**THIRD SPACE
LEARNING**

Math Games And Activities Pack

17 Fun Math Games and Activities for the Classroom

5th Grade

Contents

Note to teachers

This pack is here to help you with some ideas of how to bring math into the classroom in a fun way. The challenges are not intended to be too much like 'work'. They should provide just a bit of a mathematical focus every now and then.

The activities are separated into individual activities and partner activities.

Individual activities

1 **Multiplication and Division Mosaic**

Your challenge:

Can you use your multiplication and division skills to reveal the picture hidden in the grid?

How to play:

1 Work out the answer to the calculation in each square using your knowledge of the 1-12 multiplication facts (including square and cubed numbers) and related division facts.

2 Color in each square based on the key at the top of the sheet.

What picture will you reveal?

You will need

Challenge 1 Sheet

Colored pencils, crayons, or markers

2   Mystery Multiplication Facts

Your challenge:

- Can you help solve a multiplication facts mystery?

- On Challenge 2 Sheet there are two multiplication facts that have been written in code. Each digit has been replaced by a letter and the multiplication facts have all been jumbled up!

You will need

Challenge 2 Sheet

What to do:

1. Can you work out which digit each letter stands for? Try to spot patterns in the digits so you can rule out certain numbers and rule in others.

2. Can you work out which multiplication fact is the 11 multiplication fact or the 1 multiplication fact? Does the number of single digit answers help you work out which multiplication fact it could be?

3. Solve the puzzle and record which digit each letter stands for on the challenge sheet.

Set 1 Multiplication Facts (A) is: _____

Set 2 Multiplication Facts (L) is: _____

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3 My Favorite Number

Your challenge:

How much do you know about your favorite number?

What to do:

You will need

A piece of plain paper

Colored pencils or crayons

1   What's your favorite number? Write it down in the center of a piece of plain paper (if you don't have a favorite number, pick a number at random).

2   Write down at least 20 facts about the number around your number, creating a poster. Examples you could choose include factors, multiples, even/odd, square number, sides on a shape etc.

3   For example, if your favorite number was 32, you could write down facts like:
   • It's a multiple of 1, 2, 4, 8 and 16
   • It's an even number
   • 32 x 2 = 64
   • 1 + 31 = 32

4   Try to make sure you have a good range of different types of facts.

5   Be as creative as you can with how you present your work.

4 **How Many Ways Can You Make...**

Your challenge:

How many ways can you find to make 3,210?

Things to remember:

You will need
A piece of plain paper

1 Write 3,210 in the center of a piece of plain paper.

2 Around the number, write at least 20 ways to make it.

3 For example:
- $10^3 \times 3 + 200 + 10$
- $(5 \times 1,000) - 1,790$

4 Try to make sure you have a good range of different types of facts.

5   **Shopping A-Round**

Your challenge:

Can you estimate the total cost of the food bill?

How to play:

1   Find an old receipt for some shopping (you may need to ask an adult for this). Don't look at the total!

2   Round each price to the nearest whole dollar and find an estimated total. For example, if something costs $1.48 you'd round it to $1 and if something costs $1.76 you'd round it to $2.

My estimated (rounded) total for the shop was $ _____

The actual cost (before any coupons etc) was $ _____

The actual cost was $ _____ higher/lower than my rounded estimate.

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6 Product Hunt

Your challenge:

How well do you know your numbers?

How to play:

<table>
<tr><td></td><td>You will need</td></tr>
<tr><td></td><td>Challenge 6 Sheet</td></tr>
</table>

1 You have the digits 6, 2, 7, 5, 0 and 3. You need to arrange them into a multiplication question like this: ThHTO x TO = ? For example, you could make 5,023 x 67 = ?

2 In each question, you can only use each digit once. Work out the answer to your equation, using any method you like (don't use a calculator).

3 Make a list of the different products that you have made on Challenge 6 Sheet (remember, a product is the result of multiplication).

How can you make sure you have found all the possible products? Fill in Challenge 6 Sheet to explain how you did this.

7   **Fraction and Decimal Hunting**

Your challenge:

Can you find the fractions and decimals all around us?

