Multimedia Learning

Wiebe Dijkstra

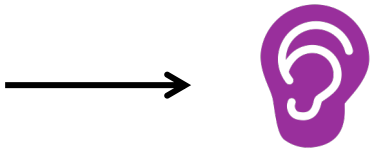
Words  

Dual coding

Dual coding

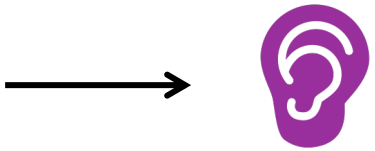
Word

Dual coding

Word 

Dual coding

Word



Sensory memory

Dual coding

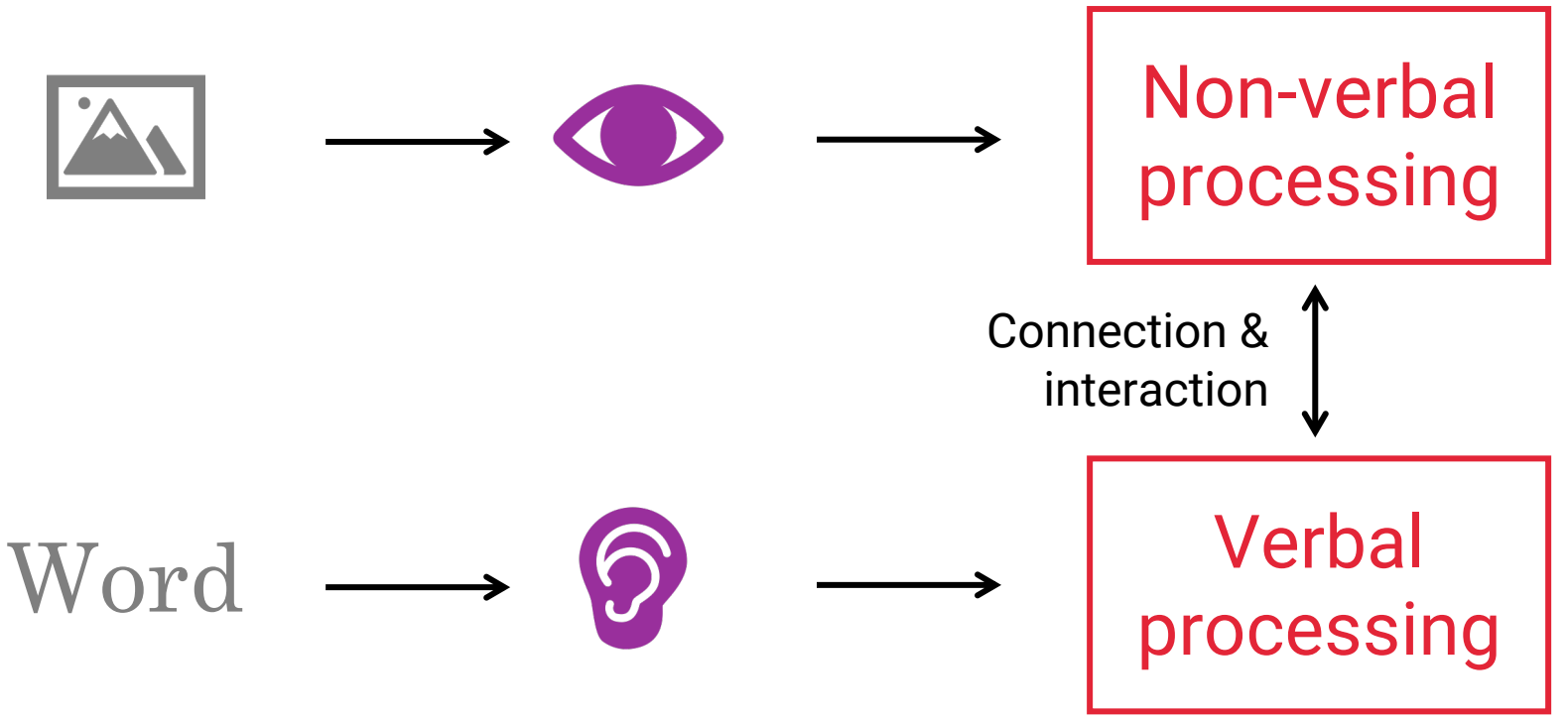
Non-verbal processing

Word

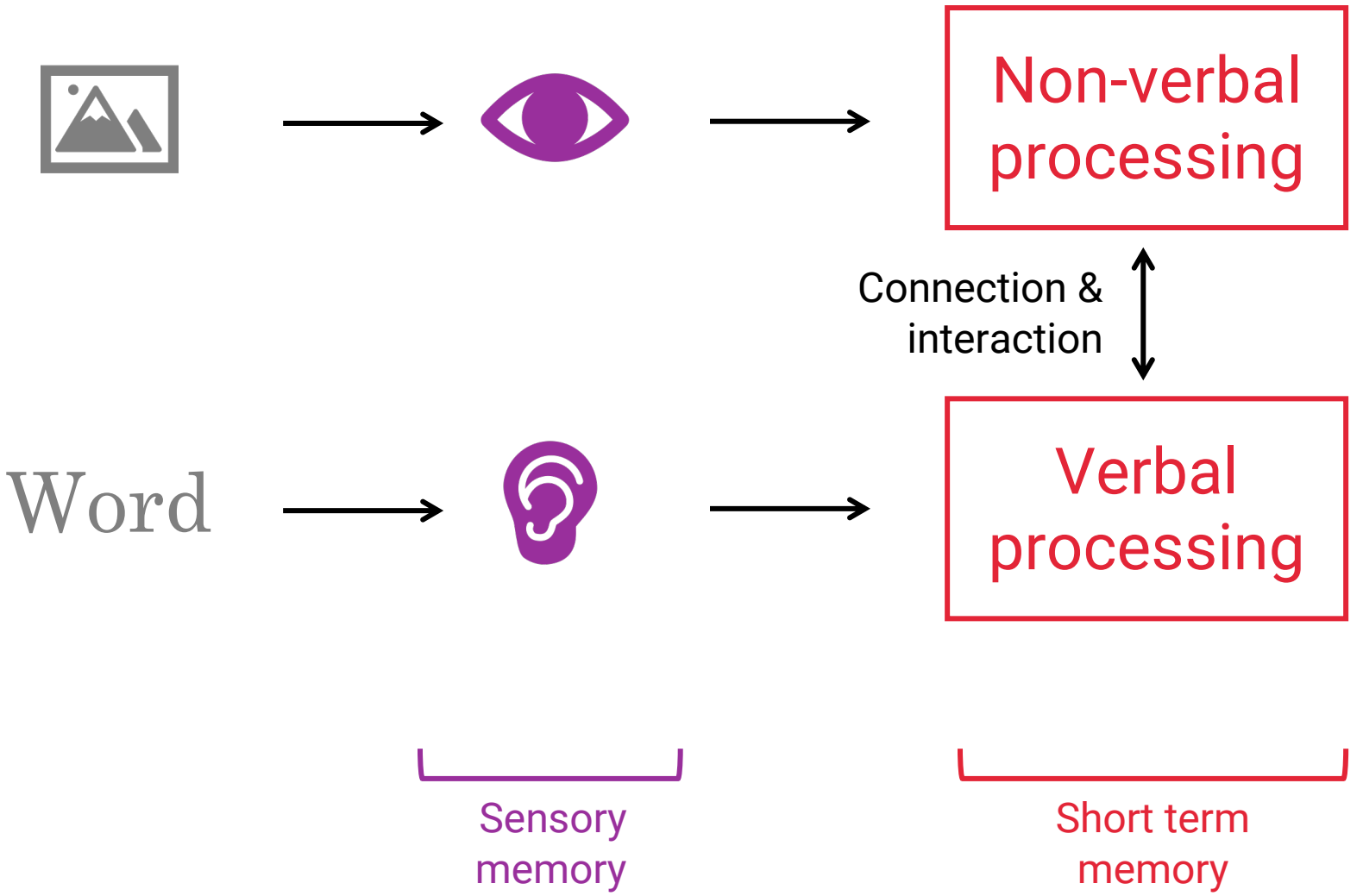
Verbal processing

Sensory memory

Dual coding


Non-verbal processing
Connection & interaction
Word
Verbal processing
Sensory memory

Dual coding


Non-verbal processing
Connection & interaction
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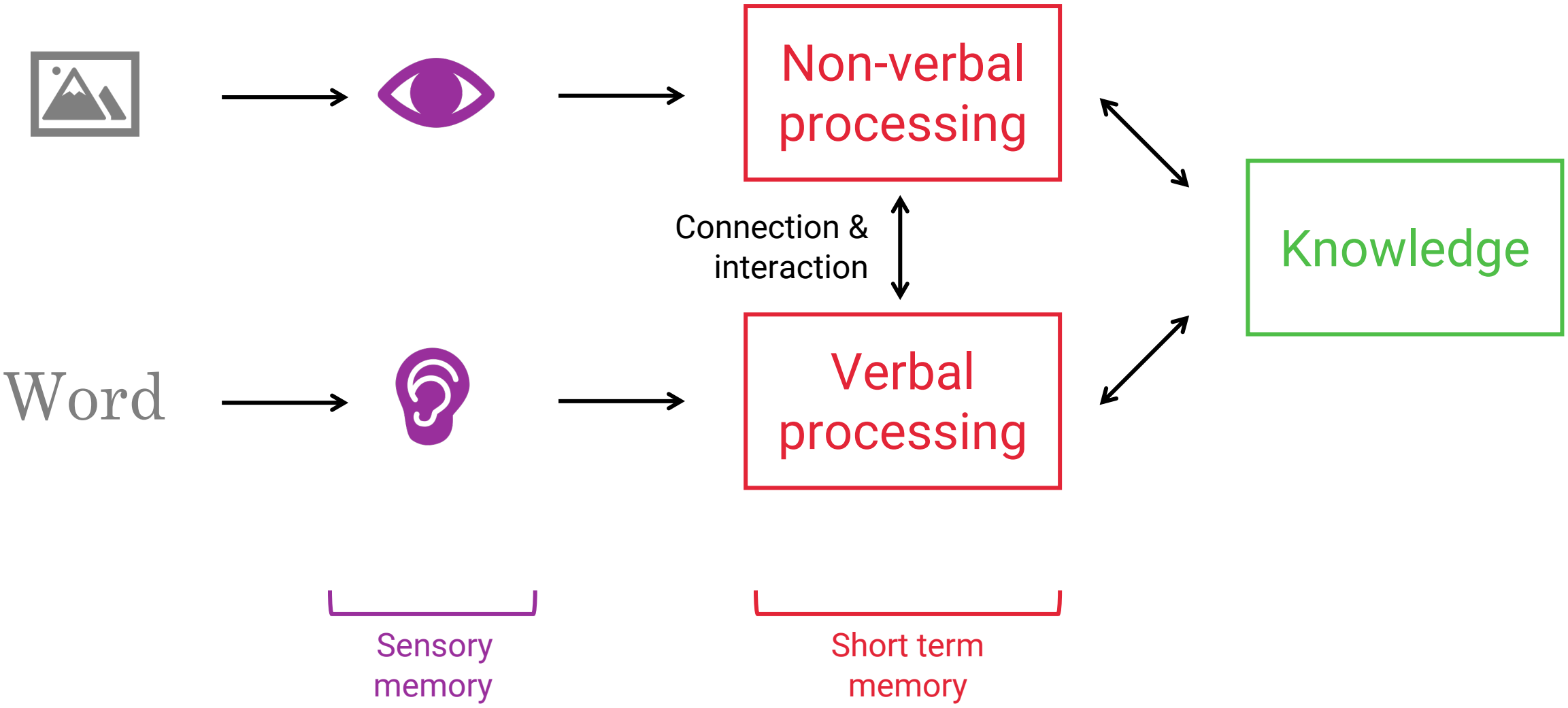
Sensory memory
Short term memory

