**M2C3 LESSON PLANNING TOOL: PLANNING for COMMUNITY VISITS**

**Key Features of the Community Context**

*What is important or of interest about this context for students, families and communities? Make a list of key issues and questions, and why these issues are important.*

**What do you KNOW about the context?**

*Make a list of what you already know about the context.*

*Consider activities or practices that occur in the context, as well as decisions that have to be made.*

**What do you WONDER or NEED TO KNOW about the context?**

*Make a list of wonderings about the context.*

*Consider what additional information you need to gather, based on these questions.*

*(Quantities, schedules, times, relationships, measurements, or other data).*

*Consider people that you might talk to, and where you might find that information.*

**Observations and interactions in the community setting**

**DEBRIEFING COMMUNITY VISITS AND BRAINSTORMING TASKS**

**Initial Mathematical Work: Posing Mathematical Questions**

*What math problems could you pose based on this context?*

*What could you calculate or figure out, given the information available? Consider questions and decisions that are important in the context.*

**Expanded Mathematical Work: Posing a Math Modeling Task**

*Consider more extended mathematical tasks that you could pose based on this context. Refer to the “Types of Mathematical Modeling Tasks” for ideas and inspiration.*

**Types of Mathematical Modeling Tasks**

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| --- | --- |
| **DESCRIPTIVE MODELING** | **PREDICTIVE MODELING** |
| Students are provided with information about a particular scenario, and use math modeling to describe possible outcomes. Possible outcomes depend on assumptions and/or constraints. | Students use math modeling to analyze relationships or trends in a data set (e.g., rates of increase or decrease over time) to predict additional values or outcomes. |
| **Contexts or Questions:**   * How many school buses are needed? * How long can this snack last? * How much can we earn by selling \_\_? * How much water can we save? * How many \_\_\_ do we need for \_\_\_\_? | **Contexts or Questions:**   * Predict future number of attendees * Predict future prices or sales * Predictfutureweather * Predict future success of athletes * Predict future yield (crops, garden) |
| ***Descriptive Modeling with CLAIM probe:***  Students are provided with a claim about expected outcomes and asked to evaluate whether and under what conditions the claim could be true. | ***Predictive Modeling with CLAIM probe:***  Students are provided with a claim about trends, patterns, or future values, and asked to evaluate whether and under what conditions the claim could be true. |
| **OPTIMIZING MODELING** | **RATING & RANKING MODELING** |
| Students use math modeling to find the “best” option or plan to achieve a given goal. What is “best” depends on the goal (e.g., shortest, fastest, cheapest, fairest, longest, smallest). | Students use math modeling to rate and rank different options based on criteria and data. Students decide how to weight criteria and use their ranking to make a decision or selection. |
| Contexts or Questions:   * The “best” route through a theme park * The “best” arrangement for a garden * The “best” way to share costs * The “best” price for a menu item * The “best” way to package an item | Contexts or Questions:   * Select players for a team * Select a field trip or vacation spot * Select a fundraising option * Select a carnival game * Select a phone or internet plan |
| ***Optimizing Model with CLAIM probe:*** Students are presented with a claim about the “best” option, and asked to evaluate whether the proposed option is the “best” given the goal. | ***Rating & Ranking Model with CLAIM probe:***  Students are presented with a claim about the top ranked option, and asked to evaluate whether the ranking criteria are reasonable. |
| **IN ALL MATH MODELING TASKS** | |
| Students generate a plan/conclusion/recommendation, and justify it using math.  All plans should:   * Show how the plan/recommendation works in the specific scenario. * Describe assumptions, and how those assumptions impact plan or conclusion. * Use numbers, words, equations and/or diagrams to explain and justify conclusion. * Describe how one could use the plan in other similar situations. | |

NOTE: Adapted from Immersion (<http://immersion.mspnet.org>; <http://nsfimmersion.onmason.com>)