



IXL Skill Plan for the ACT[®] Aspire 8th grade



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Emerging

The Number System

Standard	IXL skills
Approximate multiples of pi	
Approximate irrational numbers with a calculator	1. Estimate positive square roots XWJ

Expressions and Equations

Standard	IXL skills
Recognize positive, negative, zero, and undefined slopes	1. Graph a line using slope DPN
Substitute values to solve variable equations	1. Solve word problems involving two-variable equations YJT
Understand the solution to a system of equations as the intersection point of the lines	1. Is (x, y) a solution to the system of equations? N46
Understand numbers written in scientific notation	1. Convert between standard and scientific notation H8A
Use substitution and the structure of an equation to test solutions	1. Which x satisfies an equation? BVQ

Functions

Standard	IXL skills
Evaluate functions	1. Evaluate a linear function LNV 2. Evaluate a nonlinear function HK6
Identify positive or negative slopes	
Use the structure of functions to identify related quantities	1. Identify independent and dependent variables FSF

Geometry

Standard	IXL skills
Identify corresponding parts of congruent triangles	1. Congruence statements and corresponding parts LPP
Recognize similar figures	1. Similar and congruent figures U85
Identify congruent and supplementary angles when parallel lines are cut by a transversal	1. Transversals: congruent and supplementary angles BV2
Know when to apply the Pythagorean theorem	
Identify parts of cylinders	
Identify three-dimensional figures and their components	1. Parts of three-dimensional figures SVH 2. Nets of three-dimensional figures V8B

Statistics and Probability

Standard	IXL skills
Recognize nearly linear trends	1. Predictions and trends in scatter plots UBD
Create scatter plots	1. Create scatter plots AVL

Modeling

Standard	IXL skills
Relate quantities to solve problems involving up to two steps	<p>Mathematical contexts</p> <p>1. Relationship between squares and square roots 8W2</p> <p>Real-world contexts</p> <p>2. Solve proportions: word problems 5XV</p> <p>3. Scale drawings: word problems Q5W</p> <p>4. Scale drawings: scale factor word problems Z9T</p>
Understand and use coordinate planes	1. Coordinate plane review T6E

Identify parts of linear models

1. Slope-intercept form: find the slope and y-intercept U55

Justification and Explanation

Standard	IXL skills
Use conditional statements	
Create visual representations	1. Graph triangles and quadrilaterals UDB
Explain procedures	1. Follow directions on a coordinate plane 2HR
Provide counterexamples	
Use patterns to draw conclusions	1. Number sequences: word problems TD5

Integrating Essential Skills

Standard	IXL skills
Recognize perfect squares	1. Identify rational and irrational square roots UGE
Understand rational numbers in decimal form	1. Write a repeating decimal as a fraction WD6 2. Identify rational numbers DE8
Write and solve one-step equations	1. Solve one-step equations 5J4
Graph geometric figures	1. Graph triangles and quadrilaterals UDB
Solve problems that include mean and range	1. Calculate mean, median, mode, and range HDX

Close

The Number System

Standard	IXL skills
Compare and order rational and irrational numbers	<ol style="list-style-type: none"> 1. Compare rational numbers MUK 2. Put rational numbers in order QP5
Estimate square roots	<ol style="list-style-type: none"> 1. Estimate positive and negative square roots 96T
Use decimal expansions to differentiate between rational and irrational numbers	<ol style="list-style-type: none"> 1. Identify rational and irrational numbers NV6

Expressions and Equations

Standard	IXL skills
Find square roots of perfect squares	<ol style="list-style-type: none"> 1. Square roots of perfect squares 9RS
Convert between standard form and scientific notation	<ol style="list-style-type: none"> 1. Convert between standard and scientific notation H8A
Find slope using graphs	<ol style="list-style-type: none"> 1. Find the slope of a graph D7M 2. Find the slope from two points ZAC
Understand slope of vertical lines	
Estimate solutions to systems of equations	
Solve equations with variables on one side of the equal sign	<ol style="list-style-type: none"> 1. Solve two-step equations JXD 2. Solve multi-step equations 55K
Understand that division by zero is undefined	
Understand that the solution to a system of equations is the intersection point on the graph	<ol style="list-style-type: none"> 1. Is (x, y) a solution to the system of equations? N46 2. Solve a system of equations by graphing WV5 3. Find the number of solutions to a system of equations by graphing AGZ

Functions

Standard	IXL skills
Write linear functions from tables	1. Write a linear function from a table UYY

