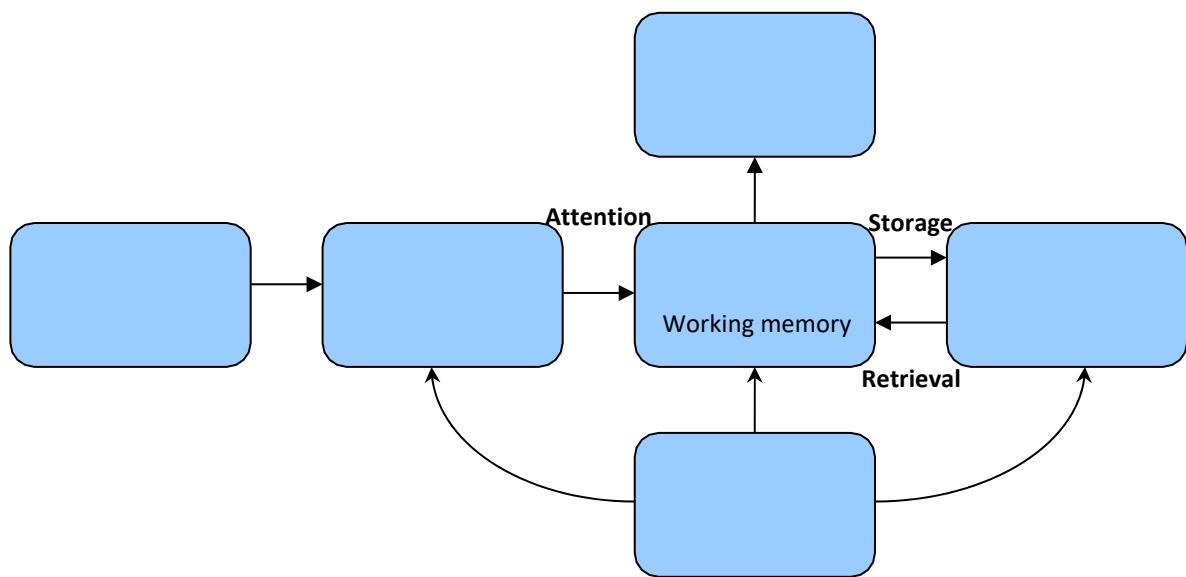
The slave systems only function as short-term storage centres.

In 2000, Baddeley updated the model to include another slave system:

- **episodic buffer** which links information across the domains to store verbal and visual together.

**ACTIVITY 3**

1. Complete the diagram below combining the multi-store model and the working memory model into one complete process.



## HOW THE BRAIN CHANGES TO STORE MEMORIES

The establishment of long term memories involve a process of physical changes in the structure of neurons in the brain, called **long-term potentiation**. At its simplest, whenever something is learned, circuits of neurons in the brain, known as neural networks, are created, altered or strengthened. With repeated use, the efficiency of these new neural connections increases, facilitating the passage of nerve impulses along particular neural circuits, which may involve many connections to the visual cortex, the auditory cortex, the associative regions of the cortex, etc.

The short term memory is supported by transient patterns of neuronal communication in the regions of the frontal, prefrontal and parietal lobes of the brain,

Long term memories are maintained by more stable and permanent changes in neural connections widely spread throughout the brain.

The **hippocampus** area of the brain essentially acts as a kind of temporary transit point for long term memory, and is not itself used to store information. The hippocampus is essential to the consolidation of information from short to long term memory, and is thought to be involved in changing neural connections for a period of three months or more after the initial learning.

Click here to view the location of the hippocampus in the brain:

<https://www.neuroscientificallychallenged.com/glossary/hippocampus>



## FORGETTING

Forgetting can be seen as a failure to retrieve or use material previously stored.

There are four types of forgetting:

- **retrieval failure** – not using memory cues to access information. To remember something, the cues cause us to search to find and activate the memory from long term memory store back into the working memory.
- **interference** – retrieval difficult because of competing or similar information being stored. Can be subdivided into **retroactive Interference** where new information blocks out old information. eg. Getting a new bus number and forgetting the old one or **proactive Interference** where old information blocks out new information. eg. Calling your new girlfriend by your old girlfriend's name.
- **motivated forgetting** – self-protection device or some advantage in not remembering. Can be extreme (like repression of memories as a defense mechanism that banishes them from consciousness) or minor (like forgetting to clean the toilet because it is unpleasant). Considered to be not deliberate.
- **decay** – memory fading over time. Some claim that memories do not fade and can be retrieved by cues such as particular sound or smell. True memory decay can be caused by brain damage, the misuse of drugs and ageing (dementia, Alzheimer's disease).

