THIRD SPACE LEARNING

Ultimate Times Tables

Teacher notes for Year 6 games and activities

Year 6

Overview

Activity	Individual activity	Pairs activity	Small group activity	Whole class activity	Resources needed
1 - Ultimate Skirmish		×			• Playing cards per pair
2 - Maths, Paper, Scissors (reloaded)		×			
3 - Squares and Ladders		×			• Resource 1 per pair • A counter per pupil • A 6 sided die per pair
4 - Remainder Race		×			• Resource 2 per pair • Resource 3 per pair • A counter per pupil
5 - The Equaliser		×	×		
6 - Division Bingo				×	• Mini whiteboards
7 - Estimate or Accurate?		×		×	• One post-it note with x written on it per pair • Resource 4 per pair • Timer • Mini whiteboards

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Activity	Individual activity	Pairs activity	Small group activity	Whole class activity	Resources needed
8 - Answer Race				×	• Two sets of resource 5 • A cone • An area
9 - Race to 500			×		• A 6 sided die per pupil
10 - Splat				×	
11 - Decimal Multiplication?		×	×		
12 - Decimal Duel		×			• Resource 6 per pair • A 12 sided die per pupil
13 - Double Trouble	×	×			• Mini whiteboards
14 - What do we know if...				×	• Mini whiteboards
15 - Do you have the Maths Factor?			×	×	• Mini whiteboards
16 - Sharks				×	• A large area • 12 hoops • Resource 7

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Ultimate Skirmish

Focus: Recall multiplication and division facts for the 1 to 12 times tables.

Aim: Multiply the values of two cards together first.

Resources:

- Playing cards per pair

Instructions:

1. Pupils deal the cards between them. Ace = 50, Jack = 60, Queen = 70 and King = 80.
2. Pupils count down from three. On one they both turn over the top card.
3. They then race to multiply the numbers together, say the calculation out loud and put their hand on the card.
4. If the pupil touching the card first said the correct calculation, they win the card. If they said the wrong calculation, their partner gets the card.

Key questions:

- How are you working out the answers / multiplying by the multiples of 10?
- Which cards are the 'best' / 'worst' to draw? Why?

Extension:

- Change the value of the cards so that the numbered cards are worth x10 the number on the card.

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Maths, Paper, Scissors (reloaded)

Focus: Recognise and use multiplication and division facts for multiples of 10 and 100.

Aim: Play a maths version of rock, paper, scissors.

Instructions:

1. In pairs, pupils say, “Maths, paper, scissors.” When they say scissors, they each hold up between 2 and 10 fingers.
2. Pupils then race to multiply the number of fingers on their hand by 10 then the number of fingers on their partner’s hand by 10. Finally, multiply the products together.
3. The first person to say the correct calculation wins. The first person to reach 20 points wins the whole game.

Key questions:

- Why are you not allowed to put out 0 or 1 fingers?
- What is the impact of multiplying each number by 10 first?
- Is there a quicker way to find the answer?

Extension:

- Play a round of maths, paper, scissors. The winner of two games play each other. The pupils who didn’t win become cheerleaders. This will result in two pupils battling to be the ultimate winner.

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Squares and Ladders

Focus: Identify factors, square and prime numbers.

Aim: Reach 1 first.

Resources:

- Resource 1; a counter per pair; a 6 sided die per pair

Instructions:

1. In pairs, pupils start with their counter next to the 100 square.
2. They roll the die and move the number of spaces shown. If they land on a square number they climb up two rows. If they land on a prime number they slide down one row (if they're on the bottom row, they move back one space).
3. The first person to reach 1 wins.

Key questions:

- What is a square / prime number?
- Are there more square or prime numbers on a 100 square?

Extension:

- When landing on a cube number, move up three rows.

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Remainder Race

Focus: Mentally dividing using the 1 to 12 times tables.

Aim: Be the first to land on the finish square.

Resources:

- Resource 2 per pair; resource 3 per pair; a counter per pupil

Instructions:

1. Partners place their counter on the start of the race board.
2. When it is their turn, pupils turn over a card and divide the number shown by the space they are on. When they have completed the calculation, they move forward by the number of remainders in the answer.
3. The person to land exactly on the finish square wins.

Key questions:

- Can you describe the strategy you are using? How did you calculate the remainder?
- Which number is best to turn over? Why?

Extension:

- Create a new maths board game.

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The Equaliser

Focus: Multiplication and division facts for the 1 to 12 times tables.

