



# IXL Skill Plan for the TABE<sup>®</sup>

## Math Level A



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# Geometry

Standard	IXL skills
Explore the effects of simple series of transformations on parts of figures (e.g., lines, points, angles, parallel lines, etc.) on and off the coordinate plane	<ol style="list-style-type: none"> <li>1. Transformations that carry a polygon onto itself RJW</li> <li>2. Rotate polygons about a point XM7</li> </ol>
Explore properties of similar figures and transformations that produce similar figures	<ol style="list-style-type: none"> <li>1. Similarity ratios BT7</li> <li>2. Similarity statements UG8</li> <li>3. Identify similar figures 85X</li> <li>4. Similar triangles and similarity transformations G2Z</li> </ol>
Create and use ratios to find missing side lengths and angle measures of similar figures	<ol style="list-style-type: none"> <li>1. Side lengths and angle measures in similar figures E2K</li> <li>2. Similar triangles and indirect measurement JWK</li> </ol>
Explore and create algebraic proofs of simple geometric theorems using coordinates	<ol style="list-style-type: none"> <li>1. SSS Theorem in the coordinate plane C5G</li> </ol>
Prove and apply theorems involving similarity	<ol style="list-style-type: none"> <li>1. Prove proportions or angle congruences using similarity DDY</li> <li>2. Prove similarity statements ETX</li> </ol>
Use the formulas for the area and circumference of circles to solve problems involving volumes of cylinders	<ol style="list-style-type: none"> <li>1. Volume of cylinders 9F3</li> </ol>
Use the formulas for the area and circumference of circles to solve problems involving volumes of cylinders and cones	<ol style="list-style-type: none"> <li>1. Volume of cylinders 9F3</li> <li>2. Volume of cones YJR</li> </ol>
Investigate and explain volume formulas through informal arguments of circles, cylinders, pyramids, and cones	<ol style="list-style-type: none"> <li>1. Volume of prisms and cylinders N5F</li> <li>2. Volume of pyramids and cones 7J3</li> </ol>
Solve problems involving areas of two-dimensional figures, including modeling problems involving concepts of density based on area	<ol style="list-style-type: none"> <li>1. Area of compound figures KHG</li> <li>2. Area between two shapes SB6</li> </ol>

Solve problems involving surface areas and volumes of three- dimensional figures, including modeling problems involving concepts of density based on volume

1. Surface area and volume review TER
2. Calculate density, mass, and volume YKJ

# Numbers and Quantity

Standard	IXL skills
Simplify expressions involving operations with rational numbers	1. Evaluate numerical expressions involving rational numbers 8CU
Simplify expressions involving integer exponents	<p><b>Equivalent expressions</b></p> 1. Identify equivalent expressions involving exponents I EUF 2. Evaluate expressions using properties of exponents LRR 3. Identify equivalent expressions involving exponents II RKA  <p><b>Exponent rules</b></p> 4. Exponents with integer bases EJ8 5. Negative exponents SCM 6. Multiplication with exponents HQD 7. Division with exponents 9SS 8. Multiplication and division with exponents HPK 9. Power rule RWY
Use properties of exponents to rewrite expressions involving radicals and rational exponents	<p><b>Numerical expressions with exponents</b></p> 1. Evaluate integers raised to rational exponents PQH 2. Evaluate integers raised to positive rational exponents KT5  <p><b>Variable expressions with exponents</b></p> 3. Simplify expressions involving rational exponents 89Q 4. Multiplication with rational exponents YG7 5. Division with rational exponents H47 6. Power rule with rational exponents QF8  <p><b>Expressions with radicals</b></p> 7. Simplify radical expressions: mixed review YZC 8. Simplify radical expressions ZFF

Convert between measurement units appropriately while solving problems

1. Convert rates and measurements: customary units TXC
2. Convert rates and measurements: metric units 6W2
3. Unit prices with unit conversions LT6
4. Multi-step problems with unit conversions EHV

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Define appropriate quantities and parameters when solving problems using descriptive modeling

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Determine appropriate scales and origins in graphs and data displays

