# Elementary Professional Development Center
# Math: Menu of Services

The following Menu of Services will build upon the framework of lesson design developed over the 3-day PD center work, as well as support our larger ESC goals. These services outlined here will be provided direct to schools, through bank-time, lesson study, PLC work, grade-level planning, and/or focused on-site efforts.

These services are based on the following four research-based principles outlined in the **NSDC's Report "Professional Learning in the Learning Profession: A Status Report on Teacher Development in the United States and Abroad" (Darling-Hammond 2009): 1) PD should be intensive, ongoing, and connected to practice; 2) PD should focus on student learning and address the teaching of specific content; 3) PD should align with school improvement priorities and goals; and 4) PD should build strong working relationships among teachers.**

In addition these PD services were designed to be in alignment with the following four professional development principles from the recently released report by the **Center for Public Education titled "Teaching the Teachers: Effective Professional Development in an Era of High Stakes Accountability" which follow: 1) The duration of professional development must be significant and ongoing to allow time for teachers to learn a new strategy and grapple with the implementation problem; 2) There must be support for a teacher during the implementation stage that addresses the specific challenge of changing classroom practice; 3) Teachers' initial exposure to a concept should not be passive, but rather should engage teachers through varied approaches so they can participate actively in making sense of a new practice; 4) Modeling has been found to be highly effective way to introduce a new concept and help teachers understand a new practice.**

Thus the ISIC Math Menu of Services is presented below as a Professional Development Series of connected PD experiences spread over time to allow for implementation and reflection in-between connected PD experiences in order to allow teachers opportunities to practice and receive feedback from an instructional coach/CCSS Math Expert or their PLC before moving forward with the next PD experience in the series of connected PDs. PD experiences in a series could be spaced out anywhere from 1 week to 4 weeks to allow for teacher implementation and feedback.

The professional development plan for each school site will be based on individual school needs determined by instructional rounds, ISIC's Common Core strategic plan, and principal/director discretion. Please note that the following Professional Development Series will be adapted to your individual school needs. These are not intended to be one-time isolated PD offerings; instead, they will be delivered and implementation support will be provided in a variety of forms over time. Finally all of these PD Series will not nor can they be delivered in one year at a school site; maybe 1 or 2 PD series are selected for one year at one school site with follow-up for the rest of the year to refine/revise the implementation of this new learning.

Los Angeles Unified School District
**INTENSIVE SUPPORT AND INNOVATION CENTER**
*"We innovate and transform learning to inspire excellence."*

TOMMY CHANG, ED.D.
INSTRUCTIONAL AREA SUPERINTENDENT

# Elementary Math Professional Development Series

| Professional Development Series Title | Connected PD Sessions[3] | Description |
|---|---|---|
| **ISIC Plan, Deliver, Reflect, Revise /Refine Toolkit[1]**<br><br>Teaching & Learning Framework Connections:<br>1a2, 1d1, 1d4, 1e2, 1e3, 1e4<br>3b1, 3b2, 3c1, 3d3<br><br>Math Shifts Connections:<br>Focus<br>Coherence<br>Rigor<br><br>Math Practice Connections:<br>SMPs 1-8<br><br>Special Population Connections:<br>ELLs<br>SWDs<br>SELs | 1) Deconstruct Performance Task<br>**2 hr Bank Time + Staff**<br>**2 hr (K-2 each)**<br>**2 hr (3-5 each)** | PD will include using the ISIC Toolkit section Deconstructing Periodic Assessment Protocol. The CA Math Framework, CCSSM, and the University of Arizona CCSS Math Learning Progressions will be used to deconstruct the LAUSD math performance tasks in the district periodic assessments. |
| | 2) Plan a Unit using UbD<br>**1 day per grade level**<br><br>After Experience Designing UBD Unit:<br>**2 hr per grade level (K-2)**<br>**2 hr per grade level (3-5 each)** | In this PD participants will become familiar with the Understanding By Design (UbD) Framework in the process of cognitively planning a unit. PD will a include grade level team planning a coherent instructional sequence using the LAUSD Curriculum Maps and with a focus on a Critical Area/SBAC Target in that particular grade level. The unit will include a mid and end of unit formative assessment. The unit should address the focus standards of the upcoming periodic assessment. This PD could be a precursor to a Lesson Study Cycle using one of the lessons within the unit. |
| | 3) Reflect: Analyze Student Work<br>**2 hr Bank + Staff**<br>**2 hr per grade level (K-2 each)**<br>**2 hr per grade level (3-5 each)** | PD will use the ISIC Toolkit section Reflect. Teacher will learn how to analyze student work collaboratively using a modified version of the ATLAS protocol and use a protocol to score their students' work individually and collaboratively. This is an example of PLC work. |
| | 4) Revise and Refine Unit<br>**2 hr Bank + Staff**<br>**2 hr (K-2 each)**<br>**2 hr (3-5 each)** | PD will use the ISIC Toolkit section Refine/Revise. Teachers will employ the use of a protocol for revising and refining the unit. Teachers will then revise the unit for future delivery of instruction. |

