Virginia

Standards of Learning
Guided Practice Suggestions

For use with the Mathematics Tools Practice in TestNav^{TM} 8

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Contents

Change Log

Updates to this document will be reflected in the table.

Change Log		
Version	**Date**	**Description**
V.2	11/30/16	Update to compass tool and general information.
V.1	1/04/16	Original document posted.

Introduction to TestNav™ 8: MC/TEI Document

The _Introduction to TestNav 8: MC/TEI_ document serves as an introduction to the new online navigation, tools, accessibility features, and overall functionality and appearance of TestNav 8. It is highly recommended that teachers (or other adults) read the _Introduction to TestNav 8_: _MC/TEI_ document prior to reading this guide, the _Guided Practice Suggestions_ for the Mathematics Tools practice item set.

Reading the _Introduction to TestNav 8_: _MC/TEI_ document will give teachers an understanding of the features of TestNav 8 prior to working with students**.** In part, the document provides information on:

- opening the practice item sets within the required TestNav 8 Application, and
- navigating through the mathematics online practice tools.

This important information should be used in conjunction with the information found in this guide.

Guided Practice Suggestions

This guide provides a table with practice suggestions for each question in the Mathematics Tools practice item set. The column titled "Guided Practice Suggestions" contains information for teachers to use at various grade levels as they guide students through the items. For instance, guided practice suggestions can state, "Use the ruler tool to measure line segment AB" or, "Use the protractor to measure an angle." Following the suggestions in the table will ensure that students are exposed to all of the different tools within TestNav 8 and experience using these tools with their mouse, keypad, or touchscreen.   Most of these items have the Drawing Interaction tool available for students to use. The Drawing Interaction Tool is a boxed area that exists on certain mathematics and science questions. The student selects the appropriate tool for the item and uses it to help answer the question.

Drawing Interaction Tool Descriptions

The top tool is the pencil or straight line tool.

The pencil may be used to make marks, notations, straight lines, or dots on or around artwork or graphs inside the Drawing Interaction area. The arrow in the bottom right corner expands the tool so a student may select free draw or the straight line. A dot may be placed if a student uses his mouse, keypad, or touch screen. The student would select free draw and use his mouse or keypad to click and release to place a point. If using a touch screen, the student would use his finger to place a point.

The second tool is the compass tool.
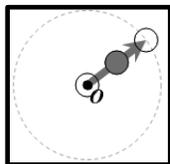
Students should use the solid black dot, which is the compass point, to move the compass to a desired location. Students will use the middle gray circle to lengthen or shorten the drawing radius. The dashed circle indicates the length of the drawing radius. The length of the drawing radius will not change unless the middle gray circle is selected. The small open circle on the arrow is the compass pencil. This will be used to draw the arcs. To move the compass after beginning a construction, students should use the compass point, not the middle gray circle.

The third tool is used to erase selected lines, markings, or writing.

The fourth tool allows the markings to be black or green. The arrow in the bottom right corner expands the tool so a student may select the color.

The fifth tool allows the students to select the thickness of the markings. The arrow in the bottom right corner expands the tool so a student may select the size.

The sixth and seventh tools are used to Undo or Redo the most recent markings.

The last tool allows all markings to be eliminated at the same time.

Mathematics Tools Practice Item Information and Recommended Guided Practice Suggestions

The *Mathematics Tool Practice* suggestions are ideas for teachers to use with students during classroom instruction. These suggestions are not intended to be test items and are not intended to cover all content for the grade level. Activities for each question have been designed to give students at different grade levels the opportunity to become familiar with these tools' interaction and functionality. In order to maximize the opportunity for tools practice, there may be tools available on items that students at different grade levels would not be familiar with or have access to during an actual SOL test. For example, the compass tool is available on ALL items in this set but would only be used by EOC students.

Question	Grade Level	Guided Practice Suggestions
1	3-5	Use the ruler tool to practice measuring. 1. Measure the length of the crayon to the nearest ½ inch. 2. Measure the length of the crayon to the nearest centimeter (cm) and/or millimeter (mm). 3. Measure the length of the screwdriver to the nearest ½ inch and/or nearest 1/8 inch 4. Measure the length of the screwdriver to the nearest centimeter (cm) and/or millimeter (mm).
	6-8	
	EOC	Use the figures to practice constructions. Students may need to use the line thickness tool to plot a point necessary to the construction. 1. Construct a perpendicular bisector to the line segment that indicates the length of the crayon. 2. Construct a perpendicular bisector to the line segment that indicates the length of the screwdriver. 3. Construct the midpoint of the line segment that indicates the length of the screwdriver.

