

Berwickshire High School



Numeracy At Home Support Pack

2023

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Introduction

Here at Berwickshire High School, we know that the key to unlocking mathematical potential in our students is positive reinforcement both in school and in the community. This support pack is our plea to you to encourage an enjoyment of numeracy and mathematics in your child by being a positive role model for them.

Success in mathematics is not determined by having a 'maths brain' or being a 'maths person' but by being able to use basic facts and understand the patterns within mathematics. Research has proven that we are born future mathematicians who recognise and enjoy pattern. Our hope is that we can carry that on and create those mathematicians of the future.

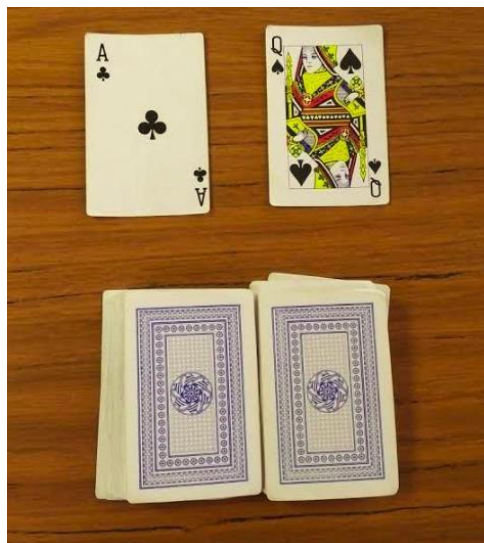
Card Games

Using just a single pack of cards there are a variety of games you can play with your child.

Split

For the following Ace = 1, Jack = 11, Queen = 12 and King = 13

1. Shuffle the cards.
2. Split the pack into two piles face down on the table.
3. Turn over the top two cards onto the table.
4. Add/Subtract/Multiply the value of the two cards together.
5. Turn over the next two cards and continue.



You can choose to focus on Addition, Subtraction or Multiplication or vary it as each new pair of cards is drawn. You may wish to time how quickly you get through the pack and set yourself a challenge.

NB: Subtraction is more challenging. Varieties to use are taking the smaller away from the larger, left take right or right take left if working on negative numbers or taking the larger away from the smaller if wanting to look exclusively at negative numbers.

Close Call

This game requires Ace = 1 and Joker = 0 and all 10s and face cards removed. The object of the game is to be the closest to 100.

1. Deal out 6 cards to each player.
2. Use 4 of the 6 cards to make two two-digit numbers.
3. Add them together.
4. Whoever is closest to 100 wins.



NB: The game can be made more challenging by being closest to 100 without going over.

My Closest Neighbour

This game requires Ace = 1 and face cards removed.

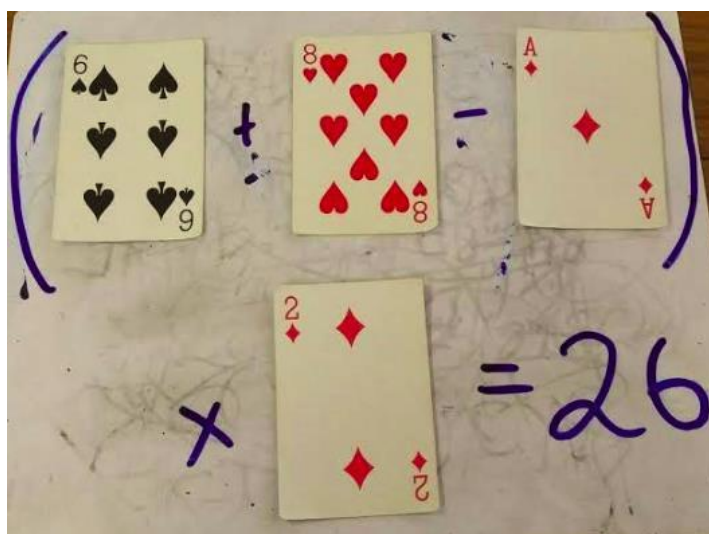
1. Deal five cards to each player. Set the remainder of the deck face down in the middle of the table as a draw pile.
2. You will play four (or more) rounds:
 - i) Closest to zero
 - ii) Closest to one
 - iii) Closest to $\frac{1}{2}$
 - iv) Closest to two
 - v) Closest to $\frac{3}{4}$ (optional)
 - vi) Closest to $\frac{1}{3}$ (optional)
3. In each round, players choose two cards from their hand to make a fraction that is as close as possible (but not equal) to the target number.
4. Draw two cards to replenish your hand.
5. The player whose fraction is closest to the target collects all the cards played in that round.
6. If there is a tie for closest fraction, the winners split the cards as evenly as they can, leaving any remaining cards on the table as a bonus for the winner of the next round.
7. After the last round, whoever has collected the most cards wins the game.



