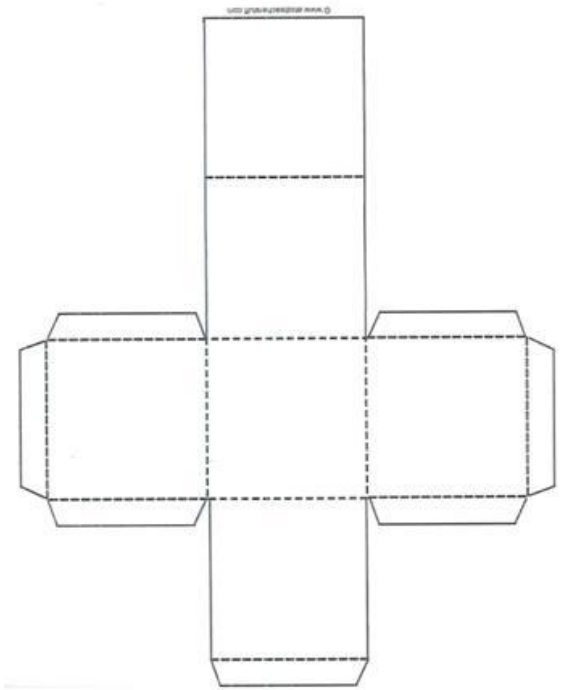
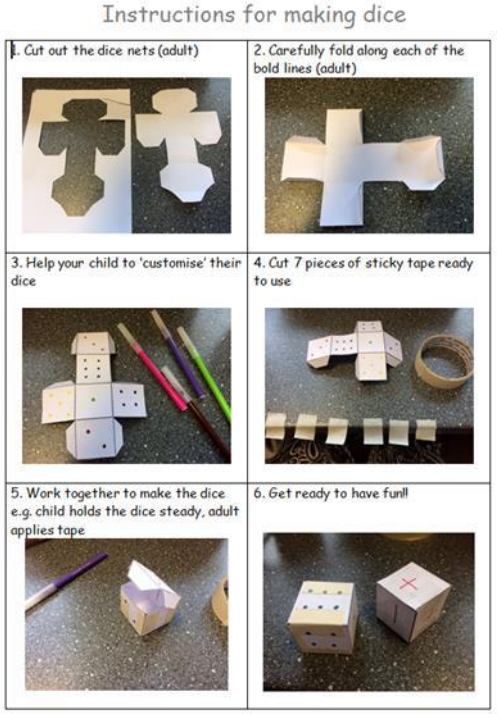
Welcome!!

While you are waiting……

Find your dice template in your pack and cut out the 2 nets.





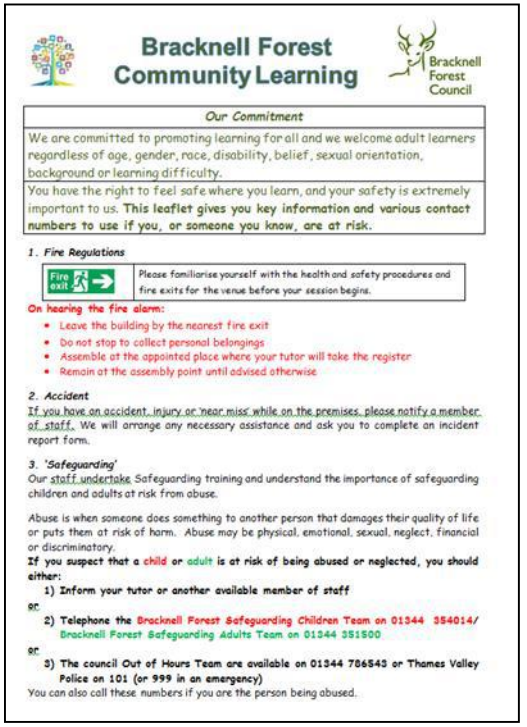
DON'T make them completely – just do stages 1 & 2 so that when the children arrive you can work as a team to put the numbers on and make the cube shape

Bracknell Forest Community Learning Team

Bringing learning to life

Heather Williams

Heather-L.Williams@bracknell-forest.gov.uk



Bracknell Forest Community Learning

Bracknell Forest Council

Our Commitment
We are committed to promoting learning for all and we welcome adult learners regardless of age, gender, race, disability, belief, sexual orientation, background or learning difficulty.
You have the right to feel safe where you learn, and your safety is extremely important to us. **This leaflet gives you key information and various contact numbers to use if you, or someone you know, are at risk.**

1. Fire Regulations

Please familiarise yourself with the health and safety procedures and fire exits for the venue before your session begins.

