



IXL Skill Alignment

Geometry alignment for Illustrative Mathematics



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Unit 1

Constructions and Rigid Transformations

Constructions

Textbook section	IXL skills
Lesson 1: Build It	1. Lines, line segments, and rays XFC
Lesson 2: Constructing Patterns	<ul style="list-style-type: none"> Coming soon: Construct a congruent segment
Lesson 3: Construction Techniques 1: Perpendicular Bisectors	1. Construct the midpoint or perpendicular bisector of a segment HDT
Lesson 4: Construction Techniques 2: Equilateral Triangles	1. Construct an equilateral triangle inscribed in a circle RBF <i>Also consider</i> <ul style="list-style-type: none"> Construct a regular hexagon inscribed in a circle MCM
Lesson 5: Construction Techniques 3: Perpendicular Lines and Angle Bisectors	1. Construct a perpendicular line I TD9 2. Construct an angle bisector FHL
Lesson 6: Construction Techniques 4: Parallel and Perpendicular Lines	1. Construct a perpendicular line II ZRY 2. Construct parallel lines 6EB
Lesson 7: Construction Techniques 5: Squares	1. Construct a square QQZ 2. Construct a square inscribed in a circle WEH <i>Also consider</i> <ul style="list-style-type: none"> Regular and irregular polygons ZBG
Lesson 8: Using Technology for Constructions (optional)	
Lesson 9: Speedy Delivery	

Rigid Transformations

Textbook section	IXL skills
Lesson 10: Rigid Transformations	1. Classify congruence transformations CXT <ul style="list-style-type: none"> <i>Coming soon:</i> Compare rigid and non-rigid transformations
Lesson 11: Defining Reflections	<ul style="list-style-type: none"> <i>Coming soon:</i> Define reflections <p><i>Also consider</i></p> <ul style="list-style-type: none"> Reflections: graph the image GBP
Lesson 12: Defining Translations	<ul style="list-style-type: none"> <i>Coming soon:</i> Define translations <p><i>Also consider</i></p> <ul style="list-style-type: none"> Translations: graph the image 7AC
Lesson 13: Incorporating Rotations	1. Rotate polygons about a point XM7
Lesson 14: Defining Rotations	<ul style="list-style-type: none"> <i>Coming soon:</i> Define rotations <p><i>Also consider</i></p> <ul style="list-style-type: none"> Rotations: graph the image RQW
Lesson 15: Symmetry	1. Line symmetry WBX 2. Draw lines of symmetry JU7 3. Count lines of symmetry M7U
Lesson 16: More Symmetry	1. Rotational symmetry ERP 2. Transformations that carry a polygon onto itself RJW
Lesson 17: Working with Rigid Transformations	<ul style="list-style-type: none"> <i>Coming soon:</i> Sequences of congruence transformations
Lesson 18: Practicing Point by Point Transformations (optional)	

Evidence and Proof

Textbook section	IXL skills
Lesson 19: Evidence, Angles, and Proof	1. Proofs involving angles HV9
Lesson 20: Transformations, Transversals, and Proof	1. Transversals of parallel lines: find angle measures WB9 <i>Also consider</i> <ul style="list-style-type: none">• Proofs involving parallel lines I CUV• Proofs involving parallel lines II 5U8
Lesson 21: One Hundred and Eighty	1. Prove the triangle angle sum theorem U86

Designs

Textbook section	IXL skills
Lesson 22: Now What Can You Build? (optional)	1. Construct an equilateral triangle or regular hexagon USF
Checkpoint opportunity	1. Checkpoint: Definitions of geometric objects 2JF