Aim: Multiply or divide to make all the numbers in the set the same.

Instructions:

1. Give pupils the list of numbers below.
2. Pupils should then work together to use multiplication or division to make all four numbers the same.

Set 1	0.24	12	0.048	1,800
Set 2	0.11	770	0.55	220
Set 3	8,000	0.5	0.4	4,000
Set 4	1,600	0.36	2.8	4,800

Key questions:

- Which number could we aim to make them all? Is there more than one possibility?
- Do we need to multiply / divide them all by the same number?
- Can you explain the strategy you used?
- Do you need to always use the same times table? Why / why not?

Extension:

- Change the numbers.
- Pupils to make their own set of numbers.

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Division Bingo

Focus: Division facts for the 1 to 12 times tables and facts linked through powers of 10 and 100.

Aim: Cross off all your bingo numbers first.

Resources:

- Mini whiteboards

Instructions:

1. Tell pupils to write down six numbers. The number should be multiples of 10 between 10 and 120.
2. Call out a series of division calculations where the answers will be a multiple of 10 between 10 and 120. If the answer is one of the numbers on the pupil's whiteboard, they can cross it off (encourage them not to rub them off so they can prove their answers are correct). Vary the language used e.g. divided by, groups of...
3. When all six numbers are crossed out, they shout bingo.

Key questions:

- Is there more than one question that would give one of your bingo answers?
- Why do you think I asked you to write down multiples of 10?

Extension:

- Work in small groups with one person being the 'caller'.

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Estimate or Accurate?

Focus: Mental strategies to calculate 2-digit multiplied by 1-digit numbers.

Aim: Mentally calculate the answer to a 2-digit x 1-digit calculation.

Resources:

- One post-it note per pair with x written on it; Resource 4 per pair; a timer; mini whiteboards

Instructions:

1. Give pairs a post-it note with 'x' written on it and a set of resource 3.
2. One pupil takes three cards and places them upside down around the x symbol to create a 2-digit x 1-digit calculation.
3. Pupils then have 45 seconds to turn over the card and complete the calculation shown mentally.
4. When the 45 seconds have ended, pupils can use a written calculation to check their answer.
5. If a pupil correctly calculated the answer mentally, they get 4 points. If neither person got the correct answer, the closest person gets 2 points.
6. The first person to 20 points wins.

Key questions:

- Which strategy can you use to calculate the answer?
- How can you use estimation to help mentally check your answer?

Extension:

- Change the multiplicand to a multiple of 10 (place the three digit cards and add another card / post-it that does not move with '0' written on it).

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Answer Race

Focus: Recall multiplication and division facts for the 1 to 12 times tables and powers of 10.

Aim: Make the answer to the given question.

Resources:

- Two sets of resource 5; a cone; an area

Instructions:

1. This game is designed to be played with groups of 20 but can be played with any number of pupils if each pupil holds more than one digit card. With numbers over 20, put pupils in two 'teams' that have to compete to get the answer to the middle first.
2. Give pupils digit cards.
3. Say a multiplication or division fact involving a power of 10 and related to the 1 to 12 times tables.
4. Pupils race to the middle to display the answer. If two people have the same digit (e.g. 22 divided by 11 = 2), the first person into the middle wins.
5. If the answer involves a decimal, use the cone to show the decimal point.

Key questions:

- How can you work out the answer?
- Are there some digits that are being used more than others?

Extension:

- Pupils to become the question master. Can they work out a series of questions that would make each child come to the middle at least once?

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Race to 500

Focus: Multiplication and division facts for the 1 to 12 times tables.

Aim: Be the first person to reach 500 or more.

Resources:

- A 6 sided die each

Instructions:

1. Put pupils into groups of three.
2. One person will roll their die three times. They will then pick two of the numbers to add together and multiply the sum by the remaining number.
3. Finally, the product of the previous calculation is added to the running total (0 to start with). The player to reach or exceed a running total of 500 first is the winner.

Key questions:

- How can you create the largest total each time?
- What strategies are you using?

Extension:

- Swap the 6 sided die for a 10 sided die.

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Splat

Focus: Recall multiplication facts for the 1 to 12 times table.

Aim: Splat your opponent with the correct answer to a question.

