IXL Skill Plan for the ACT® Aspire

7th grade

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Emerging

Ratios and Proportional Reasoning

Standard	IXL skills
Recognize that two equal rates form proportional relationships	1. Do the ratios form a proportion? MJQ 2. Do the ratios form a proportion: word problems SHV
Compare quantities and ratios	1. Equivalent ratios: word problems DJ8 2. Word problems involving ratios JKY

The Number System

Standard	IXL skills
Identify even or odd integers	
Represent positive and negative numbers on number lines	1. Integers on number lines A5Y 2. Graph integers on horizontal and vertical number lines EM8

Expressions and Equations

Standard	IXL skills
Solve one-step equations with whole numbers	1. Solve one-step equations with whole numbers WLR
Use inverse operations to solve equations	1. Model and solve equations using algebra tiles G6Z

Geometry

Standard	IXL skills
Sketch geometric figures with given conditions	
Understand the area formula and find the area of rectangles	1. Area of rectangles and squares BE9

Identify right prisms

Model geometric figures	1. Nets of three-dimensional figures 3R2
	2. Front, side, and top view 9Q3

Statistics and Probability

Standard	IXL skills
Understand the probability of an event is between 0 and 1 and that probabilities closer to 1 have a higher likelihood	1. Probability of simple events ZZB

Modeling

Standard	IXL skills
Create diagrams to represent relationships	

Justification and Explanation

Standard	IXL skills
Explain patterns	1. Write variable expressions for arithmetic sequences AJD
Generate sequences	1. Evaluate variable expressions for number sequences HT8
Identify errors in reasoning	
Draw conclusions from two or more statements	1. Guess-and-check word problems JSR
	2. Use Venn diagrams to solve problems 2RH

Integrating Essential Skills

Standard	IXL skills
Understand rates and ratios	1. Understanding ratios ZTC
	2. Unit rates 2NB

Determine the sign of a product or quotient of integers

1. Integer multiplication rules K7U
2. Integer division rules T9Q

Add and subtract fractions

1. Add and subtract fractions NGL
2. Add and subtract mixed numbers 9BE

Differentiate between expressions and equations

1. Identify expressions and equations GCQ

Find scale factors

1. Scale drawings: scale factor word problems KCM

Find the area of rectangles

1. Area of rectangles and squares BE9

Differentiate between samples and populations

Close

Ratios and Proportional Reasoning

Standard	IXL skills
Use equations of proportional relationships to solve problems	1. Find a value using proportional equations: word problems 56U
Use proportions to solve problems	1. Solve proportions TDA 2. Solve proportions: word problems WB7

The Number System

Standard	IXL skills
Describe real-world situations with rational numbers	1. Understanding integers YBC
Recognize and make sense of math concepts in the real-world	1. Understanding fractions: word problems VTT 2. Identify quotients of rational numbers: word problems JT9

Expressions and Equations

Standard	IXL skills
Solve one-step equations with fractions	1. Solve one-step addition and subtraction equations with fractions WUC 2. Solve one-step multiplication and division equations with fractions LP2

Geometry

Standard	IXL skills
Recognize quadrilaterals by their characteristics or structure	1. Classify quadrilaterals I CDR 2. Classify quadrilaterals II 52C
Differentiate between area, perimeter, and circumference and understand the relationship between them	1. Rectangles: relationship between perimeter and area VTX

Understand the volume formula and find the volume of rectangular prisms	1. Volume of cubes and rectangular prisms XHF

Statistics and Probability

Standard	IXL skills
Use frequency summaries to estimate probability	1. Experimental probability 9AA

Modeling

Standard	IXL skills
Relate quantities in equations and tables	1. Identify independent and dependent variables in tables and graphs YFW 2. Identify independent and dependent variables LK9
Identify appropriate geometric models of shapes that include triangles, rectangles, and circles	