Unit 2

Congruence

Congruent Triangles

Textbook section	IXL skills
Lesson 1: Congruent Parts, Part 1	1. Corresponding parts of congruent polygons UDW
Lesson 2: Congruent Parts, Part 2	1. Solve problems involving corresponding parts WYB
Lesson 3: Congruent Triangles, Part 1	<ul style="list-style-type: none"> <i>Coming soon:</i> Prove triangles congruent using rigid motion
Lesson 4: Congruent Triangles, Part 2	1. Triangle Angle-Sum Theorem UBU
Lesson 5: Points, Segments, and Zigzags	1. Congruence transformations: graph the image CUQ
Lesson 6: Side-Angle-Side Triangle Congruence	<ul style="list-style-type: none"> <i>Coming soon:</i> Prove SAS congruence using rigid motion <p><i>Also consider</i></p> <ul style="list-style-type: none"> Proofs involving SAS WDB
Lesson 7: Angle-Side-Angle Triangle Congruence	<ul style="list-style-type: none"> <i>Coming soon:</i> Prove ASA congruence using rigid motion <p><i>Also consider</i></p> <ul style="list-style-type: none"> Proofs involving ASA and AAS V7S
Lesson 8: The Perpendicular Bisector Theorem	1. Perpendicular Bisector Theorem BKS
Lesson 9: Side-Side-Side Triangle Congruence	<ul style="list-style-type: none"> <i>Coming soon:</i> Prove SSS congruence using rigid motion <p><i>Also consider</i></p> <ul style="list-style-type: none"> Proofs involving SSS 9P6 Properties of parallelograms LLK

Lesson 10: Practicing Proofs

1. SSS, SAS, and ASA Theorems TQV
2. Proofs involving triangles and quadrilaterals G8T

Also consider

- Hypotenuse-Leg Theorem VQJ

Lesson 11: Side-Side-Angle (Sometimes) Congruence (optional)**Proofs about Quadrilaterals****Textbook section****IXL skills****Lesson 12:** Proofs about Quadrilaterals

- *Coming soon:* Prove theorems about rectangles, rhombuses, and squares

Also consider

- Properties of rhombuses QVX
- Properties of squares and rectangles R9M
- Properties of kites LZ9

Lesson 13: Proofs about Parallelograms

- *Coming soon:* Prove theorems about parallelograms

Also consider

- Proving a quadrilateral is a parallelogram H89

Lesson 14: Bisect It

1. Construct a congruent angle F7V

Putting It All Together**Textbook section****IXL skills****Lesson 15:** Congruence for Quadrilaterals

1. Proofs involving quadrilaterals P77

Checkpoint opportunity**Unit 2**

1. Checkpoint: Parallelogram theorems F5J

Units 1-2

- *Coming soon:* Checkpoint: Line and angle theorems

Unit 3

Similarity

Properties of Dilations

Textbook section	IXL skills
Lesson 1: Scale Drawings	1. Dilations: scale factor and classification ZDM
Lesson 2: Scale of the Solar System (optional)	1. Scale drawings: word problems M7M <i>Also consider</i> • Dilations: find the scale factor and center of the dilation VKY
Lesson 3: Measuring Dilations	1. Dilations: graph the image ZRD 2. Dilations: find length, perimeter, and area WLC
Lesson 4: Dilating Lines and Angles	1. Dilations and parallel lines G76
Lesson 5: Splitting Triangle Sides with Dilation, Part 1	1. Midsegments of triangles 8GT

Similarity Transformations and Proportional Reasoning

Textbook section	IXL skills
Lesson 6: Connecting Similarity and Transformations	1. Similarity statements UG8 <i>Also consider</i> • Similar triangles and similarity transformations G2Z
Lesson 7: Reasoning about Similarity with Transformations	1. Identify similar triangles G6A
Lesson 8: Are They All Similar?	1. Identify similar figures 85X 2. Similarity of circles NEP
Lesson 9: Conditions for Triangle Similarity	• <i>Coming soon:</i> Prove angle-angle similarity using transformations

Lesson 10: Other Conditions for Triangle Similarity (optional)

1. Similarity rules for triangles XJQ
2. Prove similarity statements ETX

Also consider

- Prove proportions or angle congruences using similarity DDY

Lesson 11: Splitting Triangle Sides with Dilation, Part 2

1. Triangle Proportionality Theorem 6WA
2. Proofs involving triangles II DUQ

Lesson 12: Practice With Proportional Relationships (optional)

