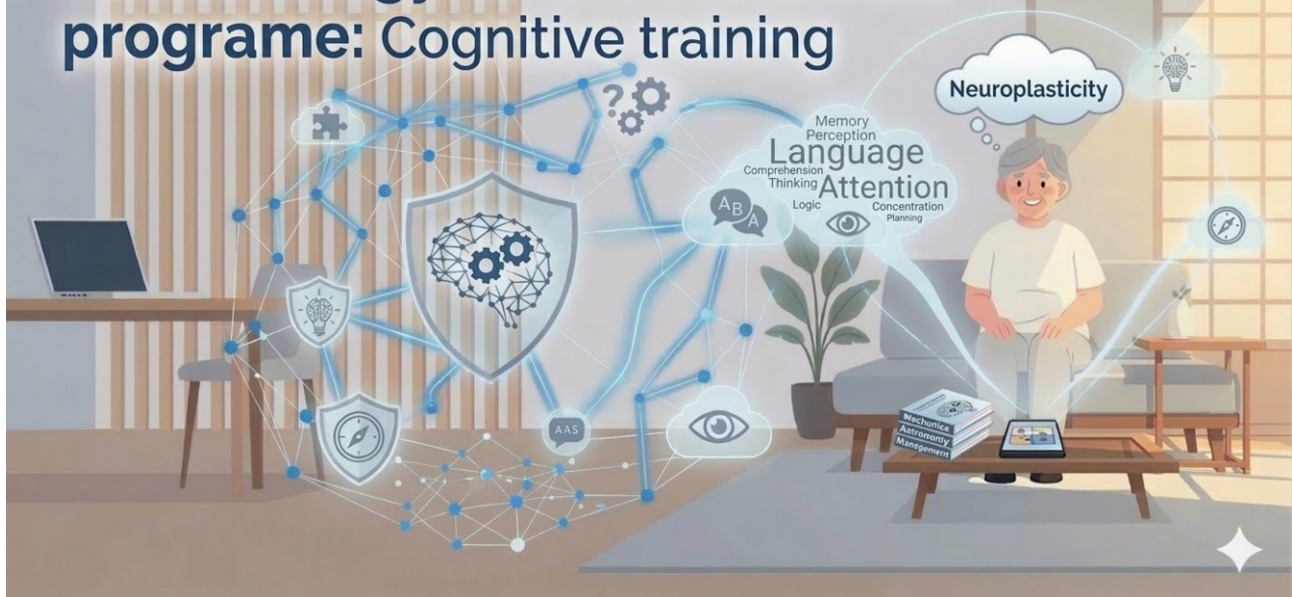


Methodology for the ERASMUS programme: Cognitive training



MEETING – INTRODUCTION

What is cognition and why is it important?

Cognition (from the Latin *cognoscere* – to know, to examine) is a collective term for all mental processes through which a person becomes aware of and understands the world and themselves. In 2025, this concept in psychology and neuroscience is understood as a system that allows us to receive information from the environment and from our own inner world, process it, and subsequently respond to it.

The basic aspects of cognition include:

- **Acquiring information:** Through perception and attention.
- **Processing and storing:** Includes thinking, learning, memory, and the formation of concepts.



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- **Using knowledge:** Manifested in problem solving, decision-making, planning, and language abilities.

In the modern understanding, cognition is not limited only to “cold” logical thinking but also includes **social cognition** – the ability to perceive and interpret the behavior and intentions of other people. The study of cognition is the subject of **cognitive science**, which is an interdisciplinary field connecting psychology, neuroscience, linguistics, and artificial intelligence.

What are cognitive functions?

Cognitive (mental) functions are the basic mental processes that allow us to perceive the world, respond to it, and handle everyday tasks. There are many typologies and psychological approaches, but the foundation consists of these five cognitive functions:

- **Memory:** The ability to store, retain, and recall information.
- **Attention and concentration:** Focusing on specific stimuli and ignoring distracting influences.
- **Speech and language abilities:** Forming sentences, understanding content, fluency of speech, and naming objects.
- **Logical thinking:** The ability to analyze information, look for connections, and use methods such as deduction (from the general to the specific) or induction (from specific cases to a general conclusion).
- **Visuospatial abilities:** Orientation in space, estimating distance, and mentally manipulating objects.

These basic, or primary, cognitive functions are interconnected, and through their interaction higher, or secondary, cognitive functions arise. These include, for example:



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- **Executive functions:** Complex skills for planning, organizing, problem solving, and decision-making.
- **Thinking speed:** The time it takes for the brain to process information and respond to it.
- **Perception:** The interpretation of sensory stimuli, recognition of shapes, sounds, or faces.
- **Planning:** Allows us to set a future goal, determine the necessary steps to achieve it, and arrange them in the correct temporal and logical order. It is a process of “thinking ahead” that helps us manage time and resources efficiently.

Why is it necessary to train our cognitive functions?

Cognitive training is crucial for maintaining mental fitness and overall quality of life. The main reasons include:

- **Prevention of cognitive decline:** Regular stimulation of the brain helps slow natural aging and may delay the onset of symptoms of diseases such as Alzheimer’s disease or dementia.
- **Improvement of neuroplasticity:** The brain has the ability to create new neural connections. Through training, this network is strengthened, leading to faster learning and better information processing.
- **Increased concentration and attention:** Memory training requires focus, which indirectly improves the ability to ignore distracting influences in everyday life.
- **More effective learning:** Practicing memory techniques (e.g., mnemonic devices) allows information to be stored in long-term memory more efficiently.



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What is the relationship between our brain and cognition?

Cognitive functions enable us to manage everyday life. By using our brain, we train it to a certain extent—similar to how we maintain our physical fitness, for example by walking instead of using a car. There are three levels of strengthening cognition:

- **Cognitive stimulation:** Involuntary, unintentional use of our brain. This involves solving everyday tasks (shopping, dealing with offices, transportation, but also active rest and entertainment), which keep our brain in a functional state.
- **Cognitive training:** A targeted activity intended for the “healthy” population; that is, for people whose minds function relatively well but could function even better. This is so-called brain jogging—training brain functions through mental sports (e.g., chess) or mnemonic techniques (methods for remembering large amounts of data and information).
- **Cognitive rehabilitation:** A targeted activity intended for people who, for various reasons, have developed a cognitive deficit, i.e., a weakening and disruption of cognitive functions (most often due to injury or illness).

Why does our brain not function as well as it could / should?

There are many reasons why our cognitive performance declines. They can be divided into two categories:

- **Internal (endogenous) causes** – determined by our body
 - aging
 - traumatic damage (injuries, falls, blows to the head...)
 - chronic illness (neurological, mental, neurodegenerative...)
- **External (exogenous) causes** – come to us as consequences of environmental influences



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- fatigue
- stress
- passivity
- medication, alcohol, drugs
- one-sided focus in employment
- information overload

SUMMARY:

- cognition is a collective term for the ability to receive and process both internal and external information
- there are 5 basic cognitive functions: speech, memory, spatial imagination, attention, and logic (mnemonic: ŘEPA PRO POLE)
- we all need to train our brain
- cognitive performance can be impaired by illness, injury, or stressful influences from the environment



ŘE	• řeč
PA	• paměť
PRO	• prostorová představivost
PO	• pozornost
LE	• logická exekutiva



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EXERCISES (work individually or in a group)

1. Try to come up with a mnemonic aid to remember the elements of Group I.A of the Mendeleev periodic table – create a logical sentence in which each word begins with the letter of the given element.

