Helping Your students "Work" their Working Memory
CELT Presentation
9/25/17

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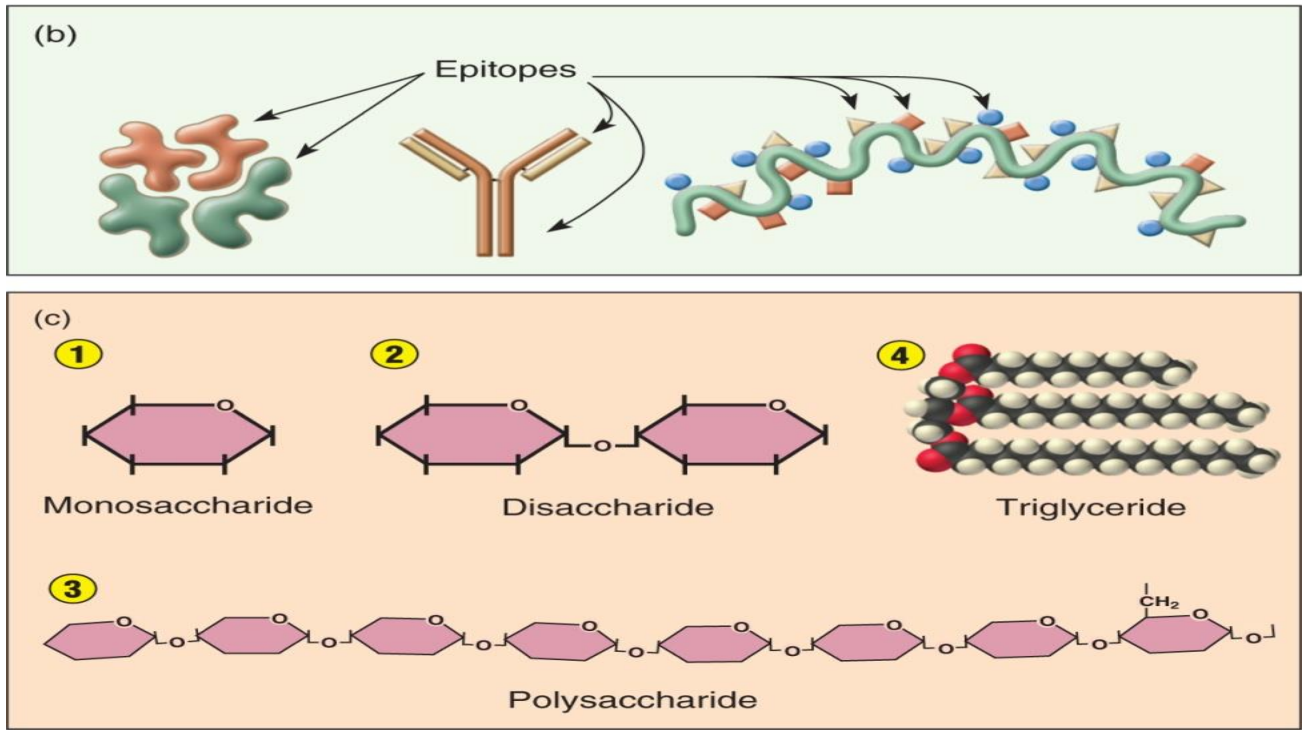
Simulation #1