24

The following game uses Ace = 1 and all face cards are removed. Blank paper will be helpful with recording solutions.

1. The object of the game is to arrange four cards and using the four basic mathematical operations (addition, subtraction, multiplication, and division) to get a total of 24.
2. Order of operations must be followed i.e. use of brackets if addition and subtraction are needed before division.
3. Choose one person to deal the cards. The dealer deals out four cards face-down to each player.
4. When all the cards are dealt to each player, all of the players will turn their cards over face-up in front of them and try to arrange their cards in any order and use three of the four math operations to reach the total of 24. One set of brackets may be used.
5. The first player that comes up with a total of 24 first is awarded a point.
6. All other players must check that their solution is valid.
7. If nobody comes up with a solution no points are given for that round.
8. Whoever has the most points after a predetermined number of rounds wins the game.



Spiral

To play this game you will also need counters and 2 dice. The object of this game is to be the first to travel from start to finish. For the following Ace = 1, Jack = 11, Queen = 12 and King = 13

1. To begin, build a spiral out of the entire deck of cards, as shown in the picture below. This will serve as your game board. You can use the same board for multiple games, or create a new board each time to change it up.



2. Each player then places their game piece at start (the centre of the spiral).
3. To start, the first player rolls a die and moves that number of cards on the game board.
4. They must then multiply the number on their die with the value of the card they landed on.
5. If they solve it correctly, they stay there; otherwise they go back to their previous position.
6. Players then take turns rolling and moving around the game board.
7. If a player lands on a card with another player on it, they “bump” that player back to start.
8. If a player lands on a “double,” meaning the number on their die and the value of their card is the same, they get to go again.
9. The first player to land exactly on the last card and correctly solve the multiplication problem wins!

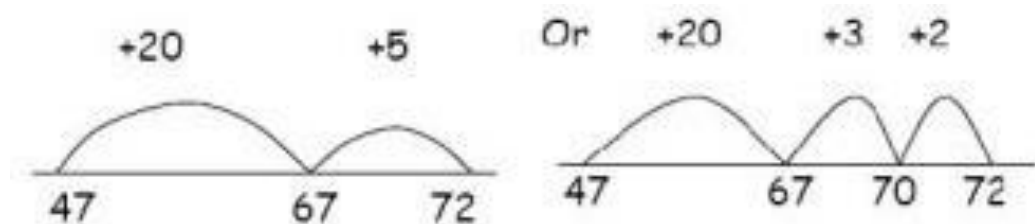
Number Talks

Present problems to your child and give them thinking time to work them out mentally.

Ask them to describe how they completed the calculation.

A blank number line can be a helpful way to record thinking.