What to do:

You will need

A plain piece of paper

1   On a plain piece of paper, write 'Fractions and Decimals are all around us' in the middle.

2   Fill the rest of the paper with places you have seen fractions and decimals in real life (shopping sales, sharing a cake).

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8   **Get Arty!**

Your challenge:

Your challenge is to create a piece of art that contains at least 6 obtuse angles, 4 acute angles and 5 right angles.

You will need

Plain paper

Art materials

Things to remember:

1   You can create your artwork using any type of materials you like – you could create a collage, paint, color or do anything else – it's up to you.

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9   Areas and Perimeters

Your challenge:

Can you estimate and measure area and perimeter accurately?

What to do:

1   Create a list of items you are going to find the areas and perimeters of (at least 20 in total). These could be large or small.

2   Next to each item, write an estimate of the area or perimeter.

3   Measure items and calculate the area or perimeter.

4   Compare your estimates to the real answers. How accurate were you?

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Pair activities

10 Place Value Duel

Your challenge:

Can you make a larger six-digit number than your partner?

How to play:

1 Get your digit cards ready. Cut them out from the Digit Cards Resource Sheet (at the back of this pack).

2 Shuffle all three sets of the digit cards. You and your partner must each draw six big lines on your sheet of paper like this:

———— ———— ———— ———— ———— ————

3 Take turns turning over a digit card and decide where in your number you are going to place the digit.

4 Put the digit in that position and tell your partner what value that digit has. For example, if you put a 3 in the tens column, you would say 'this 3 is worth 3 tens or thirty'.

5 Once you have placed a digit in your number, you can't move it! Therefore, it's important to think about the strategy you are using. Play at least seven rounds.

Who will be the champion?

I played with _____

The person who won was _____

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11   Multiplication Skirmish

Your challenge:

Are you ready to have a multiplication skirmish?

How to play:

<table>
<tr><td>You will need</td></tr>
<tr><td>Digit Cards Resource Sheet

A partner</td></tr>
</table>

1   This game is simple, but addictive! Shuffle all three sets of digit cards from the Digit Cards Resource Sheet, then deal them between the two players.

2   At the same time, each player turns over one of their cards and puts it in the middle.

3   Race your partner to shout out the answer that you get when you multiply both the numbers together. For example, if you turned over an 8 and your partner turned over a 6, you'd have to shout out 48, because 8 x 6 = 48.

4   The person who shouts out the correct answer first gets to keep both cards. Keep playing until one player has run out of cards.

5   Play at least five rounds.

Who will be the champion?

I played with _____

The person who won was _____

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12   Two-handed Math, Paper, Scissors

Your challenge:

Have you ever played 'Rock, Paper, Scissors'?

Well this is a math version of the same game!

You will need

A partner

How to play:

1   Stand and face your partner. Make two fists and say together with your partner 'math, paper, scissors' whilst moving your fists up and down (in a similar way to when playing rock, paper, scissors).

2   On scissors, each of you puts out between 0 and 10 fingers.

3   You then need to race to multiply the number of fingers you have put out by the number of fingers your partner put out (e.g. 6 x 8), double the answer (e.g. 48 x 2) and call out the answer (e.g. 96).

4   The player to call the correct answer first, wins a point.

5   Record who wins each 'battle' in a simple table; the first player to 15 points wins!

Who will be the champion?

I played with _____

The person who won was _____

13 Tug of War

Your challenge:

Why not play a math version of Tug of War?

How to play:

1 Firstly, decide which player is going to 'add' and which player is going to 'subtract', then shuffle the digit cards into one pile. Write down the number 250,000 at the top of your piece of paper.

2 The player who is adding starts first. They turn over 5 cards and makes them into a five-digit number (for example, 45,658). The player who is adding adds these to 250,000 (e.g. 250,000 + 45,658 = 295,658). The result of this calculation is your new running total.

3 The player who is subtracting goes next. They turn over 5 cards, make it into a five-digit number and subtract it from the running total.

4 Keep playing in the same way, taking turns to make a number and add or subtract it. If the player who is adding gets 450,000 they win, and if the player who is 'subtract' gets the running total below 50,000 they win!

Who will win the tug of war?

I played with _____

The person who won was _____

14 Decimal Compare!

Your challenge:

Are you ready for a fast-paced game with a partner?