Dual coding


Non-verbal processing
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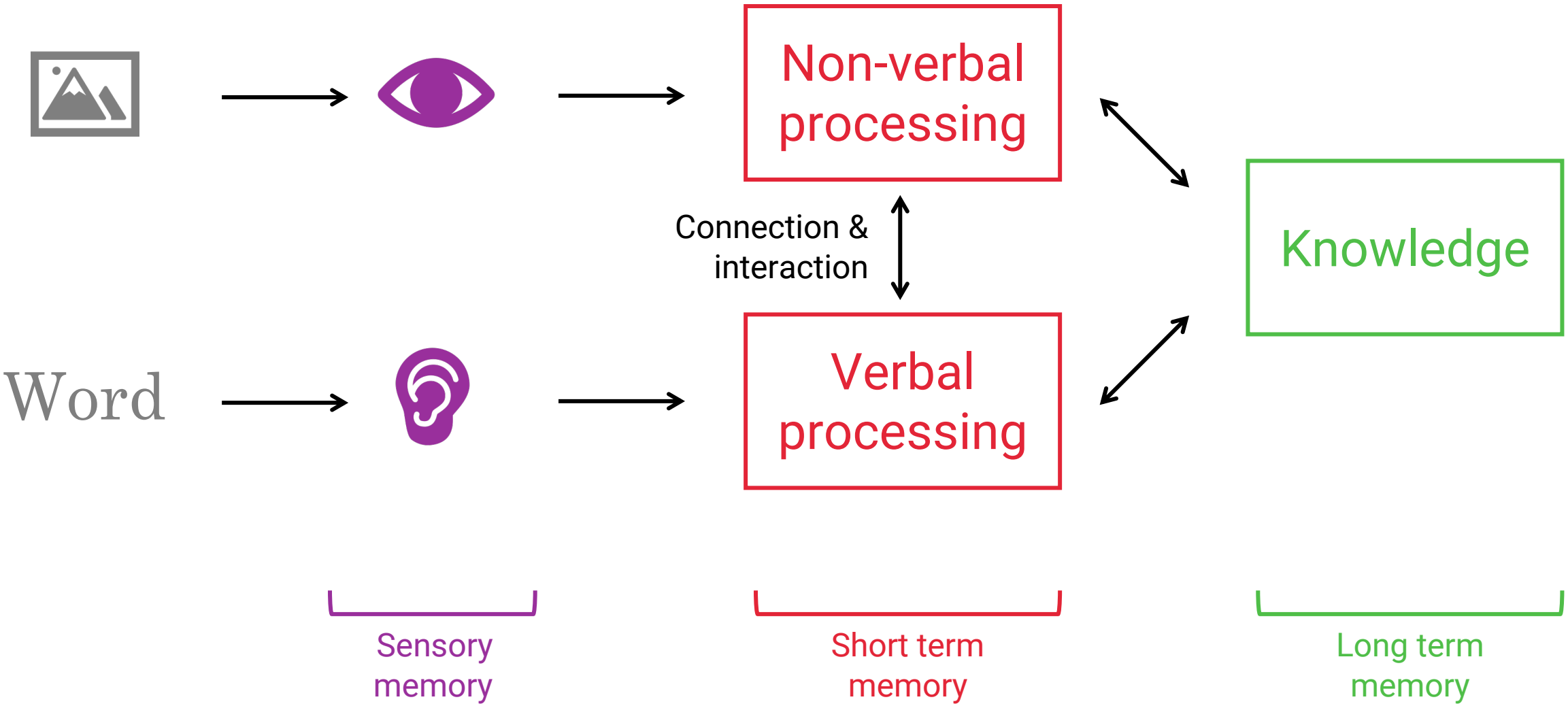
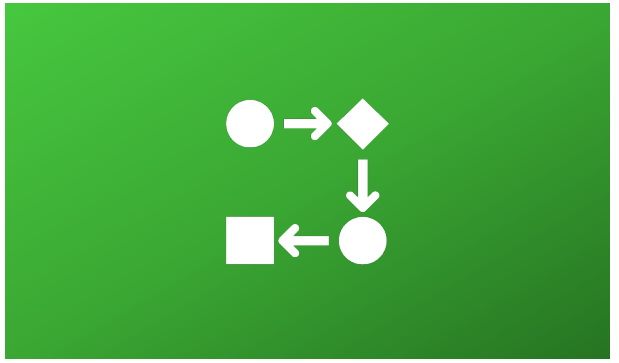

Non-verbal processing
Connection & interaction
Verbal processing
Knowledge
Word
Sensory memory
Short term memory
Long term memory