Justification and Explanation

Standard	IXL skills
Use conditional statements	
Create visual representations	1. Maps with fractional distances KXP
Explain procedures	1. Write equivalent expressions using properties 6XR
Provide counterexamples	
Use patterns to draw conclusions	1. Number sequences: word problems CR6
Support claims and draw conclusions	1. Estimate population size using proportions 3C9

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Integrating Essential Skills

Standard	IXL skills
Solve proportions	1. Solve proportions TDA
Solve problems involving fractions	**Addition and subtraction** 1. Add and subtract fractions: word problems ENL 2. Add and subtract mixed numbers: word problems 6YT **Multiplication and division** 3. Multiply fractions and mixed numbers: word problems 5NJ 4. Divide fractions and mixed numbers: word problems 5VR
Use algebraic expressions and linear equations	**Expressions** 1. Multiply using the distributive property NUY 2. Add and subtract linear expressions 6BT 3. Identify equivalent linear expressions using algebra tiles 38V **Equations** 4. Solve one-step equations WKM
Solve scale factor problems	1. Scale drawings: word problems 84H 2. Scale drawings: scale factor word problems KCM
Solve problems involving area	**Polygons** 1. Area of rectangles and parallelograms 62H 2. Area of triangles and trapezoids ENE 3. Area and perimeter: word problems JFR **Circles** 4. Area of circles YA8
Explain characteristics of samples	1. Identify representative, random, and biased samples 5V3

Ready

Ratios and Proportional Relationships

Standard	IXL skills
Solve multi-step problems with equations, proportions, ratios, and percentages	1. Multi-step problems with percents ZHX 2. Multi-step word problems JVU 3. Multi-step word problems: identify reasonable answers MDP
Use ratios and proportions to find percentages	1. Percents of numbers and money amounts 93K 2. Percents of numbers: word problems EXE 3. Solve percent equations 67F 4. Solve percent equations: word problems JS6

The Number System

Standard	IXL skills
Identify integers, their opposites, and quantities that combine to zero	1. Absolute value and opposite integers NSB 2. Quantities that combine to zero: word problems 7SP
Perform operations with rational numbers	**Integers** 1. Add and subtract integers FNS 2. Multiply and divide integers R8D 3. Add, subtract, multiply, and divide integers B8A **Decimals** 4. Add and subtract positive and negative decimals WCZ 5. Multiply and divide positive and negative decimals K7V **Fractions** 6. Add and subtract positive and negative fractions SD2 7. Multiply and divide positive and negative fractions 2B5

Rational numbers

8. Add and subtract rational numbers GKU

9. Multiply and divide rational numbers BXW

Solve numerical problems with operations using the order of operations	**Real-world problems**

Real-world problems

1. Add and subtract integers: word problems 2DD

2. Add, subtract, multiply, and divide decimals: word problems TGN

3. Maps with decimal distances WT7

4. Add, subtract, multiply, and divide fractions and mixed numbers: word problems KR7

Order of operations

5. Evaluate numerical expressions involving integers 7YN

6. Evaluate numerical expressions involving decimals FNM

7. Evaluate numerical expressions involving fractions XXQ

Equations and Expressions

Standard	IXL skills
Solve multi-step equations with whole numbers, fractions, and decimals	1. Solve equations with positive numbers WZT 2. Solve equations with positive numbers: with parentheses UAX

Geometry

Standard	IXL skills
Use supplementary, complementary, vertical, and adjacent angles to find unknown angles in diagrams	1. Identify complementary, supplementary, vertical, and adjacent angles HKG 2. Find measures of complementary, supplementary, vertical, and adjacent angles CST
Solve problems involving circles, parallelograms, trapezoids, and triangles	**Circles** 1. Area of circles YA8 2. Circumference of circles KS7 3. Semicircles: calculate area, perimeter, radius, and diameter SMW

4. Circles: word problems P56

Parallelograms, trapezoids, and triangles

5. Area of rectangles and parallelograms 62H

6. Area of triangles and trapezoids ENE

Find the surface area of rectangular prisms	1. Surface area of cubes and rectangular prisms RMG
Find the volume of rectangular prisms	1. Volume of cubes and prisms URT
Use calculators and rounding strategies to solve problems about scale diagrams	1. Scale drawings: word problems 84H