Instructions:

1. Pupils stand in a circle. A question master stands in the middle of the circle.
2. The question master points at someone and says a question linked to the 1 to 12 times tables. The pupil who is pointed at ducks and the pupils on either side have to race to answer the question first.
3. Whoever answers first wins, the other pupil sits down and is out.
4. Continue play until there are two pupils left. The final pupils stand back to back, take three steps apart and are given one final question. Whoever answers the question correctly first is the overall champion.

Key questions:

- Which strategies can you use to answer these questions?

Extension:

- The winner of the first round can become the question caller.

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Decimal Multiplication?

Focus: Investigate and explore decimal multiplication linked to the 1 to 12 times tables.

Aim: Prove Mia's statement is true or false.

Instructions:

1. Present pupils with this statement: Mia says, "I can work out the answer to some decimal multiplication questions mentally."

2. Pupils should discuss the statement then discuss methods they could use.

Key questions:

- Which decimal multiplication questions could you calculate easily? Why?
- Does the number of decimal places change how challenging the calculation is?

Extension:

- Compare methods given. Which is the most efficient method to use? Does this change depending on the type of question given?

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Decimal Duel

Focus: Division and multiplication facts linked to the 1 to 12 times tables.

Aim: Be the first person to complete the calculation.

Resources:

- Resource 6 per pair; a 12 sided die per pupil

Instructions:

1. Partners will take it in turns to turn over a decimal card then roll the die.
2. Both partners will need to race to multiply the number on the die by the decimal on the card.
3. The first person to say the correct calculation wins a point. The first person to 25 points wins.

Key questions:

- Which method(s) are you using?
- How does using a decimal change your strategy?
- Are there any key facts you are using to help you?

Extension:

- Pairs can work together to try to beat another pair (first pair to 50 points wins).
- Add in a 6 sided die. Complete the base game then multiply the product of the first calculation by the number rolled on the 6 sided die.

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Double Trouble

Focus: Doubling numbers.

Aim: Double numbers until you get to or over 1,000.

Resources:

- Mini whiteboards

Instructions:

1. Pupils each pick a one-digit number.
2. They double the number and continue to double the answer until they get to or over 1,000.
3. Discuss with the pupils what they notice and if anyone reached 1,000 exactly.

Key questions:

- Why do one digit number not result in 1,000 exactly?
- Do you notice any patterns or sequences?

Extension:

- What is the lowest whole number that, when continually doubling, results in 3,000 exactly?

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What do we know if...

Focus: Use and identify related facts for the 1 to 12 times tables.

Aim: Write as many related facts as you can as a class.

Resources:

- Mini whiteboards

Instructions:

1. Write a multiplication fact.
2. Pupils will have 3 minutes to write down as many related facts as they can.
3. When the three minutes are over, set another three minutes and get pupils to write as many calculations as they can on the whiteboard. In the second set of three minutes, you could get pupils to come up individually or two at a time to speed up the process.
4. When the time has finished, count the total number of unique calculations

Key questions:

- How many facts can you find?
- How does your fact relate to the fact on the board? Convince me.
- Can we find related facts for all four operations?
- Can we use decimals?
- Can we use multiples of 10 or 100?

Extension:

- Include additional restraints e.g. all related facts must be division.

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Do you have the Maths Factor?

Focus: Identify factors of numbers between 1 and 100.

Aim: Write down all the factors of a given number first.

Resources:

- Mini whiteboards

Instructions:

1. Put pupils into groups of 3 or 4.
2. Write a number between 1 and 100 on the whiteboard. Pupils need to write down all the factors of the given number.
3. The first pupil to show the correct answer gets 3 points, the second pupil gets 2 points and the third pupil gets 1 point. Incorrect or incomplete answers do not get any points.

Key questions:

- How can you find all the factors for a given number?
- Do factors need to be whole numbers?
- Can the same number be a factor of a number more than once?
- Does the number of factors tell you something about the number?
- Which numbers are always a factor of a number?

Extension:

- Extend past 100.
- Name the number as a composite number, prime or square number.

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Sharks

Focus: Related facts for the 1 to 12 times tables.

Aim: Don't get eaten by the sharks!

Resources:

- A large area; 12 hoops; resource 7

Instructions:

1. Set up 12 hoops with each hoop labelled using one of the number cards from 1 to 12.
2. Tell pupils to 'swim' around the area. Say a division question (also use questions involving multiples of 10 and 100).
3. If pupils are standing in the quotient, they are eaten by the sharks and are out.

Key questions:

- How can you work out the answer?

Extension:

- Discuss methods for picking the 'best' hoop (the one where they are less likely to be eaten).

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