Small Group Collaboration

Modeling

NAME:_____

SKILL: DEMO

This skill is about working together to develop strategies to solve an open ended problem.

Practice Standard: Make sense of problems and persist in solving them.

INTRODUCTION

Allen has twenty-five horses and he had been asked to rank his horses by speed. He does not have a timer of any kind but he does have a track on which he can race horses head to head. The track can only race five horses at a time but he can race any horse any number of times.

< 5 minutes

In order to find the fastest horse he decides to do the following:

Race Number	Participants	Total Number of Horses Raced
1	5 random horses	5
2	Winner of last race and 4 other horses	9
3	Winner of last race and 4 other horses	13
4	Winner of last race and 4 other horses	17
5	Winner of last race and 4 other horses	21
6	Winner of last race and 4 other horses	25

Using this method the winner of the sixth race will be the fastest horse.

TIP!
These are special horses. Any time they run, they run at a constant speed.

Quick Check:
☐ I have read the information on this page with my group.

INTRODUCTION

GROUP CHALLENGE GOAL:

*You are going to help Allen find the **second** and **third** fastest horses.*

Relevant Vocabulary

SGC A Teach To One modality that allows students to work together to solve problems and explore mathematical structure with minimal teacher involvement.

Accountable Talk Conversations that where participants cite evidence, ask for elaborations and clarifications, and extend understandings by using the statements they have heard from their peers to form new ideas.

Activity Directions

- Search for a method of identifying the fastest three horses in order
- Once you find a method, try to find a way that ranks them in the fewest possible steps
- Compare and contrast your method with those of the other members of your group and chose the best one

As soon as everyone is ready to go – turn the page and get started!

PART A: SMALL TEAM

SOLVE THIS PART WITH YOUR TEAM OR INDEPENDENTLY.

Use this space to sketch any ideas you might have.

10 minutes

TIP!
Allen's method worked for finding the fastest horse but it might not be the best for finding the top three. Feel free to start with a different method.

TIP!
It's not enough to find the three fastest horses. You need to rank them in order.

Quick Check
☐ I have a method to order the three fastest horses

Go on to the next page.

Write it out!

Now that you and your group have worked out an idea, independently write out instructions for the method.

- Consult with your group if there are parts of the method that are still unclear to you.
- Try to be as specific as possible.
- Use the blank space below the lines if you need a diagram or chart to make things clearer.

_____

_____

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Talk about it: When you are done, compare your instructions to those of another group member. Whose do you think are better? Clearer? Why?

5 minutes

TIP!
Try to describe the plan in a way that someone who had never seen the problem before would understand.

Quick Check
☐ I am ready to share with the whole group.

Once everyone is ready, go to the next page.