I. A

II. A

III. A

IV. A

V. A

VI. A

VII. A

VIII. A

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

1,0079
1H
Vodík

6,94
3Li
Lithium

22,99
11Na
Sodík

39,10
19K
Draslík

85,47
37Rb
Rubidium

132,91
55Cs
Cesium

~223
87Fr
Francium

9,01
4Be
Beryllium

24,31
12Mg
Hořčík

40,08
20Ca
Vápník

87,62
38Sr
Stroncium

137,33
56Ba
Barium

226,03
88Ra
Radium

alkalické kovy

kovy alkalických zemin

přechodné kovy

kovy

polokovy

nekovy

halogeny

vzácné plyny

10,81
5B
Bor

26,98
13Al
Hliník

12,01
6C
Uhlík

28,09
14Si
Křemík

14,01
7N
Dusík

30,97
15P
Fosfor

16,00
8O
Kyslík

32,06
16S
Síra

19,00
9F
Fluor

20,18
10Ne
Neon

39,95
18Ar
Argon

72,61
32Ge
Germanium

118,71
50Sn
Cín

121,75
51Sb
Antimon

127,60
52Te
Tellur

126,90
53I
Jod

131,29
54Xe
Xenon

74,92
33As
Arsen

127,60
52Te
Tellur

208,98
83Bi
Bismut

~209
84Po
Polonium

~210
85At
Astat

~222
86Rn
Radon

78,96
34Se
Selen

127,60
52Te
Tellur

208,98
83Bi
Bismut

~209
84Po
Polonium

~210
85At
Astat

~222
86Rn
Radon

79,90
35Br
Brom

126,90
53I
Jod

208,98
83Bi
Bismut

~209
84Po
Polonium

~210
85At
Astat

~222
86Rn
Radon

83,80
36Kr
Krypton

131,29
54Xe
Xenon

208,98
83Bi
Bismut

~209
84Po
Polonium

~210
85At
Astat

~222
86Rn
Radon

204,38
81Tl
Thallium

207,20
82Pb
Olovo

208,98
83Bi
Bismut

~209
84Po
Polonium

~210
85At
Astat

~222
86Rn
Radon

206,97
80Hg
Rtuť

197,02
79Au
Zlato

196,97
78Pt
Platina

195,08
77Ir
Iridium

192,22
76Os
Osmium

190,20
75Re
Rhenium

186,21
74W
Wolfram

183,85
73Ta
Tantal

180,95
72Hf
Hafnium

178,49
71Yb
Ytterbium

176,93
70Yb
Ytterbium

174,90
69Tm
Terbium

173,05
68Er
Erbium

171,90
67Lu
Lutetium

169,93
66Dy
Dysprosium

167,93
65Tb
Terbium

165,93
64Gd
Gadolinium

163,93
63Eu
Europium

161,93
62Sm
Samarium

158,93
61Pm
Prometium

156,93
60Nd
Neodym

154,94
59Pr
Praseodym

152,94
58Ce
Cer

150,94
57La
Lanthan

148,92
56Ba
Barium

146,91
55Cs
Cesium

144,91
54Xe
Xenon

142,91
53I
Jod

140,91
52Te
Tellur

138,91
51Sb
Antimon

136,91
50Sn
Cín

134,91
49In
Indium

132,91
48Cd
Kadmium

130,91
47Ag
Stříbro

128,91
46Pd
Palladium

126,91
45Rh
Rhodium

124,91
44Ru
Ruthenium

122,91
43Tc
Technecium

120,91
42Mo
Molybden

118,91
41Nb
Niobium

116,91
40Zr
Zirkonium

114,91
39Y
Yttrium

112,91
38Sr
Stroncium

110,91
37Rb
Rubidium

108,91
36Kr
Krypton

106,91
35Br
Brom

104,91
34Se
Selen

102,91
33As
Arsen

100,91
32Ge
Germanium

98,91
31Ga
Gallium

96,91
30Zn
Zinek

94,91
29Cu
Měď

92,91
28Ni
Nikl

90,91
27Co
Kobalt

88,91
26Fe
Železo

86,91
25Mn
Mangan

84,91
24Cr
Chrom

82,91
23V
Vanad

80,91
22Ti
Titan

78,91
21Sc
Skandium

76,91
20Ca
Vápník

74,91
19K
Draslík

72,91
18Ar
Argon

70,91
17Cl
Chlor

68,91
16S
Síra

66,91
15P
Fosfor

64,91
14Si
Křemík

62,91
13Al
Hliník

60,91
12Mg
Hořčík

58,91
11Na
Sodík

56,91
10Ne
Neon

54,91
9F
Fluor

52,91
8O
Kyslík

50,91
7N
Dusík

48,91
6C
Uhlík

46,91
5B
Bor

44,91
4Be
Beryllium

42,91
3Li
Lithium

40,91
2He
Helium

104Rf

105Db

106Sg

107Bh

108Hs

109Mt

110Ds

111Rg

112Cn

113Uut

114Fl

115Uup

116Lv

117Uus

118Uuo

Rutherfordium

Dubnium

Seaborgium

Bohrium

Hassium

Meitnerium

Darmstadtium

Roentgenium

Copernicium

Ununtrium

Flerovium

Ununpentium

Livermorium

Ununseptium

Ununoctium

Solution: Helenu Líbal Na Koleno Robustní Cestář František / Hana Lízala Na-nuK Ragby Česko – Francie



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SeniorTip

2. You have one minute to memorize as many items as possible from the following picture. Then cover it and try to write down all 16.



Solution: divide the items into smaller groups (categories), then you will recall them more easily:

**category
PROFESSIONS**

painter/decorator
nurse
firefighter
garbage collector

**category
SPORTS**

hockey
badminton
football
fencing

**category
KITCHEN**

apron
grater
stove
cutting board

**category
FOODS**

cheese
apples
cucumber
eggs



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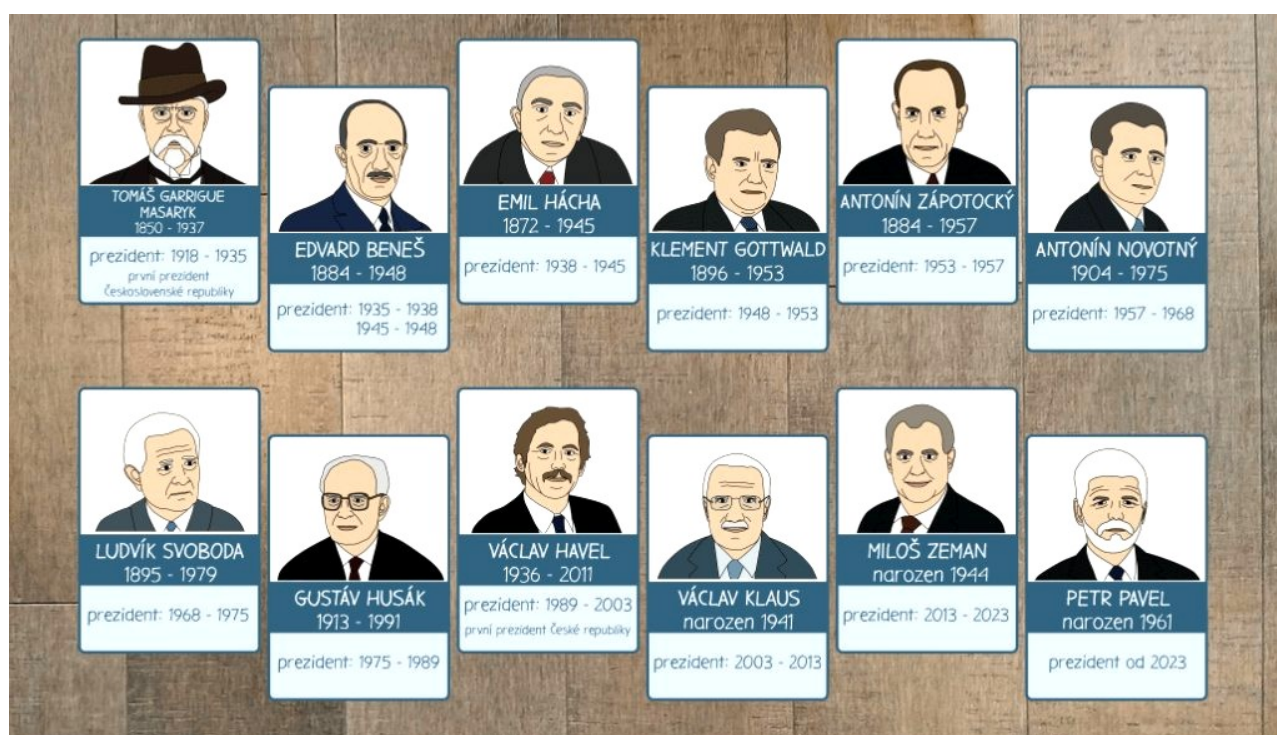
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3. Can you recall the Czechoslovak and Czech presidents in the order they followed one another?

Solution: Tomáš Garrigue Masaryk, Edvard Beneš, Emil Hácha, Klement Gottwald, Antonín Zápotocký, Antonín Svoboda, Gustáv Husák, Václav Havel, Václav Klaus, Miloš Zeman, Petr Pavel



4. Can you recall the names of all the presidents of the Third Polish Republic (i.e., since 1989)?

Solution: Wojciech Jaruzelski, Lech Wałęsa, Aleksander Kwaśniewski, Lech Kaczyński, Bronisław Komorowski, Andrzej Duda, Karol Nawrocki

PREZYDENCI POLSKI PO 1989 ROKU



Wojciech Jaruzelski
1989–1990



Lech Wałęsa
1990–1995



Aleksander Kwaśniewski
1995–2005



Lech Kaczyński
2005–2010



Bronisław Komorowski
2010–2015



Andrzej Duda
2015–2025

MEETING – MEMORY

Memory is the ability of the brain to receive, store, and recall information for immediate as well as later processing. People often associate cognitive difficulties specifically with memory, because these symptoms are most noticeable in it. In reality, however, memory problems often primarily conceal a disorder of attention (i.e., we do not focus on what we need to remember).

There are several perspectives on the typology of memory, for example classification according to the duration of storage:

- **Sensory:** Lasts fractions of a second (inputs from the senses).
- **Short-term (working):** Stores information for 15–30 seconds (e.g., a phone number before you write it down).



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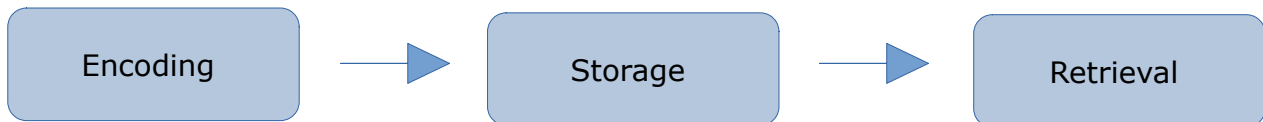


- **Long-term:** Has theoretically unlimited capacity and lasts for years. It is divided into explicit (facts, experiences) and implicit (skills, e.g., riding a bicycle).

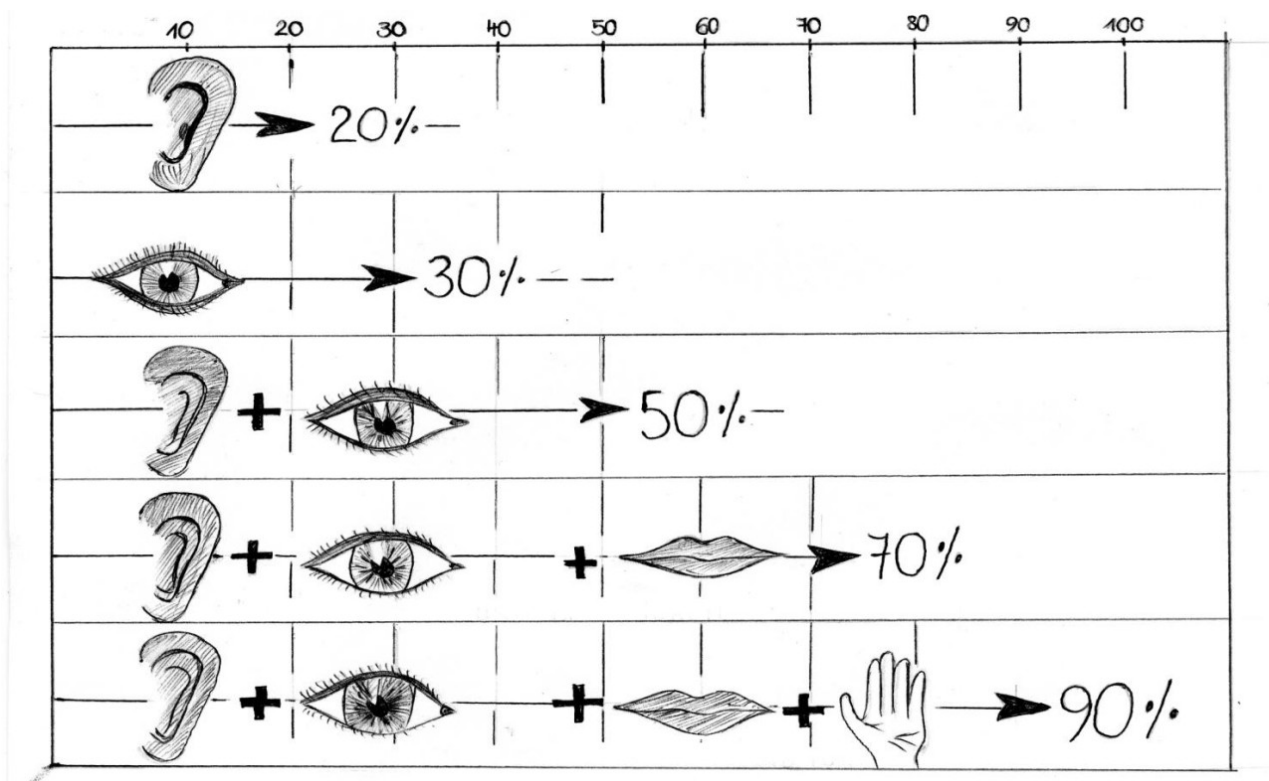
Typology of memory according to the form of encoding:

- **Mechanical** (typical in schooling, the least effective, unmotivated)
- **Logical** (according to systematic procedures, often subconscious)

The memory process has 3 phases:



The more senses we involve, the better the result will be. Therefore, it is good to write down information that we hear (touch) and read it aloud (sight).