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Choose appropriate levels of accuracy for measurement limitations in given situations

1. Precision QK9

# Algebra

Standard	IXL skills
Add and subtract polynomials of degree 3 or less	1. Add and subtract polynomials using algebra tiles J7V
Add, subtract, multiply, and divide polynomials of degree 3 or less	1. Multiply two polynomials using algebra tiles WR5
Add, subtract, multiply, and divide polynomials of any degree	<p><b>Addition and subtraction</b></p> <p>1. Add and subtract polynomials 5EK</p> <p><b>Multiplication</b></p> <p>2. Multiply a polynomial by a monomial G2G</p> <p>3. Multiply two binomials M7Q</p> <p>4. Multiply two binomials: special cases 9JN</p> <p>5. Multiply polynomials 58A</p> <p><b>Division</b></p> <p>6. Divide polynomials by monomials 72C</p> <p>7. Divide polynomials using long division LY7</p>
Identify parts of expressions (e.g., terms, coefficients, variables, etc.)	1. Polynomial vocabulary MTT
Identify an equation that shows a relationship between two variables given in a table or graph	<p>1. Match exponential functions and graphs 72J</p> <p>2. Match quadratic functions and graphs AU8</p>
Create equations that show a relationship between two variables given in a table or graph	<p>1. Slope-intercept form: write an equation from a graph 9GW</p> <p>2. Slope-intercept form: write an equation from a table SSE</p> <p>3. Write linear, quadratic, and exponential functions AFA</p>
Create quadratic equations that represent given real-world situations	
Identify systems of equations that represent given real-world situations	

Create systems of equations that represent given real-world situations

1. Solve a system of equations using elimination: word problems NHR
2. Solve a system of equations using any method: word problems GDQ
3. Solve a system of equations by graphing: word problems BVB
4. Solve a system of equations using substitution: word problems US9

Identify systems of inequalities that represent given real-world situations

1. Linear inequalities: word problems ZAY

Create systems of inequalities that represent given real-world situations

1. Linear inequalities: word problems ZAY

Use properties of operations, such as the distributive property and combining like terms, to find solutions of linear equations

1. Solve two-step linear equations QAK
2. Solve advanced linear equations 28N
3. Solve equations with variables on both sides 7S7
4. Solve equations: complete the solution EVP
5. Solve linear equations: mixed review DN6

Solve quadratic equations by factoring

1. Solve a quadratic equation by factoring CSS

Solve quadratic equations using various methods (e.g., taking square roots, factoring, completing the square, quadratic formula, etc.)

1. Solve a quadratic equation using square roots ERF
2. Solve a quadratic equation using the zero product property TNM
3. Solve a quadratic equation using the quadratic formula XCF
4. Solve a quadratic equation by factoring CSS
5. Solve a quadratic equation by completing the square XCL

Factor and solve quadratic equations with lead coefficients greater than 1

1. Factor quadratics with other leading coefficients 7ED
2. Solve a quadratic equation by factoring CSS

Find the minimum or maximum and zeros of a quadratic equation and explain the meaning in context

1. Characteristics of quadratic functions: equations YJZ

Graph systems of inequalities

1. Solve systems of linear inequalities by graphing SGH

Determine whether a point  $(x, y)$  is in the solution set of a given system of inequalities

1. Is  $(x, y)$  a solution to the system of inequalities? VFC

Determine whether a point  $(x, y)$  is a solution to a given system of equations

1. Is  $(x, y)$  a solution to the system of equations? LRL

Solve a system of equations by graphing the equations and finding the point of intersection