### ACTIVITY 4

1. For each of the scenarios below, write down the theory of forgetting – *decay theory, motivated forgetting theory, interference theory and retrieval failure theory* – that best explains the person's inability to remember.

	After watching four Harry Potter movies, one after the other, you cannot seem to remember in which one a particular scene occurred.
	When Mark attended a Year 7 class reunion, he clearly recalled all of the sporting events and who had won what and in what year. However, when his classmates reminded him of how embarrassed he was when he dived into the pool during the freestyle event in Year 4 and lost his bathers, he couldn't remember the event.
	Five years ago you studied Indonesian in Years 6, 7 and 8. You enjoyed the language but you have not spoken or studied it for 5 years. You went to Bali for a holiday 2 weeks ago and you were surprised that you could understand very little of the language. You had forgotten most of what you had learnt.
	The question you were asked by a friend was "Who is the lead actor in the <i>Pirates of the Caribbean</i> ?" You could picture the actor but couldn't remember his name. However, while you were at Booragoon, you walked into the cinema, smelt popcorn and the name suddenly came to you, "Johnny Depp"!

2. Freud believed that some memories are repressed. How does this relate to the concept of motivational forgetting?



# Answers to activities contained in this workbook

## ACTIVITY 1

1. Complete the table below summarizing the multi-store model of memory.

Memory Stage	Duration	Capacity	Encoding
Sensory Memory	½ to 2 seconds	Large	As sense, iconic (image) or echoic (sound)
Short-term Memory	Up to 30 seconds	Limited Up to 9 pieces of information	Active or conscious processing of information and rehearsal
Long-term Memory	Indefinitely or permanent	Unlimited	Physical changes in neurons of the brain for storage

## ACTIVITY 2

1. List two characteristics that distinguish short-term memory from long-term memory.

Information is retained for a brief period of time.

The amount of information retained is limited, e.g. 5–9 pieces of information

2. Match the psychological terms from the list with their meaning by writing each term in the correct box.

*procedural memory, declarative memory, episodic memory, semantic memory*

Term	Definition
episodic memory	Memory for past personal events and it is an internal representation of your own interpretation of an experience in your life
procedural memory	Stores the way you do things. The ‘how to’ of memory
semantic memory	Knowledge of facts and information, based on understanding and interpretation, often of spoken or written material
declarative memory	The ‘what’ of memory. Sometimes called explicit memory and requires conscious effort for retrieval

3. Decide whether each of the following statements best describes sensory memory or short-term memory.

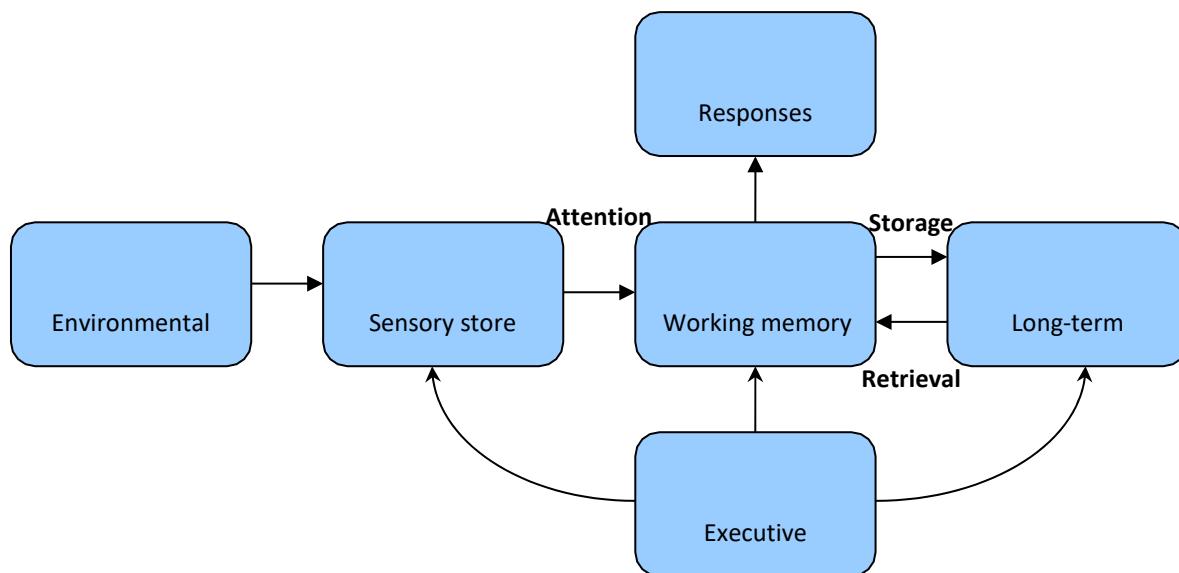
- Information is forgotten in less than a second - Sensory memory
- Information can be stored indefinitely through the process of rehearsal- Short- term memory
- Information is stored as a virtually exact copy of the external message - Sensory memory
- Capacity is improved through chunking - Short-term memory

