PLEASE NOTE: The words contained in Academic Vocabulary are words/concepts/terms essential for concept development; this list is not intended to be comprehensive. The “new to grade level” vocabulary suggestions are a starting point, and educators are encouraged to refer to their district curriculum resources for additional words/concepts/terms.
### Coordinate and Transformational Geometry

**G.2 Coordinate and transformational geometry.** The student uses the process skills to understand the connections between algebra and geometry and uses the one- and two-dimensional coordinate systems to verify geometric conjectures.

**G.3 Coordinate and transformational geometry.** The student uses the process skills to generate and describe rigid transformations (translation, reflection, and rotation) and non-rigid transformations (dilations that preserve similarity and reductions and enlargements that do not preserve similarity).

**G.12 Circles.** The student uses the process skills to understand geometric relationships and apply theorems and equations about circles.

<table>
<thead>
<tr>
<th>subcluster</th>
<th>standards</th>
<th>new to grade level</th>
<th>previously introduced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coordinate Geometry</td>
<td>G.2(A), G.2(B), G.2(C), G.12(E)</td>
<td>distance formula, endpoint, line segment, midpoint, midpoint formula, segment</td>
<td>center of a circle, circle, congruent, coordinate, distance, line, linear equation, parallel, parallel lines, perpendicular</td>
</tr>
<tr>
<td></td>
<td></td>
<td>non-rigid transformation, plane figure, reflectional symmetry, rigid transformation, rotational symmetry</td>
<td>point (or center) of rotation, pre-image, reduction (0 &lt; scale factor &lt; 1)</td>
</tr>
<tr>
<td>Transformations</td>
<td>G.3(A), G.3(B), G.3(C), G.3(D)</td>
<td></td>
<td>point (or center) of rotation, pre-image, reduction (0 &lt; scale factor &lt; 1)</td>
</tr>
</tbody>
</table>

**Important words for concept development:**
- center of a circle
- circle
- congruent
- coordinate
- distance
- line
- linear equation
- parallel
- parallel lines
- perpendicular
- center of dilation
- composition
- coordinate notation
- degree (or angle) of rotation
- dilation
- enlargement (scale factor > 1)
- horizontal line of reflection
- image
- line of symmetry
- point (or center) of rotation
- pre-image
- reduction (0 < scale factor < 1)
- reflection
- rotation
- scale factor
- similarity
- transformation
- translation
- vertical line of reflection
Logical Argument and Constructions

<table>
<thead>
<tr>
<th>subcluster</th>
<th>standards</th>
<th>new to grade level</th>
<th>previously introduced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Logic</td>
<td>G.4(A), G.4(B), G.4(C), G.4(D)</td>
<td>axiom/postulate biconditional statement conditional statement conjecture contrapositive converse counterexample</td>
<td>deductive reasoning Euclidean geometry great circle plane spherical geometry theorem undefined term</td>
</tr>
<tr>
<td></td>
<td></td>
<td>angle definition false inverse</td>
<td>line parallel lines triangle true</td>
</tr>
<tr>
<td>Constructions</td>
<td>G.5(B), G.5(C), G.5(D)</td>
<td>angle bisector bisect compass construction endpoint</td>
<td>congruent congruent angle congruent segment line parallel</td>
</tr>
<tr>
<td></td>
<td></td>
<td>line segment perpendicular bisector segment bisector side length straight edge</td>
<td>perpendicular perpendicular lines point triangle Triangle Inequality Theorem</td>
</tr>
<tr>
<td>Lines, Polygons, and Circles</td>
<td>G.5(A), G.6(A), G.6(E), G.12(A)</td>
<td>angle bisector arc equidistant exterior angle inscribed angle intercepted arc interior angle linear pair major arc</td>
<td>minor arc opposite angle opposite side secant segment tangent theorem transversal</td>
</tr>
<tr>
<td></td>
<td></td>
<td>adjacent angle alternate exterior angle alternate interior angle angle central angle chord circle circumference congruent corresponding angle diagonal diameter endpoints intersection line</td>
<td>line segment parallel lines parallelogram perpendicular bisector polygon quadrilateral radius rectangle rhombus same side interior angle square supplementary vertex vertical angle</td>
</tr>
</tbody>
</table>

Important words for concept development:

- axiom/postulate
- biconditional statement
- conditional statement
- conjecture
- contrapositive
- converse
- counterexample
- deductive reasoning
- Euclidean geometry
- great circle
- plane
- spherical geometry
- theorem
- undefined term
- angle
- definition
- false
- inverse
- line
- parallel lines
- triangle
- true
- perpendicular
- perpendicular lines
- point
- triangle
- Triangle Inequality Theorem
- angle bisector
- bisect
- compass
- construction
- endpoint
- line segment
- perpendicular bisector
- segment
- bisector
- side
- length
- straight edge
- congruent
- congruent angle
- congruent segment
- line
- parallel
- perpendicular
- perpendicular lines
- point
- triangle
- Triangle Inequality Theorem
- adjacent angle
- alternate exterior angle
- alternate interior angle
- angle
- central angle
- chord
- circle
- circumference
- congruent
- corresponding angle
- diagonal
- diameter
- endpoints
- intersection
- line
- line segment
- parallel lines
- parallelogram
- perpendicular bisector
- polygon
- quadrilateral
- radius
- rectangle
- rhombus
- same side interior angle
- square
- supplementary
- vertex
- vertical angle

G.4 Logical argument and constructions. The student uses the process skills with deductive reasoning to understand geometric relationships.