4 principles

1. Redundancy

2. Words in pictures

3. Signals



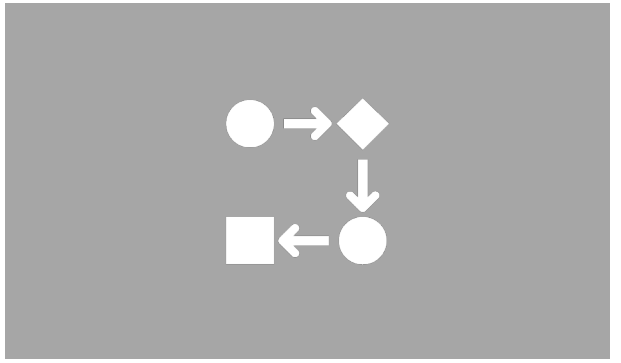
4. Segments

4 principles

1. Redundancy

2. Words in pictures

3. Signals

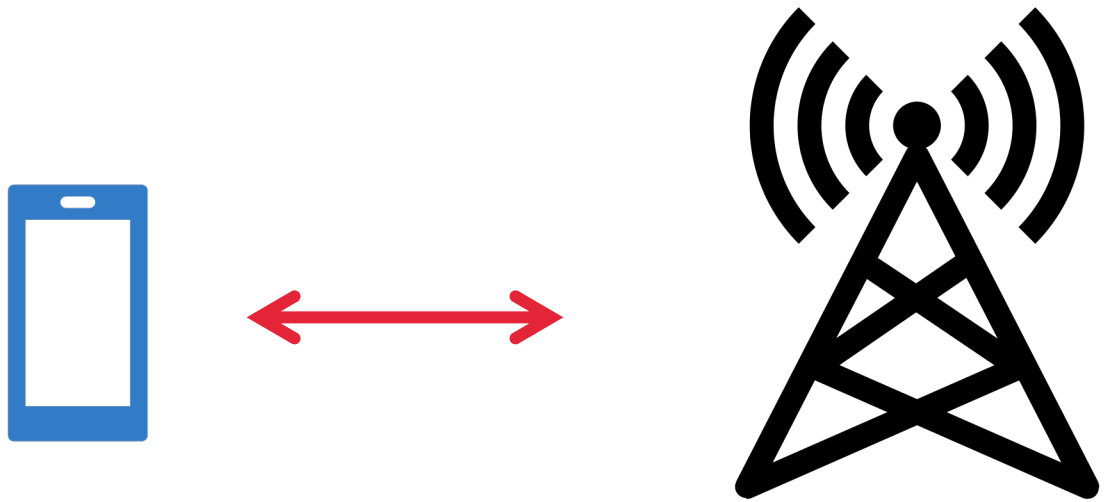


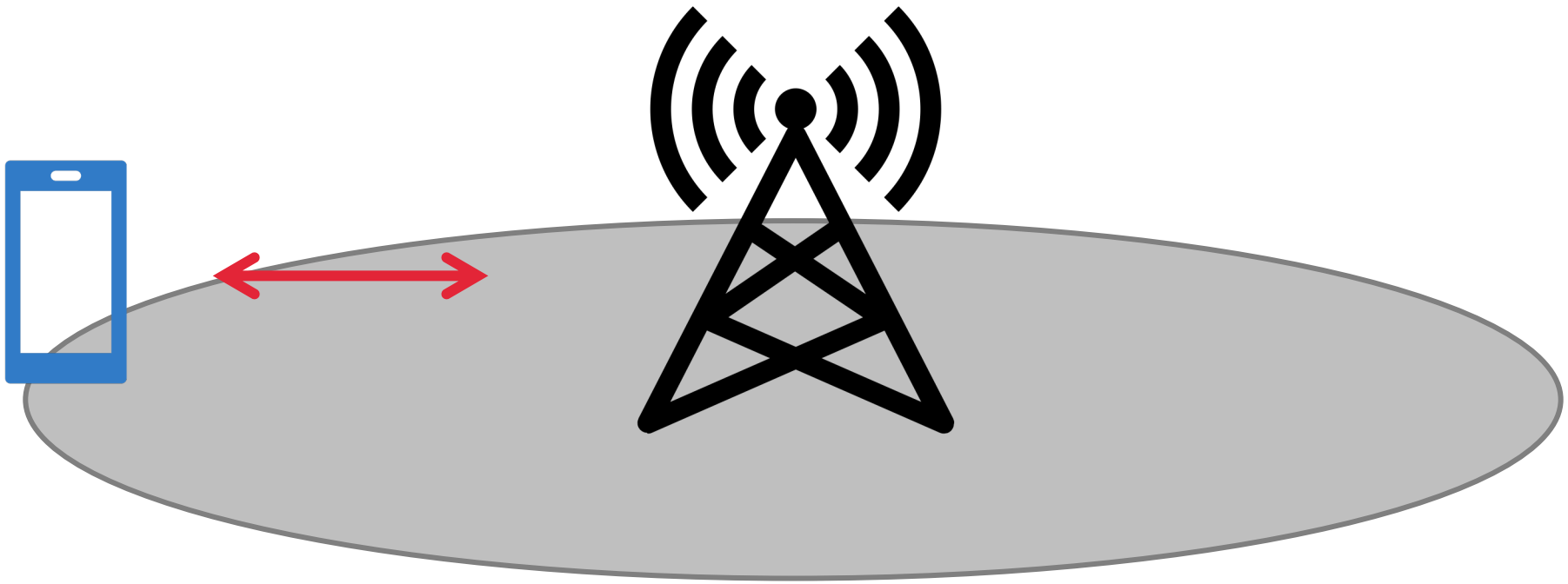
4. Segments

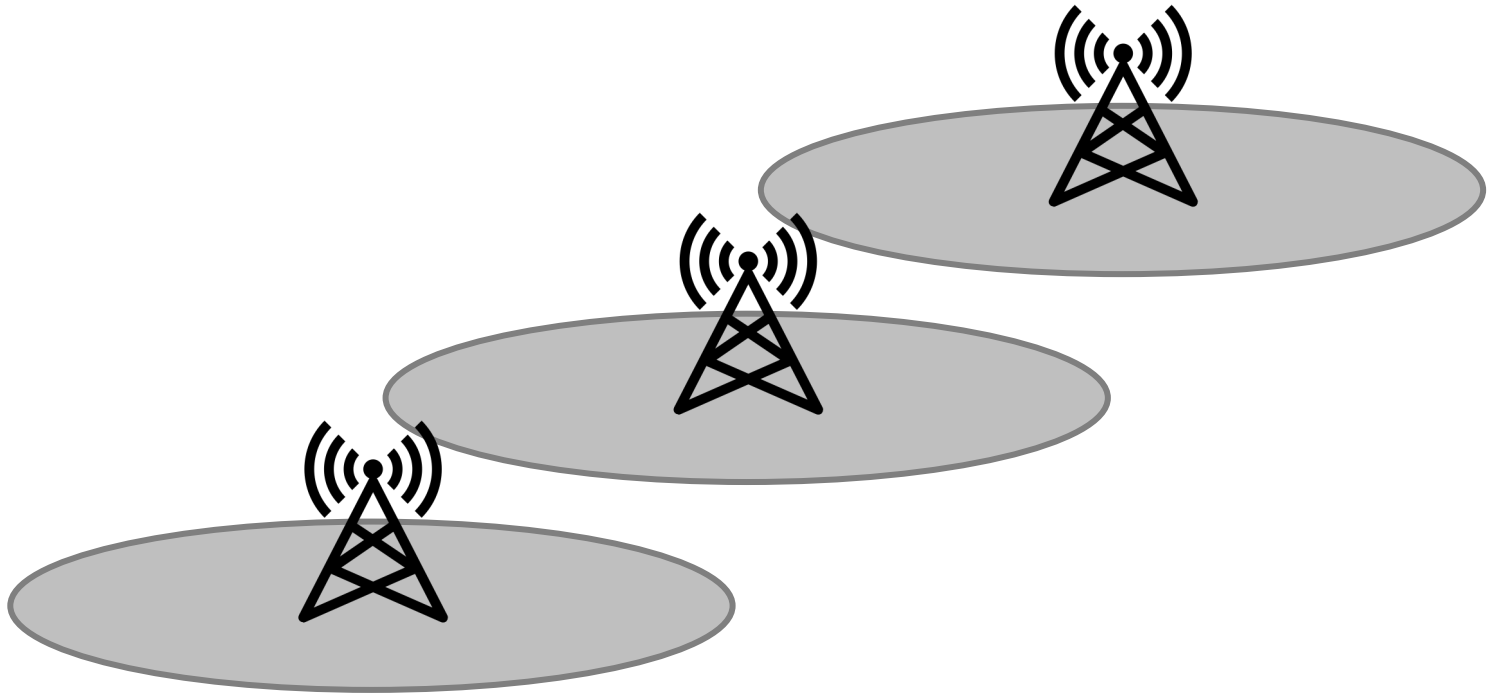
Redundancy effect

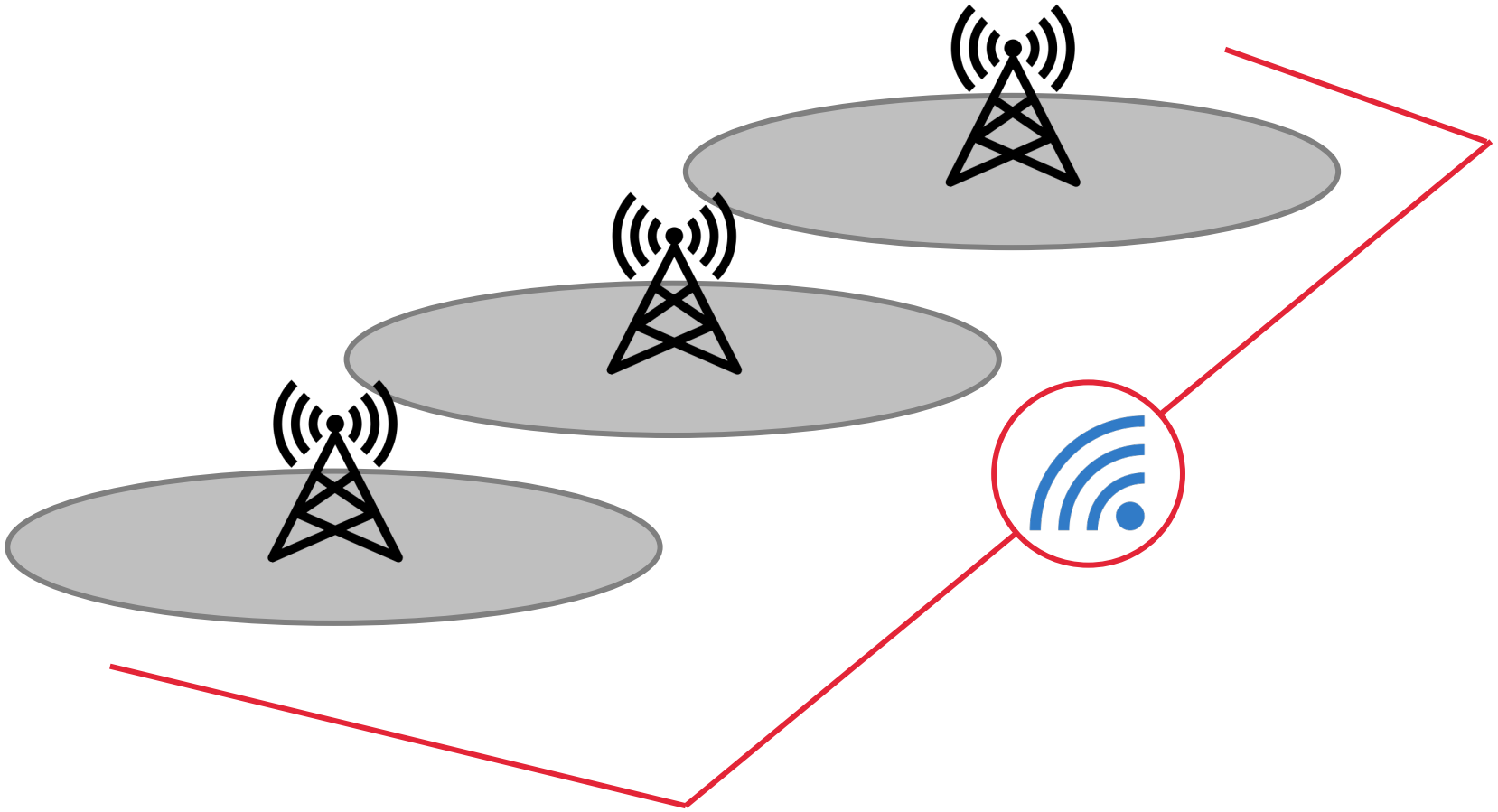
Cell phone 101

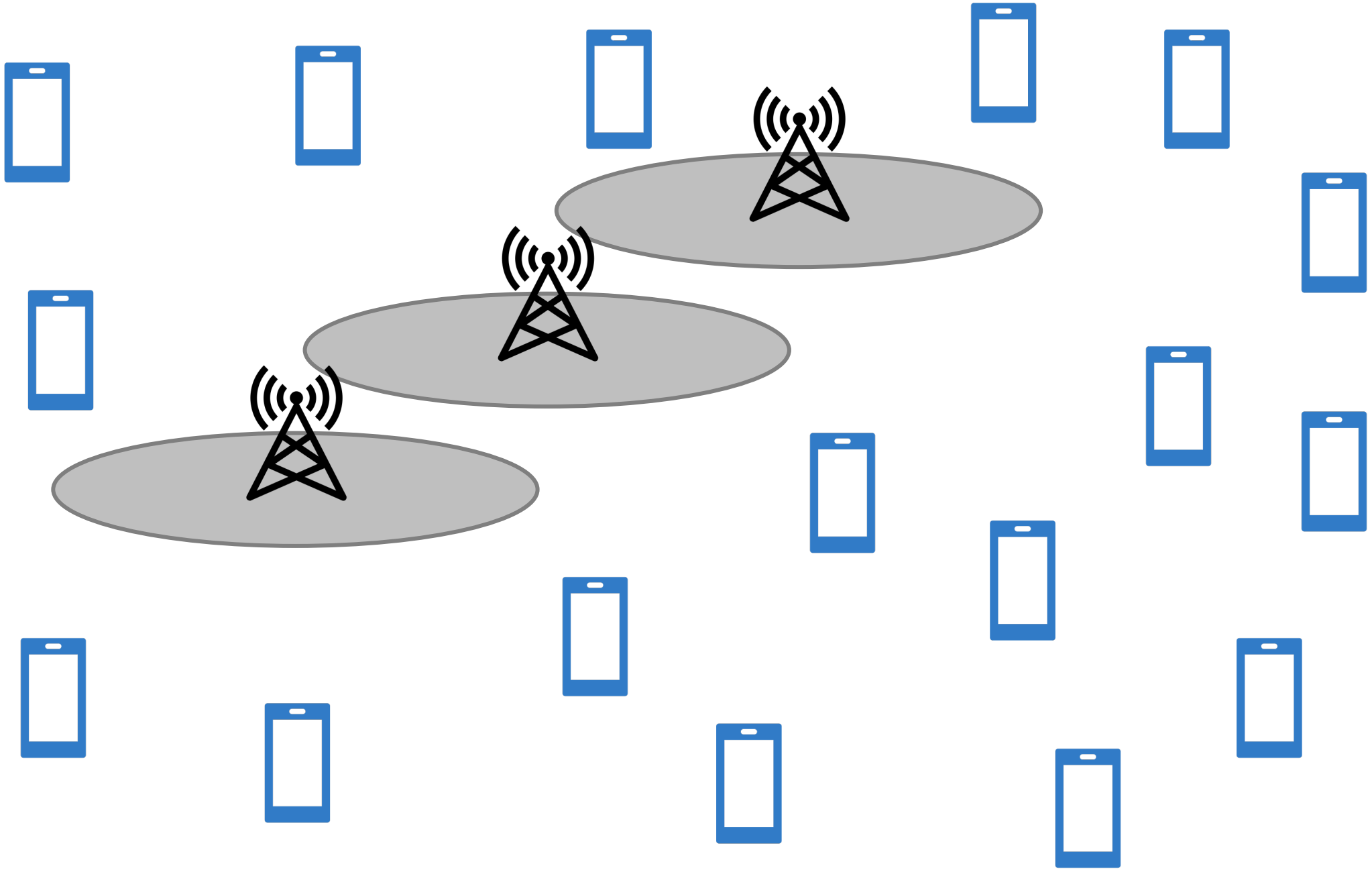
- When you make a call on your cell phone, it is linked to the telephone network via towers
- These towers cover a circular area called a cell
- A large region can be spilt into a number of cells
- This allows different base stations to use the same frequencies for communication links.
- It allows thousands or even hundreds of thousands of mobile telephone users
- The cell phone network automatically keeps track of the strength of the signal from your phone
- As you move, the base station receiving the strongest signal changes, and the network ‘hands off’ your call from one base station to another.

