

Best Practices Scorecard

| Practice | Context and What To Do |
|--|---|
| Start Simple & make quick, easy-to-validate connections | At start up or when confused, 1) use small numbers 2) use simple situations |
| 1 My application (<i>describe</i>) | |
| 2 My application (<i>describe</i>) | |
| Draw a Picture or Diagram to clarify the situation | When you can visualize the situation, 1) Include essentials 2) Minimize non-essentials |
| 1 My application (<i>describe</i>) | |
| 2 My application (<i>describe</i>) | |
| Find What is Similar | Every time you start new learning, 1) List similarities 2) List what you don't know/understand |
| 1 My application (<i>describe</i>) | |
| 2 My application (<i>describe</i>) | |

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| Validate to make sure your results are 100% correct | Every time you solve a problem |
| <div style="border: 1px dashed gray; padding: 10px;"> <p>1 My application <i>(describe)</i></p> <hr style="border-top: 1px dashed gray;"/> <p>2 My application <i>(describe)</i></p> </div> | |
| Analyze an Example to tap into the expert's thinking | Once you have the basics down, 1) Find 2 or 3 examples 2) Follow the thinking 3) Compare and contrast |
| <div style="border: 1px dashed gray; padding: 10px;"> <p>1 My application <i>(describe)</i></p> <hr style="border-top: 1px dashed gray;"/> <p>2 My application <i>(describe)</i></p> </div> | |
| Analyze the Differences as a way to follow the logic | In analyzing models/examples or methodologies, 1) Find the differences 2) Explain what is going on & why |
| <div style="border: 1px dashed gray; padding: 10px;"> <p>1 My application <i>(describe)</i></p> <hr style="border-top: 1px dashed gray;"/> <p>2 My application <i>(describe)</i></p> </div> | |

1.4 Best Practices for Learning Mathematics

| Practice | Context and What To Do |
|---|---|
| Ask “Why?” to go from just doing to understanding | Every time you are confused, 1) determine what confused you 2) determine why it confused you |
| <p>1 My application <i>(describe)</i></p> <hr style="border-top: 1px dashed gray;"/> <p>2 My application <i>(describe)</i></p> | |
| Understand before Applying so you don't spin your wheels | During each learning cycle, 1) Find the key points 2) Pick examples you understand 3) Present it to another 4) Verify they understand |
| <p>1 My application <i>(describe)</i></p> <hr style="border-top: 1px dashed gray;"/> <p>2 My application <i>(describe)</i></p> | |
| Apply a Methodology to help learn a process | When learning a new process, 1) Review the steps 2) Study the example 3) Read and understand the discussion using the example(s) 4) Try your own example |
| <p>1 My application <i>(describe)</i></p> <hr style="border-top: 1px dashed gray;"/> <p>2 My application <i>(describe)</i></p> | |

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|---|---|
| <p>Ask “What if?” as a way to identify what you understand</p> | <p>After completing each problem, 1) Identify variables that can change 2) Explore a range of values for variables 3) Check for limitations 4) Check for any special situations</p> |
| <p>1 My application (<i>describe</i>)</p> <hr/> <p>2 My application (<i>describe</i>)</p> | |
| <p>Generalize your understanding to different contexts</p> | <p>At the end of each learning cycle, 1) List how the knowledge varies 2) Test acceptable ranges 3) Look for special cases 4) Identify contexts for use</p> |
| <p>1 My application (<i>describe</i>)</p> <hr/> <p>2 My application (<i>describe</i>)</p> | |
| <p>Change Perspectives</p> | <p>When you’re stuck and making no headway, 1) Change or transform the representation 2) Explain to someone else 3) Ask an expert for his or her perspective</p> |
| <p>1 My application (<i>describe</i>)</p> <hr/> <p>2 My application (<i>describe</i>)</p> | |