On hearing the fire alarm:

- Leave the building by the nearest fire exit
- Do not stop to collect personal belongings
- Assemble at the appointed place where your tutor will take the register
- Remain at the assembly point until advised otherwise

2. Accident

If you have an accident, injury or 'near miss' while on the premises, please notify a member of staff. We will arrange any necessary assistance and ask you to complete an incident report form.

3. 'Safeguarding'

Our staff undertake Safeguarding training and understand the importance of safeguarding children and adults at risk from abuse.

Abuse is when someone does something to another person that damages their quality of life or puts them at risk of harm. Abuse may be physical, emotional, sexual, neglect, financial or discriminatory.

If you suspect that a child or adult is at risk of being abused or neglected, you should either:

1) **Inform your tutor or another available member of staff**

or

2) **Telephone the Bracknell Forest Safeguarding Children Team on 01344 354014/ Bracknell Forest Safeguarding Adults Team on 01344 351500**

or

3) **The council Out of Hours Team are available on 01344 786543 or Thames Valley Police on 101 (or 999 in an emergency)**

You can also call these numbers if you are the person being abused.

Counting & Early Calculation Skills

The Plan:

1. PARENT PREP:
   - why using real objects ('manipulatives') to count and calculate is vital
   - define key concepts – rote/rational counting and number bonds
   - how to make & use your 'magic pebbles' counting kit with your child

2. CHILDREN ARRIVE: work with your child to put the counting & calculating kit together and check for accurate, rational counting

3. Try out a variety of calculation activities with your child.

…..and……

Building other skills as we work together (following school values)

"You didn't give up, even though it was hard for you……"

"That's brilliant! – thank-you for listening so well"

"I liked the way you waited until it was your turn……"

The purpose of this session is to provide information and experiences that will help you to support your child's learning. However……
One size **doesn't** fit all!!

Each parent has different knowledge, skills & experiences – if any of the topics covered are familiar to you, please feel free to chip in and share – we can learn a lot from each other!

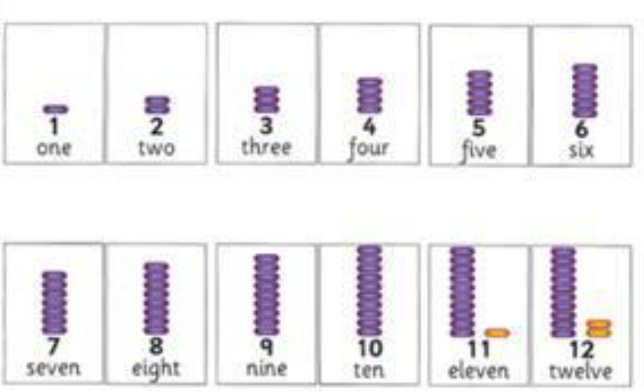
"POST -ITs" – *please use them to jot down:*

- questions/things you want to know more about
- notes on things you would like to try out with your child
- any ideas or 'top tips' you can think of

Your kit……

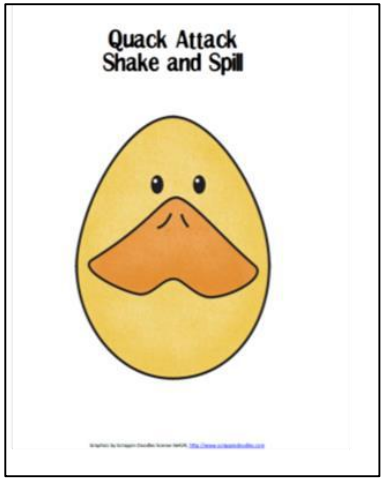
Dice

0-20 number cards
(place value highlighted)