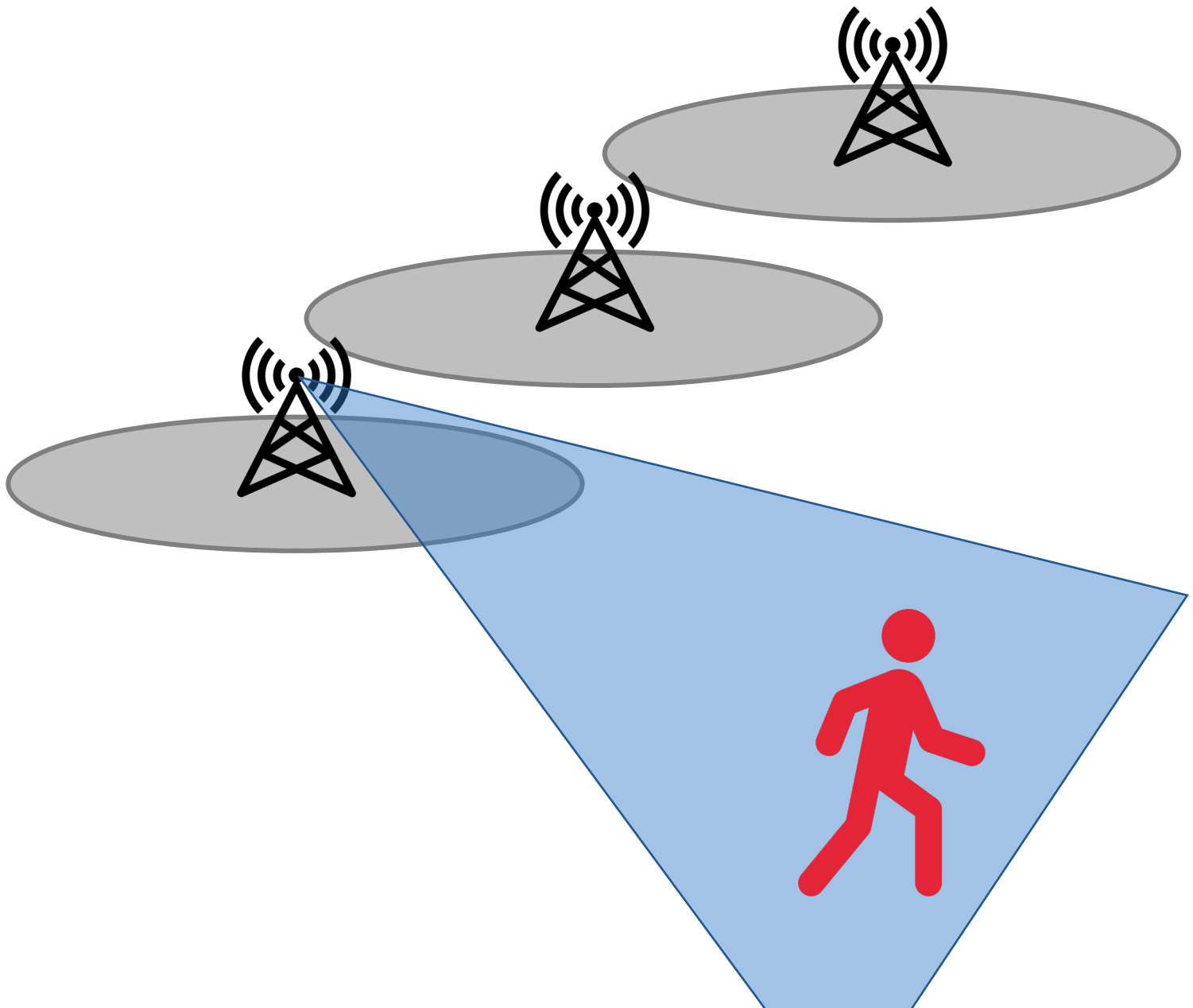


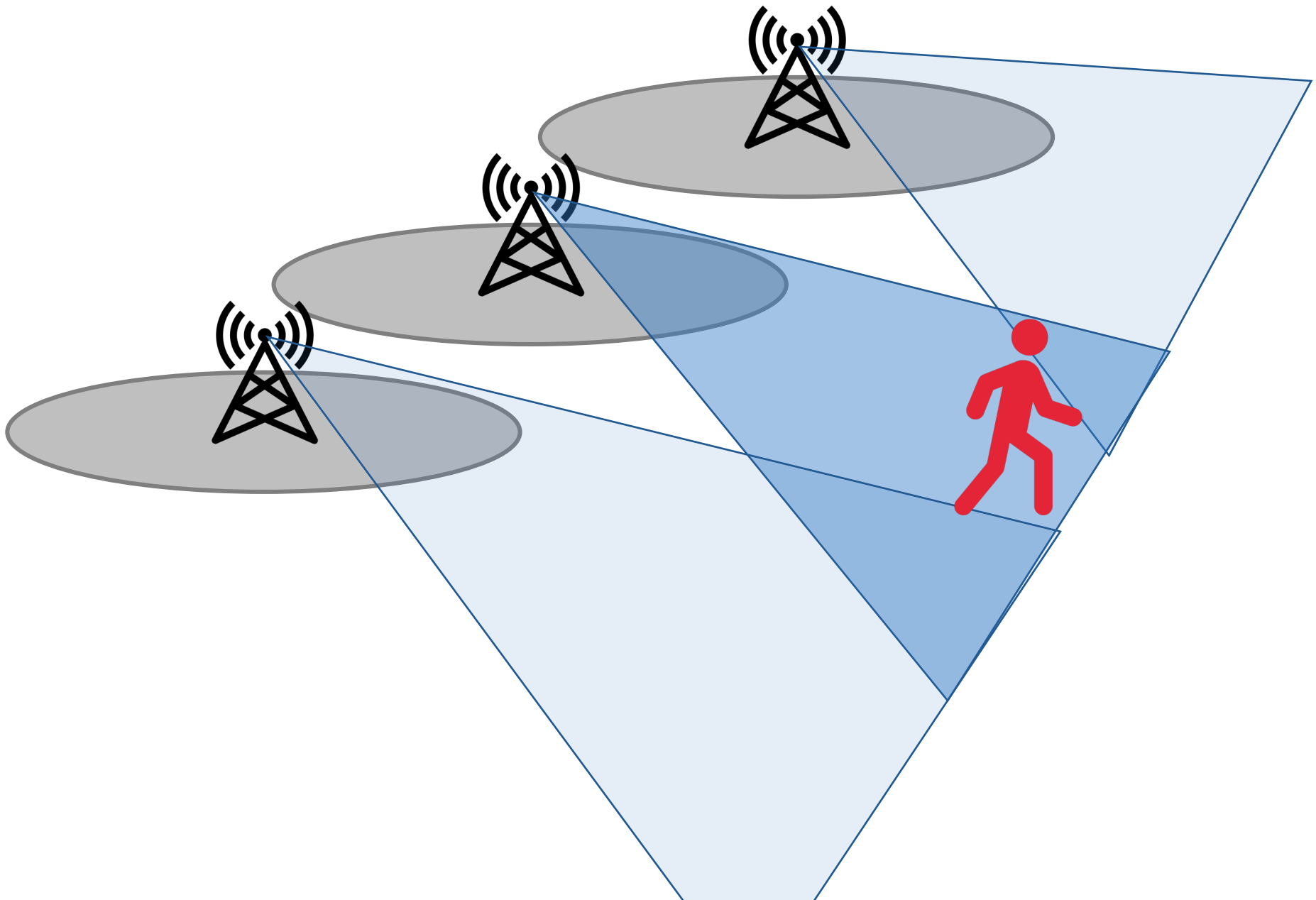


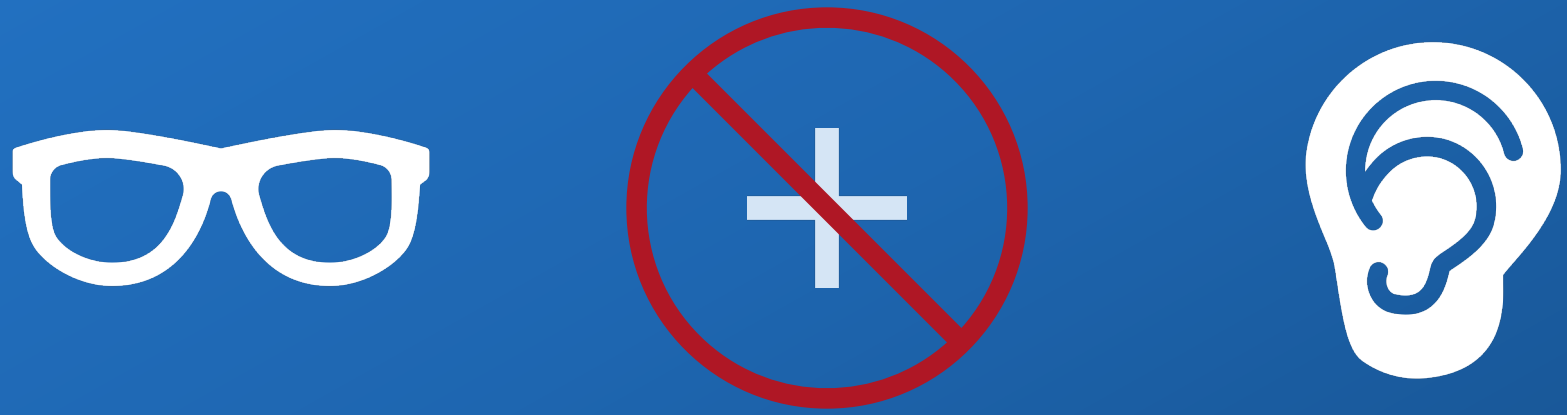










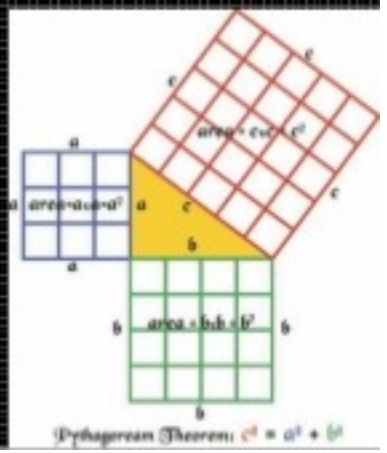


What can you do?

Less = more

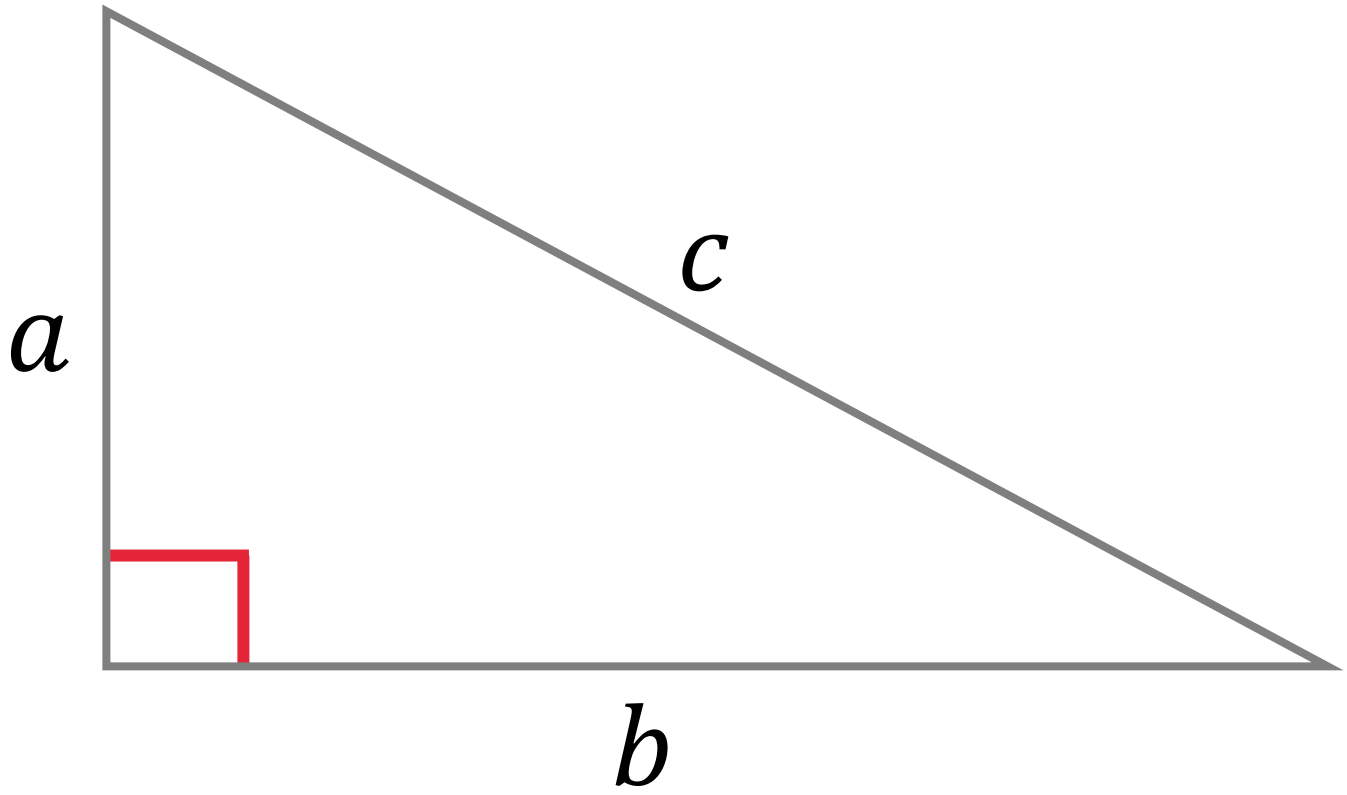
Major Contribution

- $a^2+b^2=c^2$
- This is known as the Pythagorean Theorem.
- This is referring to a right triangle.
- A and B are referring to the two shorter sides.
- C is referring to the longest side.
- Also known as the hypotenuse.
- Pythagoras did not come up with this theorem, he only proved it to be true.



https://www.slideshare.net/Brittenticles/pythagoras-4182786

Pythagoras



$$a^2 + b^2 = c^2$$

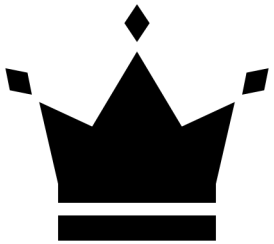
Less = more

Redundancy effect

Images

Redundancy effect

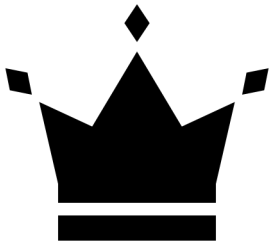
Images



Icons

Redundancy effect

Images



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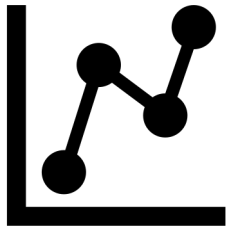
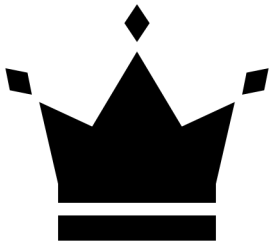


Graphs

Redundancy effect

Images



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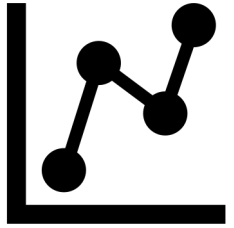
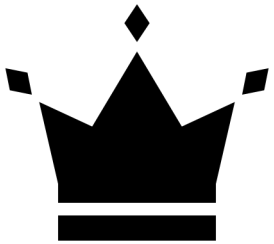


Graphs

Keywords

Redundancy effect

Images



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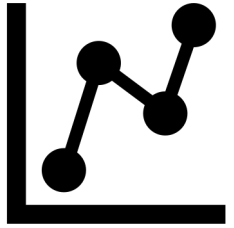

Graphs

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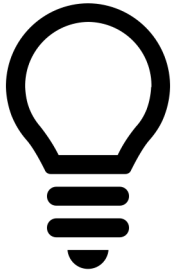
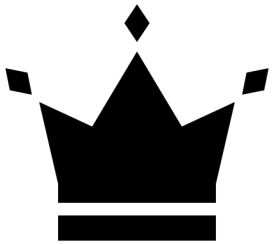


1 idea

Redundancy effect

Images



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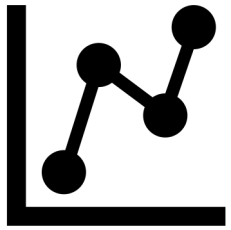
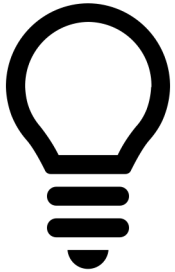
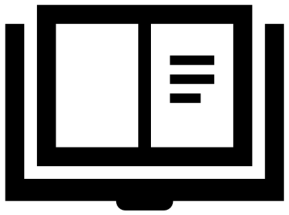


Graphs

Keywords



1 idea



Book

Reading

And what if your students need to read something, for example a theorem?

Be quiet…

…and give them time to read and process the slide.