4. For each of the following, decide whether the relevant memory is episodic, semantic or procedural.

- The capital city of Australia is Canberra - semantic
- Breakfast yesterday was Coco pops and a banana - episodic
- My mum’s maiden name is Holden - semantic
- Executing a perfect racket swing - procedural
- Tying your shoelaces - procedural

**ACTIVITY 3**

1. Complete the diagram below combining the multi-store model and the working memory model into one complete process.

**ACTIVITY 4**

1. For each of the scenarios below, write down the theory of forgetting – decay theory, motivated forgetting theory, interference theory and retrieval failure theory – that best explains the person's inability to remember.

  - a. After watching four Harry Potter movies, one after the other, you cannot seem to remember in which one a particular scene occurred.

Interference theory

- b. When Mark attended a Year 7 class reunion, he clearly recalled all of the sporting events and who had won what and in what year. However, when his classmates reminded him of how embarrassed he was when he dived into the pool during the freestyle event in Year 4 and lost his bathers, he couldn't remember the event.

Motivated forgetting theory

- c. Five years ago you studied Indonesian in Years 6, 7 and 8. You enjoyed the language but you have not spoken or studied it for 5 years. You went to Bali for a holiday 2 weeks ago and you were surprised that you could understand very little of the language. You had forgotten most of what you had learnt.

Decay theory

- d. The question you were asked by a friend was "Who is the lead actor in the *Pirates of the Caribbean*?" You could picture the actor but couldn't remember his name. However, while you were at Booragoon, you walked into the cinema, smelt popcorn and the name suddenly came to you, "Johnny Depp"!

Retrieval failure theory

2. Freud believed that some memories are repressed. How does this relate to the concept of motivational forgetting?

Motivated forgetting refers to the inability to retrieve information because there is some advantage to not remembering it. The information may be anxiety provoking. Freud believed that if an event is traumatic and anxiety provoking, the individual will suppress the memory and will not consciously be able to remember what had happened

# Year 12 SELF – Cognition Memory

If you have access to *Nelson Psychology WA ATAR Unit 3&4*, complete the following reading and questions:

- read pages 20-29
- complete end of chapter questions on page 41 - Terminology 1-3, MCQ 1-4 & 7-9 and SAQ 1-3.

If you have access to *Nelson Psychology WA ATAR Unit 3&4 Student Workbook*, complete the following reading and questions:

- pages 29-40.

Check out the additional reading in the following links to help you clarify your understanding.

- Types of memory <https://learn.genetics.utah.edu/content/memory/types/>
- Video: Life without a Hippocampus <https://www.youtube.com/embed/KkaXNvzE4pk>
- Working Memory model <http://lifehacker.com/what-your-working-memory-does-and-how-to-give-it-a-t-1671349672>
- Video: Jill Price, the woman who can't forget anything <https://www.youtube.com/watch?v=SoxsMMV538U&feature=youtu.be%20>
- TED talk - How reliable is your memory? [https://www.ted.com/talks/elizabeth\\_loftus\\_the\\_fiction\\_of\\_memory](https://www.ted.com/talks/elizabeth_loftus_the_fiction_of_memory)
- Video: Making things memorable video <https://www.youtube.com/watch?v=rFIK5gutHKM&feature=youtu.be>
- Improving memory – 5 hour rule <http://www.inc.com/empact/why-constant-learners-all-embrace-the-5-hour-rule.html>

## MEMORY EXAM PRACTICE QUESTIONS

Complete the following question taken from the 2019 ATAR Psychology 12 paper

Source: School Curriculum and Standards Authority, Psychology 2019 ATAR Examination

<https://senior-secondary.scsa.wa.edu.au/further-resources/past-ATAR-course-exams/psychology-past-ATAR-course-exams>

**Question 7**

**(16 marks)**

- (a) What does the term 'encoding' mean in relation to memory?