1. **It is highly recommended that all PD experiences in this series be delivered as a series and not as an isolated PD experience. The series will include anywhere from 1 to 4 weeks of in between time between PD experiences to allow for implementation and feedback.**
2. **PD experiences in this series can be scheduled outside of the series as an isolated PD experience in order to meet the needs of the school.**
3. **These suggested times are provided to allow for flexibility in scheduling and as allowed by the school budget.**

| Professional Development Series Title | Connected PD Sessions[3] | Description |
|---|---|---|
| **Teaching Math Through Problem Solving: A Student Centered Approach and Math Workshop Model[1]**<br><br>Teaching & Learning Framework Connections:<br>1a1, 1a2, 1d1, 1d4, 1e2, 1e3, 1e4<br>3b1, 3b2, 3c1<br><br>Math Shifts Connections:<br>Focus<br>Coherence<br>Rigor<br><br>Math Practice Connections:<br>SMPs 1-8<br><br>Special Population Connections:<br>ELLs<br>SWDs<br>SELs | 1) Doing Math with Rigorous Tasks<br>**2 hrs Bank Time + Staff**<br>**2 hrs (K-2 each)**<br>**2 hrs (3-5 each)** | PD will build teacher content knowledge through engaging teachers in solving rich mathematical tasks in a defined and focused set of mathematical content and practices. Focus domains from which these rich mathematical tasks will come from include: (1) counting and cardinality and number and operations in base ten (grades k-2); 2) operations and algebraic thinking (grades k-5); & (3) number and operations-fractions (grades 3-5). Teachers will also share their solution paths and make connections to the CA Math Framework & AZ CCSS Learning Progression documents. |
| | 2) Engaging Students with Rigorous Tasks<br>**2 hrs Bank Time + Staff**<br>**2 hrs (K-2 each)**<br>**2 hrs (3-5 each)** | PD will provide teachers with guidance in engaging students with rigorous math tasks in order to provide students with multiple entry points, multiple solution paths, sustained academic discourse, and maintain cognitive demand at a high level. Teachers will learn how to use the Task Analysis Guide from the University of Pittsburg in evaluating, selecting, creating, and modifying mathematical tasks to increase their cognitive rigor. |
| | 3) Planning a Rigorous Problem-Based Lesson (Three Phase Lesson)<br>**2 hrs Bank Time + Staff**<br>**2 hrs (K-2 each)**<br>**2 hrs (3-5 each)** | PD will provide an overview of planning a problem-based lesson using John Van De Walle's Three Phase Problem Based Lesson Format (Before, During, & After). A video (Primary or Upper Grade Problem-Based Lesson) of a Three Phase Lesson will be shown if schools request a complete review. Grade level teams will then plan their own problem-based lesson using the same structure and using lesson resources from the LAUSD Curriculum Map. |

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| Professional Development Series Title | PD Sessions[3] | Description |
|---|---|---|
| **CCSS Boot Camp[2]**<br><br>Teaching & Learning Framework Connections:<br>1a1, 1a1, 1d1, 3c1, 3c3<br><br>Math Shifts Connections:<br>Focus<br>Coherence<br>Rigor<br><br>Math Practice Connections:<br>SMPs 1-8<br><br>Special Population Connections:<br>ELLs<br>SWDs<br>SELs | 1) CCSSM Content Standards & Critical Areas & Where to Focus Instruction<br>**2 hrs Bank Time + Staff** | PD will provide an overview of the CCSSM Content Standards in terms of how to read them, the structure and organization in K-5. It will also focus on providing teachers with an understanding of where to focus their instructional time in math using the critical areas and the *Student Achievement Partner's Where to Focus* documents for each grade including the major, supporting, and other clusters. |
| | 2) CCSSM Practice Standards<br>**2 hrs Bank Time + Staff** | PD will provide teachers with a deeper look at the Standards for Math Practice (SMPs) including their origins, and include activities, which will allow teachers to engage with, read and process the Math Practices. Teachers will also see videos of the Math Practices in Action and be provided with tools to develop student's proficiency and progress with the SMPs as well as tasks/activities which model and effectively integrate the SMPs. |
| | 3) DoK and Hess' Cognitive Rigor Matrix in Math<br>**2 hrs Bank Time + Staff** | PD will provide teachers with an in depth look at Webbs's Depth of Knowledge its connections to the SBAC and also Hess's Cognitive Rigor Matrix. SBAC assessment items will be analyzed and teacher will practice identifying the DOK level of a task. Finally teachers will learn how to increase and align Math instructional tasks using DOK and Hess' Cognitive Rigor Matrix in order to vary and increase the rigor of their these tasks so they align with SBAC assessment items. |