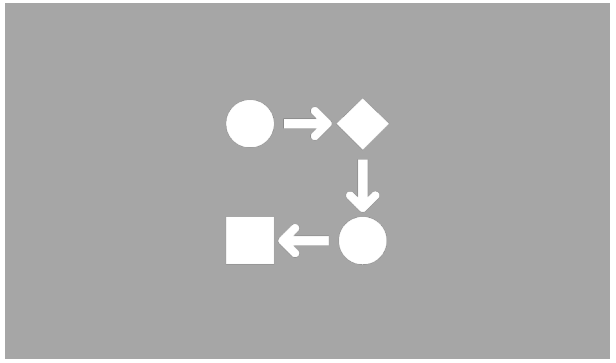
Redundancy effect

4 principles

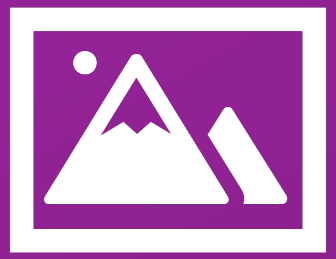
1. Redundancy

2. Words in pictures

3. Signals



4. Segments

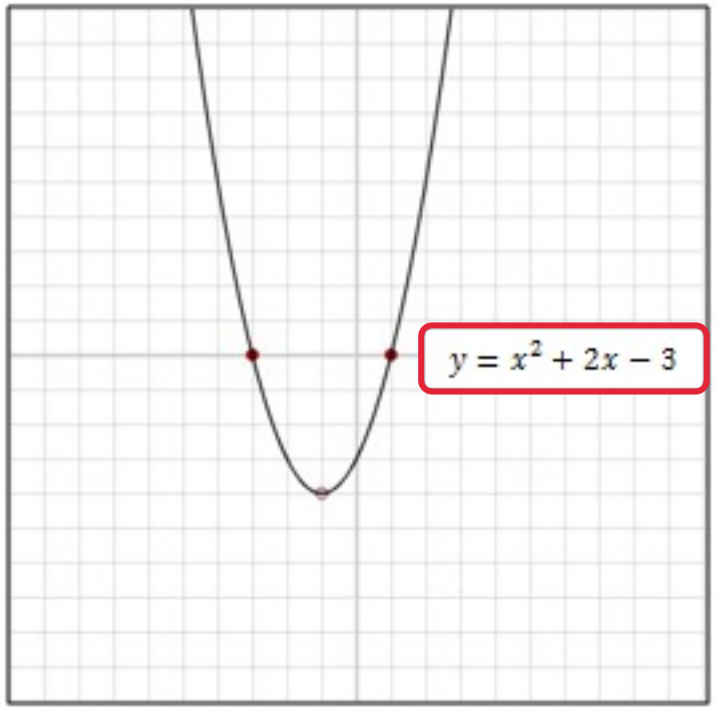


1. Moon
2. Mountain

Split-attention effect

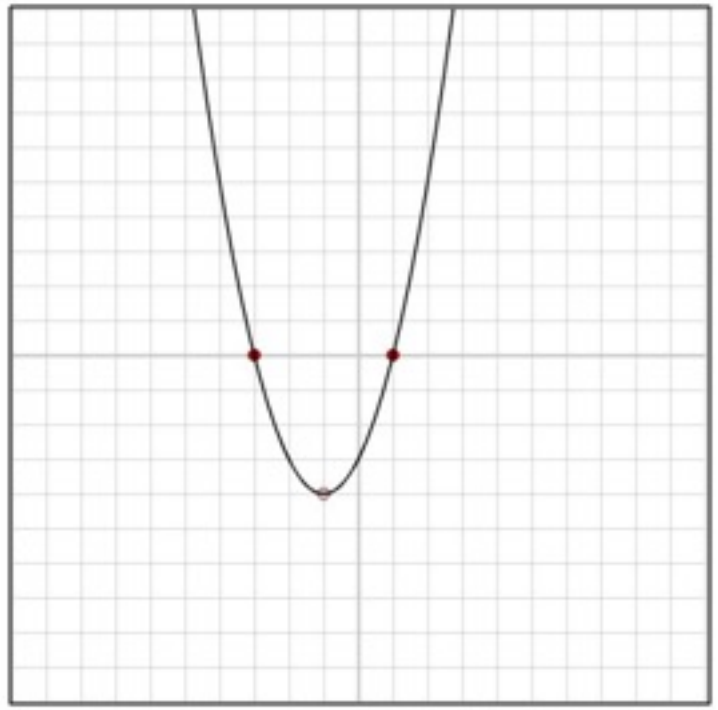
Split attention

A



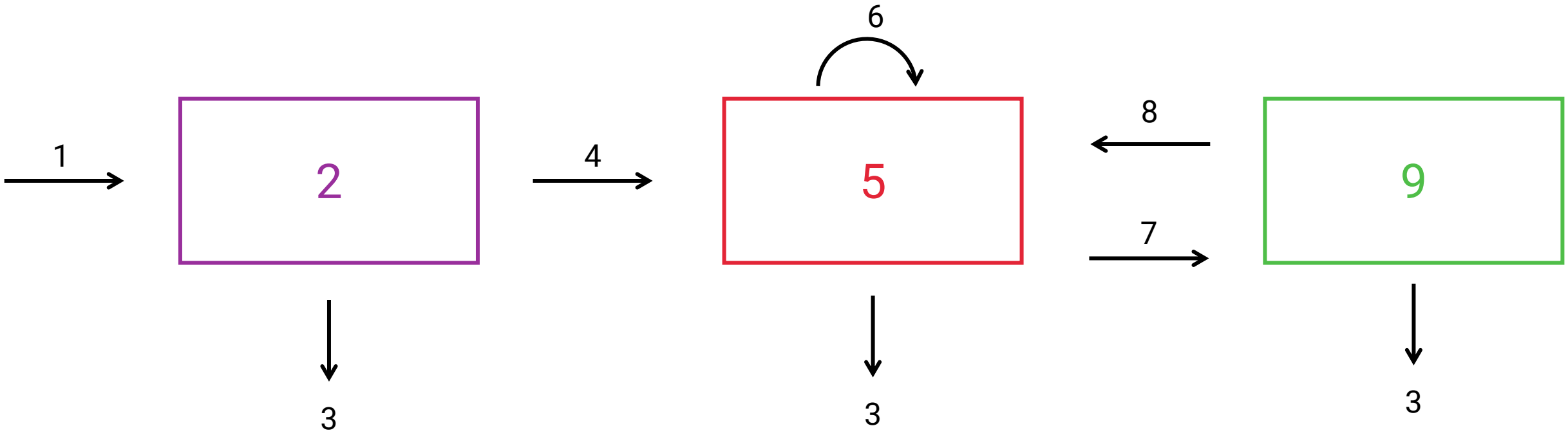
Lorum ipsum 1. *Lorem ipsum dolor sit amet, consectetur adipiscing elit*

B



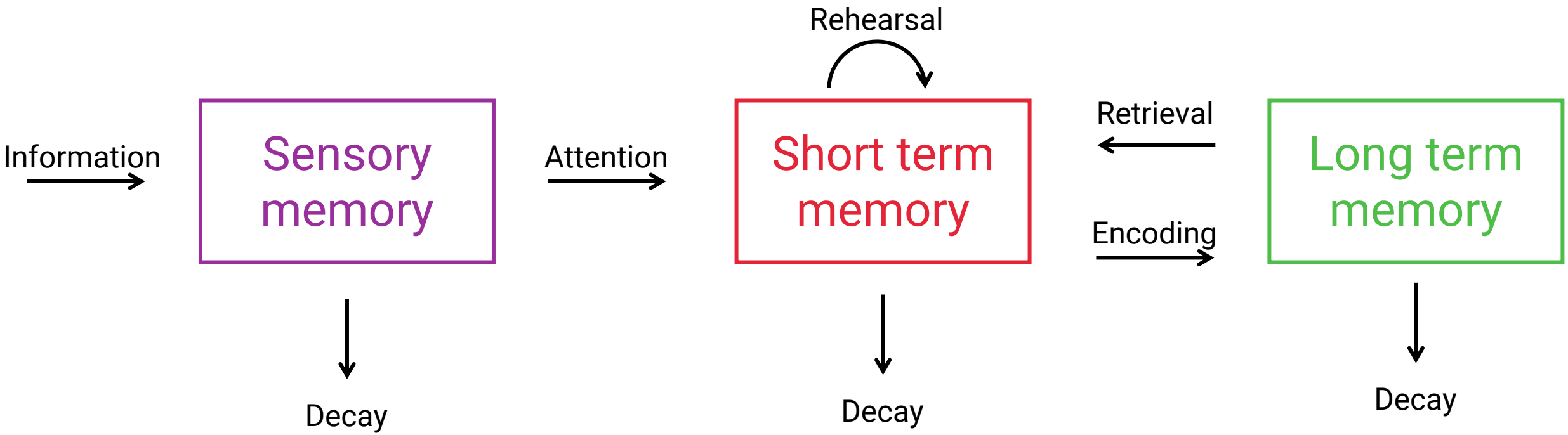
Lorum ipsum 1. *Lorem ipsum dolor sit amet, consectetur adipiscing elit* $y = x^2 + 2x - 3.$

Split attention



1. Information	5. Short term memory	9. Long term memory
2. Sensory memory	6. Rehearsal	
3. Decay	7. Encoding	
4. Attention	8. Retrieval	