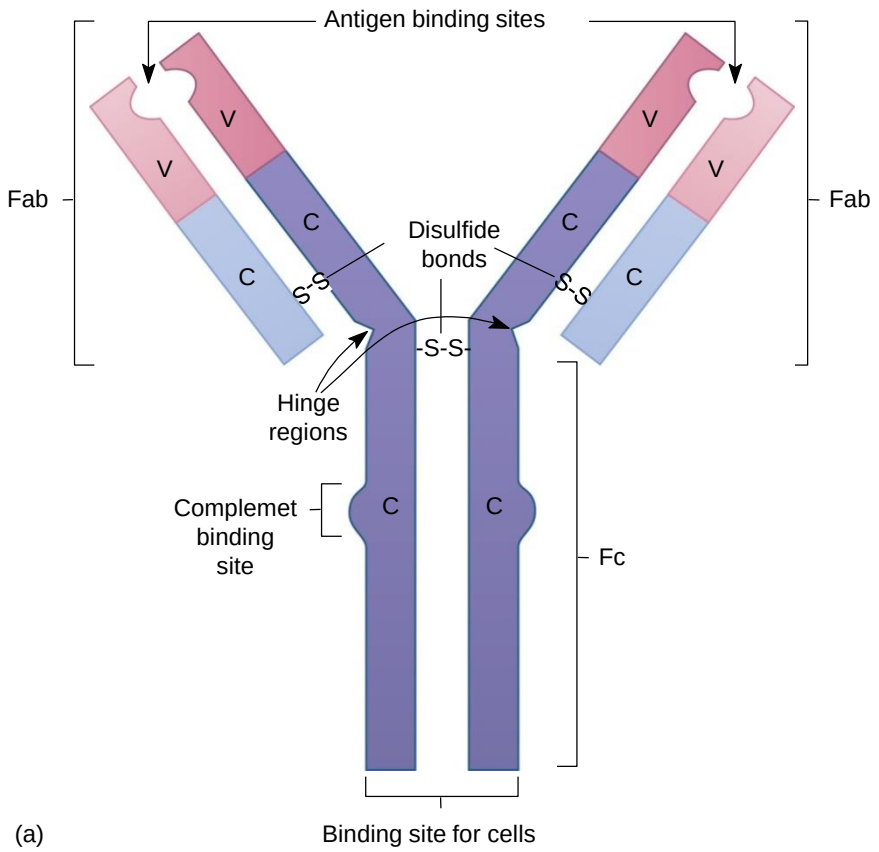
Characteristics of Antigens

- Perceived as foreign, not a normal constituent of the body
- Foreign cells and large complex molecules over 10,000 MW are most antigenic
- Antigenic determinant, **epitope** – small molecular group that is recognized by lymphocytes
- Antigen has many antigenic determinants



Antibody Structure and Functions

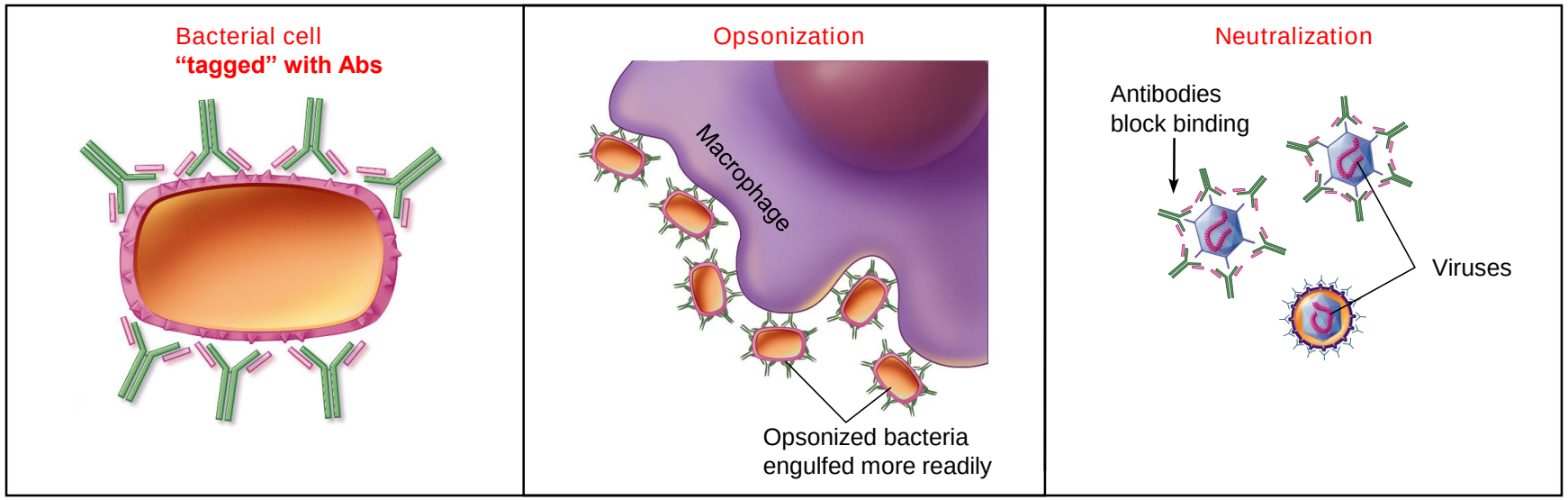
- Immunoglobulins
- Large Y-shaped protein
- Consist of 4 polypeptide chains
- Contain 2 identical fragments (Fab) with ends that bind to a specific antigen
- Fc binds to various cells and molecules of the immune system



