

Memory Training Explanatory Performance Task

Task:

You are learning about the brain in science class. You are curious. Why are some people able to memorize their student numbers with ease, but you can't remember the four items you are supposed to pick up at the store? You decide to do some research on memory and the brain. In your school, the Science Club is encouraging students to provide articles for its new website. For your contribution to the website, you will write an explanatory article about improving memory.

Your Assignment:

Using both sources, develop a thesis/controlling idea to write about the topic of memory. Once you have a thesis/controlling idea, select the most relevant information to support your thesis/controlling idea. Then, write a 5-paragraph article explaining your thesis/controlling idea.

After you have reviewed the 2 sources, you will answer some questions about them on the graphic organizer. Briefly scan the sources and the questions on the graphic organizer. Then, go back and read the sources carefully to gain the information you will need to answer the questions and finalize your research.

First, take notes on the graphic organizer. Next, organize your article into 5 paragraphs and elaborate on your own ideas. Develop your ideas clearly and use your own words, except when quoting directly from the sources. Be sure to reference the source title or number when quoting or paraphrasing details or facts from the sources. Do not turn in the graphic organizer as your essay- only use it to take notes, and then create a 5 paragraph essay. You can write your essay under the graphic organizer, or turn it in as a separate document.

Explanatory Scoring:

Your explanatory article will be scored using the following:

1. **Organization/Purpose:** How well did you state your thesis/controlling idea and maintain your thesis/controlling idea with a logical progression of ideas from beginning to end? How well did you explain your thesis/controlling idea so you can develop and elaborate on the conclusion? How well did you consistently use a variety of transitions? How effective were your introduction and your conclusion?
2. **Elaboration/Evidence:** How well did you integrate relevant and specific information from the sources? How effective were your elaborative techniques? How well did you clearly state ideas using precise language that is appropriate for your audience and purpose?
3. **Conventions:** How well did you follow the rules of grammar usage, punctuation, capitalization, and spelling?

Now begin work on your explanatory article. Manage your time carefully so that you can:

- plan your multi-paragraph article,
- write your multi-paragraph article, and
- revise and edit the final draft of your multi-paragraph article.

Source #1

Read the article about memory from a popular science website for kids.

How Do We Remember?

You need to go to the store and pick up milk, eggs, butter, and bread. You repeat the list of foods over and over on the way to the store. When you arrive at the store, you collect the milk, eggs, bread, and . . . What was the other thing? How did you already forget the other item that was on your mental list? How does your memory work, and why does it let you down sometimes?

When most people refer to memory, they think of it as one part of the brain. The truth is your memory isn't one particular part of your brain. Memory involves several parts of your brain working together. It is a concept. It is the idea of remembering.

Formerly, scientists used to describe memory as a miniature filing cabinet full of many files that contained memories. Others described memory as a tiny supercomputer located in the brain. Today, scientists believe that memory is much more complicated than that.

How Memory Works

Memories begin as a result of the senses. The memory is then encoded, or stored, in your brain with electrical impulses and chemicals. Your brain is full of nerve cells. There are electrical pulses carrying messages from one cell to another. The electrical pulses trigger chemical messengers to be released. The chemical messengers are called neurotransmitters. The connection that is made between the cells isn't necessarily permanent. It is changing all of the time. Brain cells work together as a team, organizing themselves into groups. The groups specialize in different kinds of information processing. Each time one cell sends a message to another, the connection between those two cells gets stronger. With each new experience your brain changes a little. If you keep using your brain the same way over and over again, it shapes how your brain will be organized.

Types of Memory

There are three types of memory: sensory memory, short-term memory, and long-term memory.

Sensory memory hangs on to information for a very short period of time, only a second or two. When you look at a picture of a beautiful landscape, an almost exact image of that landscape is stored momentarily in your visual sensory memory. Your visual sensory memory requires your eyes and parts of your brain to work together. Unless you make an active effort to think about the landscape the image will quickly fade.

Short-term memory stores what you are actively thinking about at any given moment. Your short-term memory is able to hold on to information for as long as you are thinking about it. You use your short-term memory to remember the list of things your mom wants you to pick up at the store. If you continually repeat this information to yourself, you can remember it, but the moment you start thinking about something else, like where in the store the milk is located, the list of groceries will only stick around for about 20 or 30 seconds.