How to play:

> **You will need**
>
> The cards from Challenge Sheet 15
>
> A partner to play with

1 Cut up the cards from Challenge 15 Sheet. Shuffle them and deal them between both players.

2 At the same time turn over a card each. The player who has the largest value number has 5 seconds to collect the cards and add them to their pile – if they don't collect in time, then the other player gets the cards.

3 The person who gets all the cards first wins!

Play the game at least twice – can you win both times?

The first time I played, I played against _____

and the person who won was _____

The second time I played, I played against _____

and the person who won was _____

15 Trolls and Giants

Your challenge:

Who will win in the battle between troll and giant?

How to play:

1   Sit opposite your partner and decide who will be the troll and who will be the giant.

2   Place the grid from Challenge 16 Sheet in between you. The aim of the game is for the troll to make it to the giant's home on the other side of the grid. The giant's aim is to stop the troll from getting there by ending up on the same hexagon on the grid as the troll.

3   The troll goes first. Place your counter on one of the hexagons on the 'troll's home' side of the paper and solve the equation in the hexagon. If the calculation is correct (your partner needs to check and agree) you get to move to that hexagon.

4   The giant starts in the same way from the 'giant's home' side of the paper.

5   On the next turn, each player can move to one of the hexagons next to the hexagon they are on. If they get the answer correct, they move to that hexagon; if they don't get it correct, they stay as they are!

6   Think about your strategy – where will you move next? Try to play the game at least two times.

The first time I played, I played against ⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

and the person who won was ⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

The second time I played, I played against ⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

and the person who won was ⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

16 Equivalence Snap

Your challenge:

Let's play a game of snap, but with a math twist.

How to play:

You will need

The cards from Challenge 17

Sheet cut up

At least one other person

1   Shuffle the cards from Challenge 17 Sheet and deal them between the players.

2   Play just like you would do in 'normal' snap – take turns turning over one of your cards and place it in the middle.

3   If the two cards are equivalent the first person to call 'snap' and place their hands on the pile of cards wins the cards. Remember, equivalent means they are worth the same.

4   The first player to get all of the cards wins! Try to play the game at least twice.

Who will be the champion?

The first time I played, I played against _____

and the person who won was _____

The second time I played, I played against _____

and the person who won was _____

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17 Battleships!

Your challenge:

Let's play a classic game of battleships – but with a coordinates twist!

How to play:

1 First, plot the 'ships' shown here on your grid. Make sure you hide them, so they are difficult for your partner to find.

2 Then, take turns guessing where your partner's ships are hidden. To do this, you need to read out the coordinates – remember, you read out the horizontal axis value first, and then the vertical axis value.

2x

2x

2x

1x

3 Your partner will then tell you if you have 'hit' one of their ships or not. Keep track of your hits and misses on your map (use a colored pencil). If you get a 'hit' you get another go, if not, it's your partner's turn to guess.

4 Who can find all of their partner's battleships first?

Who will be the champion?

I played with _____

The person who won was _____

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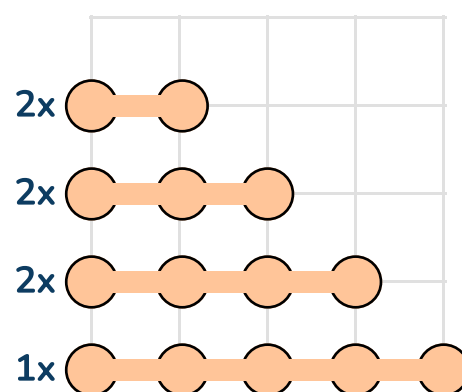
Challenge 1 Sheet **Multiplication and Division Mosaic**

Solve the questions in the squares below. Color in the squares with the colors based on your answer. What picture will you make?