1. Similarity ratios BT7
2. Side lengths and angle measures in similar figures E2K

Similarity in Right Triangles

Textbook section

IXL skills

Lesson 13: Using the Pythagorean Theorem and Similarity

1. Similarity and altitudes in right triangles CE7
2. Proofs involving similarity in right triangles XCT

Lesson 14: Proving the Pythagorean Theorem

1. Prove the Pythagorean theorem JGT

Also consider

- Converse of the Pythagorean theorem NCK

Lesson 15: Finding All the Unknown Values in Triangles

1. Pythagorean theorem F55
2. Side lengths in similar triangles NKJ

Putting It All Together

Textbook section

IXL skills

Lesson 16: Bank Shot

1. Similar triangles and indirect measurement JWK

Checkpoint opportunity

Unit 3

1. Checkpoint: Dilations 8C6

Units 1-3

2. Checkpoint: Triangle similarity and congruence 5MD

Unit 4

Right Triangle Trigonometry

Angles and Steepness

Textbook section	IXL skills
Lesson 1: Angles and Steepness	
Lesson 2: Half a Square (optional)	1. 45-45-90 right triangles ENT
Lesson 3: Half an Equilateral Triangle (optional)	1. 30-60-90 right triangles UXU <i>Also consider</i> • Special right triangles LDM
Lesson 4: Ratios in Right Triangles	
Lesson 5: Working with Ratios in Right Triangles	• <i>Coming soon:</i> Side ratios in right triangles

Defining Trigonometric Ratios

Textbook section	IXL skills
Lesson 6: Working with Trigonometric Ratios	1. Trigonometric ratios: sin, cos, and tan D5Z 2. Trigonometric ratios: find a side length UZC <i>Also consider</i> • Trigonometric ratios in similar right triangles 7X7
Lesson 7: Applying Ratios in Right Triangles	1. Solve a right triangle I 9JA
Lesson 8: Sine and Cosine in the Same Right Triangle	• <i>Coming soon:</i> Sine and cosine of complementary angles
Lesson 9: Using Trigonometric Ratios to Find Angles	1. Trigonometric ratios: find an angle measure 49E
Lesson 10: Solving Problems with Trigonometry	1. Solve a right triangle II KEE

Lesson 11: Approximating Pi

- *Coming soon:* Area of regular polygons
- *Coming soon:* Approximate circle circumference and area with regular polygons

Checkpoint opportunity

1. Checkpoint: Right triangle trigonometry 45J

Unit 5

Solid Geometry

Cross Section, Scaling, and Area

Textbook section	IXL skills
Lesson 1: Solids of Rotations	1. Solids of revolution LKT
Lesson 2: Slicing Solids	1. Cross sections of three-dimensional figures 7Z4
Lesson 3: Creating Cross Sections by Dilating	
Lesson 4: Scaling and Area	1. Areas of similar figures I RC9
Lesson 5: Scaling and Unscaling	1. Areas of similar figures II AUU <ul style="list-style-type: none"> • <i>Coming soon:</i> Graph square root functions

Scaling Solids

Textbook section	IXL skills
Lesson 6: Scaling Solids	1. Surface area and volume of similar solids I YUU
Lesson 7: The Root of the Problem	1. Surface area and volume of similar solids II X9J
Lesson 8: Speaking of Scaling	<ul style="list-style-type: none"> • <i>Coming soon:</i> Model surface area and volume: word problems

Prism and Cylinder Volumes

Textbook section	IXL skills
Lesson 9: Cylinder Volumes	<ul style="list-style-type: none"> • <i>Coming soon:</i> Solids of revolution: find the volume <p><i>Also consider</i></p> <ul style="list-style-type: none"> • Surface area and volume: changes in scale T9H
Lesson 10: Cross Sections and Volume	<ul style="list-style-type: none"> • <i>Coming soon:</i> Cavalieri's principle
Lesson 11: Prisms Practice	1. Volume of prisms and cylinders N5F

Understanding Pyramid Volumes

Textbook section	IXL skills
Lesson 12: Prisms and Pyramids	1. Which figure is being described? ND2
Lesson 13: Building a Volume Formula for a Pyramid	<ul style="list-style-type: none"> <i>Coming soon:</i> Understand the volume of a pyramid
Lesson 14: Working with Pyramids	1. Volume of pyramids and cones 7J3
Lesson 15: Putting all the Solids Together	1. Volume: mixed review AZE

Putting It All Together

Textbook section	IXL skills
Lesson 16: Surface Area and Volume	<ul style="list-style-type: none"> <i>Coming soon:</i> Surface area of prisms and pyramids: word problems <i>Coming soon:</i> Volume of cylinders, cones, and spheres: word problems <p><i>Also consider</i></p> <ul style="list-style-type: none"> Surface area of spheres TGF Volume of spheres 62N
Lesson 17: Volume and Density	1. Calculate density, mass, and volume YKJ
Lesson 18: Volume and Graphing	<ul style="list-style-type: none"> <i>Coming soon:</i> Volume and density word problems
Checkpoint opportunity	<ol style="list-style-type: none"> Checkpoint: Cross sections and solids of revolution PYM Checkpoint: Volume WY6 <ul style="list-style-type: none"> <i>Coming soon:</i> Checkpoint: Density

