



# IXL Skill Alignment

Geo alignment for HMH Common Core Curriculum

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# Module 1

## Tools of Geometry

| Textbook section                                        | IXL skills                                                                                                                                                                        |
|---------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1.1:</b> Segment Length and Midpoints                | <b>B.1</b> Lines, line segments, and rays >><br><b>B.3</b> Additive property of length >><br><b>B.7</b> Midpoint formula - find the midpoint >><br><b>B.9</b> Distance formula >> |
| <b>1.2:</b> Angle Measures and Angle Bisectors          | <b>C.1</b> Angle vocabulary >><br><b>C.2</b> Angle measures >><br><b>C.5</b> Angle bisectors >>                                                                                   |
| <b>1.3:</b> Representing and Describing Transformations | <b>L.1</b> Classify congruence transformations >>                                                                                                                                 |
| <b>1.4:</b> Reasoning and Proof                         | <b>I.1</b> Identify hypotheses and conclusions >><br><b>I.2</b> Counterexamples >><br><b>I.3</b> Conditionals >>                                                                  |

# Module 2

## Transformations and Symmetry

| Textbook section                   | IXL skills                                       |
|------------------------------------|--------------------------------------------------|
| <b>2.1:</b> Translations           | <b>L.2</b> Translations: graph the image >>      |
|                                    | <b>L.3</b> Translations: find the coordinates >> |
|                                    | <b>L.4</b> Translations: write the rule >>       |
| <b>2.2:</b> Reflections            | <b>L.5</b> Reflections: graph the image >>       |
|                                    | <b>L.6</b> Reflections: find the coordinates >>  |
| <b>2.3:</b> Rotations              | <b>L.8</b> Rotations: graph the image >>         |
|                                    | <b>L.9</b> Rotations: find the coordinates >>    |
| <b>2.4:</b> Investigating Symmetry | <b>O.1</b> Line symmetry >>                      |
|                                    | <b>O.2</b> Rotational symmetry >>                |
|                                    | <b>O.3</b> Draw lines of symmetry >>             |
|                                    | <b>O.4</b> Count lines of symmetry >>            |

# Module 3

## Congruent Figures

| Textbook section                                                   | IXL skills                                                                 |
|--------------------------------------------------------------------|----------------------------------------------------------------------------|
| <b>3.1:</b> Sequences and Transformations                          | <b>L.10</b> Compositions of congruence transformations: graph the image >> |
|                                                                    | <b>L.12</b> Congruence transformations: mixed review >>                    |
| <hr/>                                                              |                                                                            |
| <b>3.2:</b> Proving Figures Are Congruent Using Rigid Motions      |                                                                            |
| <hr/>                                                              |                                                                            |
| <b>3.3:</b> Corresponding Parts of Congruent Figures Are Congruent | <b>J.1</b> Congruence statements and corresponding parts >>                |
|                                                                    | <b>J.2</b> Solve problems involving corresponding parts >>                 |

# Module 4

## Lines and Angles

| Textbook section                                          | IXL skills                                                                                    |
|-----------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| <b>4.1:</b> Angles Formed by Intersecting Lines           | <b>C.3</b> Identify complementary, supplementary, vertical, adjacent, and congruent angles >> |
|                                                           | <b>C.4</b> Find measures of complementary, supplementary, vertical, and adjacent angles >>    |
| <b>4.2:</b> Transversals and Parallel Lines               | <b>D.3</b> Transversals: name angle pairs >>                                                  |
|                                                           | <b>D.4</b> Transversals of parallel lines: find angle measures >>                             |
| <b>4.3:</b> Proving Lines Are Parallel                    | <b>D.6</b> Proofs involving parallel lines I >>                                               |
| <b>4.4:</b> Perpendicular Lines                           | <b>C.8</b> Proofs involving angles >>                                                         |
|                                                           | <b>D.2</b> Construct a perpendicular line >>                                                  |
| <b>4.5:</b> Equations of Parallel and perpendicular Lines | <b>E.2</b> Slopes of lines >>                                                                 |
|                                                           | <b>E.5</b> Slopes of parallel and perpendicular lines >>                                      |
|                                                           | <b>E.6</b> Equations of parallel and perpendicular lines >>                                   |