Geometry

Standard	IXL skills
Perform vertical or horizontal translations	1. Translations: graph the image XUS 2. Translations: find the coordinates RUP
Find scale factors of similar figures	1. Dilations: scale factor and classification 8NK
Recognize that corresponding angles of similar figures are congruent	1. Angle measures of similar figures MK6
Find the volume of cylinders	1. Volume of cylinders 8MB

Statistics and Probability

Standard	IXL skills
Identify positive and negative trends in scatter plots	1. Identify trends with scatter plots GZE
Draw lines of best fit	

Modeling

Standard	IXL skills
Identify important information and relationships to solve problems and interpret the results	1. Multi-step word problems EHX 2. Write and solve equations for proportional relationships HPM
Identify parts of the coordinate plane	1. Quadrants and axes K77
Use equations to solve problems	1. Solve one-step and two-step equations: word problems HCP

Justification and Explanation

Standard	IXL skills
Use conditional statements, visual representations, computations, and procedures	<ol style="list-style-type: none"> 1. Identify proportional relationships by graphing RXD 2. Model and solve equations using algebra tiles D45 3. Write and solve equations that represent diagrams G6N
Support claims and draw conclusions	<ol style="list-style-type: none"> 1. Apply addition and subtraction rules GDU 2. Apply multiplication and division rules SE2 3. Apply addition, subtraction, multiplication, and division rules S6N

Integrating Essential Skills

Standard	IXL skills
Create expressions and equations from data	<p>Expressions</p> <ol style="list-style-type: none"> 1. Write variable expressions: one operation PEZ 2. Write variable expressions: two or three operations 6QT 3. Write variable expressions from diagrams FPF 4. Write variable expressions: word problems MEC 5. Write variable expressions for arithmetic sequences EX2 <p>Equations</p> <ol style="list-style-type: none"> 6. Write an equation from words F6R 7. Write a linear function from a table UYU
Create and solve linear equations	<ol style="list-style-type: none"> 1. Solve one-step and two-step equations: word problems HCP
Apply simple theorems about angles	<ol style="list-style-type: none"> 1. Find measures of complementary, supplementary, vertical, and adjacent angles R2B

Use measures of central tendency to solve problems

1. Interpret charts and graphs to find mean, median, mode, and range CND
2. Mean, median, mode, and range: find the missing number Q77
3. Changes in mean, median, mode, and range 2EG

Use samples to draw conclusions about populations

1. Estimate population size using proportions ZNB

Convert units within and between measurement systems

1. Convert rates and measurements: customary units W5N
2. Convert rates and measurements: metric units EMM
3. Convert between customary and metric systems 7DU

Use place value

1. Place values in whole numbers MNF
2. Decimal place values CR8

Compare and order numbers

1. Compare and order integers T2M
2. Compare rational numbers MUK
3. Put rational numbers in order QP5

Ready

The Number System

Standard	IXL skills
Understand irrational number approximations can't be exact	1. Estimate positive and negative square roots 96T
Convert repeating decimals to fraction form	1. Write a repeating decimal as a fraction WD6 2. Convert between decimals and fractions or mixed numbers 2RC

Expressions and Equations

Standard	IXL skills
Estimate square roots of decimals	
Identify linear relationships	1. Identify linear and nonlinear functions: graphs and equations XB8 2. Identify linear and nonlinear functions: tables VGS
Use graphs to determine the number of solutions to systems of equations	1. Find the number of solutions to a system of equations by graphing AGZ
Compare and order numbers written in scientific notation	1. Compare numbers written in scientific notation RHT
Solve systems of equations algebraically	1. Solve a system of equations using substitution J8X 2. Solve a system of equations using elimination ZQV
Solve linear equations	1. Solve equations with the distributive property 8RP 2. Solve equations involving like terms Q2B 3. Solve equations with variables on both sides ZYL
Recognize constant average rate of change	1. Constant rate of change ZPF

Functions

Standard	IXL skills
Match linear equations to data tables	1. Write a linear function from a table UYY
Recognize graphs of linear functions in context	1. Graph proportional relationships and find the slope MQD
Match linear equations and graphs	1. Graph a line from an equation in slope-intercept form W5E
Draw conclusions from graphs	1. Interpret graphs of proportional relationships Q96 2. Interpret points on the graph of a linear function 9E8
Use graphs to understand solutions	