(1 mark)

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Andreas is in Year 5 and is struggling with his least favourite subject – mathematics. Even though he learnt his multiplication tables in Year 3, he keeps confusing multiplication with his fraction work that he has learnt in class recently.

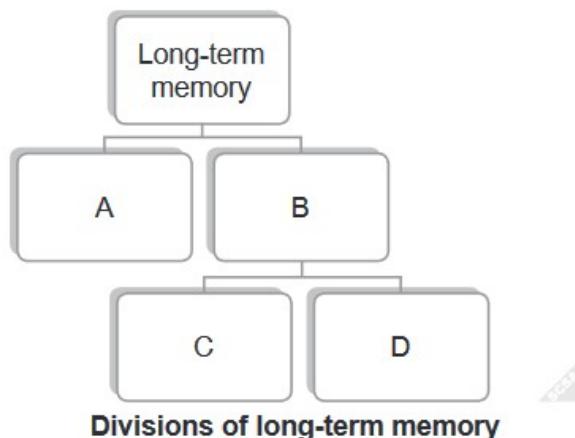
- (b) Name the type of forgetting Andreas is experiencing.

(1 mark)

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Keeley is an expert cellist. She has been performing since she was six and studied music theory from age 10 through to university, graduating with a masters degree in music (cello).

- (c) An unlabelled diagram below shows the divisions of long-term memory (LTM). Complete the table below by naming the types and subtypes of LTM referred to by A, B, C and D and describing how each contributes to Keeley's cello playing. (8 marks)



Type of LTM	Subtype of LTM	Application to Keeley
A		
B		
	C	
	D	

- (d) Name and describe briefly the **three** main ways in which memory researchers measure how much information people remember. (6 marks)

One: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Two: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Three: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Complete the following question taken from the 2016 ATAR Psychology 12 paper

Source: School Curriculum and Standards Authority, Psychology 2016 ATAR Examination

<https://senior-secondary.scsa.wa.edu.au/further-resources/past-ATAR-course-exams/psychology-past-ATAR-course-exams>

**Question 12**

**(28 marks)**

Ms Kelly teaches a children's dance class. When teaching a new routine, Ms Kelly first demonstrates each of the steps one at a time while the children watch her, she then gets the children to copy her, and calls out the steps as the children put them together in sequence until they have learned the whole routine.

Explain, referring to theories and concepts of memory, **three** ways in which Ms Kelly's teaching strategy assists the children to remember the dance routine.

At dance class the following week, Ms Kelly asks the students to tell her the steps they learned the previous week. None of the children can remember how the dance routine started.

Explain, referring to theories and concepts of forgetting, **three** reasons for this.

## Answers and Marking Key

### Question 7 taken from the 2019 ATAR Psychology 12 paper

Source: School Curriculum and Standards Authority, Psychology 2019 ATAR Examination

<https://senior-secondary.scsa.wa.edu.au/further-resources/past-ATAR-course-exams/psychology-past-ATAR-course-exams>

#### Question 7 (16 marks)

- (a) What does the term 'encoding' mean in relation to memory? (1 mark)

Description	Marks
Conversion of sensory information so that it can be processed by the brain	1
<b>Total</b>	<b>1</b>

- (b) Name the type of forgetting Andreas is experiencing. (1 mark)

Description	Marks
Interference (retroactive)	1
<b>Total</b>	<b>1</b>

- (c) An unlabelled diagram below shows the divisions of long-term memory (LTM). Complete the table below by naming the types and subtypes of LTM referred to by A, B, C and D and describing how each contributes to Keeley's cello playing. (8 marks)

Description		Marks
One mark for type of LTM or subtype of LTM, one mark for application		
Type	Application to Keeley	
A - Procedural (implicit)	remembering how to play cello physically	1–2
B - Declarative (explicit)	can tell people how she plays based on theory	1–2
C - Episodic	retelling of times she has played	1–2
D - Semantic	the theory she has learnt about playing cello	1–2
<b>Total</b>		<b>8</b>

Note: C and D can be either way around, accept other relevant descriptions.

