

Purposeful Planning: Growing Independent Mathematical Learners - Kindergarten

Week 2 is devoted to teaching students about National Council of Teachers of Mathematics (NCTM) Process Standards. NCTM’s Process Standards represent students “doing math”; they require thinking that demonstrates mathematical knowledge in each strand of mathematics. Focusing on one standard each day, or over the course of several days, is advantageous for students as they perform mathematical tasks throughout the school year. Problem solving, representation, reasoning and proof, communication, and connections should be imbedded in all mathematical concepts because they support and encourage mathematical thinking. While working on the Process Standards, continue reviewing the behavioral strategies from Week 1. In Week 2, the goal is to practice workshop procedures while teaching the NCTM Process Standards, which are necessary thinking tools to understand the content standards. The tools will be in place for students to process the mathematics and be responsible for their own thinking and learning.

Week 2 Process Standards	Goal/EQ	NCTM Process Standards**	Possible Content Lessons	Summary/Reflective Closure
Day 6	How do I solve problems?	Problem Solving* <ul style="list-style-type: none"> Build new mathematical knowledge through problem solving Solve problems in other contexts Apply and adapt a variety of strategies to solve problems Monitor and reflect on the process of problem solving 	Hands On Standards/Pre K-K/ Geometry/Lesson 4 <ul style="list-style-type: none"> Introduce Polya’s 4 step Problem Solving method: Read/Understand, Plan, Solve, Check Focus on Read/Understand step Have students complete the statement, “I have to...” 	Turn ‘N Talk: “Today in math I noticed...”
Day 7	How can I show my thinking?	Representation* <ul style="list-style-type: none"> Create and use representations to organize, record and communicate mathematical ideas Select, apply and translate among mathematical representations to solve problems Use representations to model and interpret physical, social, and mathematical phenomena 	Exemplar/Diff. III/K-2/Kitty Corner <ul style="list-style-type: none"> Review the 4 Step Problem Solving Method Focus on the Plan and Solve steps Model various methods of representation (pictures/diagrams, manipulatives, charts, etc.) Choosing an appropriate representation can solicit solutions 	Journal: “A representation I used in my work was...”
Day 8	How do I know my answer is correct?	Reasoning and Proof* <ul style="list-style-type: none"> Recognize reasoning and proof as fundamental aspects of mathematics Make and investigate mathematical conjectures Develop and evaluate mathematical arguments and proofs Select and use various types of reasoning and methods of proof 	Exemplar/MOCC/ K-2/How Many Vertices? <ul style="list-style-type: none"> Review the 4 Step Problem Solving Method Focus on the “Solve” step Model how equations, diagrams, charts, etc. prove and support their solutions Highlight different methods used to solve problems 	Turn ‘N Talk: “I know my solution to the problem works because...”
Day 9	How can I explain my mathematical thinking?	Communication* <ul style="list-style-type: none"> Organize and consolidate mathematical thinking through communication Communicate mathematical thinking coherently and clearly Analyze and evaluate mathematical thinking and strategies of others Use the language of mathematics to express mathematical ideas precisely 	Super Source/K-2/Geoboards/Picture This! <ul style="list-style-type: none"> Review the 4 Step Problem Solving Method Focus on the Check step Model math thinking and responses via Think Alouds Model ways to record math thinking Discuss different methods for solutions Emphasize vocabulary that will assist students in communicating mathematical ideas 	Journal: See Thinking and Sharing prompts under “The Bigger Picture” at the end of the S.S. lesson for possible student responses
Day 10	How is this related to my world?	Connections* <ul style="list-style-type: none"> Recognize and use connections among mathematical ideas Understand how mathematical ideas interconnect and build on one another to produce a coherent whole Recognize and apply mathematics in contexts outside of mathematics 	Hands On Standards/Pre K-K/Geometry/Lesson 7 <ul style="list-style-type: none"> Review the 4 Step Problem Solving Method Focus on the Check step Model ways to make mathematical connections (i.e. Math to Math, Math to World, Math to Self) 	Turn N’ Talk: “Today’s math lesson reminds me of...”

*Revisit Week 1’s skills, strategies, and behaviors as needed

**Use the Process Standards as vocabulary words