Geometry

Standard	IXL skills
Perform reflections over an axis	1. Reflections over the x- and y-axes: graph the image 74Z 2. Reflections over the x- and y-axes: find the coordinates 5UM
Find the measures of angles formed by parallel lines cut by a transversal	1. Transversals of parallel lines: name angle pairs ZLF 2. Transversals of parallel lines: find angle measures V99
Use graphs to identify parallel or perpendicular lines	
Find distances between two points on the coordinate plane using the Pythagorean theorem	1. Find the distance between two points ZBP 2. Pythagorean theorem: word problems 87U
Use proportions to solve problems about similar figures	1. Side lengths and angle measures of similar triangles XED 2. Side lengths and angle measures of similar figures 79Y

Find the volume of cylinders in real-world problems

Statistics and Probability

Standard

IXL skills

Approximate lines of best fit

1. Scatter plots: line of best fit ZQ6

Identify positive and negative associations in two-way tables

Modeling

Standard

IXL skills

Write linear functions to model relationships between two quantities

1. Write equations for proportional relationships from tables S69
2. Write equations for proportional relationships from graphs G7N
3. Write linear functions: word problems YK6

Graph linear equations and systems of equations

Linear equations

1. Graph a line from an equation in slope-intercept form W5E
2. Complete a table and graph a linear function DC2

Systems of equations

3. Solve a system of equations by graphing WV5
4. Find the number of solutions to a system of equations by graphing AGZ

Solve linear equations

1. Solve equations with the distributive property 8RP
2. Solve equations involving like terms Q2B
3. Solve equations with variables on both sides ZYL

Justification and Explanation

Standard	IXL skills
Justify conclusions by verifying claims, explaining errors in reasoning, and providing counterexamples	<ol style="list-style-type: none"> 1. Add and subtract integers: word problems XP7 2. Solve equations: complete the solution PGH

Integrating Essential Skills

Standard	IXL skills
Round numbers to order and compare	
Graph solutions to inequalities	<ol style="list-style-type: none"> 1. Solve two-step inequalities N9D 2. Graph solutions to two-step inequalities WHT
Understand range as the spread of data	<ol style="list-style-type: none"> 1. Calculate mean, median, mode, and range HDX 2. Interpret charts and graphs to find mean, median, mode, and range CND
Find probabilities of compound events	<ol style="list-style-type: none"> 1. Compound events: find the number of outcomes P5R 2. Compound events: find the number of sums HCX 3. Probability of compound events YPQ

Exceeding

The Number System

Standard	IXL skills
Understand that sums of rational numbers are also rational	1. Add and subtract rational numbers Z68

Expressions and Equations

Standard	IXL skills
Understand relationships between negative exponents and reciprocals	1. Understanding negative exponents YBB 2. Evaluate negative exponents WGS
Write systems of linear equations from real-world problems	1. Solve a system of equations by graphing: word problems W9J 2. Solve a system of equations using substitution: word problems 9M8 3. Solve a system of equations using elimination: word problems Z97 4. Solve a system of equations using any method: word problems VHE
Create and solve linear equations for real-world situations	1. Solve equations: mixed review HZZ 2. Create equations with no solutions or infinitely many solutions 7TY
Perform operations with numbers in scientific notation	1. Add and subtract numbers written in scientific notation HUR 2. Multiply numbers written in scientific notation YZU 3. Divide numbers written in scientific notation SGT
Use properties of exponents and the structure of expressions containing exponents	1. Evaluate expressions using properties of exponents UTY 2. Identify equivalent expressions involving exponents I VLM 3. Identify equivalent expressions involving exponents II QDM

Functions

Standard	IXL skills
Write functions to model a real-world scenarios	1. Write linear functions: word problems YK6

Geometry

Standard	IXL skills
Understand that side lengths in similar figures are proportional	1. Find missing side lengths in proportional triangles P5W
Make conjectures about angle relationships when parallel lines are cut by a transversal	1. Transversals of parallel lines: find angle measures V99
Apply properties of similar and congruent figures	1. Side lengths and angle measures of congruent figures DSQ 2. Side lengths and angle measures of similar figures 79Y

Statistics and Probability

Standard	IXL skills
Write and use lines of best fit	1. Scatter plots: line of best fit ZQ6

Modeling

Standard	IXL skills
Interpret, evaluate, and improve linear models to solve problems	

Justification and Explanation

Standard	IXL skills
Support claims with evidence and clear solution paths	1. Write equivalent expressions using properties QFJ 2. Solve equations: complete the solution PGH

Thoroughly justify conclusions by explaining errors in reasoning and providing counterexamples

Linear equations

1. Properties of equality 7WL
2. Identify equivalent equations J48

Linear functions

3. Compare linear functions: graphs and equations BQQ
4. Compare linear functions: tables, graphs, and equations N7D

Integrating Essential Skills

Standard	IXL skills
Understand the role of random sampling	