Statistics and Probability

Standard	IXL skills
Find the probability of compound events using tree diagrams	1. Compound events: find the number of outcomes HZR 2. Compound events: find the number of sums SCV 3. Probability of compound events YPQ
Differentiate between experimental and theoretical probability	1. Probability of simple events ZZB 2. Experimental probability 9AA

Modeling

Standard	IXL skills
Use equations to represent relationships	1. Write a one-step equation: word problems 5A4
Select geometric models of shapes	1. Nets of three-dimensional figures 3R2
Find angle measures in geometric diagrams	1. Find measures of complementary, supplementary, vertical, and adjacent angles CST
Begin to explain the algebraic definitions of even numbers	
Use tables to understand data and solve problems	1. Interpret tables LEP

| **Visualize rectangular prisms to find surface area** | 1. Surface area of cubes and rectangular prisms RMG |

Justification and Explanation

Standard	IXL skills
Use conditional statements, visual representations, computations, and procedures	1. Solve percent problems using strip models 9XC 2. Identify proportional relationships by graphing AAN
Justify conclusions by verifying claims, explaining errors in reasoning, and providing counterexamples	1. Which is the better coupon? QT6 2. Identify proportional relationships from graphs and equations NB5 3. Identify proportional relationships from tables 6V7

Integrating Essential Skills

Standard	IXL skills
Apply understanding of proportional relationships	**Constant of proportionality** 1. Find the constant of proportionality from a table LKZ 2. Find the constant of proportionality from a graph ZUT **Graphs of proportional relationships** 3. Complete a table and graph a proportional relationship 5DR 4. Graph a proportional relationship using slope FJW 5. Interpret graphs of proportional relationships RMH
Apply operations with rational numbers	1. Apply addition and subtraction rules Y8T 2. Apply multiplication and division rules V5V
Apply understanding of algebraic expressions and linear equations	**Expressions** 1. Identify equivalent linear expressions I DRB 2. Identify equivalent linear expressions II KAR 3. Identify equivalent linear expressions: word problems KWH

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Equations

4. Solve two-step equations QEB

5. Solve equations involving like terms VSW

Solve problems involving scale and simple geometric constructions

1. Perimeter and area: changes in scale ZC6

Solve problems involving surface area and volume

1. Volume of cubes and prisms URT

2. Volume of cubes and rectangular prisms: word problems 8WV

3. Surface area of cubes and prisms RFP

Use samples to draw conclusions about populations

1. Estimate population size using proportions 3C9

Use angle measures to make circle graphs

1. Circle graphs and central angles KXS

Exceeding

Ratios and Proportional Reasoning

Standard	IXL skills
Solve problems involving percentages, rates, and discounts using proportional reasoning	1. Compare rates: word problems VVS 2. Solve percent equations: word problems JS6 3. Percent of a number: tax, discount, and more SPN 4. Find the percent: tax, discount, and more PBM
Make sense of quantities and relationships	1. Unit prices with unit conversions KJ8
Provide answers with an appropriate level of precision	1. Precision B6B

The Number System

Standard	IXL skills
Apply properties of rational numbers to justify thinking	1. Rational numbers: find the sign HSP
Solve problems involving operations with rational numbers	**Real-world problems** 1. Multi-step word problems JVU 2. Price lists CVW 3. Unit prices: find the total price ENH **Evaluate variable expressions** 4. Evaluate linear expressions UG6 5. Evaluate multi-variable expressions T56
Provide answers with an appropriate level of precision	1. Precision B6B
Provide examples that show general understanding but do not extend to other cases	**Integers** 1. Integer addition and subtraction rules 6EV 2. Integer multiplication and division rules 5R8

