Implementing Standards for Mathematical Practices

**#4 Model with mathematics.**

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|  | **Summary of Standards for Mathematical Practice** |  | **Questions to Develop Mathematical Thinking** |  |
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|  | **4. Model with mathematics.** |  | What number model could you construct to represent the problem? |  |
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|  | • Understand this is a way to reason quantitatively and abstractly (able to |  | What are some ways to represent the quantities? |  |
|  | decontextualize and contextualize). |  | What’s an equation or expression that matches the diagram? number line? chart? |  |
|  | • Apply the math students know to solve problems in everyday life. |  | table? |  |
|  | • Able to simplify a complex problem and identify important quantities to look at |  | Where did you see one of the quantities in the task in your equation or expression? |  |
|  | relationships. |  | Would it help to create a diagram, graph, table, …? |  |
|  | • Represent mathematics to describe a situation either with an equation or a diagram | What are some ways to visually represent…? |  |
|  | What formula might apply in this situation? |  |
|  | and interpret the results of a mathematical situation. |  |  |
|  | • Reflect on whether the results make sense, possibly improving/revising the model. |  |  |  |
|  | • Ask themselves, “How can I represent this mathematically?” |  |  |  |
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|  | **Implementation Characteristics: What does it look like in planning and delivery?** |  |
|  | **Task**: elements to keep in mind when determining learning experiences | **Teacher:** actions that further the development of math practices within their students |  |
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**Task:**

* Is structured so that students represent the problem situation and their solution symbolically, graphically, and/or pictorially (may include technological tools) appropriate to the context of the problem.
* Invites students to create a context (real-world situation) that explains numerical/symbolic representations.
* Asks students to take complex mathematics and make it simpler by creating a model that will represent the relationship between the quantities.
* Requires students to identify variables, compute and interpret results, report findings, and justify the reasonableness of their results and procedures within context of the task.

**Teacher:**

* Demonstrates and provides student’s experiences with the use of various mathematical models.
* Questions students to justify their choice of model and the thinking behind the model.
* Asks students about the appropriateness of the model chosen.
* Assists students in seeing and making connections among models.
* Give students opportunity to evaluate the appropriateness of the model.

*Institute for Advanced Study/Park City Mathematics Institute*/ Created by Learning Services, Modified by Melisa Hancock, 2013

Reflections on This Week: Mathematical Practice 4

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| What did you do to incorporate this practice into your classroom this week? Explain. |
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| Did you experience any difficulties incorporating this practice into your classroom this week? Explain. |
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| Did the use of the checklist help you to incorporate this practice into your classroom this week? Explain. |
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| Did the use of the Weebly module help you to incorporate this practice into your classroom this week? Explain. |
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