- (d) Name and describe briefly the **three** main ways in which memory researchers measure how much information people remember. (6 marks)

Description	Marks
One mark for name, one for description	
Recall – retrieve information from memory without prompts or cues	1–2
Recognition – identifying correct information from given alternatives	1–2
Relearning – information is more quickly learnt second time	1–2
<b>Total</b>	<b>6</b>

## Question 12 taken from the 2016 ATAR Psychology 12 paper

Source: School Curriculum and Standards Authority, Psychology 2016 ATAR Examination

<https://senior-secondary.scsa.wa.edu.au/further-resources/past-ATAR-course-exams/psychology-past-ATAR-course-exams>

Description	Marks
<b>Concepts of memory</b> Three marks for each valid memory strategy. Maximum nine marks.	
Names <b>and</b> describes <b>and</b> applies concept to the scenario	3
Names <b>and</b> describes <b>or</b> Names <b>and</b> applies to the scenario	2
Names <b>or</b> describes a concept related to memory	1
<b>Examples:</b> <ul style="list-style-type: none"> <li>• according to the Atkinson and Shiffrin model, we need to pay attention to something for it to be transferred from sensory memory into short term memory. Miss Kelly getting the students to watch her demonstrate the steps ensures that they are paying attention</li> <li>• according to the Baddeley and Hitch model visual and spatial information, such as the dance steps, is stored in the visuo-spatial sketchpad, and going over the steps several times, first by watching them by copying, would assist to maintain them in working memory, then transfer to long term memory</li> <li>• according to the Baddeley and Hitch model, verbal information is stored in the phonological loop, and Miss Kelly calling out the steps while the children perform them can be used to represent the information verbally in working memory</li> <li>• putting the steps together in sequence is an example of chunking, which can help increase memory capacity by combining information into larger meaningful groups</li> <li>• going over the steps is an example of 'rehearsal' which helps with encoding and transfer of information to long term memory.</li> </ul> Marks for naming concepts related to memory to be allocated in this section. Marks for naming theorists/theories to be allocated under evidence.	
<b>Total</b>	<b>9</b>

Description	Marks
<b>Concepts related to forgetting</b>	
Three marks for each valid reason. Maximum nine marks.	
Names <b>and</b> describes <b>and</b> applies concept to the scenario	3
Names, describes <b>or</b> applies concept to the scenario	2
Names, or describes a concept related to forgetting	1
<b>Examples:</b>	
<ul style="list-style-type: none"> <li>• <b>Retrieval failure</b>, this is when information is unable to be retrieved from memory due to lack of appropriate cues. For example, without having the music going, the children did not have cues to assist them to retrieve memories of the dance steps, or if Miss Kelly had reminded the children about the first step, this may have acted as a cue to help them remember the next steps</li> <li>• <b>Interference</b>, this is when other competing or similar information stored in memory affects the ability to retrieve information, for example, other things that the children have done during the week, or other dances that they have learned in the past, may have interfered with their ability to recall the dance steps</li> <li>• <b>Decay</b>, this is when memories fade over time, for example because the children have not practiced the dance steps for a week, their memories may have faded</li> </ul>	
<b>Total</b>	<b>9</b>
<b>Use of psychological evidence – Quantity</b>	
Many statements are supported by relevant psychological evidence (e.g. name of researcher/theorist/theory or example of a study)	3
Several statements are supported by relevant psychological evidence (e.g. name of researcher/theorist/theory or example of a study, or example from real life)	2
One or two statements are supported by relevant psychological evidence (e.g. name of researcher/theorist/theory or example of a study, or example from real life)	1
<b>Total</b>	<b>3</b>

<b>Use of psychological evidence – Quality</b>	
Two or more examples of detailed relevant psychological evidence (e.g. 3–4 sentences about a theory and/or specific research study method and findings)	4
One example of detailed relevant psychological evidence (e.g. 3–4 sentences about a theory and/or specific research study method and findings)	3
One or more examples of psychological evidence, including some description (e.g. 1–2 sentences)	2
Psychological evidence consists of names/statements only, without description (e.g. name of study, name of researcher, name of theory)	1
<b>Total</b>	<b>4</b>
<b>Quality of extended response</b>	
Well developed sentences and paragraphs <b>and</b> consistent use of appropriate psychological language <b>and</b> correct spelling, grammar and punctuation	3
Coherent response with adequate spelling, grammar, sentence structure and paragraph structure	2
Single paragraph response <b>or</b> lack of paragraph structure <b>and/or</b> poor sentence structure <b>and/or</b> very colloquial language <b>and/or</b> poor English expression <b>and/or</b> many spelling errors	1
<b>Total</b>	<b>3</b>
<b>Overall total</b>	<b>28</b>