

ASCD
"Ask Dr. Judy" Webinar
How Can I help my students remember what I teach?
August 10, 2011 3pm EST.
Judy Willis, M.D., M.Ed
www.RADteach.com

Essential Questions

Where is memory first made?

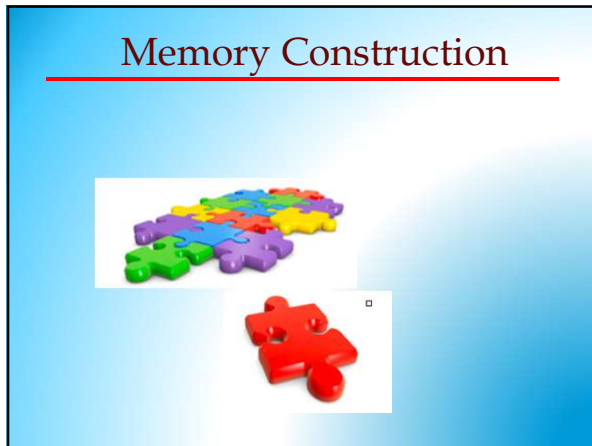
What makes something stick in working memory?

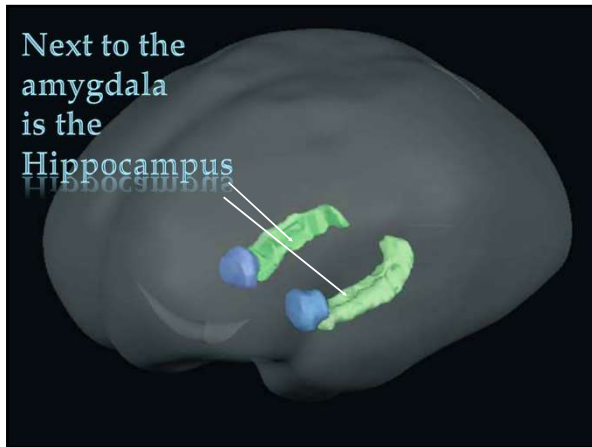
Next Webinar: How does short-term memory become long-term memory?

Participant Poll

In what part of the brain is new data encoded into working memory?

1. Thalamus
2. Hypothalamus
3. Hippocampus
4. Occipital cortex







Pattern Matching For Working Memory



The brain interprets new information based on existing patterns.

If there is no pattern waiting...



new input is misinterpreted, rejected, or disappears

When there is a successful pattern match...



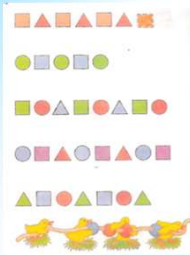
The new sensory input is encoded into a working memory

Patterning Recognition



Prior knowledge activation sends the related memory (with similar patterns) to the hippocampus to meet the new input

Pattern recognition is the basis for literacy & numeracy



Experience your own brain's patterning...

I cdnuolt blveiee taht I cluod aulacty uesdnatnrd waht I was rdanieg The phaonmneal pweor of the hmuan mnid!

The brain's recognition of frequently seen patterns allows you to read these words

Even though letters are omitted or in incorrect order the brain fills in the correct pattern

What color is this slide?



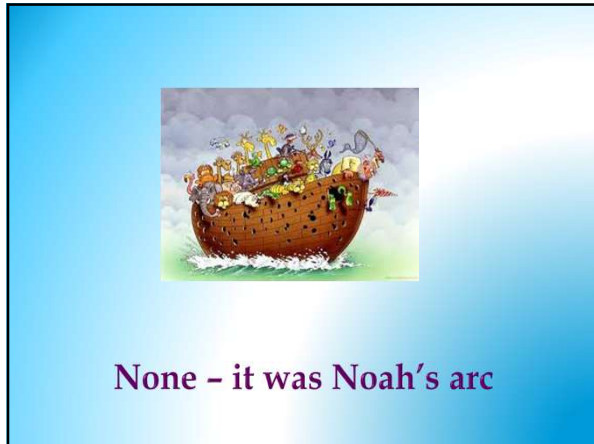
What does a cow drink?