Pebbles & bag

Copy of
'Quack Attack'
board game



‘Mastery’

Confidence

Competence

“Children who grasp concepts rapidly should be challenged with reasoning and problem solving activities that apply knowledge and make connections, before moving on to new content”

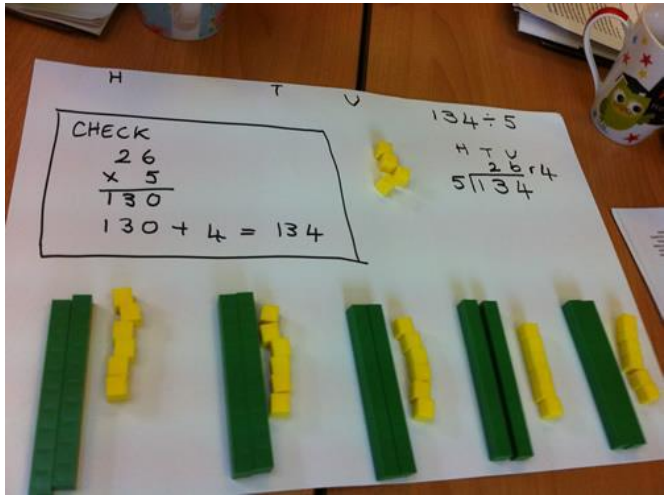
High Achievers

If your child is achieving well, rather than moving on to the following year group’s work many schools will encourage more in-depth and investigative work to allow a greater mastery and understanding of concepts and ideas.

Why using real objects (manipulatives) in maths is so important (**and not just for EYFS classes!**)

- To support sense making, mathematical thinking and reasoning
- To avoid the possibility of blindly following a taught procedure to arrive at an answer
- For children to be able to demonstrate to themselves and others mathematical truths
- To deepen children's understanding of abstract mathematical concepts
- To explain the meaning and justify the use of different mathematical processes such as the standard written methods

E.g. short division



Counting with confidence and competence

Development of early counting skills

Which comes first?
Talk to the person next to you to put the following skills in order:

Match two sets of objects, compare two sets of objects

Use some number names and number language, but not accurately

Count up to three or four objects by saying one number name for each item

Count **reliably** up to ten everyday objects

*See if you can find them on your Progression in Counting Skills handout – this gives you an idea of what happens when.

Counting Skill	
Show curiosity about numbers by offering comments or asking questions	
Use some number names and number language, but not accurately	
Use some number names accurately in play e.g. "I have 2 cars"	
Recognise groups with one, two or three objects	
Recognise some numerals of personal significance e.g. "I am 4 years old" "My house number is a four and a two"	
Understand that when counting, number names must always be said in the same order	
Count up to three or four objects by saying one number name for each item	
Count out up to six objects from a larger group	
Count actions or objects that **cannot be moved** e.g. spots/pictures of objects or the number of times they hear a clock chime	
Begin to count beyond 10, but not always accurately	
Begin to represent numbers using fingers, marks on paper or pictures	
Select the correct numeral to represent 1 to 5, then 1 to 9 objects	
Count an irregular arrangement of up to ten objects and understand that it doesn't matter which object you start the count with	
Estimate how many objects they can see and check by counting them	
Know that the last number said in the count identifies how many objects are in a set	
Talk about order using 'first', 'second', 'third'	
Match two sets of objects, compare two sets of objects	
Count **reliably** up to ten everyday objects	
Recognise numerals 1 to 9	
Use language such as 'more' or 'less' to compare two numbers	
Find one more or one less than a number from one to ten	
Begin to relate addition to combining two groups of objects and subtracting to 'taking away'	

Age in months

0-20

20-40

40-60

Use some number names and number language, but not accurately

Counting by rote

From an early age children use numbers as labels, counting out loud using number names they know.

-often re-use known number names

e.g. 1-2-3-4-5, 1-2-3-4-5, 1-2-3-4-5……

-progress to pointing to objects as they count, but not accurately.

- say number names in order (…but not necessarily know their meaning/value). Children can often do this from quite a young age and up to quite a high number .

