Workplace & Apprenticeship 10 Math Rubrics

WP 10.1 Demonstrate understanding of the preservation of equality including solving problems that involve the manipulation and application of formulas related to: perimeter, area, the Pythagorean theorem, primary trigonometric ratios, income.

Beginning (1)	Approaching (2)	Meeting (3)	Exemplary (4)
Outcome will be integrated in other outcomes.			

WP10.2 Analyze puzzles and games that involve spatial reasoning using problem solving strategies.

Beginning (1)	Approaching (2)	Meeting (3)	Exemplary (4)
Outcome will be integrated in other outcomes.			

WP10.3 Demonstrate using concrete, and pictorial models, and symbolic representations, understanding of measurement systems including: SI, The British Imperial System, The US Customary System.

Beginning (1)	Approaching (2)	Meeting (3)	Exemplary (4)
I need more help with becoming consistent with the criteria.	I can consistently develop and apply single step strategies to convert units of temperature, mass, volume, between and within the SI and imperial systems including word problems.	I can set up multi step problems and calculations involving mass and volume which could include conversions between and within systems of measurement.	I can show a deep understanding of mass and volume as well as conversions between and within systems of measurement. I express SI units in decimals and imperial units in fractions and state the proper units of measurement in my answer.

WP10.4 Demonstrate, using concrete and pictorial models, and symbolic representations, understanding of linear measurement, including units in the SI and Imperial systems of measurement.

Beginning (1)	Approaching (2)	Meeting (3)	Exemplary (4)
I need more help with becoming consistent with the criteria.	I can measure and record in SI and imperial units using a variety of measuring instruments. I can apply strategies to convert units of linear measurements within the same system and between systems.	I can apply knowledge and skills with linear measurement to solve or verify the reasonableness of solutions to situational questions.	I can develop, generalize, explain and apply skills with linear measurement.

WP10.5 Demonstrate, using concrete and pictorial models, and symbolic representations, understanding of area of 2-d shapes and surface area of 3-d objects including units in the SI and imperial systems of measurement.

Beginning (1)	Approaching (2)	Meeting (3)	Exemplary (4)
I need more help with becoming consistent with the criteria.	I can apply strategies for determining area and surface area for regular 2-D and 3-D objects given a diagram.	I can solve situational questions involving area and surface area for regular 2-D and 3-D objects without a diagram. I can solve situational questions involving area and surface area for irregular and composite 2-D and 3-D objects with a diagram. I can apply strategies to convert squared units of area measurements within the same system and between systems.	I can analyze the effect of changing the measurement of one or more dimensions on area and perimeter of rectangles and surface area of rectangular prisms. I can critique a statement about area and/or surface area. My answers include proper units.

WP10.6 Apply understanding of the Pythagorean Theorem to solve problems.

Beginning (1)	Approaching (2)	Meeting (3)	Exemplary (4)
I need more help with becoming consistent with the criteria.	I am able to find the missing side of a right triangle given a diagram.	I can apply an understanding of the Pythagorean Theorem to solve a variety of word problems with or without a diagram.	I can determine if a triangle is a right triangle. Answers must include units of measure and rounded correctly.

WP10.7 Demonstrate understanding of similarity of convex polygons, including regular and irregular polygons.

Beginning (1)	Approaching (2)	Meeting (3)	Exemplary (4)
I need more help with becoming consistent with the criteria.	I can determine if 2 or more polygons are similar. I can determine the scale factor. Given two similar polygons, I can use the scale factor to calculate the length of a scale drawing.	I can draw polygons that are similar to a given polygon. I can apply knowledge and skills related to similar polygons to solve situational questions that involve polygons or separate right triangles.	I can apply knowledge and skills related to situational questions that involve right triangles with a shared acute angle. I can explain why two triangles are similar.

WP10.8 Demonstrate an understanding of primary trigonometric ratios (sine, cosine, and tangent)

Beginning (1)	Approaching (2)	Meeting (3)	Exemplary (4)
I need more help with becoming consistent with the criteria.	I can identify the hypotenuse, the adjacent and opposite sides to an angle in that right triangle. I can solve for an unknown given which trig ratio to use.	I am able to solve for a missing value by applying the trig ratios	I am able to consistently solve right triangles. I will be able to explain and analyze problems involving right triangles.

WP10.9 Demonstrate understanding of angles including: drawing and sketching, replicating and constructing, bisecting, relating to parallel, perpendicular, and transversal lines, and solving problems.

Beginning (1)	Approaching (2)	Meeting (3)	Exemplary (4)
I need more help with becoming consistent with the criteria.	I can determine a complimentary and supplementary angle to a given angle. Given an angle measurement, I can determine the size of the bisected angle and name the original angle. Given parallel or perpendicular lines, I can determine the size of angles including corresponding, alternate interior, same side interior etc.	Given parallel or perpendicular lines, I can determine and explain the reasons for the size of angles including vertically opposite, corresponding, alternate interior, same side interior etc. I can apply knowledge and skills to situational questions given a diagram.	I can describe and apply strategies for determining if lines or planes are perpendicular or parallel in situational questions. I can create and solve relevant situational questions without diagrams. I can replicate, construct, and bisect angles using compass and/or protractor.

WP10.10 Apply proportional reasoning to solve problems involving unit pricing and currency exchange.

Beginning (1)	Approaching (2)	Meeting (3)	Exemplary (4)
I need more help with becoming consistent with the criteria.	I can do single step calculations involving unit price, best buy, currency exchange, percent increase & percent decrease and unit price for two or more items.	I can do multi-step calculations involving unit price, best buy, currency exchange, percent increase & percent decrease and comparing unit price for two or more items.	I can explain the solution of a best buy situation in terms of the cost as well as other factors, such as quality and quantity. I can describe and analyze different sales promotion techniques used by media to make items seem less expensive. I can calculate the % mark up or mark down of an item given the original price and the sale price/marked up price. I round answers correctly and use 2 decimal places for money.

WP10.11 Demonstrate understanding of income including: wages, salary, contracts, commissions, piecework, self-employment, gross pay and net pay

Beginning (1)	Approaching (2)	Meeting (3)	Exemplary (4)
I need more help with becoming consistent with the criteria.	I understand the difference between net pay and gross pay. I can describe, using examples, various methods of earning income. I can determine gross pay for different situations including hourly wage, overtime, and simple commission. I can read and explain the information provided on a pay stub.	I can determine the CPP, EI and income tax deductions for a given amount of gross pay. I can determine in decimal form, from a time schedule, the total time worked in hours and minutes, including time and a half and/or double time.	I can describe the advantages and disadvantages for a variety of methods of earning income, such as hourly wage, tips, piecework, salary, commission, contract work, and self-employment. I can give examples of deductions that may be relevant to self in the future (eg) health plans, union dues, charitable donations. I round correctly and use 2 decimal places and dollar signs.