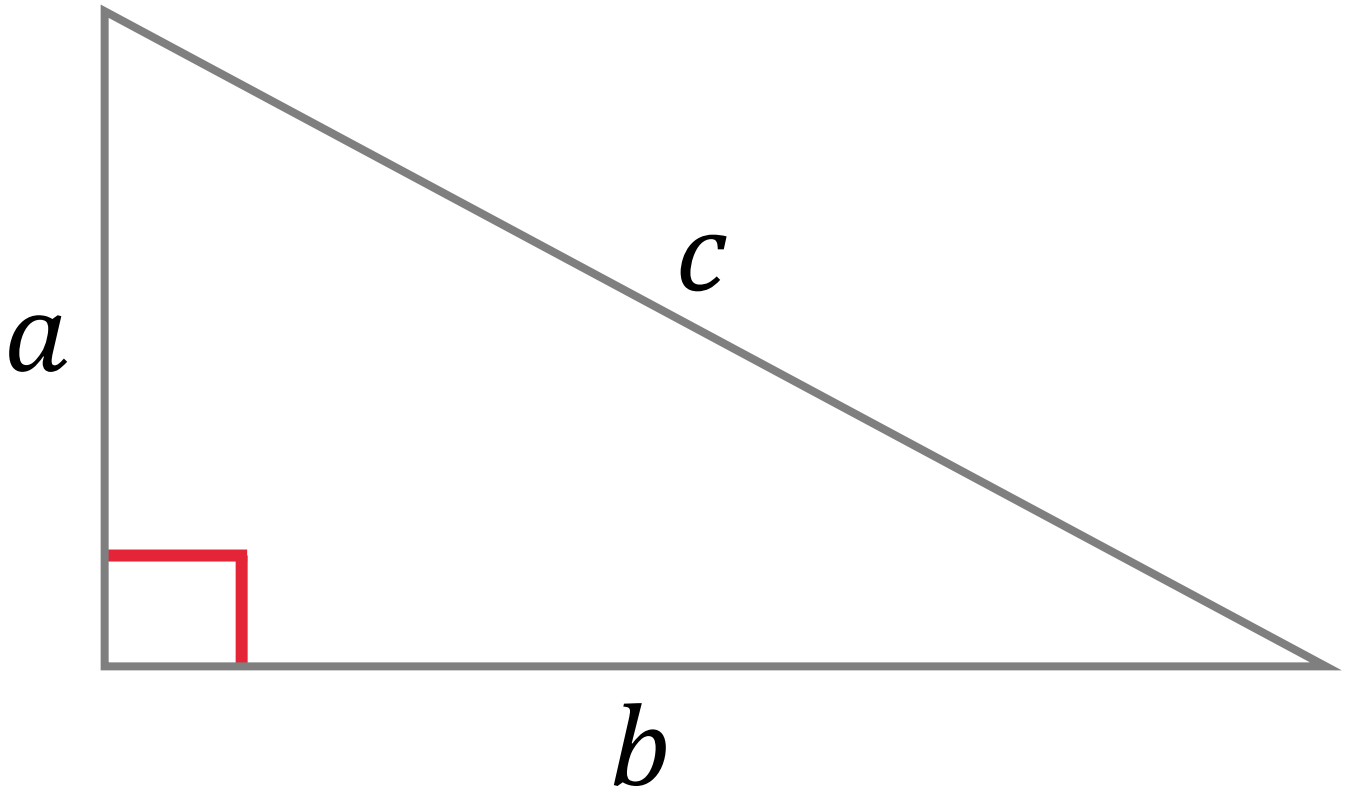
Split attention



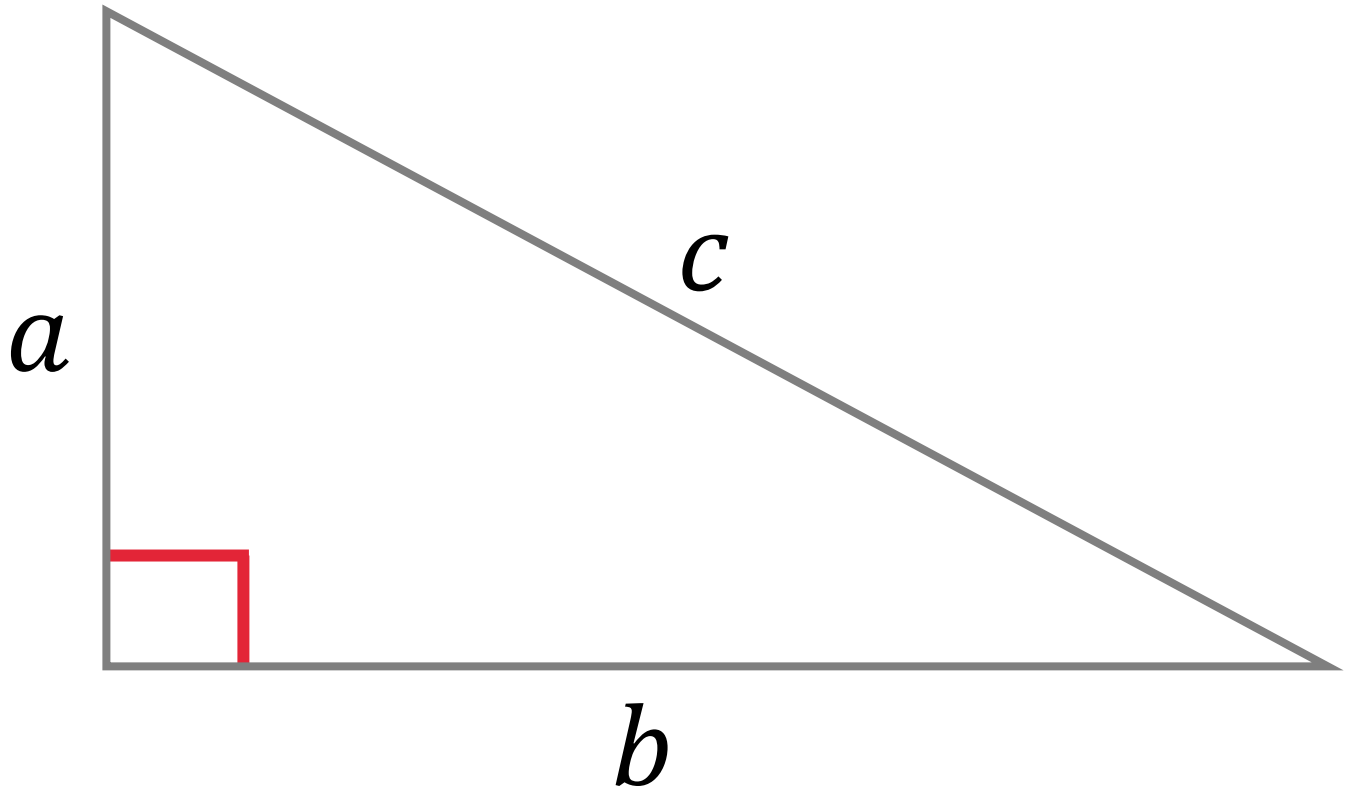
Pythagoras

$$a^2 + b^2 = c^2$$

Pythagoras



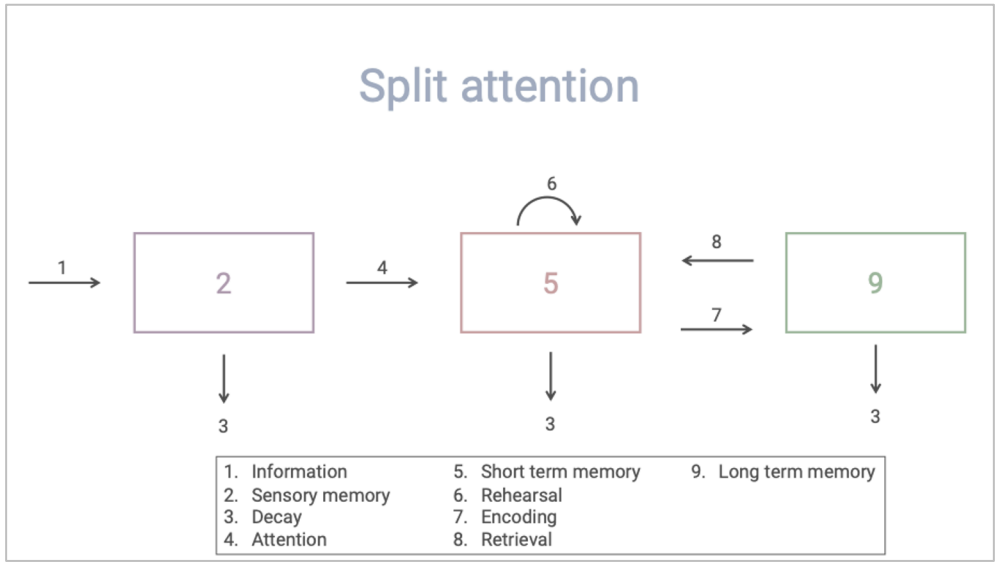
Pythagoras

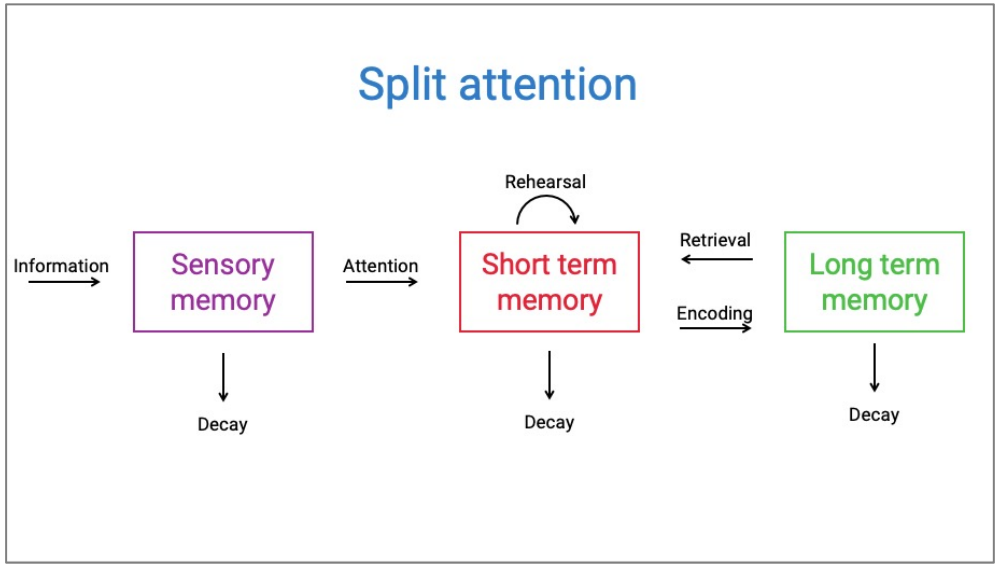


$$a^2 + b^2 = c^2$$

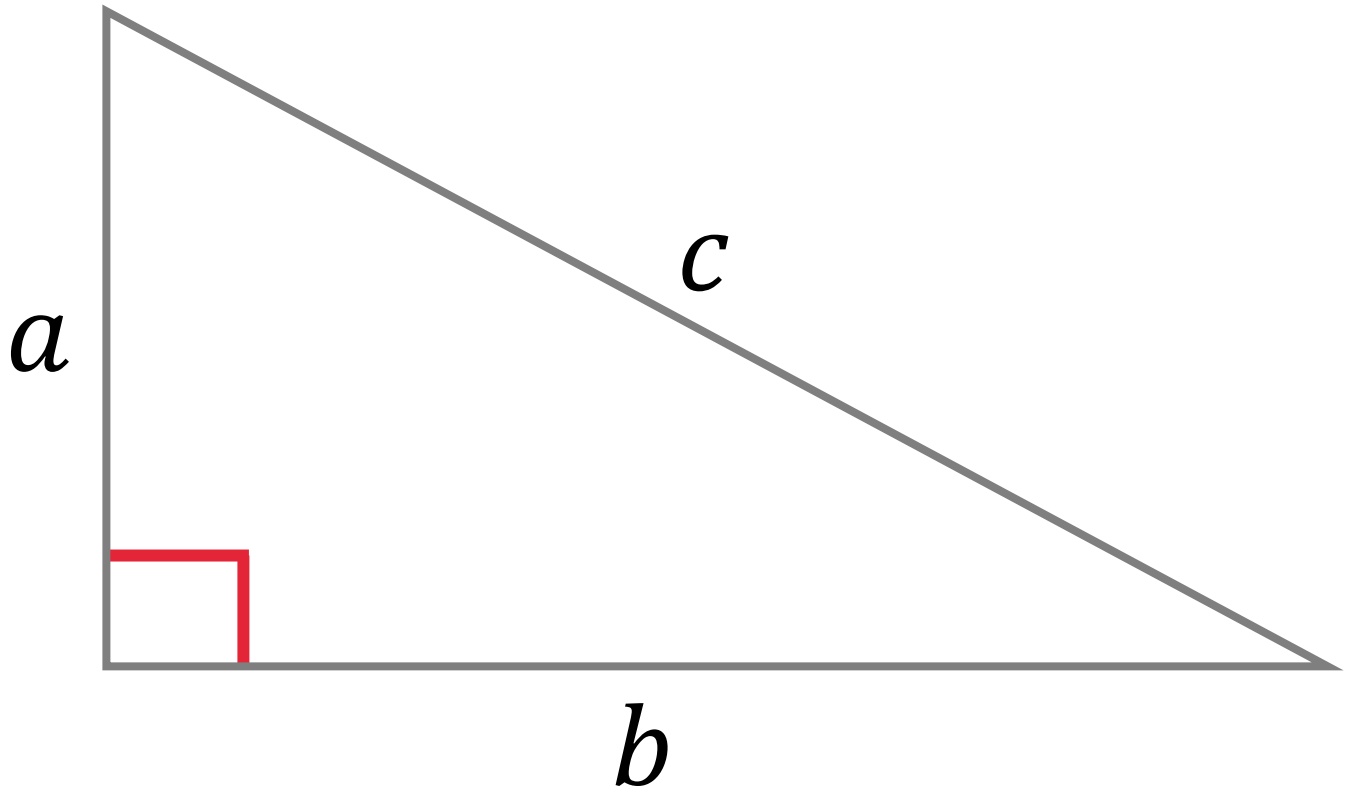
What can you do?