Based on scientific research using the most modern functional magnetic resonance imaging devices, there has recently been a fundamental shift in the view of brain development. The results of the research showed that the brain is flexible—neuroplastic—and that developmental changes occur throughout life, which means it is able to learn and improve even at an advanced age. It only needs new stimuli to be presented in a form that is close and understandable to it.

LINKS

https://www.youtube.com/watch?v=Yt3GVbH_uuE

EXERCISES (work individually)

1. Can you recall the personalities on Czech banknotes? (unintentional memory)



Solution:

5000 Kč: Tomáš Garigue Masaryk

2000 Kč: Ema Destinová

1000 Kč: František Palacký

500 Kč: Božena Němcová

200 Kč: Jan Amos Komenský

100 Kč: Karel IV.

2. Can you recall the personalities on Polish banknotes? (unintentional memory)**Solution:**

500 złoty: Jan III Sobieski

200 złoty: Zygmunt I Stary

100 złoty: Władysław II Jagiełło

50 złoty: Kazimierz III Wielki

20 złoty: Bolesław I Chrobry

10 złoty: Mieszko I



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2. Can you recall all the Czech regions? And their regional capitals? (knowledge memory)



Hlavní město Praha: Praha

Středočeský kraj: Praha

Jihočeský kraj: České Budějovice

Plzeňský kraj: Plzeň

Karlovarský kraj: Karlovy Vary

Ústecký kraj: Ústí nad Labem

Liberecký kraj: Liberec

Královéhradecký kraj: Hradec Králové

Pardubický kraj: Pardubice



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Kraj Vysočina: Jihlava

Jihomoravský kraj: Brno

Olomoucký kraj: Olomouc

Moravskoslezský kraj: Ostrava

Zlínský kraj: Zlín

3. Can you recall all Polish voivodeships? And their capitals? (knowledge memory)



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Lower Silesian Voivodeship – Wrocław
Kuyavian-Pomeranian Voivodeship – Bydgoszcz and Toruń
Lublin Voivodeship – Lublin
Lubusz Voivodeship – Gorzów Wielkopolski and Zielona Góra
Łódź Voivodeship – Łódź
Lesser Poland Voivodeship – Kraków
Masovian Voivodeship – Warsaw
Opole Voivodeship – Opole
Subcarpathian Voivodeship – Rzeszów
Podlaskie Voivodeship – Białystok
Pomeranian Voivodeship – Gdańsk
Silesian Voivodeship – Katowice
Świętokrzyskie Voivodeship – Kielce
Warmian-Masurian Voivodeship – Olsztyn
Greater Poland Voivodeship – Poznań
West Pomeranian Voivodeship – Szczecin

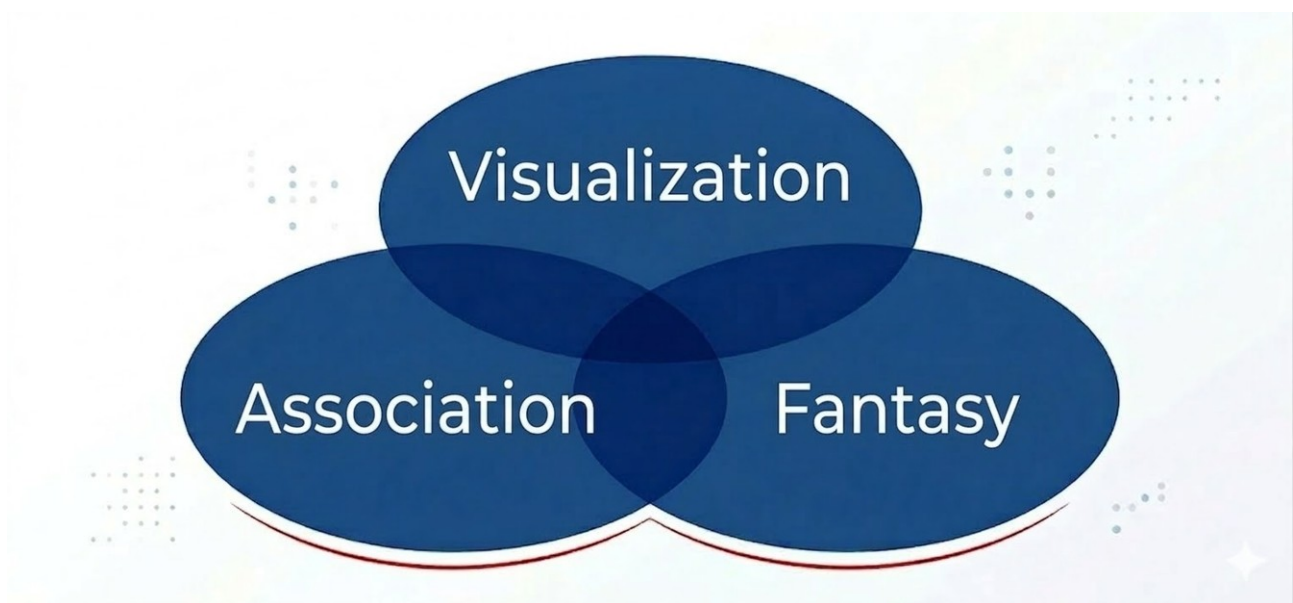
4. Try to memorize the following number: DDMMYYHHMMHHMM (mnemonics)

For example: 16122513001530

Solution: it represents the date and time of a meeting, i.e., 16.12.2025, 13:00 – 15:30.

MEETING – MNEMONIC TECHNIQUES

Mnemonic techniques (from the Greek *mnémé* – memory and *téchné* – art) are mental tools that use imagination, associations, and spatial visualization to store abstract information in memory. They function as a “glue for information” that connects new knowledge with what we already know. Thanks to this, it is possible to store, retain, and recall data, numbers, or lists in a way that makes them easier for our memory to grasp and therefore more effectively usable. The use of mnemonic techniques needs to be practiced – then we gain speed and confidence in them. They are based on three pillars that intertwine with one another:



Number–Shape System

Creating associations based on similarity of shapes with other objects and then placing them into a meaningful story. This story needs to be mentally imagined and visualized – which anchors it in memory.

Example phone number: 774 452 039

Two reapers with scythes (7,7) were already tired in the meadow, so they sat down on two small chairs (4, 4) and looked around the landscape. They saw a swan (2) floating on a lake (0), and a woman in a swimsuit with a voluptuous bust (3) who was playing with a badminton racket (9) on the sandy shore.

Examples of associations:

1. whip, candle, pencil
2. swan, snake
3. bust, handcuffs, double chin
4. small chair, table, yacht
5. hook, five fingers of a hand, staple
6. elephant's trunk, golf club
7. scythe, axe, fishing rod
8. snowman, hourglass
9. tennis racket, tadpole, flag
10. lake, egg, ball

Number–Association System

Creating associations based on one's own meanings or values and then placing them into a meaningful story. By recalling a specific image connected with the numbers, we reconstruct the entire piece of information.