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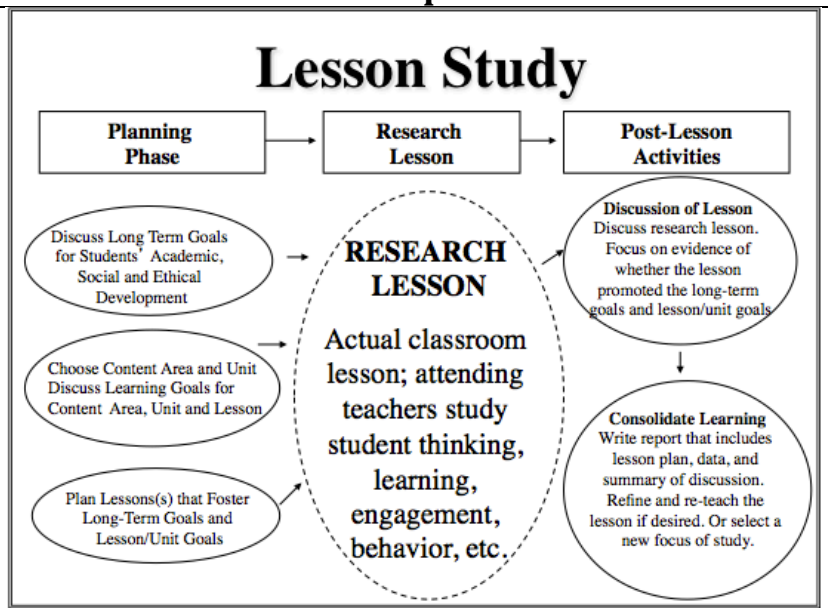
# Professional Development Learning Designs

| PD Learning Designs | Description | Effectiveness |
|---|---|---|
| Lesson Study Cycle (Implementation Phase) **2 days (1 for Planning Phase & 1 for Research Lesson and Post-Lesson Activities)** |  | Highly Effective (IES) |
| Grade Level PLCs (Implementation Phase) **(Ongoing and usually productive with 1-2 hrs)** | Professional Learning Communities design units, lessons & assessment, score and analyze student work, and implement new ideas based on learning of content and pedagogical knowledge for that particular grade and content area. | Highly Effective |
| Coaching Cycle (Introduction to New Teaching Ideas + Implementation Phase) **(1 Week or 2 Weeks)** | **Step 1:** Coach Models Then Coach &Teacher Debrief<br>**Step 2:** Coach & Teacher Co-Teach, Then Debrief<br>**Step 3:** Teacher Teachers & Coach Observes, Then Coach & Teacher Debrief | Effective |
| Bank Time + Staff Meeting PD (Introducing to New Teaching Idea) (**2 hrs)** | Traditional Model of PD Delivery with Presentation of New Teaching Idea-Should be Content Focused, Interactive, and Modeling by Facilitator should occur. | Effective with Follow-Up Support Via PLC Work or Coaching or Lesson Study |

# Research Base for ISIC Math Menu of Services

- "How to Get Students Talking" –Math Solutions
- "CBS: Communicating in the Math Classroom"-Ontario
- Center for Public Education: **"*Teaching the Teachers: Effective Professional Development in an Era of High Stakes Accountability"***
- Supporting Implementation of the CCSSM: Recommendations for Professional Development-Friday Institute for Educational Innovation @ NC State
- NSDC's Report ***"Professional Learning in the Learning Profession: A Status Report on Teacher Development in the United States and Abroad" (Darling-Hammond 2009)***
- NCTM Professional Development Brief: "Math Professional Development"
- IES US Department of Education: "Summary of Research on the effectiveness of math professional development approaches"
- 5 Practices for Orchestrating Productive Mathematics Discussions