

2017-18 GRADE 6 MATH ENRICHMENT MENU

DIRECTIONS – READ THESE FIRST!

Please record the date when each assignment is completed, and *include evidence of extension completed [in this document](#)*.

Depending on the assignment, evidence may be:

- a completed worksheet
- a blog post link - note that blog post explanations MAY be done in the format of your choice (yes, video explanations are accepted!)
- a link to a document, spreadsheet or presentation
- a photo of work completed, or a screenshot of an IXL dashboard (these may be pasted below the tables [in this document](#))

UNIT MENUS

Complete at least THREE per unit before moving onto the General Menu.

[Prime Time](#)

[Let's Be Rational](#) (Fractions)

[Decimal Ops](#)

[Comparing Bits and Pieces](#) (Ratios)

[Accentuate the Negative](#)

[Variables and Patterns](#) (Expressions and Equations)

GENERAL MENU

You may choose these *after* you have completed three unit-specific extensions.

GENERAL EXTENSION

[MathCounts Trainer](#)/AOPS (log date and amount of time)

[MathCounts Problem of the Week](#)

Copy the problem into a blog post. Solve and clearly explain your reasoning.

[AMC 8 Contests](#)

Complete a contest. Check your answers!

Document the date, Contest Number, and your score.

Write a brief reflection on your blog which answers:

*What did you learn that will help you with the next contest?

Be specific - was it a strategy? a math concept?

Gizmos: (See your teacher if you have not logged in before)

Pick those that interest you.

- **3D and Orthographic Views exploration**
 - Read and thoroughly complete the [worksheet](#). ([answers](#))
 - Complete the assessment questions at the end.
- **Permutations and Combinations exploration**
 - Read and thoroughly complete the [worksheet](#) ([answers](#))

- Complete the assessment questions at the end.
- **Theoretical and Experimental Probability**
 - Read and thoroughly complete the [worksheet \(answers\)](#)
 - Complete the assessment questions at the end.
- **Number Systems**
 - Convert numbers from one base to another.
 - Read and thoroughly complete the [worksheet \(answers\)](#)
- **Exponents and Power Rules**
 - [Read this first](#) (scroll down to 'Laws Explained')
 - Read and thoroughly complete the [worksheet \(answers\)](#)

IXL: Complete any additional modules not outlined in unit work below.

**Recommended: Focus on G6 skills we are not covering this year.

Document which module was completed, and the date. Attach screenshot evidence of completion.

UNIT MENUS

Complete at least THREE per unit before moving onto the General Menu.

PT – Prime Time (factors and multiples, number classification)

Solve. Write a blog post and paste the link in your tracking document

[Intro to Stars](#) (nrich)

Follow up with [Stars Interactive](#) (nrich)

[Sticky Numbers](#) (nrich)

[The Moons of Vuvv](#)

[Apples and Remainders](#)

[Code Breaker](#)

Number bases:

Learn about [binary](#) and other number bases

[Practice binary here](#) (take a photo of your worksheet and add to your tracking document)

Play the [binary game](#), then try a challenge below.

[Alien Counting](#)

[Base Puzzle](#) (what base is it??)

[Back to the Planet of Vuvv](#)

IXL: (pick one, work 30 minutes or to 100%)

Classifying Numbers

Watch Khan: [Rational and Irrational Numbers](#)

Watch Khan: [Classify Numbers](#)

Practice IXL, Grade 8, A.8 Classify numbers

Distributive Property

Grade 6, Y.11 Factor using the distributive property

Grade 6, Y.10 Multiply using the distributive property

Grade 7 R.15 Factors of linear expressions

Exponents

Learn about [scientific notation](#)

Grade 7, A.8 Scientific notation

Grade 7, I.5 Exponents with decimal and fractional bases

Grade 8 F.2 Evaluate exponents

Square Roots

Grade 7, I.9 Square roots of perfect squares

[Watch this video from Virtual Nerd which teaches you how to estimate square roots of non-perfect squares.](#)

Grade 7 I.10 Estimate square roots

Grade 8 F.20 Solve equations involving cubes and cube roots

LBR – LET’S BE RATIONAL (fraction operations)

[Keep it Simple](#) (nrich)

Complete the worksheet, check your work.

[Farey Sequences](#) (nrich)

Find a solution and answer the ‘Questions to Consider’ in a blog post.

Multiplication Challenge: [Santa’s Elves](#)

Solve and explain in a blog post. (Be sure to include the question!)

[Byrony’s Triangle](#) (nrich)

*You will need a square sheet of paper. (How do you make this?)

Watch the video, solve the challenge. Take a photo of your final product and briefly explain the strategy you used to solve this in a blog post. (This post might be most easily done as a video)

IXL Grade 7: (pick one: work 30 minutes of to 85%)

Inequalities with addition and subtraction of fractions and mixed numbers **G.5**

Create and interpret line plots with fractions **BB.4**

Exponents with decimal and fractional bases **I.5**

Maps with fractional distances **G.17**

IXL Grade 8: (pick one: work 30 minutes of to 85%)

Convert between decimals and fractions or mixed numbers **D.4**

Convert between percents, fractions, and decimals **J.1**

Compare percents to fractions and decimals **J.2**

Create and interpret line plots with fractions **CC.8**

Exponents with decimal and fractional bases **F.5**

Algebra I (pick one: work 30 minutes of to 85%)

Simplify radical expressions involving fractions **EE.2**

*First read carefully: [Simplify Radical Expressions](#)

Simplify complex fractions **GG.2**

*First watch: [Simplify Complex Fractions](#)

Complete at least THREE per unit before moving onto the General Menu.