Counting is MUCH more than remembering numbers and recognising numerals, it must be "rational" rather than "rote"

- Rational counting is counting that has meaning associated with it
- The child understands that the number name is connected with an actual value or amount of something – they know "how many"
- The child can not only say the numbers in order but recognise that 2 actually means 2 objects, 3 means 3 objects and so on

Children need to understand several concepts before they can count rationally……

One-to-one correspondence

Count up to three or four objects by saying one number name for each item

Children learn that each number name in the count relates to an object.

"point to each object as you count" – many children tend to rush ahead and say the next number name faster than they point to the object.

TIP 1: get them to move [count out] the objects one by one as they count.

TIP 2: don't ask your child to count more things than s/he can count easily and with success

http://www.youtube.com/watch?v=hgT0AwHVgxw

Cardinality - the 'are we there yet?' of the maths world – has this ever happened to you?.....

'Jake, I wonder how many beetles are in the jar?'

Jake counts '1, 2, 3, 4'. ……

'So how many are there in the jar?'

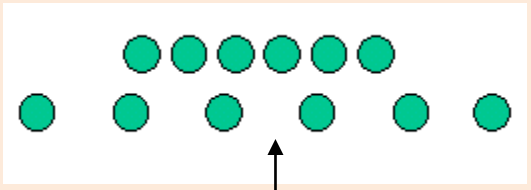
Jake replies, '1, 2, 3, 4'.

When asked the question 'How many?' children will initially repeat all of the numbers in the count. This can be very frustrating, but it's totally normal.

With more experience, children will not need to count again, but will just say the last number in the count.

Conservation of number

Conservation of number is the stage where the child knows there are the same number of objects in a group however that group is structured.



A child who hasn't yet developed this concept will say there are more in the second row.

When your child makes and counts sets of objects, re-arrange the objects and ask 'how may now? – they will soon get the idea!!

5 mins

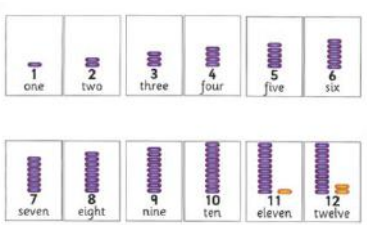
Using your counting kit - 1

- Ask your child to count out 20 magic pebbles
- You will be checking that they can count reliably and accurately.
- You will be watching to see if they have good 1:1 correspondence *(when counting a set of objects, do they touch one object as they say each number, to arrive at the correct total number in the set?)*
- Use this information to decide which numbers to work with for the rest of the session……

5 mins

Using your counting kit - 2

- Help your child to cut out their 0-20 number cards



You might like to ask them to put the cards in order, and see how far they get – prompt them with questions such as 'what number comes after……'

- Ask them to choose a number **less** than 10, and give you the matching number of magic pebbles

- Check for cardinality *(e.g. having counted a set of 6 objects, can they say "there are 6" without needing to re-count?)*

- Check for conservation of number *(do they understand that a certain quantity will remain the same even if the position, shape, or size is changed?)*

5 mins

Using your counting kit -3

0-20 number cards continued……

- Ask your child to choose a number **more** than 10, and give you the matching number of magic pebbles

**still counting reliably and accurately?*
***check again for cardinality and conservation of number*

- If you see that your child needs support with the teen numbers, stick with numbers up to 10 for now – it's vital to build confidence and fluency first.

- Have fun doing pebble matching a couple more times, using numbers that your child is comfortable with

5 mins

Using your counting kit - 4

- Work with your child to put spots/numbers (or both!) on the dice nets. E.g. 0,1,2,3,4,5 and 6,7,8,9,10,☺

- Work as a team to assemble the dice

Top tip: You can draw numbers in pencil first for them to trace over – the number formation rhyme sheet can help with this

5 mins

Using your counting kit - 5

Have fun throwing the dice and making sets of pebbles to **practise early calculation** – try one of these ideas:

- One more, one less
- Compare 2 sets
  (bigger, smaller, more, fewer)
- Combine 2 sets ("how many altogether?")
- Roll the 6-10 die and get the matching number of pebbles, then roll the 0-5 die to decide how many pebbles to remove
- Split a set: play the "quack attack" game (e.g. "how many different ways can we find to make 10?")