Antibody-Antigen Interactions

Principal antibody activity is to unite with the Ag, to call attention to, or neutralize the Ag for which it was formed

- **Opsonization** – process of coating microorganisms or other particles with specific antibodies so they are more readily recognized by phagocytes
- **Neutralization** – Abs fill the surface receptors on a virus or the active site on a microbial enzyme to prevent it from attaching

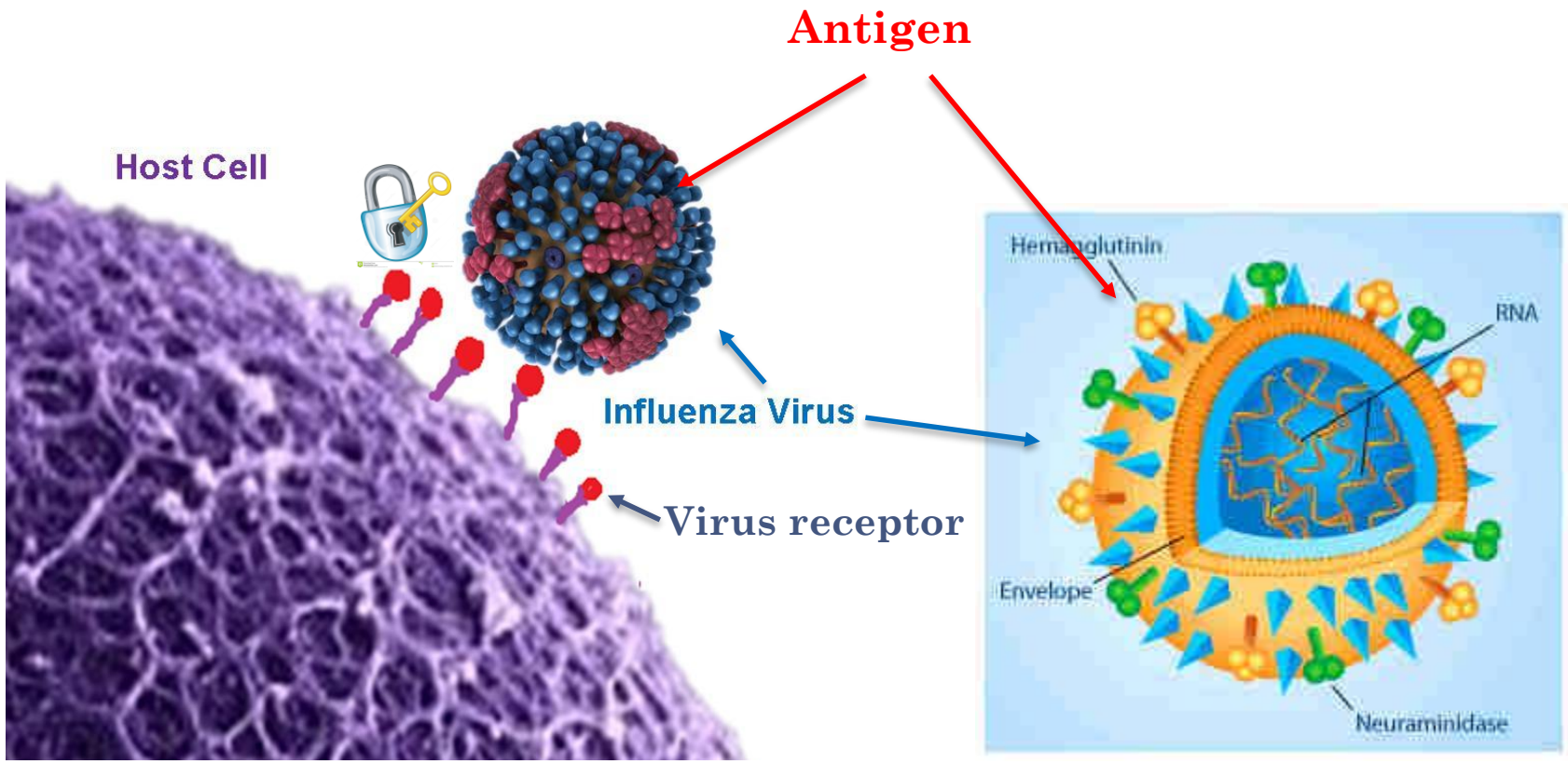


