Problem of the Week: Field Trip

The sixth grade is going on a field trip to the Science Museum, where they will spend the day and see a great 3-D IMAX movie. The museum offers a school group price of $189, and the students will each pay an equal part of that total.

When rainy weather caused a baseball game to be rescheduled for the day of the field trip, 12 of the students had to miss the trip to play in the game. As a result, each student who went to the movie paid one dollar more than they would have if the baseball players had gone, too.

How many students went on the field trip, and how much did each one pay? At least one method for solving this problem must be *algebraic*.

	Novice	Apprentice	Practitioner	Expert
Problem Solving				
Interpretation	Shows understanding of few of the criteria listed in the Practitioner column.	Shows understanding of most but not all of the criteria listed in the Practitioner column.	Understands that: • the $189 is split evenly among those who actually go on the field trip • 12 kids fewer than those in the whole grade actually went on the field trip • the price per student increased by $1 when those 12 students did not go on the field trip • the goal is to find how many students actually went on the field trip and what the price per student was for those that went on the field trip	Not possible for this problem since there is no Extra.
Strategy *(based on the solver's interpretation of the problem)*	Has no ideas that will lead them toward a successful solution. Has not written enough to tell what strategy they might have used.	Picks an incorrect strategy, or relies on luck to get the right answer. For example, uses Guess and Check, either for the entire solution or to solve an equation.	Picks a sound strategy—success achieved through skill, not luck. Represents the problem using algebra, possibly by comparing ticket price expressions for the two cases or by writing a system of equations, or perhaps by graphing..	Uses two separate strategies or one unusual or sophisticated strategy.
Accuracy *(based on the chosen strategy)*	Has made many errors.	Has made several mistakes or misstatements.	Makes few or no mistakes of consequence and uses largely correct vocabulary.	[Generally not possible – can't be more accurate than Practitioner.]
Communication				
Completeness *(an incorrect solution can be complete)*	Has written very little that tells or shows how they found their answer.	Submitted explanation without work or work without explanation. Leaves out enough details that another student couldn't follow or learn from the explanation.	Explains all of the important steps taken to solve the problem. Shows equations, formulas, and calculations used and explains the rationale behind them. Defines variable(s).	Adds in useful extensions and further explanation of some of the ideas involved The additions are helpful, not just "I'll say more to get more credit."
Clarity *(incomplete and incorrect solutions can be explained clearly)*	Explanation is very difficult to read and follow.	Explanation isn't entirely unclear, but would be hard for another student to understand. Explanation is long and is written entirely in one paragraph. Explanation contains many spelling and typing errors.	Explains the steps that they *do* explain in such a way that another student would understand (needn't be complete to be clear). Makes an effort to check formatting, spelling, and typing (a few errors are okay).	Format and organization make ideas exceptionally clear. Answer is very readable and appealing.