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Example phone number: 603 321 153

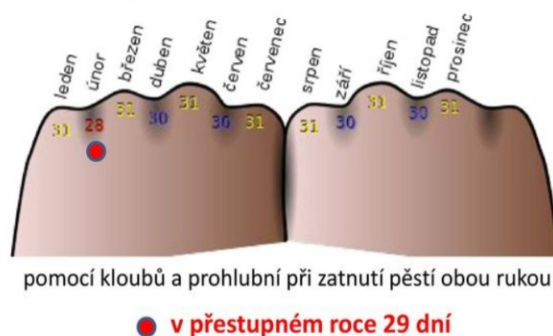
The Tatra **603** was a government vehicle that had **3** headlights at the front, **2** holders for state flags on the fenders, and **1** "fish fin" on the rear of the body. The first model was produced in the year (19)**53**.

Memory Paths

Spatial visualization in a familiar environment, sometimes also referred to as "LOCI," consists of mentally placing important information in well-known locations or schemes – a bicycle, one's own apartment, a garden, or one's own body. It can also be effective to use attractive spaces, unusual or even nonsensical places, or to assign them unusual or even absurd activities. The mental images themselves should ideally be reinforced by emphasizing specific manipulation of them within the given environment.

Example: determining the number of days in a month using the knuckles of the fingers:

The knuckles (the tops) have 31 days, the spaces between the knuckles (the valleys) have 30 (except for February). January is the first knuckle (31), February the gap (28/29), March the next knuckle (31), etc. On the left hand we have January (knuckle), February (gap), March (knuckle), April (gap), May (knuckle), June (gap), July (knuckle). Then we move to the right hand: August (knuckle), September (gap), October (knuckle), November (gap), December (knuckle).



EXERCISE (work independently)

1. Use the number–shape system technique to memorize the phone number: 777 703 414

Solution: A Boeing 777 circled the Earth 7 times, never crashed (0), and landed only 3 times. The pilot was 1, because he always had 4 stewards and 4 stewardesses around him.

2. Together, come up with 9 things that you must not forget to take with you on vacation and place them in specific locations on a bicycle (e.g., glasses under the front tire, documents by the front white light, etc.). After some time, try to recall the items using the Memory Path technique.

1. front tire
2. front headlight
3. handlebars
4. top frame
5. bicycle bag
6. saddle
7. rear light
8. rear gear wheel
9. pedals



MEETING – ATTENTION

Another cognitive function of the brain is attention. In psychology, it is defined as a cognitive process that enables the selective focus of consciousness on certain stimuli, while others are suppressed.

There are several types of attention:

- **Involuntary (unintentional):** Triggered by noticeable or new stimuli (e.g., a loud sound), it occurs automatically. It is a subconscious reaction to an unusual stimulus, or a response to possible danger.
- **Intentional (voluntary):** Requires conscious effort and concentration on a specific task or goal. It involves maintaining focus on information so that we can understand it and remember it. It usually lasts up to about 60 seconds because it is energetically demanding.
- **Selective:** The ability to ignore various distracting influences and choose one stimulus from many (known as the cocktail party phenomenon – the ability to hear one's name in a noisy crowd or when studying, for example, while loud music is playing).
- **Divided (distribution):** The ability to engage in several activities at the same time (e.g., driving a car and talking). It is often referred to as multitasking, meaning solving several problems at once and the ability to switch mentally from one task to another and back.

Attention has certain measurable properties that indicate the state of our attention:

- **Concentration:** The strength or intensity of focus on a limited number of stimuli.

- **Capacity:** The range of stimuli that we are able to perceive at the same time.
- **Stability:** The length of time we can maintain attention (the highest level of concentration usually lasts only 30–90 seconds, after which oscillation and the need to refocus occur).
- **Oscillation (fluctuation):** Regular short-term fluctuations in the intensity of attention.

Attention is a fundamental building block of cognition, essential for perception, memory, and decision-making. Its dysfunction manifests itself in all other cognitive components (for example, due to impaired attention, information from the environment is not perceived correctly, which we then store in memory inefficiently, so it may seem that our main problem is memory). Therefore, it is always advisable to first determine what the essence of our cognitive problems is, i.e., which cognitive function is impaired and to what extent.

A basic recommendation for rehabilitating our attention is the so-called information detox = minimizing the watching of television news on commercial TV, updates on social media, tabloid reporting, etc., because all of this distracts our attention and keeps it in a permanent state of readiness to process negative stimuli.

LINKS

https://www.youtube.com/watch?v=IGQmdoK_ZfY&t=1s

<https://www.youtube.com/watch?v=bnnmWYI0IM>

EXERCISES

1. For each picture, find the missing cat that appears only in the three remaining ones.

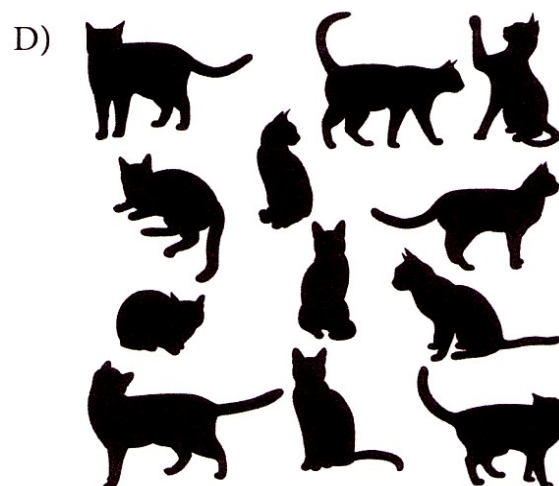
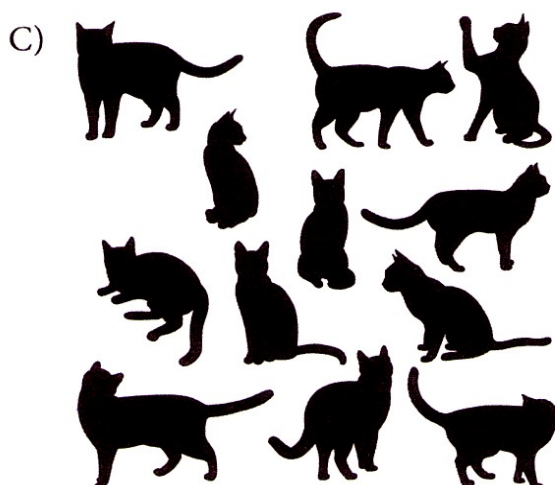
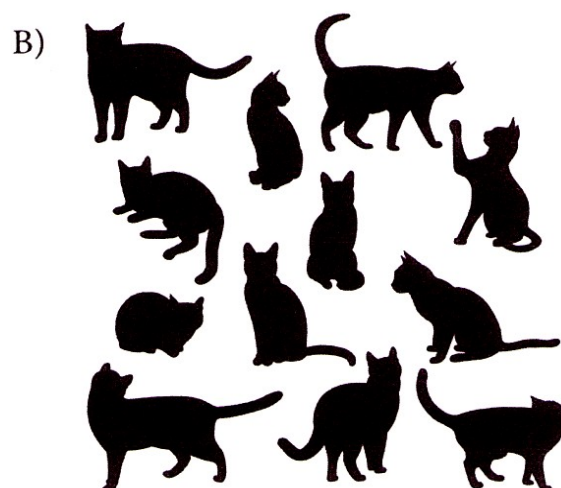
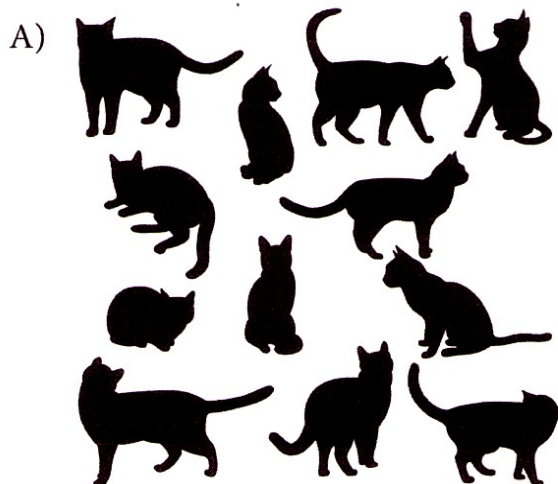