Assessment #1

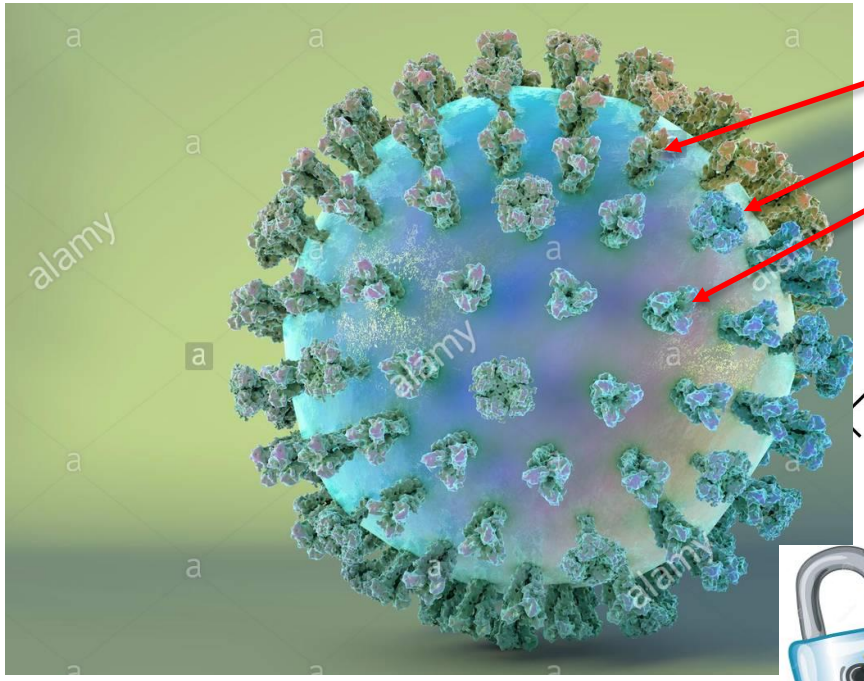
- What is the part of the antibody molecule that helps you neutralize viruses?
  - a) The Fc portion
  - b) The hinge region
  - c) The antigen binding site
  - d) The immunoglobulin
- What does the term "F_c" stand for?
- How does your immune system keep viruses at bay?

Simulation #2

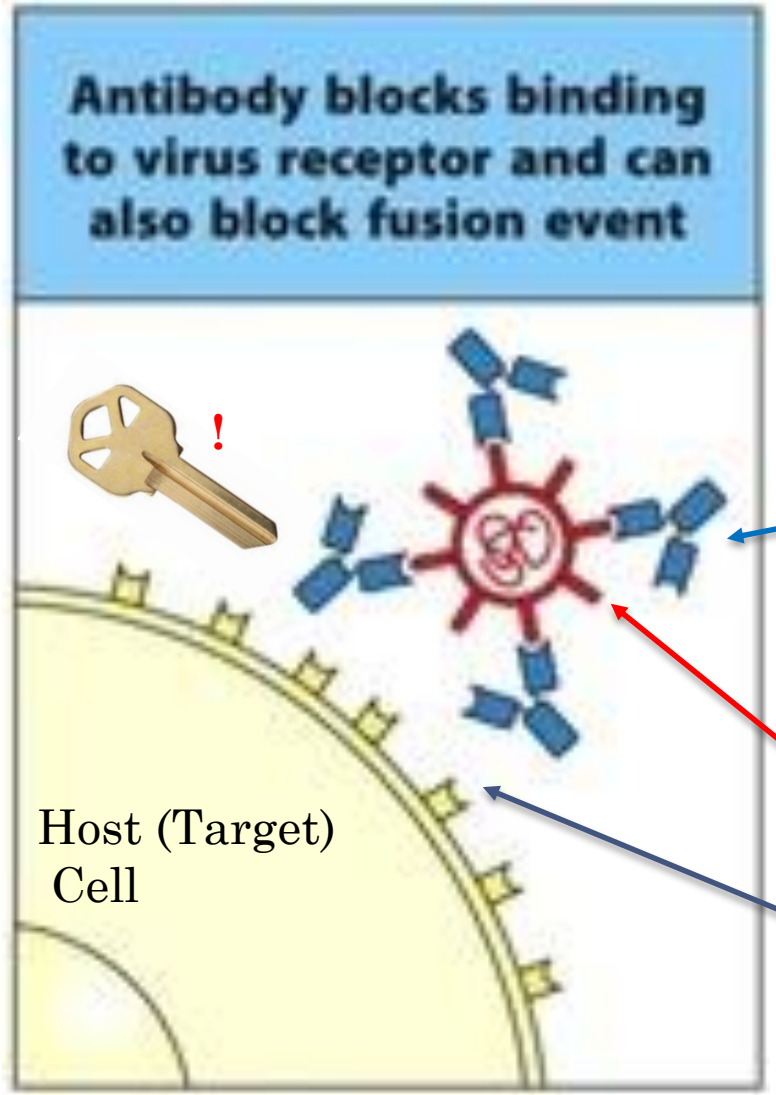
Viruses bind to host cells – (Antigens bind to virus receptors)