Unit 6

Coordinate Geometry

Transformations in the Plane

Textbook section	IXL skills
Lesson 1: Rigid Transformations in the Plane	1. Translations: find the coordinates F8U 2. Reflections: find the coordinates SVY 3. Rotations: find the coordinates ZX5 <i>Also consider</i> <ul style="list-style-type: none"> Sequences of congruence transformations: graph the image WHW
Lesson 2: Transformations as Functions	1. Translations: write the rule 9PR
Lesson 3: Types of Transformations	1. Dilations: find the coordinates 5KZ <ul style="list-style-type: none"> <i>Coming soon:</i> Sequences of congruence transformations: write the rules

Distances, Circles, and Parabolas

Textbook section	IXL skills
Lesson 4: Distances and Circles	<ul style="list-style-type: none"> <i>Coming soon:</i> Determine if a point is on a circle <i>Coming soon:</i> Derive the equation of a circle using the Pythagorean theorem <i>Also consider</i> <ul style="list-style-type: none"> Write equations of circles in standard form from graphs 8HJ Write equations of circles in standard form using properties EXA Graph circles from equations in standard form GVH Distance formula 59F
Lesson 5: Squares and Circles	1. Perfect square quadratics 8LB

Lesson 6: Completing the Squares

1. Convert equations of circles from general to standard form [YM5](#)
2. Find properties of circles from equations in general form [EAJ](#)

Also consider

- Graph circles from equations in general form [2AU](#)
- Complete the square [G82](#)

Lesson 7: Distances and Parabolas

1. Find properties of a parabola from a graph [VUN](#)

Lesson 8: Equations and Graphs

1. Write equations of parabolas in vertex form using the focus and directrix [5LT](#)

Also consider

- Write equations of parabolas in vertex form from graphs [NHB](#)
- Graph parabolas [R2Q](#)

Proving Geometric Theorems Algebraically

Textbook section	IXL skills
<p>Lesson 9: Equations of Lines</p>	<ol style="list-style-type: none"> 1. Point-slope form: write an equation VXP 2. Point-slope form: write an equation from a graph BK5
<p>Lesson 10: Parallel Lines in the Plane</p>	<ol style="list-style-type: none"> 1. Equations of parallel lines XBW <ul style="list-style-type: none"> • <i>Coming soon:</i> Prove lines are parallel
<p>Lesson 11: Perpendicular Lines in the Plane</p>	<ol style="list-style-type: none"> 1. Equations of perpendicular lines FZY <ul style="list-style-type: none"> • <i>Coming soon:</i> Prove lines are perpendicular
<p>Lesson 12: It's All on the Line</p>	<ol style="list-style-type: none"> 1. Slopes of parallel and perpendicular lines 6K2 2. Equations of parallel and perpendicular lines VEB
<p>Lesson 13: Intersection Points</p>	<ol style="list-style-type: none"> 1. Solve systems of circles and lines using substitution WNN <p><i>Also consider</i></p> <ul style="list-style-type: none"> • Solve systems of parabolas and lines using substitution JAZ

Lesson 14: Coordinate Proof

1. Area and perimeter in the coordinate plane I QWZ
 2. Area and perimeter in the coordinate plane II MHQ
- *Coming soon:* Classify triangles and quadrilaterals on the coordinate plane

Lesson 15: Weighted Averages

1. Midpoint formula: find the midpoint 2YG
2. Partition a line segment in a given ratio J42

Also consider

- Midpoint formula: find the endpoint EUW

Lesson 16: Weighted Averages in a Triangle

1. Construct the centroid of a triangle XQC

Putting It All Together**Textbook section****IXL skills****Lesson 17:** Lines in Triangles

1. Identify medians, altitudes, angle bisectors, and perpendicular bisectors JWN

Also consider

- Construct the orthocenter of a triangle KJW

Checkpoint opportunity**Unit 6**

1. Checkpoint: Partition a line segment U7H
 2. Checkpoint: Equations of circles M2P
 3. Checkpoint: Parallel and perpendicular lines JR9
 4. Checkpoint: Area and perimeter in the coordinate plane 9VT
- *Coming soon:* Checkpoint: Coordinate geometry proofs