Blue: 4, 8, 18, 24, 40, 48

Red: 6, 16, 60, 64

Green: 0, 1, 2, 10, 12, 20, 21, 27

Purple: 3, 30, 36

Pink: 5, 25, 35, 72, 125

$?^2 = 4$	$10 \div ? = 2$	$9 \times 0 =$	3^3	$18 \div 9 =$	$7 \times ? = 70$	$? \div 5 = 5$	$? \div 5 = 2$
$12 \times 6 =$	$?^2 = 9$	$6 \times 1 =$	$20 \div 20 =$	$5 \times 4 =$	$6 \times 10 =$	$5 \times 6 =$	5^3
$? \div 3 = 12$	4^3	2^2	$8 \times 9 =$	$7 \times 5 =$	$? \times 1 = 8$	$? \div 8 = 2$	$27 \div ? = 9$
$8 \times 2 =$	$? \div 12 = 2$	$? \div 12 = 5$	$6 \times 3 =$	$? \div 10 = 4$	$30 \div 6 =$	$? \div 8 = 6$	8^2
$64 \div ? = 8$	$?^2 = 25$	$? \div 10 = 3$	$? \div 4 = 6$	$32 \div 8 =$	$? \div 8 = 8$	$2 \times 2 \times 2 =$	$9 \times 2 =$
$21 \div 7 =$	$?^2 = 16$	$8 \times 5 =$	4^2	$10 \times 3 =$	$?^3 = 64$	6^2	$54 \div ? = 9$
$100 \times 0 =$	$6 \times 4 =$	$48 \div 6 =$	$? \div 5 = 7$	$8 \times 6 =$	$?^2 = 36$	$? \div 8 = 5$	$? \div 12 = 1$
$3 \times 9 =$	$14 \div 14 =$	$?^3 = 125$	2^3	$45 \div 9 =$	5^2	$?^3 = 8$	$? \div 2 = 10$
$?^2 = 100$	$24 \div ? = 12$	$? \div 2 = 6$	$? \div 10 = 6$	$4 \times 12 =$	$10 \times ? = 100$	$? \div 3 = 7$	1^2
$2 \times 10 =$	$15 \times 0 =$	$? \div 5 = 4$	$3 \times 3 \times 3 =$	$1 \times 1 =$	$2 \times 2 \times ? = 8$	$? \times 1 = 12$	$8 \times ? = 0$

Challenge 2 Sheet **Mystery Multiplication Facts**

These multiplication facts are a mystery. Each digit has been replaced by a letter and the order of the multiplication facts has been jumbled up!

Can you work out which digit each letter stands for? There are two sets of multiplication facts for you to complete.

Try to spot patterns in the digits so you can rule out certain numbers and rule in others.

Can you work out which multiplication fact is the 11 multiplication fact or the 1 multiplication fact? Does the number of single digit answers help you work out which multiplication fact it could be?

Solve the puzzle and record which digit each letter stands for on the challenge sheet.

Multiplication Facts Set 1

A =   B =   C =   D =   E =

F =   G =   H =   J =   K =

D x A = A   H x A = EJ   F x A = KE

C x A = EC   E x A = JE   G x A = DC

DB x A = AB   J x A = DJ   A x A = GA

K x A = GB   DJ x A = HJ   A x A = GA

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Challenge 2 Sheet **Mystery Multiplication Facts**

Multiplication Facts Set 2

The letters and their digits are different to the first set!

L =   M =   N =   O =   P =

Q =   R =   S =   T =   U =

M x L = L   P x L = NU

N x L = MU   L x L = MS

T x L = UP   S x L = UL

O x L = NS   MU x L = LP

U x L = P   MM x L = LL

MQ x L = LQ   R x L = UQ

Challenge 6 Sheet **Product Hunt!**

You have the digits 6, 2, 7, 5, 0, 3.

You need to arrange them into a multiplication question like this: ThHTO x TO = ?

For example, you could make 5,023 x 67 = ? In each question, you can only use each digit once.

Work out the answer to your equation using any method you like (don't use a calculator). Make a list of the different products that you have made (remember, the product is the result of a multiplication).

How can you make sure you have found all possible products?

The products I have found are: _____

Use this space below to help you.