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Solution:



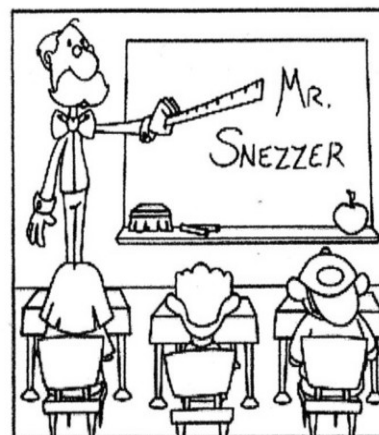
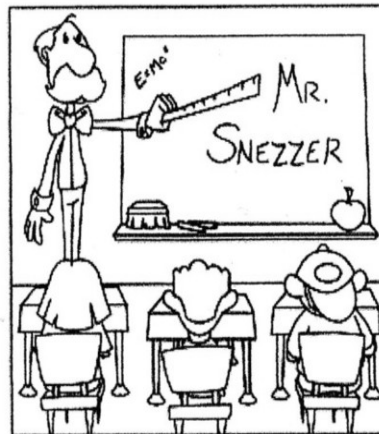
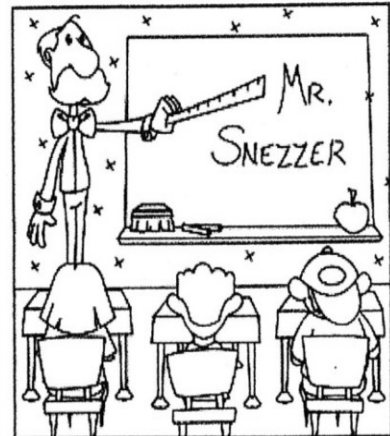
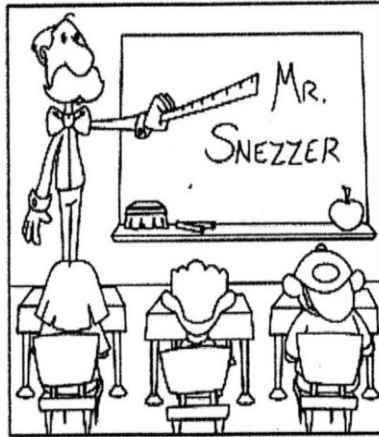
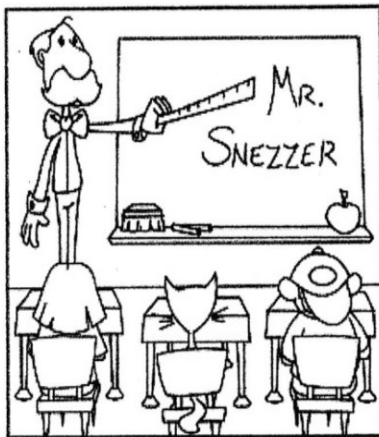
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2. From the following pictures, choose two that are identical. Pay attention to the details.



Solution: pictures B i F



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SeniorTip

MEETING – SPEECH FUNCTIONS

Speech is an articulated, most often vocal expression of a person used primarily for mutual communication. In the context of cognitive rehabilitation, this refers not only to active speaking but also to the perception and understanding of communicated information. In other words, speech is a verbalized flow of thoughts. When using language, we first transform a thought into words, sentences, and finally pronounce it. At the same time, however, we must also be able to understand and receive information communicated by others. This area therefore also includes the comprehension of written text.

All activities related to speech are controlled by the brain. In the cerebral cortex there is a speech center, and from there complex coordinated signals are sent to the muscles of the lungs, larynx, tongue, and face, while for speech production the activity of the facial muscles is apparently more important than that of the larynx. Physiology may not play the main role, but rather the brain is decisive.

When problems with verbal functions occur, it is primarily necessary to determine their cause and, in the case of cognitive causes, adapt the subsequent therapy accordingly.

In general, however, speech exercises are very popular in society. At the same time, it should be noted that whether they involve crosswords, word searches, fill-in puzzles, etc., they must be highly difficult for the solver; otherwise, their rehabilitative effect disappears completely. This means, for example, finding a crossword puzzle in a foreign language and solving it using a dictionary. It does not matter at all if instead of 5 minutes you spend 5 hours on it – on the contrary, for your brain it will be a much more effective form of training.

A simple exercise whose effectiveness has been proven by scientific studies is also simply reading aloud. It is based on the fact that when reading aloud we connect a number of centers of complex functions in our brain: we convert vi-

sual information (printed text) through sensory perception into the brain, where it is processed, understood, and then articulated. This is additionally accompanied by intonational correction of the speech we hear. The result is very intensive involvement of overall brain activity (many people are unable to read aloud and at the same time remember the text they are reading).

CVIČENÍ

1. Come up with a coherent and meaningful story in which all the words begin with the letter P.

Solution: Podzimní pražský park. Páteční polední pohoda. Poletující pěnkavy pějí, plot porůstá přísavník, pomněnky předvádí pozoruhodnou paletu, platanům praskají plody. Přednosta policejního prezidia, podplukovník Petr Prouza, pozvolna přešel přes potok. Pohlédl pod prkna, plivl po potápkách, poklidně plujících podél pilířů. Potkal povědomou postavu, plešatého prokuristu plzeňské pobočky pivovaru Prazdroj, pana Pavla Pistoriuse (pořádného pijana); pouze pokývl, přestože Pistorius pozdravil pozdviženou pravicí. Přemýšlel...

Pepa, pracovitý pekarz, piekł pięćdziesiąt pysznych pączków. Przyszedł przyjaciel Paweł, poprosił: „Pepo, pożycz parę pączków, pospiesznie potrzebuję poczęstunku”. Pepa przytaknął, podał Pawłowi pączki w papierowym pudełku.

Potem Pepa podziwiał przez przeszklony portal piękną pannę Paulinę. Paulina piła perlisty, pomarańczowy płyn, podjadała pistacje i przeglądała pstrokaty poradnik. „Piękna postać”, pomyślał Pepa.

Paulina popatrzyła prosto na Pepę. „Pepo, proszę, podaj puszyste placementy”, poprosiła panna. Pepa pośpiesznie przygotował półmisek, posypał pieczywo pu-



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drem, położył poziomki i podarował Paulinie. „Perfekcyjne, Pepo!” pochwaliła Paulina. Pepa poczuł prawdziwą poezję. Praca piekarza przynosi powszechny podziw.