**remember to work with numbers that your child is confident with*

*** encourage them to write or draw their findings…….*

1 more, 1 less

Use a set of objects to explore what happens when things are added or taken away

"How many in your set?" (8)
"Can you add (take away) one pebble?"
"How many in your set now?" (9) / (7)
"Can you write or draw what you did?"

Comparing numbers

Match two sets of objects, compare two sets of objects

Use 2 sets to match & compare

Compare sets, using 'bigger' 'smaller'
Compare objects, using 'more' 'fewer', *how many* more etc.

Addition with pebbles

Combine 2 (small) sets to practise addition

Throw the dice to randomly select 2 numbers & ask your child to get pebbles to match

"How many in this set?" (5)
"How many in this set?" (3)
**encourage your child to push the 2 sets of pebbles together*
"How many altogether?" (8)

Subtraction with pebbles

Make a larger set and remove a smaller number of pebbles from it

Throw the 6-10 dice to randomly select a larger number & ask your child to make a matching set of pebbles

Throw the 0-5 dice to randomly select a smaller number & ask your child to remove that number of pebbles from the set

"How many did we start with?" (9)
"How many did we remove/take away?" (5)
"How many left?" (4)

Splitting sets (Number Bonds)

- 'Number bonds' describe how 2 quantities combine to make a particular total. For example: combining 3 objects with another 4 objects gives us 7 objects altogether. [in short, 3+4=7]

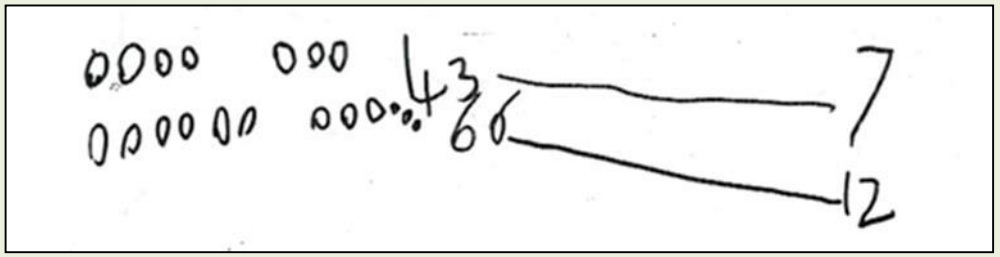
- "Foundation blocks" for calculations, where children begin to see patterns in numbers and to learn mathematical principles and relationships.

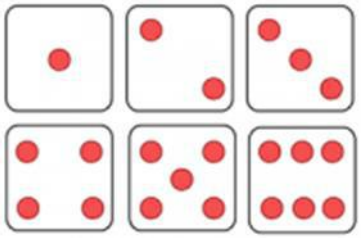
- Lots of number bond practice with real objects will make a huge difference to children's mental arithmetic skills and to their speed and confidence in all calculation work.

https://www.theschoolrun.com/what-are-number-bonds
https://en.wikipedia.org/wiki/Number_bond

Number bonds with pebbles

- Choose a number (use the 6-10 dice?) and get that number of pebbles
- Find all the different ways to split that number into 2 sets (how do you know you've found them all?)
- Draw or write the different ways





Make more dice at home:
http://www.firstpalette.com/Craft_themes/Alphabet_and_Numbers/paperdice/paperdice.html