I know I have found all the possible products because:

_____

_____

Challenge 14 Sheet **Decimal Compare!**

0.43	0.34	0.44	0.67	0.76
0.68	0.69	0.96	0.45	0.54
0.53	0.52	0.70	0.3	0.4
0.5	0.23	0.32	0.31	0.1

Challenge 14 Sheet **Decimal Compare!**

0.98	0.89	0.99	0.97	0.79
1.43	1.01	0.01	0.05	0.09
0.9	0.17	0.71	0.81	0.18
0.77				

Challenge 15 Sheet **Trolls vs Giants**

5.32 x 2 =	82,000 – 7,502 =	15.32 x 5 =	8,147 x 23 =	8,420 ÷ 20 =	535 - 5^2 =	12 x 28 =
(2 x 8) + 6 =	1,234 x 26 =	7^2 =	55 x 1,820 =	(36 x 3) - 15 =	10^3 =	5,037 x 15 =
1.53 x 100 =	105,631 + 132,906 =	15.32 x 5 =	22.1 x 5 =	4^3 =	302 ÷ 100 =	84.32 x 10 =
(3 x 100) ÷ 5 =	2^3 + 9 =	91.3 x 6 =	227,791 - 43,222 =	8.21 + 22.4	250,008 + 65,260 =	3.201 + 3.55 =
104 ÷ 100 =	6,528 ÷ 51 =	10^3 =	89 ÷ 100 =	3,120 ÷ 5	(23 x 4) - 16 =	4,571 x 32 =
3,100 ÷ 25 =	(90 ÷ 5) x 2 =	1.771 + 5.01 =	6.36 - 1.307 =	223.4 + 0.321 =	8.642 - 5.21 =	1.34 x 1,000 =
5^2 =	5,120 x 9 =	4,575 ÷ 25 =	32.1 x 3 =	4,105 x 5 =	5.52 x 10 =	3^3 =
3.62 ÷ 10 =	54.1 - 2.3 =	12 x 5,234 =	15 x 34 =	(1 x 8) + 7 =	3,588 ÷ 23 =	5^2 + 21 =

Giant's House

Challenge 16 Sheet **Equivalence Snap**

$\dfrac{1}{2}$	0.25	$\dfrac{2}{4}$	$\dfrac{1}{2}$	$\dfrac{4}{8}$
0.75	$\dfrac{3}{4}$	$\dfrac{5}{10}$	$\dfrac{1}{3}$	$\dfrac{6}{8}$
$\dfrac{1}{5}$	0.5	$\dfrac{2}{6}$	$\dfrac{9}{12}$	$\dfrac{3}{9}$
$\dfrac{5}{15}$	$\dfrac{2}{10}$	0.75	$\dfrac{3}{5}$	$\dfrac{25}{100}$
$\dfrac{1}{5}$	$\dfrac{1}{5}$	$\dfrac{2}{5}$	$\dfrac{2}{5}$	$\dfrac{4}{5}$

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Challenge 16 Sheet **Equivalence Snap**

$\frac{4}{5}$	$\frac{3}{15}$	$\frac{2}{5}$	40%	$\frac{6}{10}$
$\frac{4}{20}$	$\frac{9}{15}$	$\frac{30}{50}$	$\frac{5}{6}$	$\frac{50}{100}$
$\frac{4}{10}$	$\frac{1}{7}$	$\frac{3}{21}$	0.5	0.25
0.75	$\frac{8}{10}$	$\frac{16}{20}$	$\frac{80}{100}$	50%
$\frac{50}{100}$	$\frac{5}{10}$	0.2	0.4	0.8

