**Connecticut Common Core Algebra 2 Curriculum**

**Professional Development Plan**

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| **Unit 7 Inferential Statistics** | | |
| **Date:** | **Location:** | |
| **Presenters** | | |
| **Schedule for the day:**  Start time: 9:00 am  Opening: 9:00 - 9:30 am  Session 1: 9:35 - 10:10 am  Session 2: 10:15-10:50 am  Session 3: 10:55-11:30 am  Closing: 11:35-12:00 pm  End time: 12:00 pm | | |
| **Opening Session**  Present slides 1 – 10 from introductory PowerPoint. Introduce key pedagogical approaches in unit: (a) the use of randomization distributions to construct sampling distributions; (b) the use of randomization hypothesis tests; and (c) the introduction of sampling distributions and inference prior to discrete and normal distributions. Present and discuss a confidence interval problem and a hypothesis test problem for a population proportion. Emphasize how technology is integral to understanding inference topics and performing statistical inference. | | |
| **Workshop 1** | | **Presenter:** |
| **Activities**  (30 min) Use power point through slide 11.  Introduce Activity 7.3.4, an activity focused on randomization hypothesis tests for population proportions. Discuss key steps in a randomization test, use of technology to construct randomization distributions. Have teachers do the activity in groups or pairs.  Have teachers practice using TI-83s to generate and sort a list of random numbers to obtain sample proportions.  (5 min) Show assessment question on the power point.  Show how Statkey can be used to construct a randomization distribution of sample proportions. | | **Equipment and Materials**  **Power point**.  Copies of Activity 7.3.4  Computer – Show Statkey  TI-83 calculators  Copies of Unit 7 Technology Supplement |
| **Workshop 2** | | **Presenter:** |
| **Activities**  Introduce Activity 7.4.1, a hands-on activity focused on the Central Limit Theorem for sample means that uses random samples of pennies. Have teachers complete the entire lesson. (50+ min). You may or may not want to state the Central Limit Theorem first. You may want them to gather the evidence in this experiment to formulate it. If time permits, show how Statkey can be used to generate distributions of sample means for various sample sizes. | | **Equipment and Materials**  Copies of Activity 7.4.1  Bag of 20 pennies, 2 nickels, 2 dimes, and 1 quarter for each teacher  Tape (for axes of dotplots)  Markers  White board markers  Computer – Show Statkey  Penny supplement if needed |
| **Workshop 3** | | **Presenter:** |
| **Activities**  (30 minutes) Have teachers complete Activity 7.5.3. Through slide 13  (15 minutes) Show Exit Slip 7.5.4.  (35 minutes) Present three approaches to find areas below normal curves: (a) TI-83, (b) Statkey, and (c) Z-tables. Discuss the benefit of each approach. Emphasize that teachers have options: (a) use Activity 7.5.4 and don’t use z-scores, or (b) use Activity 7.5.4a which prompts students to find and use z-scores.  **Complete power point** | | **Equipment and Materials**  **Power point**  Copies of Activity 7.5.3, 7.5.4, 7.5.4A  Copies of Exit Slip 7.5.4  Copies of Unit 7 Technology Supplement  Copies of Standard Normal Distribution Table  Computer for Statkey  TI83/84 |
| **Closing Session**   1. Present essential questions addressed in Unit 7 (slide 11 in **Intro PowerPoint**) 2. Present the performance task (slide 16 in Intro PowerPoint) and discuss various ways to facilitate the task. 3. Discuss possible approaches to complete activities in unit depending on the amount of time available (slide 17 in Intro PowerPoint). 4. Display sample assessment items involving confidence intervals and hypothesis tests. 5. Leave time available for teachers to ask questions. | | |
| **Additional Comments** | | |