Rational numbers

3. Apply addition and subtraction rules Y8T

4. Apply multiplication and division rules V5V

Expressions and Equations

Standard	IXL skills
Apply properties of operations to algebraic expressions with rational coefficients	1. Multiply using the distributive property NUY 2. Write equivalent expressions using properties 6XR
Represent and solve real-world problems using equations and inequalities	1. Solve equations: word problems D2Y 2. One-step inequalities: word problems 6HD 3. Solve word problems involving two-variable equations YJT
Make sense of quantities, units, and relationships	1. Calculate unit rates with fractions 57X 2. Unit prices with unit conversions KJ8
Provide answers to an appropriate level of precision and round appropriately in problems involving inequalities	

Geometry

Standard	IXL skills
Apply the properties of interior angles of polygons to find unknown angle measures	**Triangles** 1. Find missing angles in triangles 4U6 2. Find missing angles in triangles using ratios BTX **Quadrilaterals** 3. Find missing angles in quadrilaterals I CXP 4. Find missing angles in quadrilaterals II JPY **Polygons** 5. Interior angles of polygons XE8
Use characteristics of figures to solve problems	1. Triangle inequality 5RX

Solve problems involving the area and circumference of circles and the area of rectilinear figures in scale drawings	1. Circles: word problems P56
Explain how to find surface area and volume of right prisms and use this knowledge to solve problems	1. Volume of cubes and prisms URT 2. Surface area of cubes and prisms RFP
Solve problems that involve scale	1. Perimeter and area: changes in scale ZC6
Recognize that composite shapes are made of several shapes	1. Area of compound figures with triangles MRG 2. Area of compound figures with triangles, semicircles, and quarter circles N97

Statistics and Probability

Standard	IXL skills
Use probability models and compare theoretical and experimental probabilities	1. Make predictions using experimental probability WP6 2. Make predictions using theoretical probability 9UW
Find the probability of events with and without replacement	1. Probability of independent and dependent events NED
Draw conclusions about populations from random samples	1. Estimate population size using proportions 3C9

Modeling

Standard	IXL skills
Use geometric models and diagrams to solve problems	1. Write and solve equations that represent diagrams FVH 2. Cross sections of three-dimensional figures HFJ
Make sense of proportional relationships in tables	1. Find the constant of proportionality from a table LKZ 2. Write equations for proportional relationships from tables 6GU 3. Identify proportional relationships from tables 6V7

Convert temperatures between Kelvin, Celsius, and Fahrenheit scales	1. Celsius and Fahrenheit temperatures GUE
Write inequalities to represent real-world problems	
Use models and surface area to find missing side lengths in rectangular prisms	
Write numerical expressions to find the distance between points on a number line	1. Subtract integers using number lines FGG
Explain algebraic definitions of even and odd numbers	

Justification and Explanation

Standard	IXL skills
Support claims with evidence and clear solution paths	1. Write equivalent expressions using properties 6XR 2. Solve equations: complete the solution 66R
Thoroughly justify conclusions by explaining errors in reasoning and providing counterexamples	1. Identify proportional relationships by graphing AAN

Integrating Essential Skills

Standard	IXL skills
Analyze and solve multi-step problems with proportions	1. Write and solve equations for proportional relationships VKK 2. Multi-step problems with percents ZHX
Extend understanding of fractions to perform operations with rational numbers	1. Add and subtract rational numbers GKU 2. Multiply and divide rational numbers BXW
Generate equivalent numerical expressions	1. Equal quotients of integers 2QY

IXL

Evaluate expressions and solve equations in context	1. Evaluate variable expressions: word problems 7XA
	2. Solve equations: word problems D2Y
	3. Solve word problems involving two-variable equations YJT
Draw geometric figures and describe relationships between them	1. Graph triangles and quadrilaterals MEZ
Solve real-world problems involving angles, area, surface area, and volume	1. Area and perimeter: word problems JFR
	2. Circles: word problems P56
	3. Volume of cubes and rectangular prisms: word problems 8WV
Interpret circle graphs	1. Interpret circle graphs SGL