Pacing Guide

Lesson		Standards for a Geometry Course	Pacing
Unit 1	**ESSENTIALS OF GEOMETRY**		
Module 1:	**Geometry in the Plane**		
1.1	Points, Lines, and Planes	Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc. Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometry software, etc.).	2 days
1.2	Define and Measure Angles	Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc. Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometry software, etc.).	2 days
1.3	Polygons and Other Figures in the Plane	Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.	2 days
1.4	Apply the Distance Formula	Use coordinates to prove simple geometric theorems algebraically. Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula.* Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).* Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, BTUs per cubic foot).*	2 days
Module 2:	**Tools for Reasoning and Proof**		
2.1	Write Conditional Statements	Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.	1 day
2.2	Use Inductive and Deductive Reasoning	Prove geometric theorems about lines and angles.	2 days
2.3	Write Proofs about Segments	Prove geometric theorems about lines and angles.	2 days
2.4	Write Proofs about Angles	Prove geometric theorems about lines and angles.	2 days
Unit 2	**PARALLEL AND PERPENDICULAR LINES**		
Module 3:	**Lines and Transversals**		
3.1	Parallel Lines Crossed by a Transversal	Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc. Prove geometric theorems about lines and angles. Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometry software, etc.).	1 day

* This is also a modeling standard.

In addition to the core instructional pacing below, HMH recommends the following:
- 3 days per year for the Growth Measure assessments
- 2 days per module for the Module Performance Task, Are You Ready?, Module Review, and Module Test
- 1 day per unit for the Unit Test

Using these recommendations, the total pacing for Geometry is 180 days.

Lesson		Standards for a Geometry Course	Pacing
3.2	Prove Lines Are Parallel	Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc. Prove geometric theorems about lines and angles. Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometry software, etc.).	2 days
3.3	Prove Lines Are Perpendicular	Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc. Prove geometric theorems about lines and angles. Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometry software, etc.).	2 days
Module 4: Lines on the Coordinate Plane			
4.1	Slope and Equations of Parallel Lines	Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).	2 days
4.2	Slope and Equations of Perpendicular Lines	Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).	2 days
4.3	Write a Coordinate Proof	Use coordinates to prove simple geometric theorems algebraically.	2 days
Unit 3 TRANSFORMATIONS			
Module 5: Transformations that Preserve Size and Shape			
5.1	Define and Apply Translations	Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch). Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments. Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another. Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent.	1 day

"One day" is equal to one instructional period in a traditional schedule and would need to be adjusted to account for longer class periods in a block schedule.

Continued on next page ➔

Pacing Guide

Lesson		Standards for a Geometry Course	Pacing
5.2	Define and Apply Rotations	Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch). Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments. Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another. Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent.	1 day
5.3	Define and Apply Reflections	Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch). Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments. Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another. Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent.	1 day
5.4	Define and Apply Symmetry	Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself.	2 days
Module 6: Transformations that Change Size and Shape			
6.1	Define and Apply Dilations, Stretches, and Compressions	Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch). Verify experimentally the properties of dilations given by a center and a scale factor: • A dilation takes a line not passing through the center of the dilation to a parallel line, and leaves a line passing through the center unchanged. • The dilation of a line segment is longer or shorter in the ratio given by the scale factor.	2 days

* This is also a modeling standard.

In addition to the core instructional pacing below, HMH recommends the following:
- 3 days per year for the Growth Measure assessments
- 2 days per module for the Module Performance Task, Are You Ready?, Module Review, and Module Test
- 1 day per unit for the Unit Test

Using these recommendations, the total pacing for Geometry is 180 days.

Lesson		Standards for a Geometry Course	Pacing
6.2	Apply Sequences of Transformations	Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch). Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments. Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another. Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent.	1 day
Unit 4	**TRIANGLE CONGRUENCE**		
Module 7:	**Congruent Triangles and Polygons**		
7.1	Understand Congruent Figures	Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.	1 day
7.2	Corresponding Parts of Congruent Figures	Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.	1 day
7.3	Use Rigid Motions to Prove Figures Are Congruent	Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent. Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.	2 days
Module 8:	**Triangle Congruence Criteria**		
8.1	Develop ASA Triangle Congruence	Explain how the criteria for triangle congruence (ASA, SAS, and SSS) follow from the definition of congruence in terms of rigid motions. Use congruence and similarity criteria for triangles to solve problems and prove relationships in geometric figures.	2 days
8.2	Develop SAS Triangle Congruence	Explain how the criteria for triangle congruence (ASA, SAS, and SSS) follow from the definition of congruence in terms of rigid motions. Use congruence and similarity criteria for triangles to solve problems and prove relationships in geometric figures.	2 days
8.3	Develop SSS Triangle Congruence	Explain how the criteria for triangle congruence (ASA, SAS, and SSS) follow from the definition of congruence in terms of rigid motions. Use congruence and similarity criteria for triangles to solve problems and prove relationships in geometric figures.	2 days

"One day" is equal to one instructional period in a traditional schedule and would need to be adjusted to account for longer class periods in a block schedule.