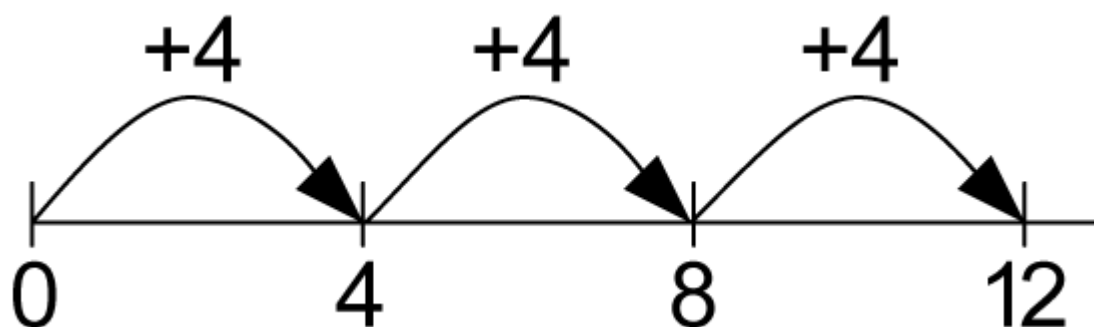
$$47 + 25$$



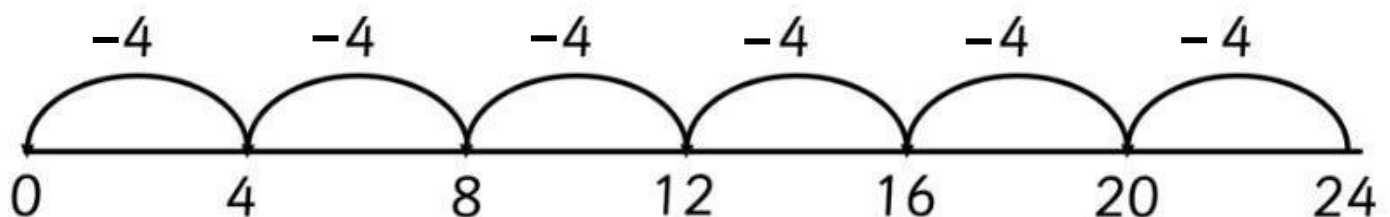
$$56 - 27$$



$$3 \times 4$$



$$24 \div 4$$



Strategies that are beneficial for students to be proficient in:

Addition and Subtraction strategies:

Near double: e.g. $32 + 33 = \text{double } 32 + 1$

Equal addition: e.g. $47 + 38 = 47 + 3 + 35$

Equal subtraction: e.g. $62 - 37 = 60 - 35$

Round and compensate: e.g. $34 + 49 = 34 + 50 - 1$ or $78 - 29 = 78 - 30 + 1$

Multiplication and Division Strategies:

Partitioning: e.g. $34 \times 3 = 30 \times 3 + 4 \times 3$

Tidy numbers: e.g. $29 \times 5 = 30 \times 5 - 1 \times 5$

Reversing: e.g. $112 \div 8$: $8 \times \mathbf{10} = 80$, $8 \times \mathbf{4} = 32$, $\mathbf{10} + \mathbf{4} = 14$

Proportional reasoning: e.g. 24×6 ; doubling and halving to $12 \times 12 = 144$

Using factors: e.g. $48 \div 8$: $48 \div 2 \div 2 \div 2 = 6$

Hundred Squares

Hundred squares are a very helpful way of working with numbers with your child and they are readily available online.

[http://www.sparklebox.co.uk/maths/counting/100-squares.html#.WgFwENJl -s](http://www.sparklebox.co.uk/maths/counting/100-squares.html#.WgFwENJl-s)

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Race to 100

1. Take turns rolling one or two dice and moving that many spaces on the hundreds chart.
2. If you correctly predict your landing place before you move (without counting squares!), then you can go one extra space as a bonus.
3. The first person to reach or pass 100 wins the game.

Odd Even Prime

1. Roll two dice.
2. If your counter is starting on an odd number, move that many spaces forward.
3. From an even number (except 2), move backward — but never lower than the first square.
4. If you are starting on a prime number (including 2), you may choose to either

add or multiply the dice and move that many spaces forward.

