

NORTH SMITHFIELD HIGH SCHOOL MATHEMATICAL PRACTICE RUBRIC Grades 9-12

To use with open-ended multi-step questions problems

STUDENT _____

DATE _____

| Standard Criteria | 4 Proficient with distinction | 3 Proficient | 2 Partially proficient | 1 Below proficiency |
|---------------------------|---|---|--|--|
| SENSE OF PROBLEM | <ul style="list-style-type: none"> Makes in-depth sense of problems and perseveres in solving them, e.g. write in your own words, highlight or underline important information, try a smaller problem, etc. | <ul style="list-style-type: none"> Makes sense of problems and perseveres in solving them, e.g. write in your own words, highlight or underline important information, try a smaller problem, etc. | <ul style="list-style-type: none"> Attempts to make some sense of problems and shows some work in solving them, e.g. write in your own words, highlight or underline important information, try a smaller problem, etc. | <ul style="list-style-type: none"> Shows little or no attempt to make sense of problems and/ neglects to show work in solving them. |
| REASON | <ul style="list-style-type: none"> Thoroughly reasons abstractly and quantitatively, e.g. write an equation, define a variable, use numbers, symbols, or graphics to solve a problem. | <ul style="list-style-type: none"> Reasons abstractly and quantitatively, e.g. write an equation, define a variable, use numbers, symbols, or graphics to solve a problem. | <ul style="list-style-type: none"> Attempts to reason abstractly and/or quantitatively, e.g. may write an equation, define a variable, use numbers, symbols, or graphics to solve a problem. | <ul style="list-style-type: none"> Shows little or no attempt to reason abstractly and/or quantitatively. |
| ARGUMENTS | <ul style="list-style-type: none"> Skillfully constructs viable arguments and critiques the reasoning of others, e.g. explain the reasoning, justify a conclusion, proof or counter example. | <ul style="list-style-type: none"> Constructs viable arguments and critiques the reasoning of others, e.g. explain the reasoning, justify a conclusion, proof or counter example. | <ul style="list-style-type: none"> Attempts to constructs an argument and/or critiques the reasoning of others, e.g. attempts to explain the reasoning, justify a conclusion, proof or counter example. | <ul style="list-style-type: none"> Shows little or no attempt to construct an argument or critique the reasoning of others. |
| MODEL | <ul style="list-style-type: none"> Effectively models with mathematics that may include using graphic organizers, charts, tables, manipulatives, formulas, and technology. | <ul style="list-style-type: none"> Models with mathematics that may include using graphic organizers, charts, tables, manipulatives, formulas, and technology. | <ul style="list-style-type: none"> Attempts to model with mathematics that may or may not include using graphic organizers, charts, tables, manipulatives, formulas, and/or technology. | <ul style="list-style-type: none"> Shows little or no attempt to model with mathematics. |
| TOOLS | <ul style="list-style-type: none"> Skillfully uses appropriate tools strategically, e.g. rulers, protractors, pencil and paper, computers, calculators, etc. | <ul style="list-style-type: none"> Uses appropriate tools strategically, e.g. rulers, protractors, pencil and paper, computers, calculators, etc. | <ul style="list-style-type: none"> Attempts to use appropriate tools. | <ul style="list-style-type: none"> Shows little or no attempt to use appropriate tools. |
| PRECISION | <ul style="list-style-type: none"> Thoroughly attends to precision, e.g. exact answers, labels, appropriate vocabulary and labeling, accurate solutions, etc. | <ul style="list-style-type: none"> Attends to precision, e.g. exact answers, labels, appropriate vocabulary and labeling, accurate solutions, etc. | <ul style="list-style-type: none"> Attempts to attend to precision, e.g. answers, labels, appropriate vocabulary and labeling, solutions, etc. | <ul style="list-style-type: none"> Shows little or no attempt to attend to precision. |
| STRUCTURE | <ul style="list-style-type: none"> Thoroughly looks for and makes use of structure, e.g. patterns or procedures. | <ul style="list-style-type: none"> Looks for and makes use of structure, e.g. patterns or procedures. | <ul style="list-style-type: none"> Attempts to look for and make use of structure or procedures. | <ul style="list-style-type: none"> Shows little or no attempt to look for and make use of structure. |
| REPEATED REASONING | <ul style="list-style-type: none"> Thoroughly looks for and expresses regularity in repeated reasoning, e.g. finding the shortcuts to generalize the rule. | <ul style="list-style-type: none"> Looks for and expresses regularity in repeated reasoning, e.g. finding the shortcuts to generalize the rule. | <ul style="list-style-type: none"> Attempts to look for and express regularity in repeated reasoning, e.g. finding the shortcuts to generalize the rule. | <ul style="list-style-type: none"> Shows little or no attempt to look for and express regularity in repeated reasoning. |