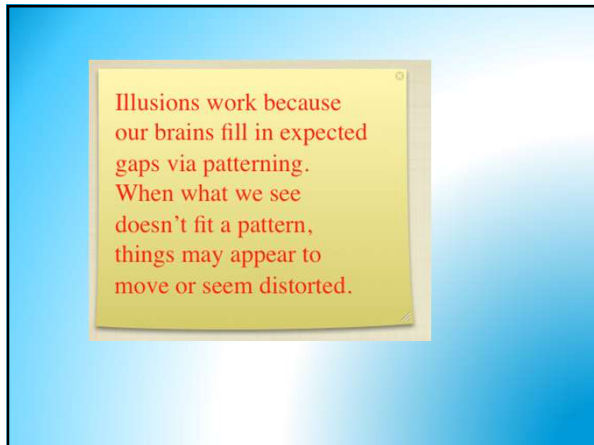
Participant Poll

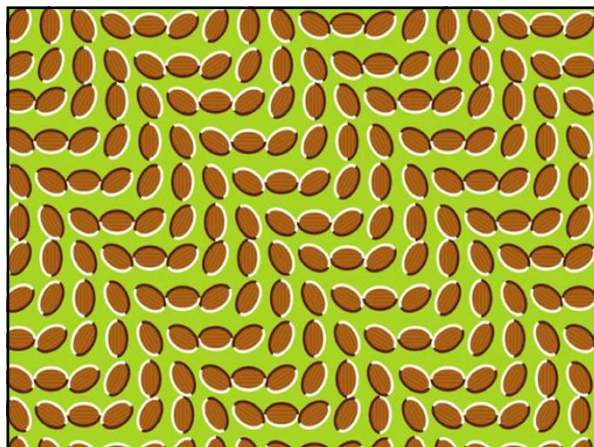


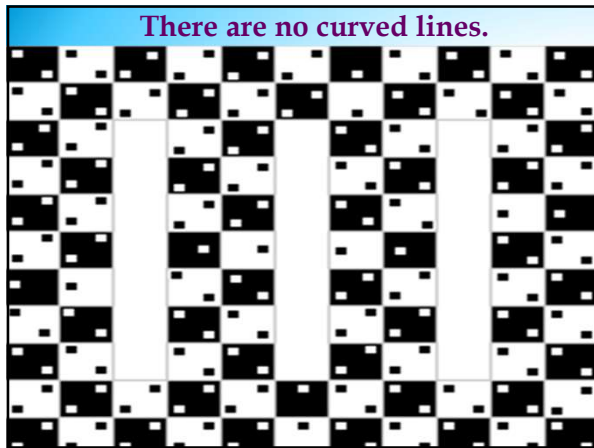
How many animals of each species did Moses bring on the arc?

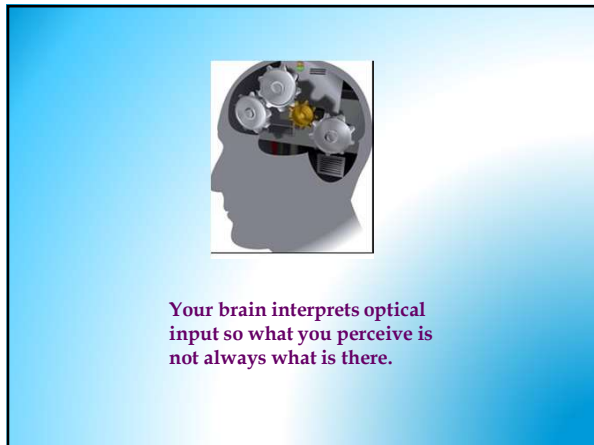
- 1. 2 animals of each species
- 2. 2 pair of each species
- 3. None of the above