Question	Grade Level	Guided Practice Suggestions
2	3-5	Use the ruler tool to practice measuring. 1. Find the perimeter of figure ABCDE to the nearest ½ inch. 2. Find the perimeter of figure FGHJ to the nearest centimeter (cm). Identify the vertices of each figure. Identify each polygon. Use the straight line tool to draw segment FH in figure FGHJ. Classify the two resulting triangles according to sides and according to angle measures. Classify each angle in figure ABCDE. Use the straight line tool to draw a line segment from point B to point D on figure ABCDE; identify and name the polygons that result after subdividing the figure.
	6-8	Use the protractor tool to practice measuring. 1. Approximate the measure of angle ABC to the nearest degree. 2. Approximate the measure of angle FGH to the nearest degree.
	EOC	Use the figure to practice constructions. Students may need to use the line thickness tool to plot a point necessary to the construction. 1. Construct the angle bisector of angle BCD. 2. Construct the angle bisector of angle FJH. 3. Construct a line segment congruent to line segment CD. 4. Construct a perpendicular bisector to line segment BC. Determine the number of lines of symmetry in figure ABCDE and in figure FGHJ.
3	3-5	1. Use the ruler to measure the length of segment BC to the nearest 1/8 inch. 2. Use the ruler to measure the length of segment EF to the nearest centimeter (cm). 3. Identify a ray. 4. Identify a line segment. 5. Name an angle. 6. Identify the vertex of each angle. 7. Use the protractor tool to approximate the measure of each angle.
	6-8	Use the protractor tool to approximate the measure of each angle.
	EOC	Use the figure to practice constructions. 1. Construct the angle bisector for each of the given angles. 2. Construct an angle twice the measure of angle H.

Question	Grade Level	Guided Practice Suggestions
4	3-5	
	6-8	1. Use the thickness tool to plot a point and the straight line tool to form a triangle. Use the protractor to approximate the measure of each angle. 2. Determine in which quadrant point A is located. 3. Determine the coordinates of point B. 4. Identify the coordinates of A' if point A is reflected across the x-axis. 5. Identify the coordinates of B' if point B is reflected across the y-axis. 6. Use the thickness tool to plot a point and the straight line tool to draw two line segments to form the legs of a right triangle that includes line segment AB as the hypotenuse. Translate the right triangle five units to the right and four units down; determine the coordinates of the resulting image.
	EOC	1. Construct a line perpendicular to line segment AB through the point (x,y). *(Teacher may select the coordinates of a point not on the line segment.)* 2. Construct a line perpendicular to line segment AB through point (x,y). *(Teacher may select the coordinates of a point on the line segment).* 3. Determine the slope of line segment AB and write the equation of the line on which it lies. 4. Determine the midpoint of line segment AB. 5. Determine the length of line segment AB.
5	3-5	
	6-8	1. Practice plotting two points on the coordinate grid to form a line. 2. Practice removing points and lines from the coordinate grid.
	EOC	1. Plot two points to create a line parallel to the given line. 2. Plot two points to create a line perpendicular to the given line.
6	3-5	Draw a line segment that appears to be parallel to line segment AB. Draw a line segment that intersects line segment AB. Draw a line segment that appears to be perpendicular to line segment AB.
	6-8	

Question	Grade Level	Guided Practice Suggestions
	EOC	Use the figure to practice constructions: 1. A perpendicular bisector of the line segment 2. A midpoint of the line segment 3. A perpendicular to line segment AB from a point not on the line segment *(Students will need to place a point on their screen to complete this construction.)*
7	3-5	Describe the figure shown. Measure angle A. Classify angle A.
	6-8	Use the protractor to approximate the measure of angle A. Determine the measure of the complement and supplement of angle A.
	EOC	Use the figure to practice constructions: 1. An angle congruent to the given angle 2. A bisector of the angle 3. An angle twice the measure of the given angle
8	3-5	Use the ruler to measure the distance between points A and B to the nearest centimeter (cm). Draw a line segment through point A that appears to be parallel to line m. Draw a line segment through point A that intersects line m. Draw a line segment through point A that appears to be perpendicular to line m.
	6-8	Use the straight line tool to draw a line that extends through points A and B. Place point C on line m to the left of point B and point D on line m to the right of point B. Identify any vertical, adjacent, supplementary, or complementary angles in the figure.
	EOC	Use the figure to practice constructions: 1. A line parallel to line m through point A 2. A line perpendicular to line m through point B 3. A line perpendicular to line m through point A 4. A circle tangent to line m
9	3-5	Use the ruler tool to measure: 1. The length of line segment AC to the nearest centimeter (cm) 2. The length of line segment BC to the nearest 1/8 inch (in) Find the perimeter of the triangle. Use the protractor tool to approximate the measure of angle A. Classify the triangle.

Question	Grade Level	Guided Practice Suggestions
	6-8	Use the protractor tool to approximate the measure of the angles. 1. Angle A 2. Angle B 3. Angle C Determine if the measure of line segment AC is congruent to the measure of line segment BC.
	EOC	Use the figure to practice constructions: 1. A line segment congruent to line segment AB 2. A perpendicular bisector of a line segment 3. A midpoint of a line segment 4. A circumscribed circle of the triangle 5. An inscribed circle of the triangle 6. An angle congruent to a given angle 7. A bisector of a given angle Determine the number of lines of symmetry of the triangle.
10	3-5	Use the ruler tool to measure: 1. The distance between points A and B to the nearest ¼ inch (in) 2. The distance between points A and B to the nearest centimeter (cm) Use the straight line tool to draw a line segment that extends from point A through point B and to a point on the opposite side of the circle. Draw and identify a radius, a diameter, a chord, and the center of the circle.
	6-8	Draw and measure the length of a radius of circle B. Approximate the area and circumference of circle B.
	EOC	Use the figure to practice constructions: 1. An equilateral triangle, a square, or a regular hexagon inscribed in a circle 2. A tangent line from point A to the circle