Long-term memory stores information, experiences, and ideas long after you stop thinking about them. When you consciously process information, short-term and long-term memory work together. For example, when you think or solve problems, the short-term and long-term memory systems are working together. Long-term memory includes an enormous amount of information. Some of this information is there for a lifetime. Scientists believe that over the course of a lifetime, the long-term memory has stored vast amounts of information. Much more than an encyclopedia!

Forgetting

As time passes, memory fades or we forget all of the specific details. An hour after you read a book, you can remember most of what it was about. Two days later, you might recall only a bit of the information that was in the book. After a month has passed, you probably remember even less.

There are several explanations as to why we may forget things. Maybe the information was not encoded in our memory properly. For instance, while reading over your notes for the test you were trying to watch your favorite show on television. This type of distraction can really interfere in encoding memories and the information is not successfully saved in your memory.

Alternatively, another reason that you may not be able to remember something is not because you actually have forgotten the information. The problem could be that you are having trouble retrieving it from your memory. You can't remember the answer to write it down on the test. It is right there, you know the answer, but it just won't come to you. As soon as the test is over and you walk out of the classroom, there it is—that answer you were trying so hard to come up with. This is a problem with retrieval. Your brain is having trouble locating that information again. It is similar to looking for a small object inside a room that is full of stuff. It can be very frustrating!

References

Loftus, E.F. (2013). Memory. *World Book Advanced*. Retrieved from <http://www.worldbookonline.com/advanced/printarticle?id=ar354840>

Mohs, R.C. (2007, May 8). How human memory works. *HowStuffWorks.com*. Retrieved from <http://science.howstuffworks.com/life/inside-the-mind/human-brain/human-memory.htm>

Source #2

Read the article about people who participate in memory championships from a 2012 issue of *Appleseeds* magazine.

Memory Masters

by Alice Andre-Clark

Nelson Dellis can look at a deck of cards for 5 minutes and then tell you the order of every single card in 63 seconds.

If you give teenager Sophia Hu a list of random words and let her study it for just 15 minutes, she might remember as many as 120 words.

Dellis and Hu were contestants in the USA Memory Championship, which has been crowning our top "mental athletes" since 1997. At the Memory Championship you start by studying the pictures of 117 strangers for 15 minutes, then try to remember all their names. In 2010, Hannan Khan listed 159 first and last names. Later, try meeting five guests at a pretend tea party and see if you can later recall their names, addresses, pets' names, hobbies, favorite foods, and more.

Think you have a knack for numbers? Try memorizing a sheet of 500 digits. It'll be tough to beat Dellis, who once remembered 248 numbers after only 5 minutes of studying.

Most of our top mental athletes say they weren't born with amazing memories. Brain scientists agree that there's probably nothing physically unusual about the brains of memory champions. They just happen to know a few tricks for keeping a lot of facts in their minds at once. . . .

Building a Memory Palace

Memories get stronger if you associate them with a place. To remember your shopping list, build it a "memory palace." Picture a building you know well, perhaps your own house. Now imagine each item in a different part of the house. Marshmallows strung like pearls, dangling from your mom's jewelry drawer. A graham-cracker fan on the coffee table. Chocolate bars popping out of the toaster.

Person + Action + Object = ?

Need to memorize a long string of numbers? Start by thinking of a person, an action, and an object for each number from 00 to 99. . . .

Now you're ready to learn a bigger number. For 872,936, combine the person from 87 with the action from 29 and the object from 36. . . .

What's in a Name? A Picture

Names can be hard to recall. Words like "mirror" and "table" may bring up lots of memories, but the first time you meet a Peyton or a Mrs. Cohen, you might not associate those words with anything. Change

names just a little, and Cohen becomes "cold hen," an unhappy chicken sitting on a nest filled with ice cubes.

Use pictures to match faces with names too. If Mrs. Cohen has curly red hair, give the hen some fluffy red feathers. Long-necked Peyton ("pay ten") could become a stretched-out ten-dollar bill. Soon you'll rarely forget a name.

Andre-Clark, Alice. (2012, July/August). Memory Masters. *Appleseeds*, pp. 8-11.