Continued on next page ➔

Pacing Guide

Lesson		Standards for a Geometry Course	Pacing
8.4	Develop AAS and HL Triangle Congruence	Explain how the criteria for triangle congruence (ASA, SAS, and SSS) follow from the definition of congruence in terms of rigid motions. Use congruence and similarity criteria for triangles to solve problems and prove relationships in geometric figures.	2 days
Unit 5 RELATIONSHIPS WITHIN TRIANGLES			
Module 9: Properties of Triangles			
9.1	Angle Relationships in Triangles	Prove theorems about triangles. Construct an equilateral triangle, a square, and a regular hexagon inscribed in a circle.	1 day
9.2	Perpendicular Bisectors in Triangles	Prove theorems about triangles. Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometry software, etc.). Construct the inscribed and circumscribed circles of a triangle, and prove properties of angles for a quadrilateral inscribed in a circle.	2 days
9.3	Angle Bisectors in Triangles	Prove theorems about triangles. Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometry software, etc.). Construct the inscribed and circumscribed circles of a triangle, and prove properties of angles for a quadrilateral inscribed in a circle.	2 days
9.4	Medians and Altitudes in Triangles	Prove theorems about triangles. Construct the inscribed and circumscribed circles of a triangle, and prove properties of angles for a quadrilateral inscribed in a circle.	2 days
9.5	The Triangle Midsegment Theorem	Prove theorems about triangles.	1 day
Module 10: Triangle Inequalities			
10.1	Inequalities Within a Triangle	Prove theorems about triangles. Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).*	1 day
10.2	Inequalities Between Two Triangles	Prove theorems about triangles. Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).*	1 day
Unit 6 QUADRILATERALS, POLYGONS, AND TRIANGLE SIMILARITY			
Module 11: Quadrilaterals and Polygons			
11.1	Properties of Parallelograms	Prove theorems about parallelograms. Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself.	2 days

* This is also a modeling standard.

In addition to the core instructional pacing below, HMH recommends the following:
- 3 days per year for the Growth Measure assessments
- 2 days per module for the Module Performance Task, Are You Ready?, Module Review, and Module Test
- 1 day per unit for the Unit Test

Using these recommendations, the total pacing for Geometry is 180 days.

Lesson	Standards for a Geometry Course	Pacing
11.2 Conditions for Parallelograms	Prove theorems about parallelograms. Use coordinates to prove simple geometric theorems algebraically. Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).	2 days
11.3 Properties of Rectangles, Rhombuses, and Squares	Prove theorems about parallelograms. Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself.	2 days
11.4 Conditions for Rectangles, Rhombuses, and Squares	Prove theorems about parallelograms. Construct an equilateral triangle, a square, and a regular hexagon inscribed in a circle. Use coordinates to prove simple geometric theorems algebraically. Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).	2 days
11.5 Properties and Conditions for Trapezoids and Kites	Prove theorems about parallelograms. Construct the inscribed and circumscribed circles of a triangle, and prove properties of angles for a quadrilateral inscribed in a circle. Use coordinates to prove simple geometric theorems algebraically. Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).	2 days
Module 12: Similarity		
12.1 Use Transformations to Prove Figures Are Similar	Verify experimentally the properties of dilations given by a center and a scale factor: • A dilation takes a line not passing through the center of the dilation to a parallel line, and leaves a line passing through the center unchanged. • The dilation of a line segment is longer or shorter in the ratio given by the scale factor. Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding angles and the proportionality of all corresponding pairs of sides. Use congruence and similarity criteria for triangles to solve problems and prove relationships in geometric figures. Prove that all circles are similar. Find the point on a directed line segment between two given points that partitions the segment in a given ratio.	2 days

"One day" is equal to one instructional period in a traditional schedule and would need to be adjusted to account for longer class periods in a block schedule.