3. The first person to reach or pass 100 wins the game.

Factors and Multiples

1. The first player marks an even number less than 50 on the hundred board.
2. His opponent marks a factor or multiple of that number.
3. Players alternate, each time marking a factor or multiple of the last number played.
4. The player who marks the last number leaving his opponent with no move wins the game.

4 in a row

1. Decide what operation you wish to focus on.
2. Player 1 creates a problem that has an answer on the board which they must answer.
3. Player 2 does the same.
4. If any player is incorrect in their problem and the opposing player catches it, they get to cover the correct answer.
5. The first player to get 4 in a row wins.

More or Less

1. Player 1 states a problem that player 2 answers e.g. 32 more than 17. If player 2 is correct they can cover the number.
2. If they are incorrect player 1 gives another problem with the same solution.
3. Player 2 now gives a problem based on the previous answer e.g. 15 less than 49.
4. Players alternate giving and answering problems.
5. Try to fill the board.

Useful Websites/Resources

There are so many websites and resources available to help your child with numeracy that it can become overwhelming. To help, we have given you a selection of what we consider to be the best.

- <http://formtimeideas.com/numeracy> - different questions each time you load to practice basic numeracy skills.
- <http://mathsbot.com/activities/numberOfTheDay> - easy to vary the level of challenge.
- <http://www.cdmasterworks.co.uk/the-daily-rigour/> - newspaper style articles with numeracy activities relevant to the article.
- <http://www.cdmasterworks.co.uk/e-s-o-s/> - 'A bit of Maths Everyday' calendars for 2nd, 3rd and 4th level.
- <https://corbettmaths.com/5-a-day/> - A different worksheet every day with 5 questions at either Primary (Bronze, Silver, Gold, Platinum levels) or GCSE (Numeracy, Foundation, Foundation Plus, Higher, Higher Plus levels).
- <https://www.thatquiz.org/> - premade quizzes on a variety of maths topics.
- <https://www.sumdog.com/> - pupils have a log in to access game based maths questions. Their teacher may have given them a log in for this. However, parents can create a log in for their child themselves.
- <http://www.cimt.org.uk/projects/mep/index.htm> - A wealth of maths resources but particularly helpful is the interactive material both at Primary and Secondary level (or Key Stage as it is based on the English system). Easy to choose the appropriate tasks for your child.
- <http://www.mathsrevision.com/> - Resources to help pupils from 2nd level up to Higher Maths. Particularly useful are the regenerating worksheets that are self-correcting.

Teaching Videos

Many maths teachers and departments are now collating teaching videos and making them freely available via YouTube and other platforms.

Here is a selection of some of the best:

- <https://corbettmaths.com/contents/> - based on the English system but a staggering number of videos suitable for S1 up to National 5 Maths.
- <https://www.youtube.com/channel/UCeJ1pRPUBkh5S5mzh5UvYfg> - Larbert High School Mathematics YouTube channel with videos for National 5 and Higher Maths.
- https://www.youtube.com/channel/UC11M6X7OFOo7D_qVWGayzxO - Mr Graham Maths YouTube channel with a selection of videos for National 5 Maths.
- <https://www.youtube.com/playlist?list=PLxHVbxhSvleTPZ5zDH0aQtloKwGHndqcF> – A playlist of videos on YouTube from Hegarty Maths on basic numeracy and arithmetic. You can view the whole channel for over 1 000 videos covering from S1 up to Advanced Higher, again based on the English system.
- <http://www.maths180.com/> - Videos to support National 5 and Higher Maths.

Contact Information

The Maths Department is very keen to help you support your child with their numeracy and maths development. If you would like further information or a demonstration of some of the activities, please contact us and we will do what we can to make that possible.

If you do use some of the activities in this booklet, please let us know how you got on. We would love to hear your experiences and see any photos of you using the activities.

Susan Dalton

gw10daltonsusan6@glow.sch.uk