## Inst. Strategies

<table>
<thead>
<tr>
<th>EBP</th>
<th>Objective</th>
<th>Title</th>
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<tbody>
<tr>
<td><strong>Explicit Technique:</strong> <strong>Mnemonic Instruction</strong></td>
<td>Access to General Education Curriculum: help students better encode info more rapid retrieval</td>
<td><strong>Info Brief:</strong> Using Mnemonic Instruction to Facilitate Access to the General Education Curriculum (ACCESS/IDEA)</td>
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*Link new info to info already known*

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<tr>
<th>Keyword (pg. 1)</th>
<th>Pegword (pg. 2)</th>
<th>Letter Strategy</th>
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<tbody>
<tr>
<td>Link key words to info already encoded in memory</td>
<td>Rhyming words to represent numbers or order/visual image that can be associate with facts</td>
<td>Acronyms &amp; Acrostics</td>
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<tr>
<td>Memorizing definitions. Identify key word, provide related picture, have student of picture and what was happening, produce definition.</td>
<td>One -&gt; Bun; Two -&gt; Shoe… Example: Sugar Act came first: visual of sugar pouring on bun; Stamp Act came second: visual of a pair of shoes with a stamp</td>
<td><strong>HOMES:</strong> Huron, Ontario, Michigan, Erie, Superior&lt;br&gt;<strong>My Very Educated Mother Just Served Us Nine Pizzas:</strong> (Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune, Pluto)</td>
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<td>Explicit Technique: Self-Regulation, individualized, data-driven</td>
<td>Students become independent learners</td>
<td>Module: S.O.S Helping Students Become Independent Learners (IRIS)</td>
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<tr>
<th>Self-Monitor (pg. 4)</th>
<th>Goal</th>
<th>Procedure</th>
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| Self-Assess behavior & record results | 1. Select behavior to monitor  
2. Collect baseline data  
3. Obtain willing cooperation  
4. Teach the procedures  
5. Monitor Independent Progress |

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<th>Self-Instruction (pg. 4)</th>
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| Self-talk/self-statements | 1. Discuss the importance of what we say to ourselves  
2. Develop appropriate self-statements (see module pg. 5)  
3. Model and discuss how and when to use self-statements  
4. Practice |

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<tr>
<th>Goal-Setting (pg. 6)</th>
<th>Goal</th>
<th>Procedure</th>
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| Structure of end-goal, provides feedback, motivates performance | 1. Choose appropriate goal: specific and difficult to provide challenge  
2. Determine a timeline  
3. Establish a system of progress monitoring towards goal |

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<th>Self-reinforcement (Pg. 7)</th>
<th>Goal</th>
<th>Procedure</th>
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| Reward self for met goals | 1. Set goal for receiving rewards  
2. Select a reinforcer  
3. Determine student evaluation procedure |
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<tr>
<td>Explicit instructional &amp; inquiry strategies</td>
<td>Provide effective instruction to enhance student learning: space learning over time, worked examples, graphic/verbal description, abstract representation, quizzes, study time, deep questions</td>
<td>Organizing Instruction and Study to Improve Student Learning</td>
<td>Inst/Strat</td>
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**Space Learning Over Time (pg. 5)**
- Identify key concepts, terms, and skills to be taught and learned
- Expose students to each main element of material on at least 2 occasions
- Delay of exposure: 2 week to several months
- Arrange homework, quizzes, and exams in a way that promotes delayed reviewing

**Interleave Worked Example Solutions with problem-solving exercises (pg. 9)**
- Students alternate between already solved and own problem-solving exercises
- Reduce number of worked examples as students are more successful

**Combine graphics with verbal descriptions (pg. 13)**
- Graphical presentations illustrate key processes/procedures
- Verbal description in audio format, allows multiple pathways of comprehension

**Connect/integrate abstract and concrete representations of concepts (pg. 15)**
- Highlight relevant features among all forms

**Use quizzing to promote learning (pg. 19)**
- Pre-questions, must answer before beginning new topic
- Quizzes for retrieval practice
- Game-like quizzes for additional exposure

**Help students allocate study time efficiently (pg. 23)**
- Teach students to judge whether or not they have learned key components
- Teach students to check mastery after delay
- Check mastery without answers in front
- Quizzes can identify what is not learned
- Corrective feedback to assist students in finding answers on own