DO – DECIMAL OPS (decimal operations)

Rich Extension Problems: Write a blog post and paste the link in your tracking document (assessed based on the [Mathematical Explanations Rubric](#))

- [Repetitiously](#)
- [Greater than or less than?](#)
- [Route Product](#)
- [Forgot the Numbers](#)
- [Toad in the Hole](#)

Scientific Notation

[Read this article first that teaches you about scientific notation.](#)

Then, complete these IXL exercises (**work 30 minutes or to 91%**)

- Scientific notation A.8 Seventh grade
- Compare numbers written in scientific notation A.9 Seventh grade
- Convert between standard and scientific notation G.1Eighth grade
- Compare numbers written in scientific notation G.2Eighth grade
- Multiply numbers written in scientific notation G.3Eighth grade
- Divide numbers written in scientific notation G.4Eighth grade
-

Converting from Repeating Decimals to Fractions (Algebra I skill)

[Study these examples before doing the skills below](#)

Then, complete these IXL exercises: (**work 30 minutes or to 91%**)

- Convert between decimals and fractions A.4
- Convert between repeating decimals and fractions A.5

IXL Grade 7: (pick one: work 30 minutes or to 91%)

Decimal numbers review D.1

Decimal number lines D.3

Add, subtract, multiply, and divide decimals: word problems E.8

Multi-step inequalities with decimals E.9

Maps with decimal distances E.10

Exponents with decimal and fractional bases I.5

IXL Grade 8: (pick one: work 30 minutes or to 91%)

Exponents with decimal and fractional bases F.5

Convert between decimals and fractions or mixed numbers D.4

Complete at least THREE per unit before moving onto the General Menu.

AtN – Accentuate the Negative

[Integer Brain Stretchers](#)

Nrich Extension Problems: Write a blog post and paste the link in your tracking document

[Weights](#)

IXL: (pick one, work 30 minutes or to 91%)

Rational Numbers

Grade 7

C.8 Evaluate numerical expressions involving integers.

E.9 Evaluate numerical expressions involving rational numbers

F.4 Exponents with negative bases

Grade 8:

D.5 Identify rational and irrational numbers

Square Roots

Grade 7, **I.9 Square roots of perfect squares**

Grade 8, **F.15 Positive and negative square roots**

[Watch this video from Virtual Nerd which teaches you how to estimate square roots of non-perfect squares.](#)

I.10 Estimate square roots

Complete at least THREE per unit before moving onto the General Menu.

CBP – Comparing Bits and Pieces

GIZMOS: (See your teacher if you have not logged in before)

Beam to Moon

- Read and thoroughly complete the [worksheet](#). ([answers](#))
- Complete the assessment questions at the end.

Distance and Time Velocity Graphs

- Read and thoroughly complete the [workst](#). ([answers](#))
- Complete the assessment questions at the end.

Solve. Write a blog post and paste the link in your tracking document

[Mixing Paints](#) (nrich challenge)

[Pattern Clues](#)

[Ratio and Unit Rate ENRICHMENT SHEETS](#) (do the Brain at Work problems!)

[Answers](#)

[Grape Juice Jungle \(Figure This!\)](#)

IXL: (pick one, work 30 minutes or to 91%)

Grade 7

K.1 Find the constant of proportionality from a table

K.2 Write equations for proportional relationships from tables

K.3 Identify proportional relationships by graphing

K.4 Find the constant of proportionality from a graph

K.5 Write equations for proportional relationships from graphs

- K.6 Identify proportional relationships**
- K.7 Interpret graphs of proportional relationships**
- K.8 Write and solve equations for proportional relationships**

Grade 8:

H.10 Solve proportions

Concepts Related to Proportion

Grade 8:

Learn: [Congruent](#) and [Similar](#) Figures

Q.1 Similar and congruent figures

Q.5 Side lengths and angle measures of similar figures

Learn: [Dilations](#)

Q.4 Dilations: scale factor and classification

VnP – Variables and Patterns

Solve. Write a blog post and paste the link in your tracking document

- [Graphing Number Patterns](#) (nrich)
- [Do dogs age faster than people?](#) (Figure This! Rate tables)
- [Will women ever earn as much money as men?](#) (Figure this!)
- [Who's on First Today?](#) (Figure This!)
- [Body Mass](#) (Figure This!)
- [Lauren and Thomas](#) (nrich)
- [Your number is...](#) (nrich)

IXL: (pick one, work 30 minutes or to 100%)

Z.7 Solve one-step equations with decimals, fractions, and mixed numbers

Z.11 Solve equations involving integers

BB.1 Does (x, y) satisfy an equation?

BB.10 Write an equation from a graph using a table

Grade 7:

Learn about **slope**: Watch [this](#), then [this](#). Then try

V.1 Find the slope from a graph

Watch [this](#). Then try:

V.2 Find the slope from two points

Learn about **solving 2-step inequalities**. Watch [this](#), then try:

T.6 Solve two-step inequalities

T.7 Graph solutions to two-step inequalities

Learn about **slope-intercept form**. Watch [this](#), then try:

Grade 7, V.6 Write a linear function

Grade 8:

Linear Equations (See videos above)

Y.7 Write a linear equation from a slope and y-intercept

Y.9 Write a linear equation from a slope and a point

Y.8 Write a linear equation from a graph

Y.10 Write a linear equation from two points

Y.4 Find the slope of an equation

Z.11 [Compare linear functions: graphs, tables, and equations](#)

Evaluate a **non-linear function**. Watch [this](#) and [this](#). Then try:

Z.6 Evaluate a linear function

Exponent Laws: Read [this](#), then try:

BB.6 Multiply monomials

BB.7 Divide monomials