Continued on next page ➔

Pacing Guide

Lesson	Standards for a Geometry Course	Pacing
12.2 Develop AA Triangle Similarity	Use the properties of similarity transformations to establish the AA criterion for two triangles to be similar. Prove theorems about triangles. Use congruence and similarity criteria for triangles to solve problems and prove relationships in geometric figures.	2 days
12.3 Develop and Prove Triangle Proportionality	Verify experimentally the properties of dilations given by a center and a scale factor: • A dilation takes a line not passing through the center of the dilation to a parallel line, and leaves a line passing through the center unchanged. • The dilation of a line segment is longer or shorter in the ratio given by the scale factor. Prove theorems about triangles. Use congruence and similarity criteria for triangles to solve problems and prove relationships in geometric figures. Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles.	2 days
12.4 Apply Similarity in Right Triangles	Prove theorems about triangles. Use congruence and similarity criteria for triangles to solve problems and prove relationships in geometric figures.	2 days
Unit 7 RIGHT TRIANGLE TRIGONOMETRY		
Module 13: Trigonometry with Right Triangles		
13.1 Tangent Ratio	Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles. Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.*	2 days
13.2 Sine and Cosine Ratios	Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles. Explain and use the relationship between the sine and cosine of complementary angles. Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.*	2 days
13.3 Special Right Triangles	Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles. Explain and use the relationship between the sine and cosine of complementary angles. Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.*	2 days

* This is also a modeling standard.

In addition to the core instructional pacing below, HMH recommends the following:
- 3 days per year for the Growth Measure assessments
- 2 days per module for the Module Performance Task, Are You Ready?, Module Review, and Module Test
- 1 day per unit for the Unit Test

Using these recommendations, the total pacing for Geometry is 180 days.

Lesson	Standards for a Geometry Course	Pacing
13.4 Solve Problems Using Trigonometry	Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles. Explain and use the relationship between the sine and cosine of complementary angles. Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.*	2 days
Module 14: Trigonometry with All Triangles		
14.1 Law of Sines	Prove the Laws of Sines and Cosines and use them to solve problems. Understand and apply the Law of Sines and the Law of Cosines to find unknown measurements in right and non-right triangles (e.g., surveying problems, resultant forces).	2 days
14.2 Law of Cosines	Prove the Laws of Sines and Cosines and use them to solve problems. Understand and apply the Law of Sines and the Law of Cosines to find unknown measurements in right and non-right triangles (e.g., surveying problems, resultant forces). Derive the formula $A = 1/2\ ab \sin(C)$ for the area of a triangle by drawing an auxiliary line from a vertex perpendicular to the opposite side.	2 days
Unit 8 PROPERTIES OF CIRCLES		
Module 15: Angles and Segments in Circles		
15.1 Central Angles and Inscribed Angles	Identify and describe relationships among inscribed angles, radii, and chords. *Include the relationship between central, inscribed, and circumscribed angles; inscribed angles on a diameter are right angles; the radius of a circle is perpendicular to the tangent where the radius intersects the circle.* Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc. Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself. Construct an equilateral triangle, a square, and a regular hexagon inscribed in a circle.	2 days
15.2 Angles in Inscribed Quadrilaterals	Identify and describe relationships among inscribed angles, radii, and chords. *Include the relationship between central, inscribed, and circumscribed angles; inscribed angles on a diameter are right angles; the radius of a circle is perpendicular to the tangent where the radius intersects the circle.* Construct the inscribed and circumscribed circles of a triangle, and prove properties of angles for a quadrilateral inscribed in a circle. Construct an equilateral triangle, a square, and a regular hexagon inscribed in a circle.	2 days

"One day" is equal to one instructional period in a traditional schedule and would need to be adjusted to account for longer class periods in a block schedule.

Continued on next page ➔

Pacing Guide

Lesson	Standards for a Geometry Course	Pacing
15.3 Tangents and Circumscribed Angles	Identify and describe relationships among inscribed angles, radii, and chords. *Include the relationship between central, inscribed, and circumscribed angles; inscribed angles on a diameter are right angles; the radius of a circle is perpendicular to the tangent where the radius intersects the circle.* Construct a tangent line from a point outside a given circle to the circle.	2 days
15.4 Circles on the Coordinate Plane	Derive the equation of a circle of given center and radius using the Pythagorean Theorem; complete the square to find the center and radius of a circle given by an equation. Use coordinates to prove simple geometric theorems algebraically.	2 days
Module 16: Relationships in Circles		
16.1 Segment Relationships in Circles	Identify and describe relationships among inscribed angles, radii, and chords. *Include the relationship between central, inscribed, and circumscribed angles; inscribed angles on a diameter are right angles; the radius of a circle is perpendicular to the tangent where the radius intersects the circle.*	2 days
16.2 Angle Relationships in Circles	Identify and describe relationships among inscribed angles, radii, and chords. *Include the relationship between central, inscribed, and circumscribed angles; inscribed angles on a diameter are right angles; the radius of a circle is perpendicular to the tangent where the radius intersects the circle.*	2 days
Module 17: Circumference and Area of a Circle		
17.1 Measure Circumference and Area of a Circle	Give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone. *Use dissection arguments, Cavalieri's principle, and informal limit arguments.*	1 day
17.2 Measure Arc Length and Use Radians	Derive using similarity the fact that the length of the arc intercepted by an angle is proportional to the radius, and define the radian measure of the angle as the constant of proportionality; derive the formula for the area of a sector.	2 days
17.3 Measure Sector Area	Derive using similarity the fact that the length of the arc intercepted by an angle is proportional to the radius, and define the radian measure of the angle as the constant of proportionality; derive the formula for the area of a sector.	2 days
Unit 9 SURFACE AREA AND VOLUME		
Module 18: Surface Area		
18.1 Three-Dimensional Figures	Identify the shapes of two-dimensional cross-sections of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects. Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).* Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, BTUs per cubic foot).* Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios).*	1 day

* This is also a modeling standard.