Antibodies bind to viruses



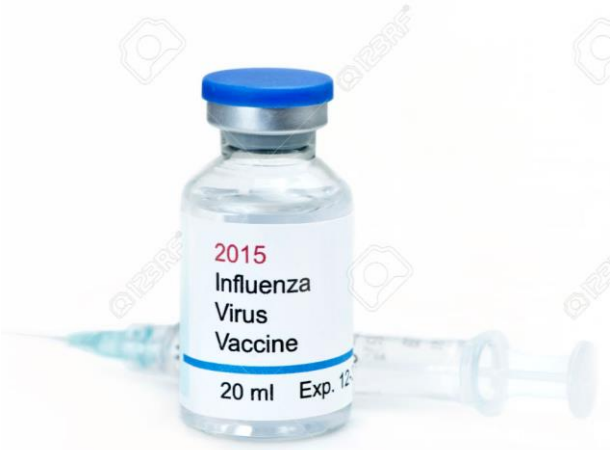
Antibody binds to virus – "Neutralization"



Antibody

Antigen

Virus receptor



...and now you also know what is in your "flu shot" – Influenza Virus Antigen!

Assessment #2

- What is the part of the virus binds to the antibody molecule?
  - a) The Fc portion
  - b) The antigen
  - c) The vaccine
  - d) The immunoglobulin
- What does the term “Fab” stand for?
- How do vaccines work?

What is working Memory?