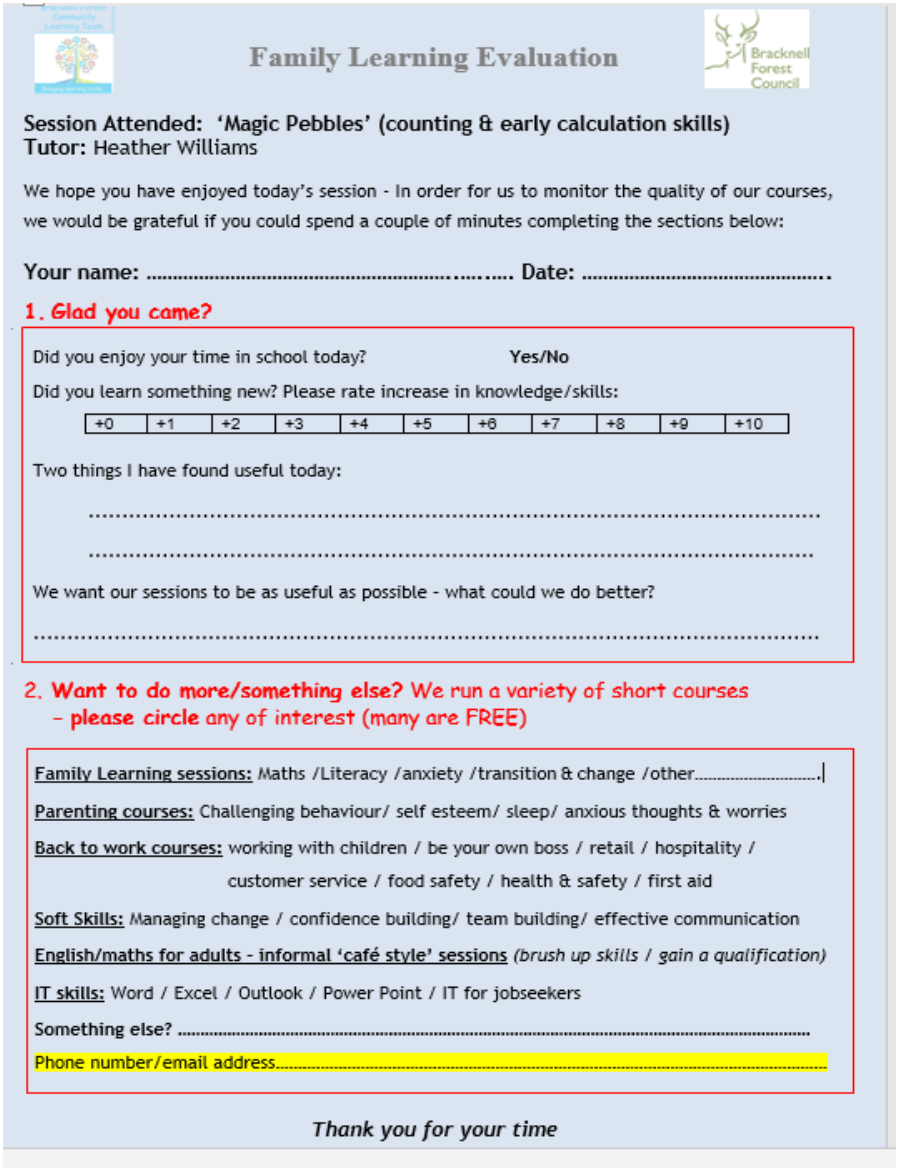
Technology has a place:

-fun way to practise and consolidate

-doesn't replace experience with real objects

http://www.ictgames.com/mucky.html

The blue form ☺



Family Learning Evaluation

Bracknell Forest Council

Session Attended: 'Magic Pebbles' (counting & early calculation skills)
Tutor: Heather Williams

We hope you have enjoyed today's session - In order for us to monitor the quality of our courses, we would be grateful if you could spend a couple of minutes completing the sections below:

Your name: ..... **Date:** .....

1. Glad you came?

Did you enjoy your time in school today? **Yes/No**

Did you learn something new? Please rate increase in knowledge/skills:

+0	+1	+2	+3	+4	+5	+6	+7	+8	+9	+10

Two things I have found useful today:

.....

.....

We want our sessions to be as useful as possible - what could we do better?

.....

2. Want to do more/something else? We run a variety of short courses – **please circle** any of interest (many are FREE)

Family Learning sessions: Maths /Literacy /anxiety /transition & change /other.....

