164 Science and Mathematics Formative Assessment Classroom Techniques (FACTs)

1- A&D Statements ⊙+ T 2- Always, Sometimes, Never +★ T 3- Agreement Circles ⊙+ 4 -Annotated Student Drawings ⊙ 5- BDA Drawings★ 6- Card Sorts ⊙+ T 7- Claim Cards ★ 8- Collaborative Clued Corrections (CCC) ⊙+ 9- Chain Notes ⊙ 10- C-E-O-SE **★** T 11- Comment Coding � 12- Comments Only Marking +★ 13-Commit and Toss ⊙+ 14- Comparison Overlap Probes ★ 15- Concept Attainment Cards +★ 16- Concept Card Mapping ⊙+ 17- Concept Cartoons[™] ⊙+ 18- Concept Mix Up Probes ★◆ 19- Confidence Levels ★ ◆ 20- Conjecture Cards 🛠 21- Cover Up 🛠 22- Create The Problem + 23- Cross-Cutter Cards ★ 24- CSI- Color, Symbol, Image * 25-Data Match ⊙ 26- Diagnostic Collections * 27-Directed Paraphrasing ⊙ 28- Enhanced Multiple Choice ★◆ 29- Error Analysis 🛠 30- Every Graph Tells a Story + 31- Every Day Mystery Stories ★ 32- Example-Non-Example + T 33- Explanation Analysis ⊙ 34- Extended Sticky Bars ★ ◆ 35- Eye Contact Partners ★ ◆ 36- Fact First Questioning ⊙+ 37- Familiar Phenomenon Probes

38- Feedback Check-Ins 🛠 39- Feedback Focused Group Discourse 🛠 40- Feedback Sandwich * T 41- Feedback to Feed Forward +★ T 42- Find Someone Who * T 43- Fingers Under Chin ★◆ 44- Flip the Question ❖ 45- First Word- Last Word ⊙ 46- Fish Bowl Think Aloud ⊙ 47- Fist to Five ⊙+ 48- Focused Listing ⊙ 49- Four Corners ⊙+ 50- Four Corners Jigsaw ★◆ 51- Frayer Model ⊙+ T 52- Friendly Talk Probes ⊙+ 53- Gallery Walk ★◆ 54- Give Me Five ⊙+ 55- Group Frayer Model ★ ◆ T 56- Group Talk Feedback ★ ◆ T 57- Guided Reciprocal Peer Questioning ⊙ 58- Homework Card Sort ★◆ 59- Hot Seat Questioning +★ 60- Human Scatter Graphs ⊙+ 61- I Think- I Re-Think ★◆ 62- I Think- We Think ⊙ 63- I Used to Think But Now I Know ___ ⊙+ T 64- Informal Student Interviews ⊙ 65- Interactive Whole-Class Card Sorting * 66- Interest Scale ⊙ 67- Is It Fair? + 68- Juicy Questions ⊙ 69- Justified List ⊙+ T 70- Justified True- False Statements ⊙+

71- K-W-L Variations ⊙+ T 72- Learning Goals Inventory ⊙+ T 73- Learning Intentions ★◆ 74- Learning Intentions Reflection * T 75- Let's Keep Thinking ★◆ 76- Lines of Agreement ★◆ 77- Look Back ⊙+ T 78- Magnetic Statements * 79- Matching Cards 🛨 ★ 80- Mathematician's Ideas Comparison + T 81- Missed Conception ⊙ 82- More A- More B Probes +★ 83- Most and Least Sure About * 84- Muddiest Point ⊙+ 85- No Hands Questioning ⊙+ 86- Now Ask Me a Question � 87- Odd One Out ⊙+ T 88- Opposing Claims Probes ⊙+★ 89- Overgeneralization Probes + 90- Paint the Picture O 91- Partner Speaks ⊙+ 92- Partner Strategy Rounds * T 93- Pass the Question ⊙ 94- Pass the Problem + 95- P-E-O Probes ⊙+ 96- Peer-to-Peer Focused Feedback + 97- A Picture Tells a Thousand Words ⊙+ 98- Picture This ★ 99- Plus- Delta ★ ◆ T 100- PMI- Plus, Minus, Interesting ★ ◆ T 101-POMS- Points of Most Significance ⊙+ 102-Popsicle Stick Questioning ⊙+

103- Prefacing Explanations ⊙

104-PVF-Paired Verbal Fluency ⊙+ 105-Question Generating ⊙+ 106- Questioning Cue Cards * T 107- Ranking Tasks ★◆ 108- R-A-Q Feedback ** 109- Recognizing Exceptions ⊙ 110- Reflect Aloud � 111- Reflect Then Self-Assess * T 112-- Reflective Toss ★ 113- Refutations ⊙ 114- Representation Analysis ⊙ 115- RERUN O T 116- Response Cards + T 117- Rules that Expire � 118- Same A- Same B Probes + 119- Scientists' Ideas Comparison ⊙ T 120- Seeing Structure * 121- Sequencing ⊙+ 122- Slide Sort ★ ◆ T 123- Sort Envelopes 🛠 124- Sticky Bars ⊙+ 125- STIP- Scientific Terminology Inventory Probe

T 126- Strategy Harvest + T

127- Strategy Probe + 128- Structures for Taking Action -129- Student Evaluation of Learning Gains ⊙+ T 130- Student Interviews + 131- Success Indicators ★◆ 132- Success Indicator Problem Generating * 133- Synectics ⊙ T 134- Take Stock 🛠 135- Talk Moves ★◆ 136- TAR- Target, Analogy, Reflection **★** T 137-Thermometer Feedback * 138- Think-Pair-Share ⊙+ 139- Thought Experiments ⊙+ 140- Three Minute Pause ⊙+ 141- Three-Two-One ⊙+ T 142- Terminology Inventory Probe ⊙+ T 143- Ten-Two ⊙+ 144- Think Alouds + 145- Thinking Logs ⊙+ 146- Thumbs Up, Down and Sideways * 147- Traffic Light Cards ⊙+

148- Traffic Light Cups ⊙+ 149- Traffic Light Dots ⊙+ 150- Traffic Light Sliders ★◆ 151- Two Minute Paper ⊙+ 152- Two or Three Before Me ⊙+ 153- Two Stars and a Wish ⊙+ 154-Two Thirds Testing ⊙+ 155- Vernacular Probes * 156- Volley Ball, Not Ping Pong ⊙+ 157- VDR- Vote, Discuss, Revote ★◆ 158- Wait Time Variations ⊙+ 159- What Are You Doing and Why ? ⊙**+** 160- What Did I Learn Today * 161- What Stuck With You Today? � 162- Whiteboarding ⊙+ 163- Word Sort **+** ★ 164- X Marks the Spot * T

Key:

● In Science Formative Assessment- 75 Practical Strategies for Linking Assessment, Instruction, and Learning, 2nd Edition 2016 (Keeley 2008)

★ In Science Formative Assessment- 50 More Practical Strategies for Linking Assessment, Instruction, and Learning (Keeley 2015)

• In Mathematics Formative Assessment- 75 Practical Strategies for Linking Assessment, Instruction, and Learning (Keeley and Tobey 2011)

 In Mathematics Formative Assessment- 50 More Practical Strategies for Linking Assessment, Instruction, and Learning (Keeley and Tobey 2017)

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