# Module 5

## Triangle Congruence Criteria

| Textbook section                              | IXL skills                                                                                     |
|-----------------------------------------------|------------------------------------------------------------------------------------------------|
| 5.1: Exploring What Makes Triangles Congruent |                                                                                                |
| 5.2: ASA Triangle Congruence                  |                                                                                                |
| 5.3: SAS Triangle Congruence                  |                                                                                                |
| 5.4: SSS Triangle Congruence                  | <b>K.1</b> SSS and SAS Theorems >><br><b>K.2</b> Proving triangles congruent by SSS and SAS >> |

# Module 6

## Applications of Triangle Congruence

| Textbook section                     | IXL skills                                                                                                                                                                                                             |
|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>6.1:</b> Justifying Constructions |                                                                                                                                                                                                                        |
| <b>6.2:</b> AAS Triangle Congruence  | <b>K.3</b> ASA and AAS Theorems >><br><b>K.4</b> Proving triangles congruent by ASA and AAS >><br><b>K.5</b> SSS, SAS, ASA, and AAS Theorems >><br><b>K.7</b> Proving triangles congruent by SSS, SAS, ASA, and AAS >> |
| <b>6.3:</b> HL Triangle Congruence   | <b>K.11</b> Hypotenuse-Leg Theorem >>                                                                                                                                                                                  |

# Module 7

## Properties of Triangles

| Textbook section                                | IXL skills                                                                                                                    |
|-------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| <b>7.1:</b> Interior and Exterior Angles        | <b>F.2</b> Triangle Angle-Sum Theorem >><br><b>F.3</b> Exterior Angle Theorem >><br><b>G.2</b> Interior angles of polygons >> |
| <b>7.2:</b> Isosceles and Equilateral Triangles | <b>K.9</b> Congruency in isosceles and equilateral triangles >><br><b>K.10</b> Proofs involving isosceles triangles >>        |
| <b>7.3:</b> Triangle Inequalities               | <b>M.4</b> Angle-side relationships in triangles >><br><b>M.5</b> Triangle Inequality Theorem >>                              |



# Module 8

## Special Segments in Triangles

| Textbook section                                 | IXL skills                                                                                                                                                   |
|--------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>8.1:</b> Perpendicular Bisectors of Triangles | <b>M.2</b> Triangles and bisectors >>                                                                                                                        |
| <b>8.2:</b> Angle Bisectors of Triangles         | <b>C.5</b> Angle bisectors >><br><b>M.6</b> Construct the circumcenter or incenter of a triangle >>                                                          |
| <b>8.3:</b> Medians and Altitudes of Triangles   | <b>M.3</b> Identify medians, altitudes, angle bisectors, and perpendicular bisectors >><br><b>M.7</b> Construct the centroid or orthocenter of a triangle >> |
| <b>8.4:</b> Midsegments of Triangles             | <b>M.1</b> Midsegments of triangles >>                                                                                                                       |

# Module 9

## Properties of Quadrilaterals

| Textbook section                                               | IXL skills                                                                                                                                                                                                                                  |
|----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>9.1:</b> Properties of Parallelograms                       | <b>N.4</b> Properties of parallelograms >>                                                                                                                                                                                                  |
| <b>9.2:</b> Conditions for Parallelograms                      | <b>N.5</b> Proving a quadrilateral is a parallelogram >>                                                                                                                                                                                    |
| <b>9.3:</b> Properties of Rectangles, Rhombuses, and Squares   | <b>N.6</b> Properties of rhombuses >><br><b>N.7</b> Properties of squares and rectangles >>                                                                                                                                                 |
| <b>9.4:</b> Conditions for Rectangles, Rhombuses and Squares   |                                                                                                                                                                                                                                             |
| <b>9.5:</b> Properties and Conditions for Kites and Trapezoids | <b>N.8</b> Properties of trapezoids >><br><b>N.9</b> Properties of kites >><br><b>N.10</b> Review: properties of quadrilaterals >><br><b>N.11</b> Proofs involving quadrilaterals I >><br><b>N.12</b> Proofs involving quadrilaterals II >> |