1. Solve a system of equations by graphing TSS

# Functions

Standard	IXL skills
Write functions in different but equivalent forms and explain what each form "reveals" (e.g., factoring a quadratic function to reveal the zeros)	<ol style="list-style-type: none"> <li>1. Solve a quadratic equation by factoring <small>CSS</small></li> <li>2. Solve a quadratic equation by completing the square <small>XCL</small></li> </ol>
Evaluate linear, quadratic, and exponential functions at given values with and without context	<ol style="list-style-type: none"> <li>1. Evaluate an exponential function <small>D6H</small></li> <li>2. Complete a function table from an equation <small>Z73</small></li> <li>3. Complete a function table: quadratic functions <small>LFV</small></li> </ol>
Find the average rate of change of a function over a given interval	<ol style="list-style-type: none"> <li>1. Find the constant of variation <small>9TD</small></li> </ol>
Compare properties of two functions (linear, quadratic, piecewise linear, absolute value, exponential) represented in the same way	<ol style="list-style-type: none"> <li>1. Compare linear functions: tables, graphs, and equations <small>GD7</small></li> </ol>
Compare properties of two functions (linear, quadratic, piecewise linear, absolute value, exponential) represented in different ways	
Write the equation of a linear function represented by a table or a graph	<ol style="list-style-type: none"> <li>1. Slope-intercept form: write an equation from a graph <small>9GW</small></li> <li>2. Slope-intercept form: write an equation from a table <small>SSE</small></li> </ol>
Explore arithmetic and geometric sequences and relate them to linear and exponential functions	<ol style="list-style-type: none"> <li>1. Write variable expressions for arithmetic sequences <small>5VF</small></li> <li>2. Write variable expressions for geometric sequences <small>XPC</small></li> </ol>
Determine whether graphs of functions are linear, quadratic, or exponential	<ol style="list-style-type: none"> <li>1. Identify linear, quadratic, and exponential functions from graphs <small>DHB</small></li> <li>2. Identify linear functions from graphs and equations <small>VMQ</small></li> <li>3. Identify linear functions from tables <small>F5G</small></li> </ol>

Determine whether a given scenario can be represented by a function with a constant rate of change

1. Identify proportional relationships PAV

Use function notation and interpret statements that use function notation in context

1. Interpret functions using everyday language U98

Evaluate a linear function at a given value

Find the rate of change of a linear function

1. Find the slope of a graph E7D
2. Find the slope from two points MD5

Graph equations of linear functions given in various forms

1. Slope-intercept form: graph an equation UWB
2. Standard form: graph an equation U6U
3. Point-slope form: graph an equation F8H

Use the equation or graph of a linear function to represent and solve real- world problems

1. Solve linear equations: word problems UFG
2. Slope-intercept form: write an equation from a word problem HWM

Describe the meaning of terms of equations of functions in context

1. Interpret functions using everyday language U98

Identify the intercepts of graphs of linear functions

1. Standard form: find x- and y-intercepts 8SN

Identify key characteristics of graphs of functions (e.g., intercepts, minimum, maximum, etc.)

1. Characteristics of quadratic functions: graphs HW8

# Statistics and Probability

Standard	IXL skills
Identify and create multiple representations of data sets (e.g., tables, scatter plots, histograms, box plots, etc.)	1. Create bar graphs, line graphs, and histograms EF6
Create multiple representations of data sets and describe key features (e.g., number of observations, patterns, overall shape, etc.)	1. Interpret bar graphs, line graphs, and histograms B9A
Create multiple representations of data sets and use them to describe comparative inferences about the centers, spreads, and overall shapes	1. Box plots YE9
Determine appropriate statistics to compare centers and spreads of data distributions (based on shapes)  Interpret differences in the shapes, centers, and spreads of data sets in context	
Interpret the slope and intercepts of a linear model in context	1. Interpret regression lines SEQ
Use the equation of a linear model to solve basic problems in context	1. Interpret regression lines SEQ
Develop equations of linear models and use them to solve problems	1. Analyze a regression line of a data set 8D8
Develop equations of linear models, interpret the slope and intercepts in context, and analyze the fit of the model to the data	1. Analyze a regression line of a data set 8D8
Use scatter plots and equations of linear models to draw basic conclusions about data	1. Scatter plots: line of best fit Y2S 2. Find the equation of a regression line WJC 3. Interpret a scatter plot 8BS

Use information presented in two-way tables to describe associations between variables and to solve problems involving relative frequencies

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1. Find probabilities using two-way frequency tables 93R

Distinguish between correlation and causation

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