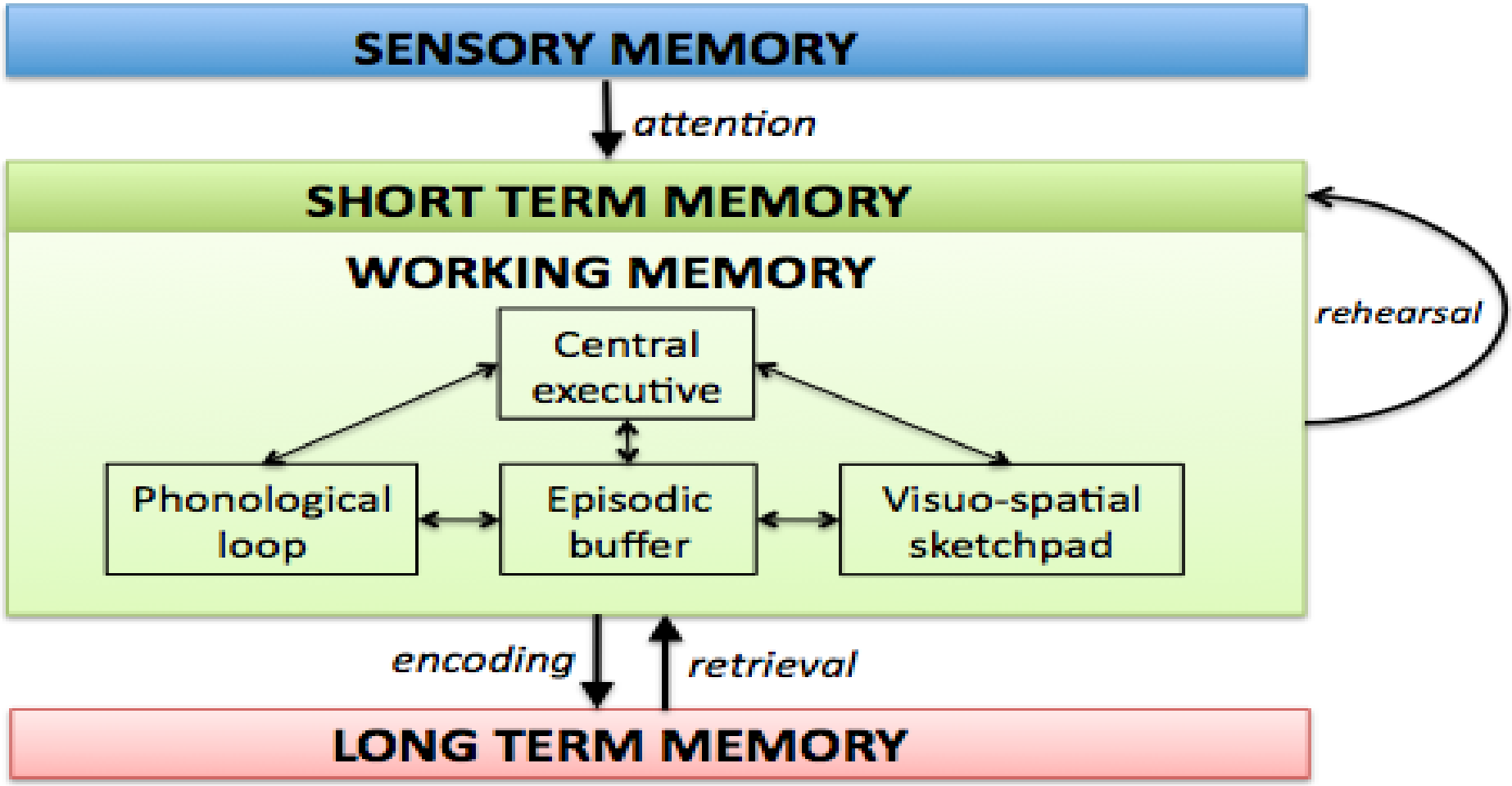
Temporary Storage

(10-15 seconds)

Active Processing

What you are thinking about in the moment.

Baddeley's model for Working Memory



https://memorisingmusic.com/2013/02/24/music-in-working-memory-literature-review/

Memory Game

Write down as many as you can remember!!

Strategies to "Work" Working Memory

- Relevancy (Elaborative Rehearsal)
- Storytelling (Imagery- Elaborative Rehearsal))
- Repetition (Maintenance Rehearsal)
- Chunking (Elaborative Rehearsal)

Relevancy

Definition

- Link content to its use in the real world
- Putting content into one's own words
- Incorporate individual perspectives into the content

Instructional Strategies

- Reflection ("Exit Slip")
- Application ("Do Now")
- Interest-based (Get to know your students- relate content to interests)
- Relate content to personal experiences/every day life during lecture/assignments

Storytelling

Definition

- Integrate pertinent content into a story format
- Creates images in listeners

Instructional Strategies

- Relate content to personal experiences in the field
- Have students create stories using content
- Show videos that relate to the content
- Use pictures instead of words when teaching

Repetition

Definition

- Repeat information
- Paraphrase what was just taught

Instructional Strategies

- Ask students to paraphrase content
- Have students "teach" one another content
  - Reciprocal Questioning
- Use small chunks of content at a time
- Use timed repetition (i.e. repeat content every 5 to 10 minutes)
- Recap at end of lecture

Chunking

Definition

- Group similar content into one chunk
- Allows for processing of single chunk

Instructional Strategies

- Review content and chunk similar parts
- Have students chunk content
- Present chunks instead of whole content

STOP AND WRITE

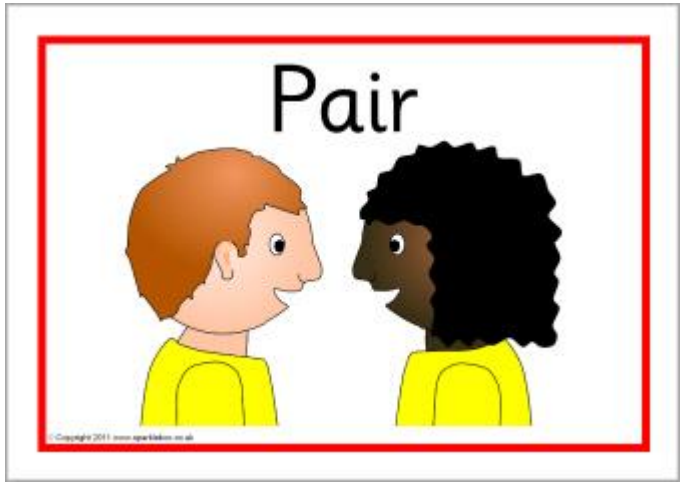
- Define working memory.

- Describe one teaching strategy from:
  - Relevancy
  - Storytelling
  - Repetition
  - Chunking

Let's put these strategies to work! Worksheet time!

- Reflect on an up-coming lecture
- Where could you integrate one or more of the WM strategies into your lecture?

Pair-Share



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