# Module 10

## Coordinate Proof Using Slope and Distance

| Textbook section                                                         | IXL skills |                                                  |
|--------------------------------------------------------------------------|------------|--------------------------------------------------|
| <b>10.1:</b> Slope and Parallel Lines                                    |            |                                                  |
| <b>10.2:</b> Slope and Perpendicular Lines                               |            |                                                  |
| <b>10.3:</b> Coordinate Proof Using Distance with Segments and Triangles | <b>K.6</b> | SSS Theorem in the coordinate plane >>           |
| <b>10.4:</b> Coordinate Proof Using Distance with Quadrilaterals         |            |                                                  |
| <b>10.5:</b> Perimeter and Area on the Coordinate Plane                  | <b>S.5</b> | Area and perimeter in the coordinate plane I >>  |
|                                                                          | <b>S.6</b> | Area and perimeter in the coordinate plane II >> |

# Module 11

## Similarity and Transformations

| Textbook section                                               | IXL skills                                                                                                                                              |
|----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>11.1:</b> Dilations                                         | <b>L.13</b> Dilations: graph the image >><br><b>L.15</b> Dilations: scale factor and classification >>                                                  |
| <b>11.2:</b> Proving Figures Are Similar Using Transformations | <b>L.14</b> Dilations: find the coordinates >><br><b>P.8</b> Similar triangles and similarity transformations >><br><b>P.9</b> Similarity of circles >> |
| <b>11.3:</b> Corresponding Parts of Similar Figures            | <b>P.1</b> Similarity ratios >><br><b>P.2</b> Similarity statements >><br><b>P.4</b> Side lengths and angle measures in similar figures >>              |
| <b>11.4:</b> AA Similarity of Triangles                        | <b>P.7</b> Similarity rules for triangles >>                                                                                                            |

# Module 12

## Using Similar Triangles

| Textbook section                                    | IXL skills                                                                                                                                                  |
|-----------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>12.1:</b> Triangle Proportionality Theorem       | <b>P.10</b> Triangle Proportionality Theorem >><br><b>P.13</b> Prove proportions or angle congruences using similarity >>                                   |
| <b>12.2:</b> Subdividing a Segment in a Given Ratio |                                                                                                                                                             |
| <b>12.3:</b> Using Proportional Relationships       | <b>P.5</b> Similar triangles and indirect measurement >>                                                                                                    |
| <b>12.4:</b> Similarity in Right Triangles          | <b>P.12</b> Prove similarity statements >><br><b>P.14</b> Proofs involving similarity in right triangles >><br><b>P.15</b> Prove the Pythagorean theorem >> |

# Module 13

## Trigonometry with Right Triangles

| Textbook section                               | IXL skills                                                                                                                                                   |
|------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>13.1:</b> Tangent Ratio                     |                                                                                                                                                              |
| <b>13.2:</b> Sine and Cosine Ratios            | <b>R.1</b> Trigonometric ratios: sin, cos, and tan >>                                                                                                        |
| <b>13.3:</b> Special Right Triangles           | <b>Q.4</b> Special right triangles >><br><b>R.8</b> Trigonometric ratios: find a side length >><br><b>R.9</b> Trigonometric ratios: find an angle measure >> |
| <b>13.4:</b> Problem Solving with Trigonometry | <b>R.10</b> Solve a right triangle >>                                                                                                                        |

# Module 14

## Trigonometry with All Triangles

| Textbook section            | IXL skills                                            |
|-----------------------------|-------------------------------------------------------|
| <b>14.1:</b> Law of Sines   | <b>R.11</b> <a href="#">Law of Sines &gt;&gt;</a>     |
| <b>14.2:</b> Law of Cosines | <b>R.12</b> <a href="#">Law of Cosines &gt;&gt;</a>   |
|                             | <b>R.13</b> <a href="#">Solve a triangle &gt;&gt;</a> |

# Module 15

## Angles and Segments in Circles

| Textbook section                                 | IXL skills                                                                                                  |
|--------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| <b>15.1:</b> Central Angles and Inscribed Angles | <b>U.1</b> Parts of a circle >><br><b>U.2</b> Central angles >><br><b>U.9</b> Inscribed angles >>           |
| <b>15.2:</b> Angles in Inscribed Quadrilaterals  | <b>U.11</b> Angles in inscribed quadrilaterals I >><br><b>U.12</b> Angles in inscribed quadrilaterals II >> |
| <b>15.3:</b> Tangents and Circumscribed Angles   | <b>U.7</b> Tangent lines >><br><b>U.13</b> Construct a tangent line to a circle >>                          |
| <b>15.4:</b> Segment Relationships in Circles    | <b>U.6</b> Arcs and chords >>                                                                               |
| <b>15.5:</b> Angle Relationships in Circles      |                                                                                                             |