G.5 Logical argument and constructions. The student uses constructions to validate conjectures about geometric figures.

G.6 Proof and congruence. The student uses the process skills with deductive reasoning to prove and apply theorems by using a variety of methods such as coordinate, transformational, and axiomatic and formats such as two-column, paragraph, and flow chart.

G.12 Circles. The student uses the process skills to understand geometric relationships and apply theorems and equations about circles.
## Triangles and Trigonometry

**G.5** Logical argument and constructions. The student uses constructions to validate conjectures about geometric figures.

**G.6** Proof and congruence. The student uses the process skills with deductive reasoning to prove and apply theorems by using a variety of methods such as coordinate, transformational, and axiomatic and formats such as two-column, paragraph, and flow chart.

**G.7** Similarity, proof, and trigonometry. The student uses the process skills in applying similarity to solve problems.

**G.8** Similarity, proof, and trigonometry. The student uses the process skills with deductive reasoning to prove and apply theorems by using a variety of methods such as coordinate, transformational, and axiomatic and formats such as two-column, paragraph, and flow chart.

**G.9** Similarity, proof, and trigonometry. The student uses the process skills to understand and apply relationships in right triangles.

### Important Words for Concept Development

<table>
<thead>
<tr>
<th>Subcluster</th>
<th>Standards</th>
<th>New to Grade Level</th>
<th>Previously Introduced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Special Segments and Types of Triangles</td>
<td>G.5(A), G.6(D), G.8(B)</td>
<td>altitude, base angle, geometric mean, interior angle</td>
<td>midsegment (of a triangle) theorem</td>
</tr>
<tr>
<td>Similar Triangles and Trigonometry</td>
<td>G.7(A), G.7(B), G.8(A), G.9(A), G.9(B)</td>
<td>30°-60°-90° triangle, 45°-45°-90° triangle, adjacent side, Angle-Angle criterion, Angle-Angle Similarity Theorem, Angle-Side-Angle Similarity Theorem, corresponding angle, corresponding side</td>
<td>cosine ratio, Side-Side-Side Similarity Theorem, sine ratio, special right triangle, tangent ratio, theorem, Triangle Proportionality Theorem, trigonometric ratio</td>
</tr>
</tbody>
</table>

---

© lead4ward

Source: Texas Education Agency  

v. 4.14.20  

Page 3 of 5
## Measurement of 2D and 3D Figures

**G.10** Two-dimensional and three-dimensional figures. The student uses the process skills to recognize characteristics and dimensional changes of two- and three-dimensional figures.

**G.11** Two-dimensional and three-dimensional figures. The student uses the process skills in the application of formulas to determine measures of two- and three-dimensional figures.

**G.12** Circles. The student uses the process skills to understand geometric relationships and apply theorems and equations about circles.

<table>
<thead>
<tr>
<th>important words for concept development</th>
<th>2D Figures</th>
<th>3D Figures</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>subcluster</strong></td>
<td>G.10(B), G.11(A), G.11(B), G.12(B), G.12(C), G.12(D)</td>
<td>G.10(A), G.11(C), G.11(D)</td>
</tr>
<tr>
<td><strong>new to grade level</strong></td>
<td>apothem, arc, arc length, kite, radian measure, regular polygon sector</td>
<td>cross-section</td>
</tr>
<tr>
<td><strong>previously introduced</strong></td>
<td>π (pi), angle, area, central angle, circle, circumference, composite two-dimensional figure, diameter, dimension, formula, height</td>
<td>non-proportional, parallelogram, perimeter, proportional, radius, ratio, scale factor, square unit, trapezoid, triangle, unit of measure, volume</td>
</tr>
<tr>
<td><strong>new to grade level</strong></td>
<td>π (pi), area, area of the base, base, circumference, composite figure, cone, cylinder, diameter, dimensions, height, lateral surface area</td>
<td>length, perimeter, prism, pyramid, radius, rotation, slant height, sphere, three-dimensional figure, total surface area, volume</td>
</tr>
<tr>
<td><strong>previously introduced</strong></td>
<td>non-proportional, parallelogram, perimeter, proportional, radius, ratio, scale factor, square unit, trapezoid, triangle, unit of measure, volume</td>
<td>length, perimeter, prism, pyramid, radius, rotation, slant height, sphere, three-dimensional figure, total surface area, volume</td>
</tr>
</tbody>
</table>
# Probability

**G.13 Probability.** The student uses the process skills to understand probability in real-world situations and how to apply independence and dependence of events.

<table>
<thead>
<tr>
<th>subcluster</th>
<th>standards</th>
<th>new to grade level</th>
<th>previously introduced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conditional Probability</td>
<td>G.13(B), G.13(C), G.13(D), G.13(E)</td>
<td>complement, compound event, conditional probability, dependent event, independent event, independent probability</td>
<td>event, experimental probability, probability, replacement, sample space, theoretical probability</td>
</tr>
<tr>
<td>Permutations and Combinations</td>
<td>G.13(A)</td>
<td>combination, factorial, permutation</td>
<td>arrangement</td>
</tr>
</tbody>
</table>