How do you physically learn and recall information? What is the mechanism?
Zull’s Biological Description

Brain contains 100 Billion neuron cells

Axons fingers between neurons to communicate with chemicals

Single neuron can have 10s of thousands connections!

Connections driven by sensations, thoughts or new actions!

Connections fade over time, thus need reinforcement

Neurons that *Fire together, Wire Together!*
Which class do you prefer? Why?

<table>
<thead>
<tr>
<th>Blocked Class Sessions</th>
<th>Interleaved Class Sessions</th>
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<tr>
<td>Monday: Topic A,</td>
<td>Topic A, Problem-Solving</td>
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<td>Problem-Solving Session</td>
<td>Session, Topic B</td>
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<td>Wednesday: Topic B,</td>
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<td>Friday: Topic C, Problem-Solving</td>
<td>Topic C, Problem-Solving</td>
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<tr>
<td>Session, Quiz</td>
<td>Session, Review or Quiz</td>
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*Blocked*  *Interleaved*

How does this relate to how we learn and recall information?
Blockers
- Learned Shape A
- Answered Problems Shape A
- Progressed through shapes

Mixers
- Learned all shapes
- Answered a mixed problem set

Practice Tested on day of instruction
Tested after 1 week
Results

Practice Performance

100%

Accuracy

60%

Mixers

89%

Blockers

Test Performance

100%

Accuracy

63%

Mixers

20%

Blockers
Principals of Structure

Blocked and Interleave Material

Keep it small, Keep it frequent

Explain and Support (and Support)
Video Asking Questions

https://youtu.be/yRZZpk_9k8E?t=33s
Connection Techniques

Course Outlines

Interleaving Topics

Peer Reinforcement