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Challenge 17 Sheet **Battleships**
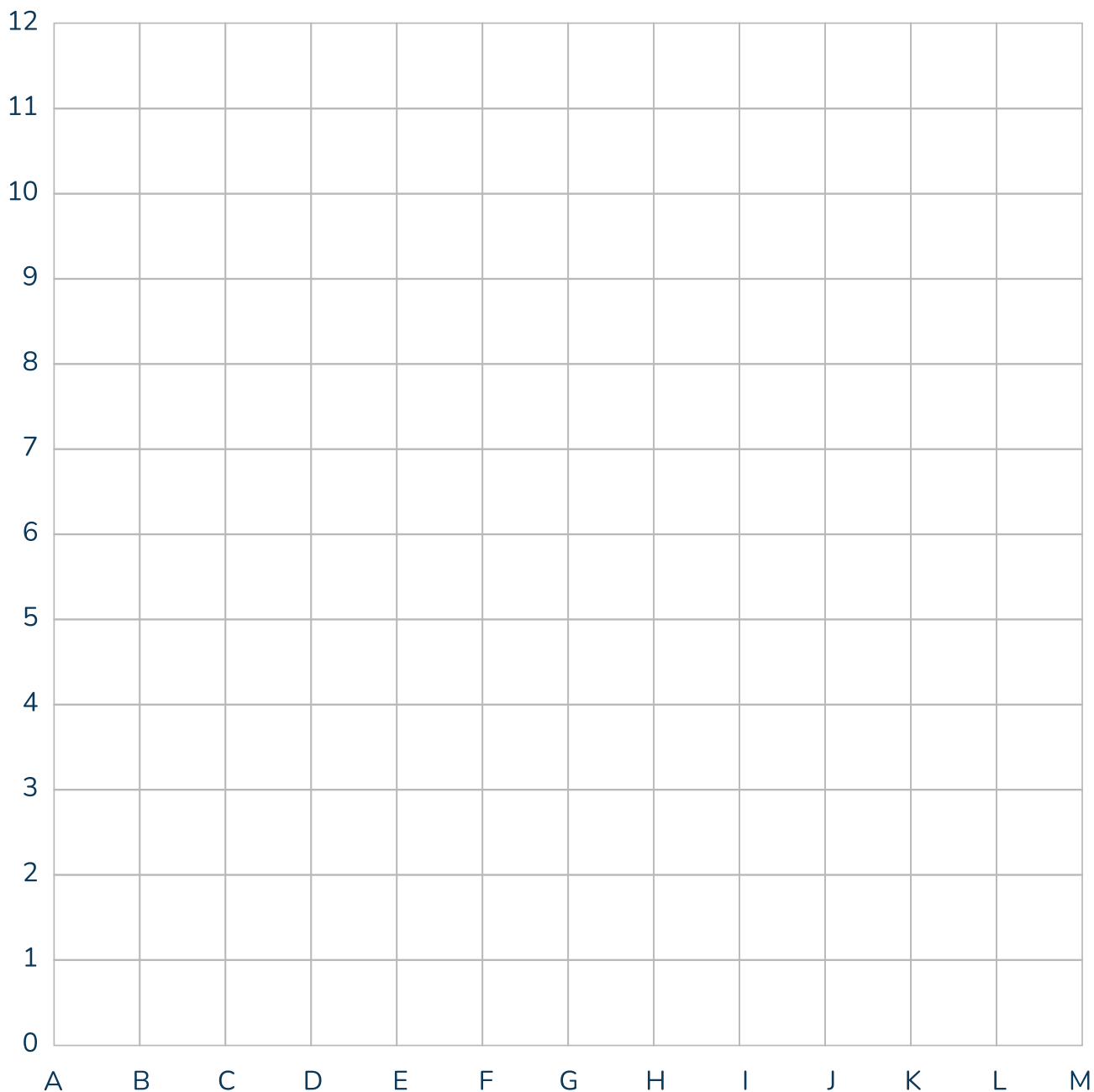
2x

2x

2x

1x

Let's play a game of coordinate battleships.

See the challenge list for the full instructions.
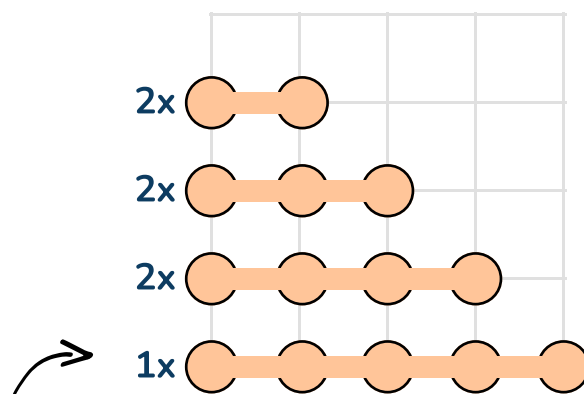
Here are the boats you need to put on your grid. Remember, your boats are made up of points not squares.

My Map

Resource Sheet 1

0	1	2	3
4	5	6	7
8	9	0	1
2	3	4	5

Resource Sheet 1

6	7	8	9
0	1	2	3
4	5	6	7
8	9		

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Each student could receive a personalized lesson every week from our specialist one on one math tutors.

- ✓ Differentiated instruction for each student
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