# Module 16

## Arc Length and Sector Area

| Textbook section                                           | IXL skills                                                            |
|------------------------------------------------------------|-----------------------------------------------------------------------|
| <b>16.1:</b> Justifying Circumference and Area of a Circle | <b>S.7</b> <a href="#">Area and circumference of circles &gt;&gt;</a> |
| <b>16.2:</b> Arc Length and Radian Measure                 | <b>U.3</b> <a href="#">Arc measure and arc length &gt;&gt;</a>        |
| <b>16.3:</b> Sector Area                                   | <b>U.4</b> <a href="#">Area of sectors &gt;&gt;</a>                   |

# Module 17

## Equations of Circles and Parabolas

### Textbook section

### IXL skills

#### 17.1: Equation of a Circle

- V.1** Find the center of a circle >>
- V.2** Find the radius or diameter of a circle >>
- V.3** Write equations of circles in standard form from graphs >>
- V.4** Write equations of circles in standard form using properties >>
- V.5** Convert equations of circles from general to standard form >>
- V.6** Find properties of circles from equations in general form >>
- V.7** Graph circles from equations in standard form >>

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#### 17.2: Equation of a Parabola

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# Module 18

## Volume Formulas

| Textbook section                     | IXL skills                                                         |
|--------------------------------------|--------------------------------------------------------------------|
| 18.1: Volume of Prisms and Cylinders | <b>T.4</b> <a href="#">Volume of prisms and cylinders &gt;&gt;</a> |
| 18.2: Volume of Pyramids             |                                                                    |
| 18.3: Volume of Cones                | <b>T.5</b> <a href="#">Volume of pyramids and cones &gt;&gt;</a>   |
| 18.4: Volume of Spheres              |                                                                    |

# Module 19

## Visualizing Solids

| Textbook section                                   | IXL skills                                                                                                         |
|----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|
| <b>19.1:</b> Cross-Sections and Solids of Rotation | <b>H.4</b> Cross-sections of three-dimensional figures >><br><b>H.5</b> Solids of revolution >>                    |
| <b>19.2:</b> Surface Area of Prisms and Cylinders  | <b>H.3</b> Nets and drawings of three-dimensional figures >><br><b>T.2</b> Surface area of prisms and cylinders >> |
| <b>19.3:</b> Surface Area of Pyramids and Cones    | <b>T.3</b> Surface area of pyramids and cones >>                                                                   |
| <b>19.4:</b> Surface Area of Spheres               | <b>T.6</b> Surface area and volume of spheres >>                                                                   |

# Module 20

## Modeling and Problem Solving

| Textbook section                              | IXL skills                                                                                                      |
|-----------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| <b>20.1:</b> Scale Factor                     | <b>S.10</b> Area and perimeter of similar figures >><br><b>T.8</b> Surface area and volume of similar solids >> |
| <b>20.2:</b> Modeling and Density             |                                                                                                                 |
| <b>20.3:</b> Problem Solving with Constraints |                                                                                                                 |

# Module 21

## Introduction to Probability

| Textbook section                                       | IXL skills                                                     |
|--------------------------------------------------------|----------------------------------------------------------------|
| <b>21.1:</b> Probability and Set Theory                |                                                                |
| <b>21.2:</b> Permutations and Probability              | <b>X.4</b> Counting principle >><br><b>X.5</b> Permutations >> |
| <b>21.3:</b> Combinations and Probability              | <b>X.6</b> Permutation and combination notation >>             |
| <b>21.4:</b> Mutually Exclusive and Overlapping Events | <b>X.1</b> Theoretical and experimental probability >>         |

# Module 22

## Conditional Probability and Independence of Events

| Textbook section                     | IXL skills                                                           |
|--------------------------------------|----------------------------------------------------------------------|
| <b>22.1:</b> Conditional Probability |                                                                      |
| <b>22.2:</b> Independent Events      |                                                                      |
| <b>22.3:</b> Dependent Events        | <b>X.3</b> <a href="#">Independent and dependent events &gt;&gt;</a> |

# Module 23

## Probability and Decision Making

| Textbook section                                      | IXL skills |
|-------------------------------------------------------|------------|
| <b>23.1:</b> Using Probability to Make Fair Decisions |            |
| <b>23.2:</b> Analyzing Decisions                      |            |