Words in images





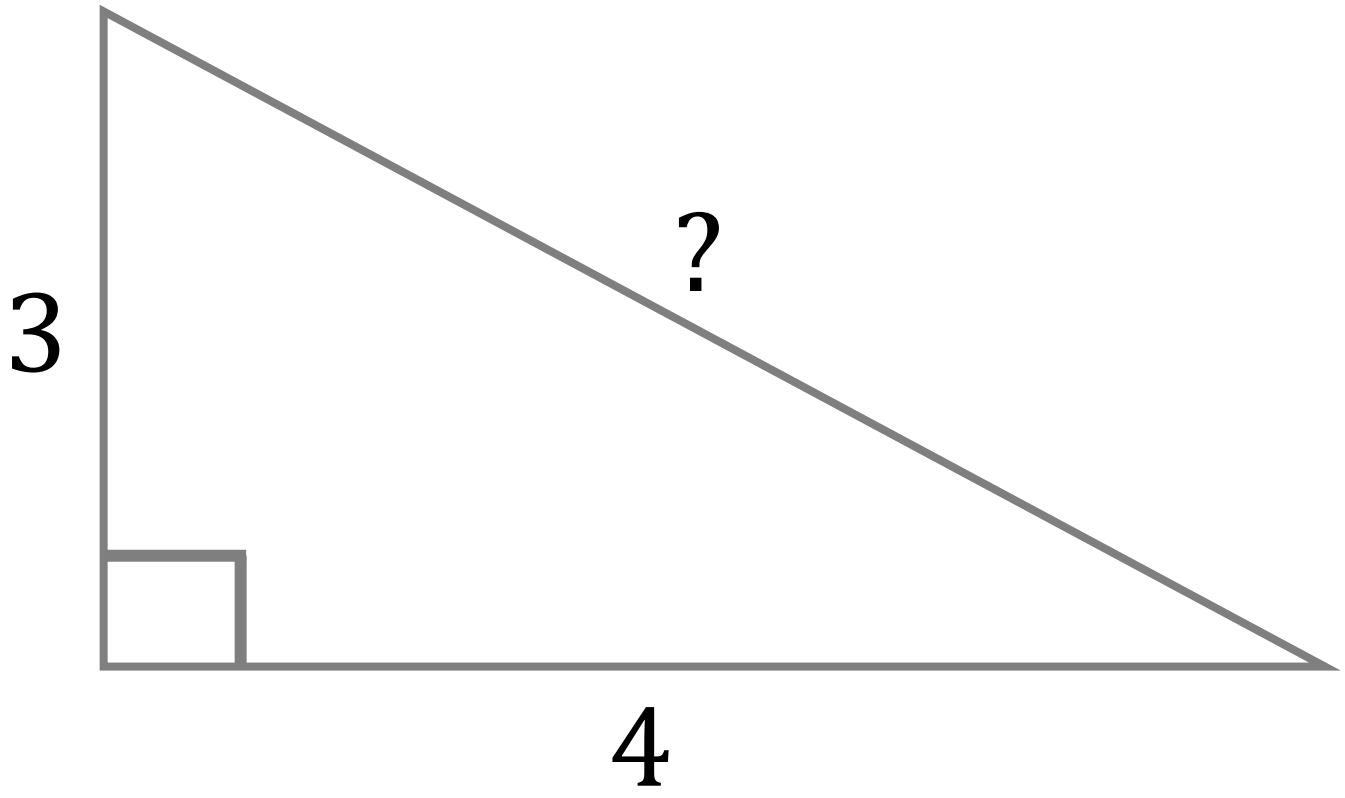
Copy components



$$a^2 + b^2 = c^2$$

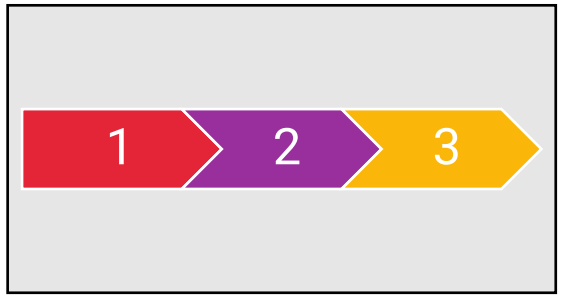
Copy components

$$a^2 + b^2 = c^2$$

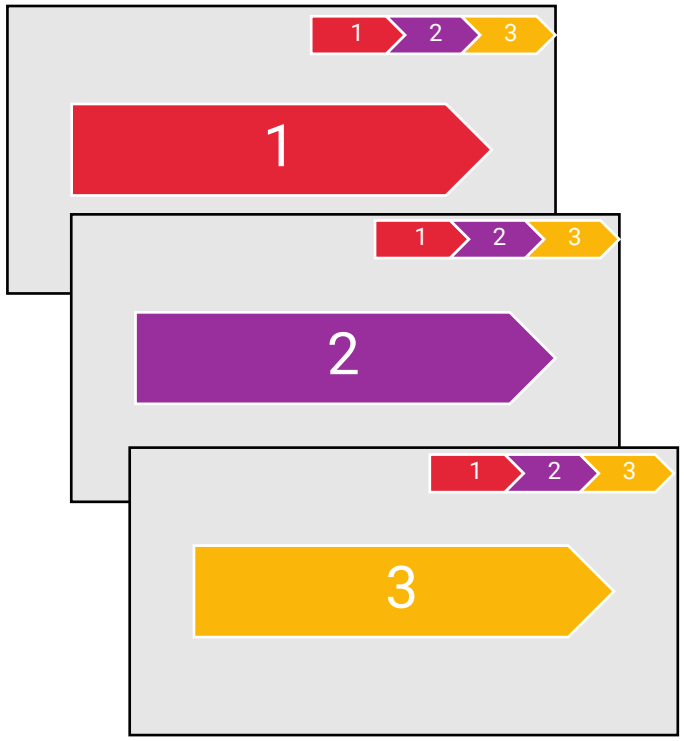


	Side	Side^2
a	3	9
b	4	16
c	**?**	25

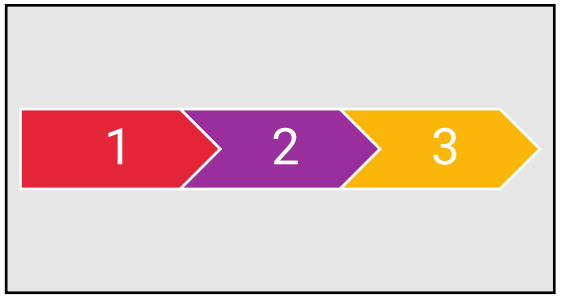
Break down & summarize



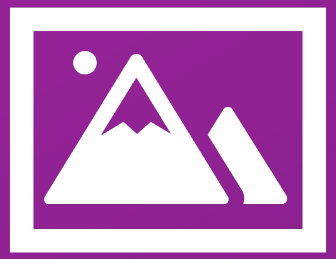
Overview



Step by step



Summary



1. Moon
2. Mountain

Split-attention effect

4 principles

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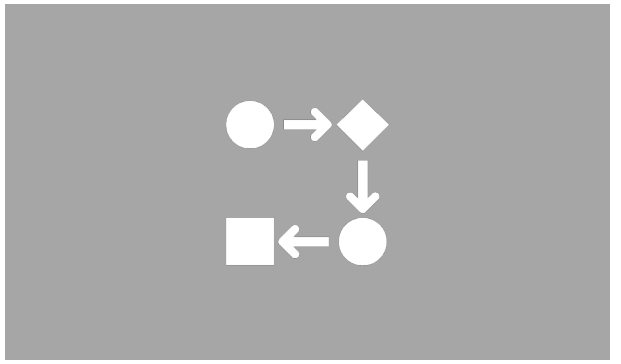


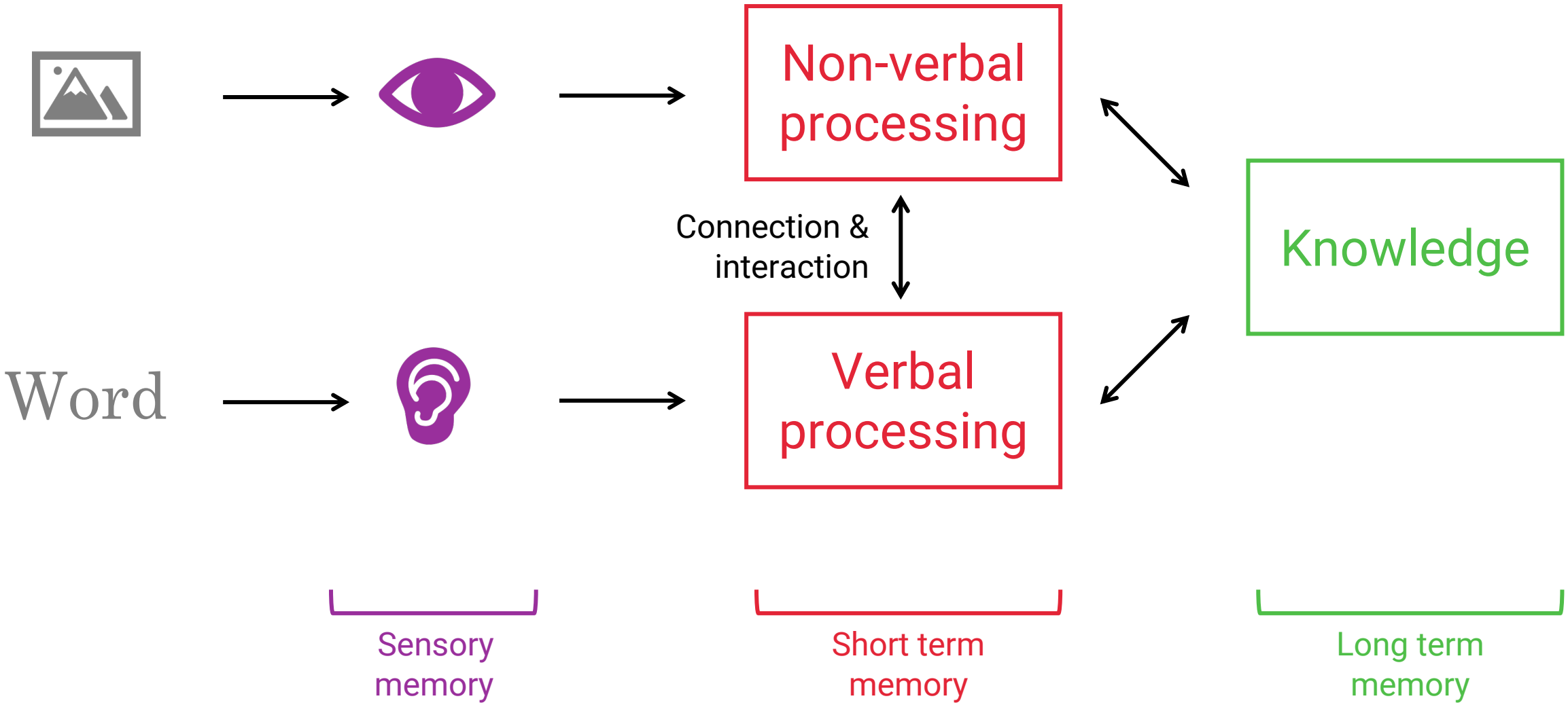
4. Segments

Signaling principle

Signaling Principle

The signaling (or cueing) principle, refers to the finding that multimedia learning materials become more effective when cues are added that **guide learners' attention** to the relevant elements of the material or highlight the organization of the material.

Dual coding


Non-verbal processing
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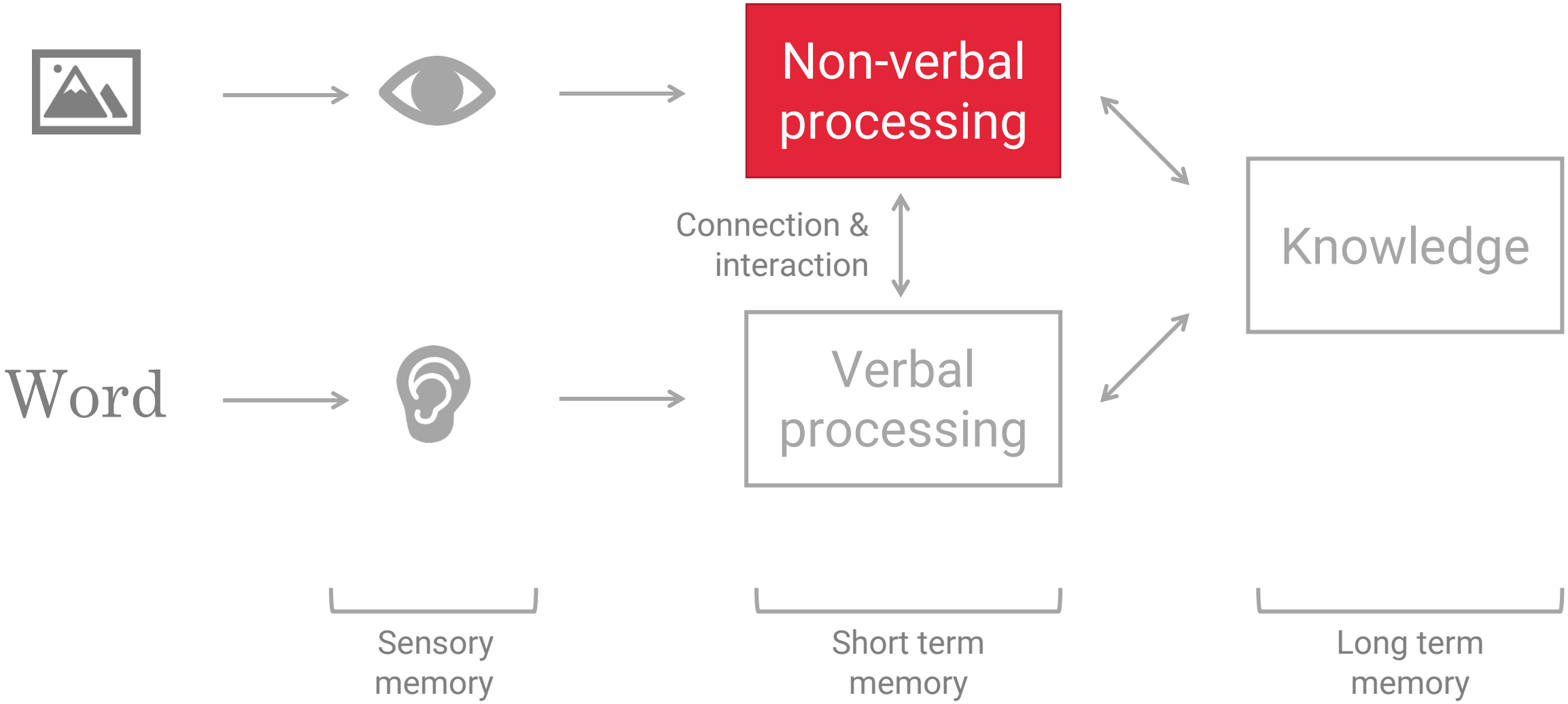
Long term memory