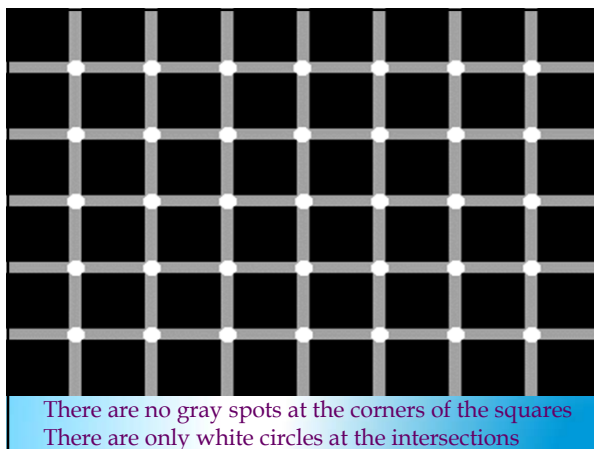


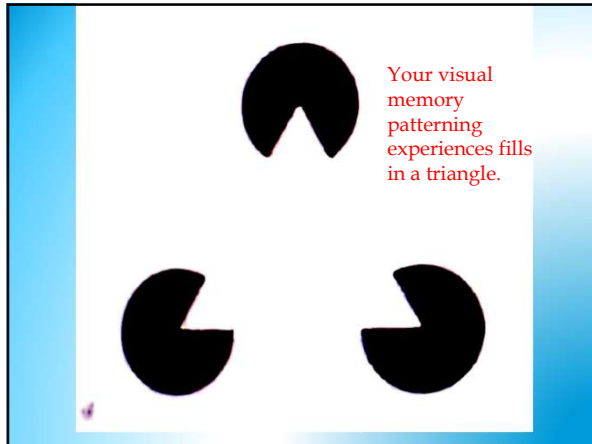


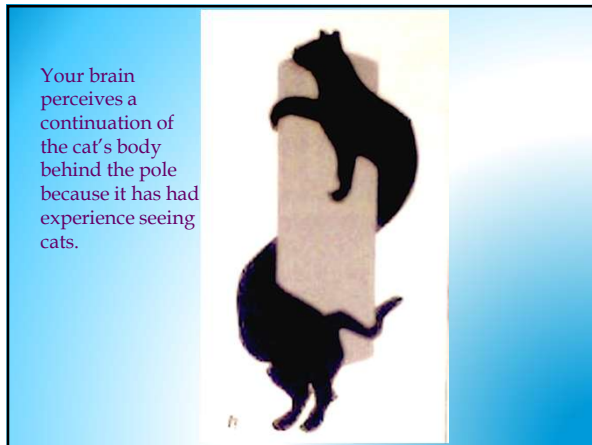












PATTERNING AND COLOR NAMES

Children whose primary language is Spanish learn color names more readily than native English speakers

THE RED HOUSE

CASA ROJA =
The **house** that is **red**



Pattern Recognition Practice



Pattern recognition practice: neurons in the visual cortex and elsewhere specialize to identify signature patterns

Pattern recognition: frees up mental resources in working memory

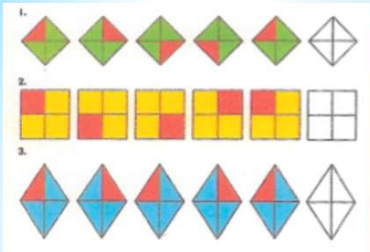
Explain that students can strengthen brain patterns

They did just that when they learned to walk, talk, and ride a bike



Patterning Practice

Color the last shape to continue the pattern. How are the shapes and patterns different? How are they alike?



Pattern Recognition Practice Examples



Build patterning and concept recognition by opportunities to classify problems and categories of information in addition to opportunities to solve specific problems

- Does the math “word problem” call for addition or subtraction focused on classifying problems?
- Fractions greater than $\frac{1}{2}$
- Paintings from the Renaissance
- Past tense verbs

Pattern Practice Web Resources

Early elementary pattern recognition worksheets
http://www.kidzone.ws/prek_wrksh/math-readiness/patterns.htm
<http://www.kidslearningstation.com/preschool/pattern-worksheets.asp>

Pattern recognition board games: upper elementary through high school:
<http://boardgamegeek.com/geeklist/44918/brain-burning-pattern-recognition-games>

Descriptions and links to interactive pattern games for all ages
http://www.ehow.com/info_7820555_interactive-pattern-games.html
 An example is the "Pattern Game" is a very simple interactive game where players create their own patterns by moving their mouse
<http://patterngame.com/>

Cyber Pattern Player: An interactive game that teaches children that patterns can not only be seen but heard as well
<http://pbskids.org/cyberchase/games/patterns/>

When pattern matching is repeatedly practiced...



The hippocampus becomes larger and more efficient


Example: London taxi drivers must encode routes

**Activation of Prior Knowledge
Increases Memory Encoding**

ACTIVATION OF THE PREFRONTAL CORTEX
MEMORY ACTIVATION REGION (LEFT)


RESULTED IN GREATER ACTIVITY IN MEMORY
FORMING HIPPOCAMPI

PFC Hippocampus



**Prior Knowledge
Activation**

Prior Knowledge is one
of the best predictors of
subsequent ability to
read, comprehend and
learn.



ACTIVATE PRIOR KNOWLEDGE

Give pre-unit assessments

Show videos or images that remind students of
prior knowledge

Hold class discussions starting with high interest
current events related to topic

Discuss with students what they learned about the
topic from another course or cross-curricular
studies (spiraled curriculum)

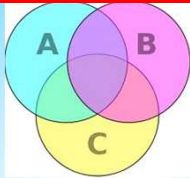
Activate Prior Knowledge Bridges



- Bulletin boards that preview Personal/cultural connections
- Predict/KWL
- Pre-unit assessments
- Show videos or images that remind students of prior knowledge
- Hold class discussions starting with high interest current events related to topic
- Discuss with students what they learned about the topic from another class (cross-curricular, spiraled curriculum)

Graphic Organizers

Venn Diagram



- Activates prior knowledge
- Compare and contrast new to existing memory
- Personalizes links to existing memory

Summary

- New information must link with existing memory to become working memory
- Frequently activated patterns promote automatic responses (milk, cow, white)
- Optical illusions - the brain interprets based on prior experiences (patterns) for automaticity
- Patterning practice promotes automaticity for literacy and numeracy
- Prior knowledge activation and graphic organizers increase pattern matching for memory encoding



NEXT ASK Dr. Judy: ASCD Webinar

How can students remember next year what I teach this year? Long-term Memory Strategies

December ?? 10, 2011
3pm EST

WEBSITE
www.RADTeach.com