Units 1-6

5. Checkpoint: Transformations in the plane MPY
 6. Checkpoint: Transformations of geometric figures D5L
 7. Checkpoint: Rigid motion and congruence H9L
 8. Checkpoint: Prove circles are similar GXP
- *Coming soon:* Checkpoint: Similarity transformations

- *Coming soon:* Checkpoint: Triangle theorems
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Unit 7

Circles

Lines, Angles, and Circles

Textbook section	IXL skills
Lesson 1: Lines, Angles, and Curves	1. Parts of a circle 5W5 2. Central angles and arc measures VZX <i>Also consider</i> <ul style="list-style-type: none"> Arcs and chords P63
Lesson 2: Inscribed Angles	1. Inscribed angles 98U 2. Angles in inscribed right triangles 6DL
Lesson 3: Tangent Lines	1. Construct a tangent line to a circle JSH 2. Tangent lines CFV

Polygons and Circles

Textbook section	IXL skills
Lesson 4: Quadrilaterals in Circles	<ul style="list-style-type: none"> <i>Coming soon:</i> Proofs involving inscribed quadrilaterals <i>Also consider</i> <ul style="list-style-type: none"> Angles in inscribed quadrilaterals I 24Y Angles in inscribed quadrilaterals II 2Y5
Lesson 5: Triangles in Circles	1. Construct the circumscribed circle and the circumcenter of a triangle UVV
Lesson 6: A Special Point	1. Angle bisectors 68E
Lesson 7: Circles in Triangles	1. Construct the inscribed circle and the incenter of a triangle 6ZV

Measuring Circles

Textbook section	IXL skills
Lesson 8: Arcs and Sectors	<ul style="list-style-type: none"> <i>Coming soon:</i> Understand arc length and sector area
Lesson 9: Part to Whole	<ol style="list-style-type: none"> Arc length 7L9 Area of sectors XZQ
Lesson 10: Angles, Arcs, and Radii	
Lesson 11: A New Way to Measure Angles	<ul style="list-style-type: none"> <i>Coming soon:</i> Understand radians
Lesson 12: Radian Sense	<ol style="list-style-type: none"> Convert between radians and degrees NJ9
Lesson 13: Using Radians	<ol style="list-style-type: none"> Radians and arc length N8Y

Putting It All Together

Textbook section	IXL skills
Lesson 14: Putting It All Together	<ol style="list-style-type: none"> Circle measurements: mixed review TFF Circles: word problems QN6
Checkpoint opportunity	<p>Unit 7</p> <ol style="list-style-type: none"> Checkpoint: Angles and lines in circles T95 Checkpoint: Inscribed and circumscribed circles DCT Checkpoint: Arc length and area of sectors 57A <p>Units 1-7</p> <ol style="list-style-type: none"> Checkpoint: Geometric constructions PQG <ul style="list-style-type: none"> <i>Coming soon:</i> Checkpoint: Geometric modeling and design

Unit 8

Conditional Probability

Up to Chance

Textbook section	IXL skills
Lesson 1: Up to Chance (optional)	1. Probability of simple events KDP
Lesson 2: Playing with Probability	1. Theoretical and experimental probability 2L5
Lesson 3: Sample Spaces	1. Probability of compound events JXX <i>Also consider</i> • Outcomes of compound events 82S
Lesson 4: Tables of Relative Frequencies	1. Interpret two-way frequency tables DKL

Combining Events

Textbook section	IXL skills
Lesson 5: Combining Events	• <i>Coming soon:</i> Find probabilities using Venn diagrams
Lesson 6: The Addition Rule	1. Find probabilities using the addition rule UKV <i>Also consider</i> • Find probabilities using two-way frequency tables TU9

Related Events

Textbook section	IXL skills
Lesson 7: Related Events	1. Identify independent and dependent events GW9
Lesson 8: Conditional Probability	1. Find conditional probabilities NPS 2. Independence and conditional probability JR7 3. Probability of independent and dependent events PJZ

Lesson 9: Using Tables for Conditional Probability

1. Find conditional probabilities using two-way frequency tables A6N

Lesson 10: Using Probability to Determine Whether Events Are Independent

1. Identify independent events 5P6

Conditional Probability

Textbook section**IXL skills****Lesson 11:** Probability in Games (optional)**Checkpoint opportunity**

- *Coming soon:* Checkpoint: Understand independence and conditional probability
- *Coming soon:* Checkpoint: Probabilities of compound events