Dual coding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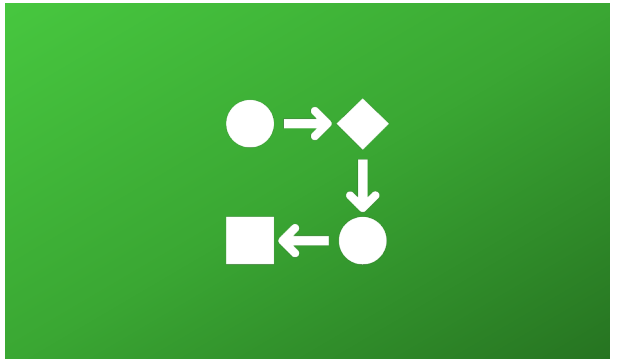

4. Segments

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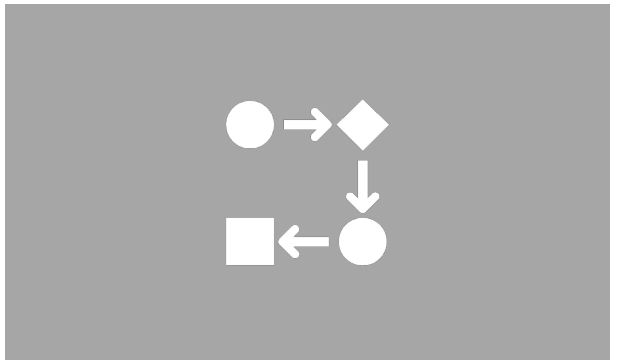
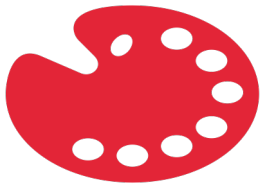


4. Segments

Less = more

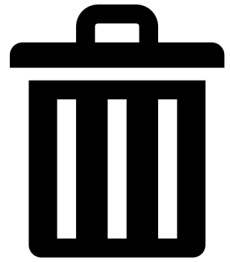
What can you do?

Signaling



Add/remove color

Cues



Remove elements

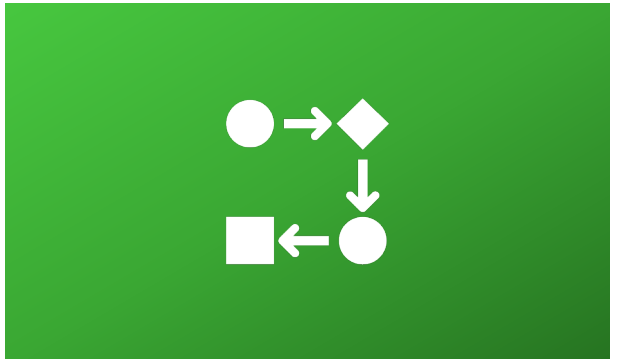
Signaling principle

4 principles

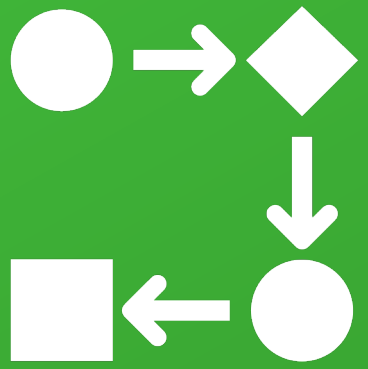
1. Redundancy

2. Words in pictures

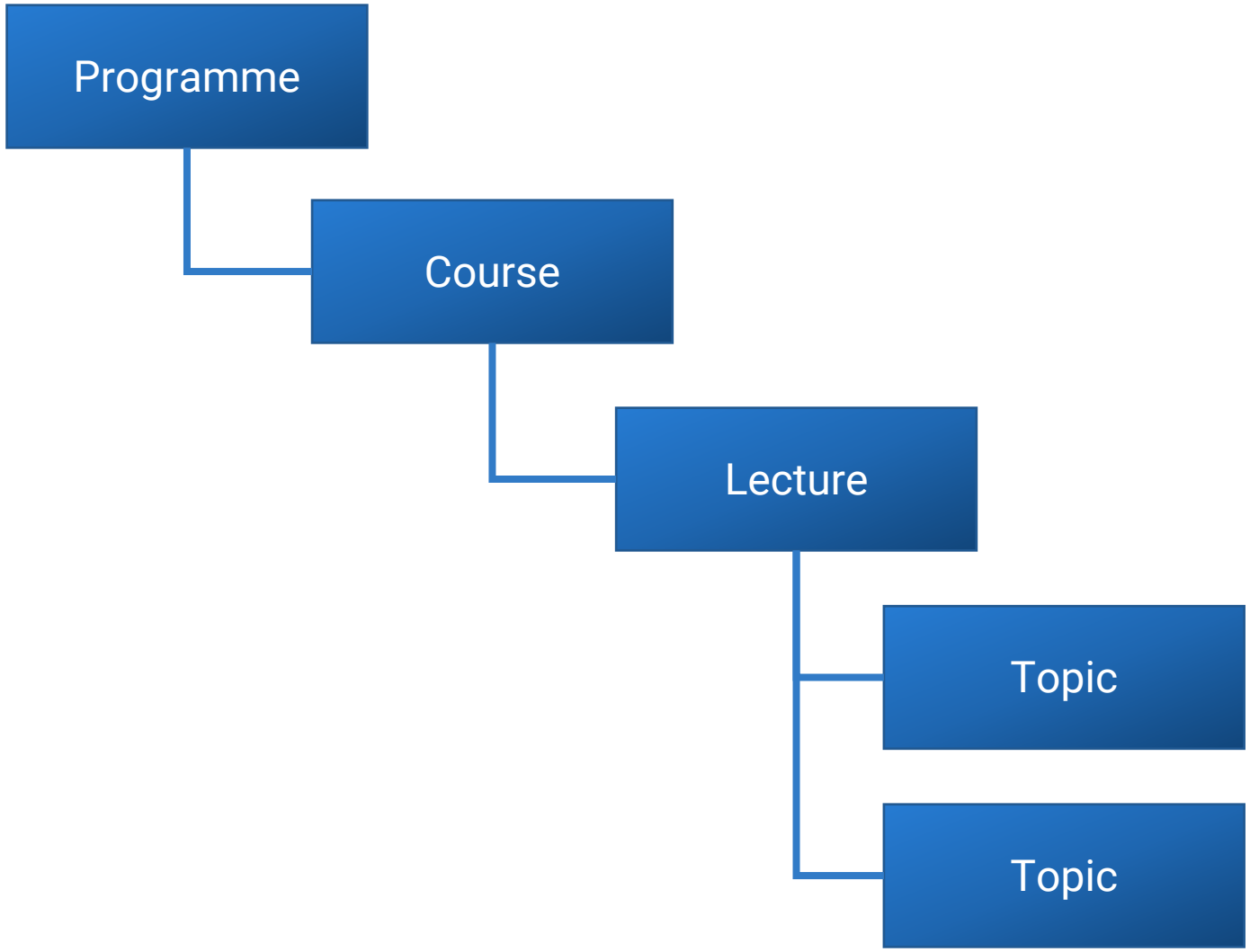
3. Signals



4. Segments



Segmenting principle


Programme
Course
Lecture
Topic
Topic

Chunking

Bread
Ice-cream
Milk
Tomatoes
Eggs
Butter
Apples
English Muffins
Frozen vegetables
Bagels
Lettuce
Cream
Banana

Chunking

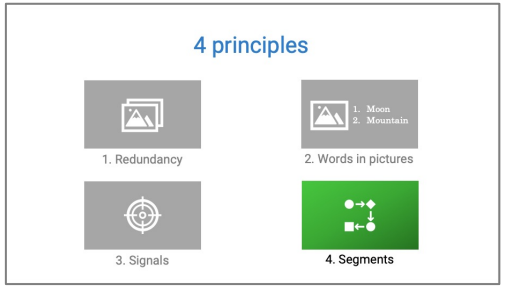
Frozen Food
Ice-cream
Frozen vegetables

Dairy
Milk
Eggs
Cream
Butter

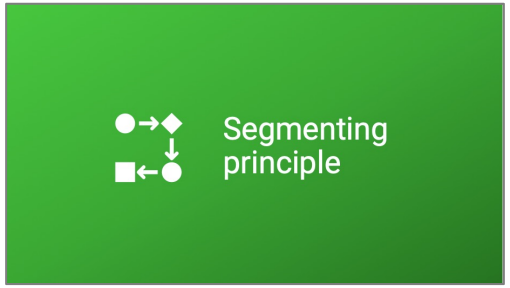
Bakery
Bagels
Bread
English Muffins

Fruit and vegetable
Lettuce
Banana
Tomatoes
Apples

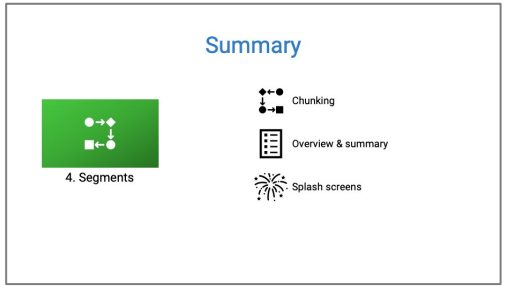
Offer structure



Overview



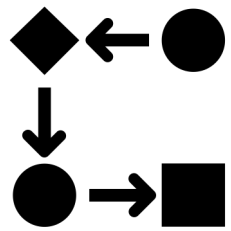
Splash screen



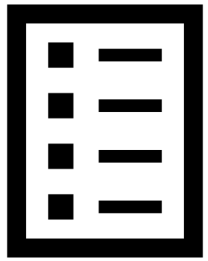
Summary

What can you do?

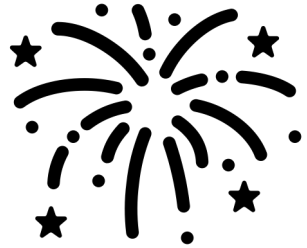
Segmenting



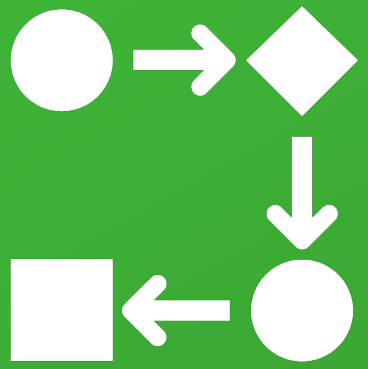
Chunking



Overview &
Summary



Splash
screen



Segmenting principle

Summary

4 principles

1. Redundancy

2. Words in pictures

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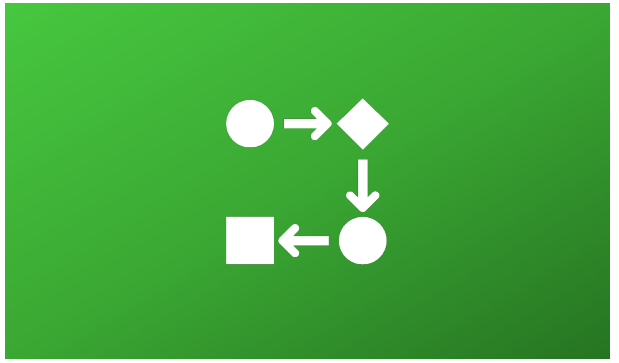


4. Segments

Summary

1. Redundancy

Less = more

Use images, icons, graphs, keywords

1 idea per slide

Refer to book

Let them read

Summary

2. Words in pictures

Words in images

Copy components

Break down

Summary

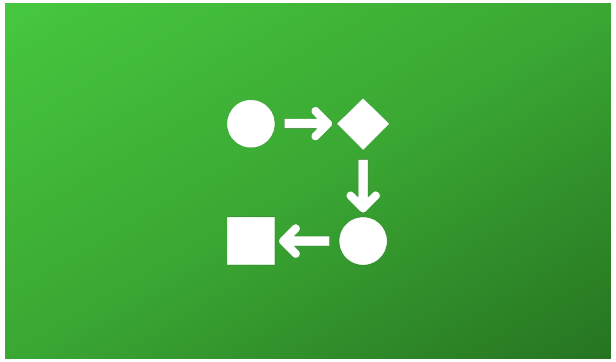
3. Signals

Add/remove color

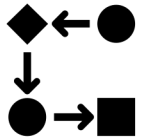
Cues

Remove elements

Summary



4. Segments



Chunking

Overview & summary

Splash screens

Words  


TU Delft