2. Who does not know the game “CITY, NAME, ANIMAL, THING, PLANT”? But in the variant with the last letter, for example with the letter “V”?

CITY	NAME	ANIMAL	THING	PLANT

Solution:

Přerov, Kyjov, Trutnov..

Václav, Rostislav, Gustav.

páv, lev, vlkodav..

pánev, okov, obuv..

vikev, mrkev, tykev..

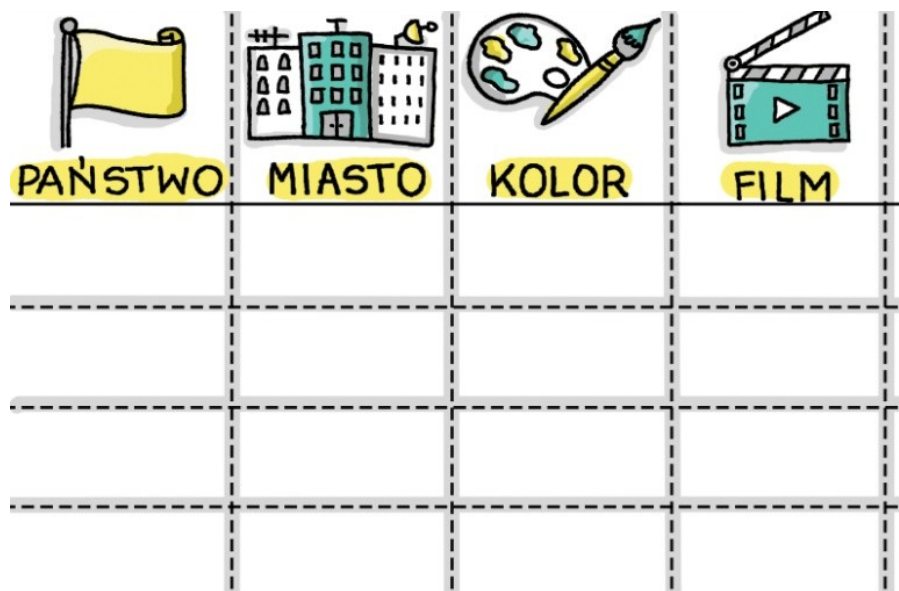


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3. Who does not know the game "COUNTRY, CITY, COLOR, FILM, BIRD"? But in the variant with the last letter, for example with the letter "R"?



Solution:

Ekwador, Madagaskar, Niger..

Malbork, Jawor, Sambor..

Ultramar..

Amator (1979), Kiler (1997), Kurier (2019)..

Kondor Koliber Kaczor.

MEETING – LOGIC

Logic, also referred to as executive function, is understood in the context of cognitive functions as the chain of thought that led to given conclusions. It is essentially a set of thought processes used in problem solving, decision-making, adapting to changing conditions, or tracing sequences and processes.

The sequential steps in problem solving (so-called executive functioning) are:

1. Defining the problem (What is the problem?)
2. Considering or gathering all possible solution alternatives (What can I do to solve the problem?)
3. Selecting the best solution alternative (Is this chosen solution the best possible one?)
4. Implementing the action plan (Practical application of the selected solution to the problem.)
5. Evaluation and monitoring, if necessary (Was my solution effective, i.e., was the problem solved?)

If executive functions do not work properly, this may manifest, for example, in problems with time organization and planning, inability to start or complete a task, difficulties maintaining attention, and emotional instability (quick frustration due to the inability to solve a given problem).

Logic is also a formal science that studies precisely this method of drawing conclusions. Like many other sciences, logic originated as a part of philosophy. Logic was later also used in mathematics, which led to the emergence of mathematical logic as a separate branch. Logic also has important applications in computer science.



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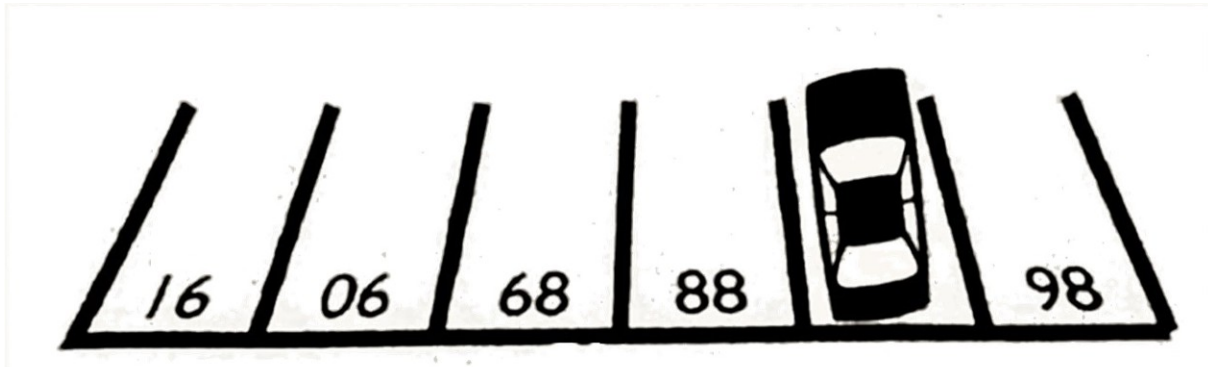
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EXERCISE

1. What is the number of the parking space under the car?



Solution: Number 87 – just turn the picture upside down.

2. Look at the following picture and answer the questions:

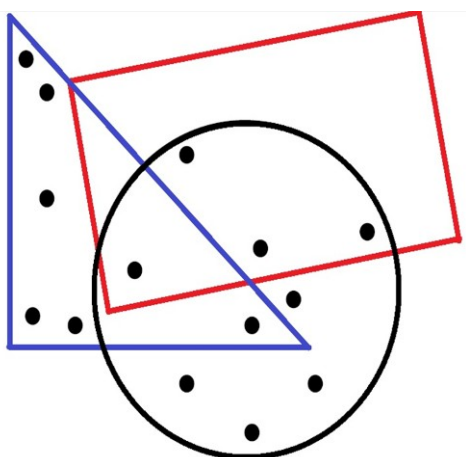


1. How many people have set up camp at the campsite?
2. Did they arrive today, or have they been camping for a few days already?
3. How did they get to the campsite?
4. Is there a town or village near the campsite?
5. Is it morning, noon, afternoon, or evening?
6. What is Alex doing?
7. Who was on duty yesterday?
8. What day of the month is it?

Solutions:

1. 4 people in the camp (4 teaspoons, 4 plates)
2. They have been camping for a longer time (a spider web on the tent rope)
3. They arrived by boat (oars and paddles leaning against the tree)
4. There must be a village nearby (a chicken in the lower left)
5. It is noon (James's shadow is vertical, therefore the sun is at its highest point)
6. Alex is catching butterflies (Peter is cooking, Colin is packing a backpack, James is taking photographs)
7. Colin was on duty yesterday (Peter is cooking today; according to the schedule, Colin's duty preceded it)
8. Today is the 8th (because according to the schedule Peter is supposed to cook on the 8th)

3. How many dots are inside both the circle and the rectangle at the same time? And how many dots are shared by all three shapes?



Solution: There are 4 dots that are inside both the circle and the rectangle at the same time. Only one single dot is common to all three shapes.



