Implementing Standards for Mathematical Practices

**#5 Use appropriate tools strategically.**

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|  |  | **Summary of Standards for Mathematical Practice** | **Questions to Develop Mathematical Thinking** |  |
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|  | **5. Use appropriate tools strategically**. | | What mathematical tools could we use to visualize and represent the situation? |  |
|  | • | Use available tools recognizing the strengths and limitations of each. | What information do you have? |  |
|  | • | Use estimation and other mathematical knowledge to detect possible errors. | What do you know that is not stated in the problem? |  |
|  | What approach are you considering trying first? |  |
|  | • | Identify relevant external mathematical resources to pose and solve problems. |  |
|  | What estimate did you make for the solution? |  |
|  | • | Use technological tools to deepen their understanding of mathematics. |  |
|  | In this situation would it be helpful to use a graph..., number line..., ruler..., |  |
|  | • Use mathematical models for visualizing and analyzing information | |  |
|  | diagram..., calculator..., manipulative? |  |
|  |  |  |  |
|  |  |  | Why was it helpful to use \_\_\_\_? |  |
|  |  |  | What can using a \_\_\_\_\_\_ show us that \_\_\_\_\_may not? |  |
|  |  |  | In what situations might it be more informative or helpful to use...? |  |
|  |  |  |  |  |

**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

**Task:**

* Requires multiple learning tools. (Tools may include: manipulatives (concrete models), calculator, measurement tools, graphs, diagrams, spreadsheets, statistical software, etc.)
* Requires students to determine and use appropriate tools to solve problems.
* Requires students to demonstrate fluency in mental computations.
* Asks students to estimate in a variety of situations:

-a task when there is no need to have an exact answer

-a task when there is not enough information to get an exact answer -a task to check if the answer from a calculation is reasonable

**Teacher:**

* Demonstrates and provides students experiences with the use of various math tools. A variety of tools are within the classroom learning environment and readily available.
* Allows students to choose appropriate learning tools and questions students as to why they chose the tools they used to solve the problem.
* Consistently models how and when to estimate effectively, and requires students to use estimation strategies in a variety of situations.
* Asks student to explain their mathematical thinking with the chosen tool.
* Asks students to explore other options when some tools are not available.

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

Reflections on This Week: Mathematical Practice 5

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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. |
|  |
| Did the use of the Weebly module help you to incorporate this practice into your classroom this week? Explain. |
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