**Ask deep explanatory questions (pg. 29)**
- Think aloud
- Challenge & stimulate thought
1. **Use Quizes and fun games for retrieval practices to reduce forgetting**
   a. Ungraded, closed-book
   b. **Bell-ringers:** daily quizzes from previous day/week/months, short/quick with immediate feedback.
      i. 60% of students should be able to answer questions (increase confidence)
   c. **Vocabulary games** – recall definitions and terms/concepts
      i. Pyramid of 6 words: most difficult on top

2. **Teach students to test and assess their own knowledge and focus studies appropriately**
   a. Tests and quizzes can help students differentiate areas that need more work & reveal misunderstandings
   b. Immediate feedback by teachers
   c. Structured review of “big ideas”
      i. Students independently recall 3-4 big ideas from unit
      ii. Work with a partner to discover more about topic
   d. Flashcards!

3. **Use technology to provide quick-response quizzes**
   a. Web-based tools allow teachers to plug in their course content to existing templates

4. **Plan for important content to reviewed and revisited over time**
   a. Build review throughout course, not just before the assessment
   b. Review of topics incorporated into homework, assessments etc.
      i. Daily morning problems & cross course-content when possible
   c. Do not allow students to ignore areas of study that are difficult (i.e. waiting for unit to pass)
Examples with Practice

Increase student learning with worked examples alternated with problems to be solved

For templates/practice tools see: Examples with Practice >> Do What Works >> Tools and Templates

1. Develop homework sets that ask students to alternate between reading already worked solutions and solving problems on their own

2. Have teachers conduct “think-alouds” – explain thinking process while completing problems
   a. Teach key steps and strategies that are involved when solving problems (practice explaining thought-process before modeling)
   b. Have students explain their thought process for problems

3. Provide explicit models of “good examples”
   a. Broken down into steps/strategies
   b. Change form of problems/examples – allow students to identify underlying principles and commonalities across problems

4. Online tutorials to assist students
   a. Supplement teacher examples

Abstract-Concrete Connections

Understand complex topics and transfer knowledge to new contexts

For Templates/Practice Tools: Abstract-Concrete Connections >> Do What Works >> Tools & Templates

1. Identify challenging concepts - demonstrate them through concrete contexts
   a. Symbols, graphs, pictures, objects, movie clips, etc.
      i. Models: Cupcake Geology - Look at layers of the earth and take core samples using different food-items as models
   b. Real-life problems
      i. Designing Hovercrafts: Anchoring instruction in real-life problems
         1. Design rollover cage, draw top/side views, understand angles, cost of materials within budget
         2. Build scale model; use ratios to construct full-size model
2. Pair graphic representations with verbal descriptions that illustrate key processes & procedures
   - a. Graphics include labels of unfamiliar parts or steps within process
   - b. Relevant – not distracting
   - c. Uses within history lessons
     - i. Incorporate pictures, graphic organizers, visual metaphors to help explain complex topics
     - ii. Visuals: springboard for discussion
     - iii. Supportive of students with different learning styles

3. Understand benefits and limitations of concrete representations
   - a. Be explicit about how concrete concept does and does not connect with abstract idea

**Higher-Order Questions**

*Develop deep explanations: why, what caused, how did it occur, what if, how do they compare, what is the evidence?*

For Template/Practice tools: Higher Order Questions >> Do What Works >> Tools & Templates

1. Teachers must examine area of study and determine how experts in their field ask questions and provide explanation
   - a. Get at the heart of the topic
     - i. Be familiar with types of questions, important understandings, sources of evidence that shape discipline
   - b. Challenge students assumptions and/or misconceptions

2. Encourage students to “dig deeper”
   - a. Use questions that prompt students to think critically
   - b. Ask students to provide explanation beyond course material
   - c. White Board Presentations: Physics Class
     - i. Forum for explaining thought-process
     - ii. Presentation allows student to identify gaps in knowledge
   - d. Socratic Seminar: open-ended questions followed by probing questions
     - i. Students agree or disagree and use evidence to back-up their stance

3. Create a classroom culture that encourages students to take risk and ask questions
   - a. Allow sufficient wait time for response, provide sentence starts as scaffolding, create norms of respectful dialogue