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MEETING – SPATIAL IMAGINATION

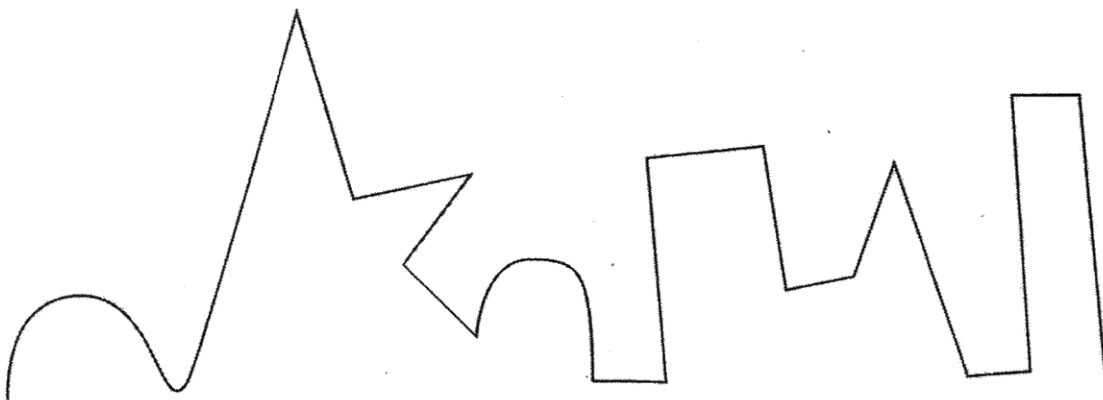
Spatial orientation is one of the basic components of functioning (survival) in the outside world. In a broader sense, it involves not only determining a physical position or direction, but also recognizing one's (own) place, meaning, or adopting a standpoint. It is the ability to mentally manipulate two-dimensional and three-dimensional objects.

Psychologists classify the following under spatial imagination:

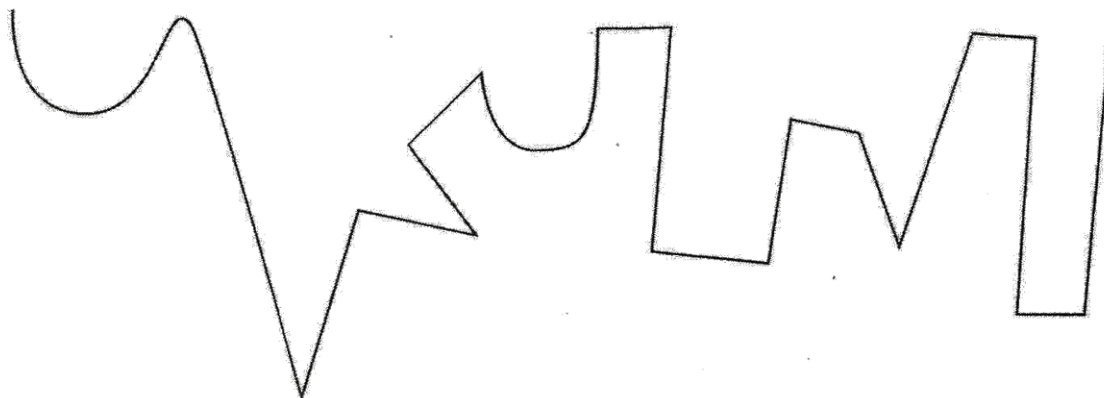
- visual-constructive abilities (the abstract level of diagrams, sketches, instructions, etc.)
- visual-motor abilities (the physical level of practical manipulation with objects, bodies, etc.)
- perceptual abilities (the ability to receive, sort, and process stimuli from the external and internal environment using the sensory organs)

EXERCISE

1. Redraw the following line as its mirror image (as if you flipped it from top to bottom).

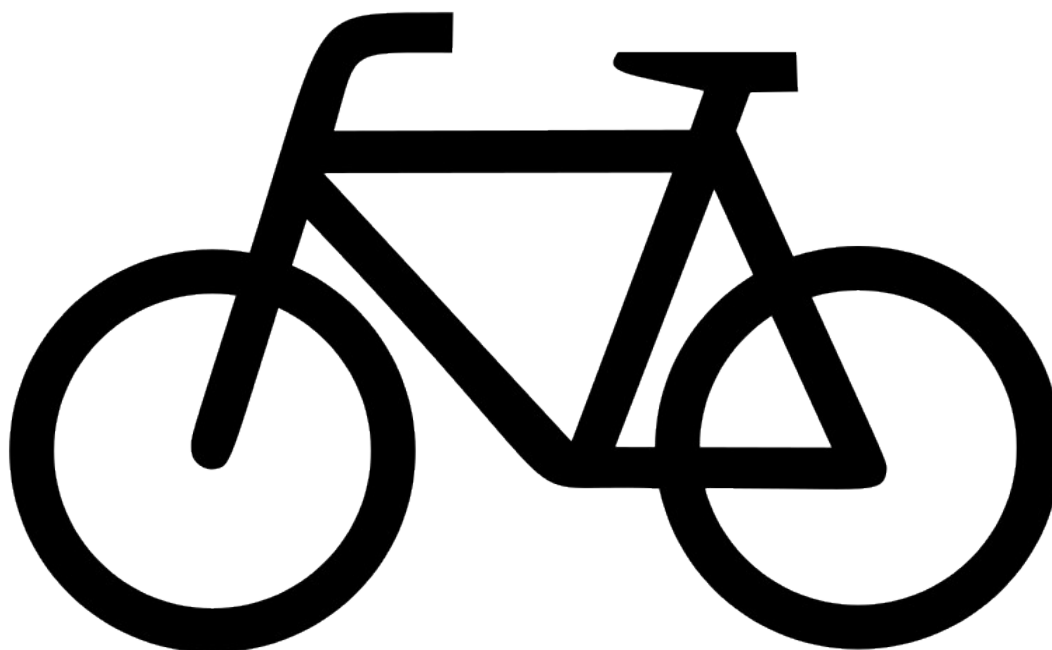


Solution:



2. Can you draw a bicycle from memory? A schematic drawing is enough – frame, fork with handlebars, wheels.

Solution:



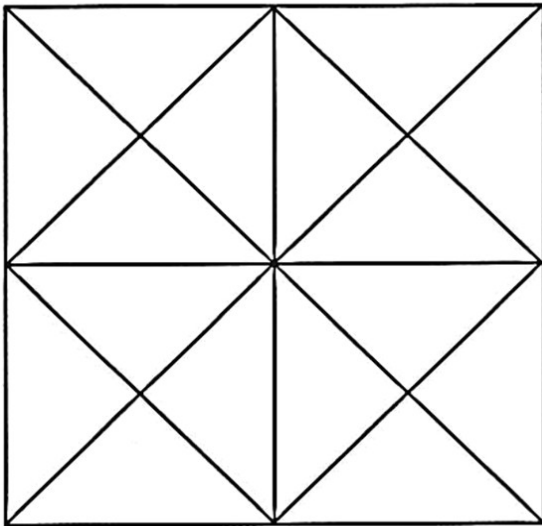
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3. Count how many squares are in the following picture:



Solution: 9 squares (1 main outer square, 4 smaller ones, 1 main outer square rotated by 45° , 4 smaller ones rotated by 45°).



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