In addition to the core instructional pacing below, HMH recommends the following:
- 3 days per year for the Growth Measure assessments
- 2 days per module for the Module Performance Task, Are You Ready?, Module Review, and Module Test
- 1 day per unit for the Unit Test

Using these recommendations, the total pacing for Geometry is 180 days.

Lesson	Standards for a Geometry Course	Pacing
18.2 Surface Areas of Prisms and Cylinders	Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).* Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, BTUs per cubic foot).* Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios).*	2 days
18.3 Surface Areas of Pyramids and Cones	Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).* Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, BTUs per cubic foot).* Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios).*	2 days
18.4 Surface Areas of Spheres	Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).* Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, BTUs per cubic foot).* Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios).*	2 days
Module 19: Volume		
19.1 Volumes of Prisms and Cylinders	Give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone. *Use dissection arguments, Cavalieri's principle, and informal limit arguments.* Give an informal argument using Cavalieri's principle for the formulas for the volume of a sphere and other solid figures. Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.* Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).* Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, BTUs per cubic foot).* Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios).*	1 day

"One day" is equal to one instructional period in a traditional schedule and would need to be adjusted to account for longer class periods in a block schedule.

Continued on next page ➔

Pacing Guide

Lesson	Standards for a Geometry Course	Pacing
19.2 Volumes of Pyramids and Cones	Give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone. *Use dissection arguments, Cavalieri's principle, and informal limit arguments.* Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.* Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).* Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, BTUs per cubic foot).* Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios).*	2 days
19.3 Volumes of Spheres	Give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone. *Use dissection arguments, Cavalieri's principle, and informal limit arguments.* Give an informal argument using Cavalieri's principle for the formulas for the volume of a sphere and other solid figures. Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.* Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).* Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, BTUs per cubic foot).* Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios).*	2 days
Unit 10 PROBABILITY		
Module 20: Probability of Multiple Events		
20.1 Probability and Set Theory	Describe events as subsets of a sample space (the set of outcomes) using characteristics (or categories) of the outcomes, or as unions, intersections, or complements of other events ("or," "and," "not").*	2 days
20.2 Disjoint and Overlapping Events	Construct and interpret two-way frequency tables of data when two categories are associated with each object being classified. Use the two-way table as a sample space to decide if events are independent and to approximate conditional probabilities.* Apply the Addition Rule, $P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$, and interpret the answer in terms of the model.*	2 days

* This is also a modeling standard.

In addition to the core instructional pacing below, HMH recommends the following:
- 3 days per year for the Growth Measure assessments
- 2 days per module for the Module Performance Task, Are You Ready?, Module Review, and Module Test
- 1 day per unit for the Unit Test

Using these recommendations, the total pacing for Geometry is 180 days.

Lesson	Standards for a Geometry Course	Pacing
Module 21: Conditional Probability and Independence of Events		
21.1 Conditional Probability	Describe events as subsets of a sample space (the set of outcomes) using characteristics (or categories) of the outcomes, or as unions, intersections, or complements of other events ("or," "and," "not").* Understand the conditional probability of *A* given *B* as *P*(*A* and *B*)/*P*(*B*), and interpret independence of *A* and *B* as saying that the conditional probability of *A* given *B* is the same as the probability of *A*, and the conditional probability of *B* given *A* is the same as the probability of *B*.* Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations.* Find the conditional probability of *A* given *B* as the fraction of *B*'s outcomes that also belong to *A,* and interpret the answer in terms of the model.*	2 days
21.2 Independent Events	Understand that two events *A* and *B* are independent if the probability of *A* and *B* occurring together is the product of their probabilities, and use this characterization to determine if they are independent.* Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations.*	2 days
21.3 Dependent Events	Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations.* Apply the general Multiplication Rule in a uniform probability model, $P(A \text{ and } B) = P(A)P(B\|A) = P(B)P(A\|B)$, and interpret the answer in terms of the model.*	2 days

"One day" is equal to one instructional period in a traditional schedule and would need to be adjusted to account for longer class periods in a block schedule.