Parenting courses: Challenging behaviour/ self esteem/ sleep/ anxious thoughts & worries

Back to work courses: working with children / be your own boss / retail / hospitality / customer service / food safety / health & safety / first aid

Soft Skills: Managing change / confidence building/ team building/ effective communication

English/maths for adults - informal 'café style' sessions *(brush up skills / gain a qualification)*

IT skills: Word / Excel / Outlook / Power Point / IT for jobseekers

Something else? .....

Phone number/email address.....

Thank you for your time

Concentration issues?

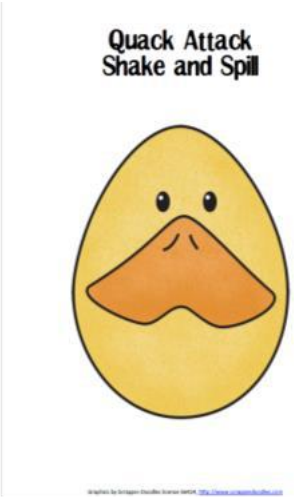
- Keep the pace going – try a range of different activities and games (5 mins max per activity)
- Try a game – I have lots they can choose from

What's the Difference?
2–4 players

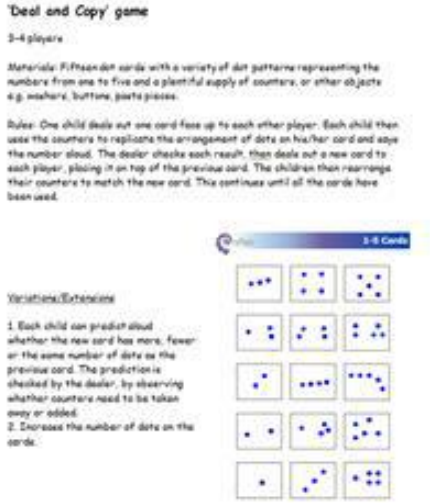
Materials: A pack of twenty to thirty dot cards (1 to 10 dots in dice and regular patterns), counters or other objects to use as counters e.g. lego bricks, 1p coins, pasta pieces.

Rules: Spread out ten cards face down and place the rest of the cards in a pile face down. The first player turns over the top pile card and places it beside the pile. He/she then chooses one of the spread cards and turns it over. The player works out the difference between the number of dots on each card (using their pebbles arranged in two rows as a practical way to work this out). The player then takes that number of counters/objects. (For example, if one card showed 3 dots and the other 8, the difference is 5 and so the player would take 5 counters.) The spread card is turned face down again in its place and the next player turns the top pile card and chooses one of the spread cards to turn over. Continue to take turns until all the pile cards have been used. The winner is the player with the most counters; therefore the strategy is to remember the value of the spread cards so that the one resulting in the maximum difference can be chosen.

Variations/Extensions
1. Try to turn the spread cards that give the **minimum** difference, so the winner is the player with the fewest counters.
2. Roll a die instead of using pile cards. Start with a set number of counters (say twenty), so that when all the counters have been claimed the game ends.



Quack Attack
Shake and Spill



'Deal and Copy' game

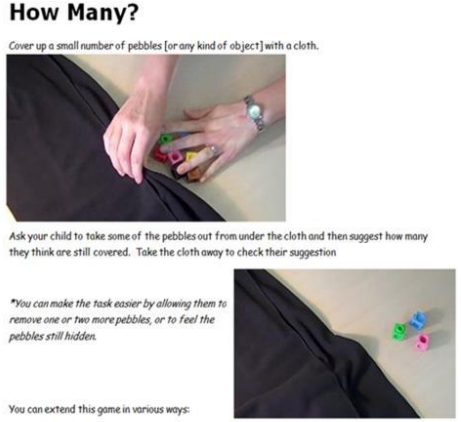
3–4 players

Materials: Fifteen dot cards with a variety of dot patterns representing the numbers from one to five and a plentiful supply of counters, or other objects e.g. washers, buttons, pasta pieces.

Rules: One child deals out one card face up to each other player. Each child then uses the counters to replicate the arrangement of dots on his/her card and says the number aloud. The dealer checks each result, then deals out a new card to each player, placing it on top of the previous card. The children then rearrange their counters to match the new card. This continues until all the cards have been used.

Variations/Extensions

1. Each child can predict aloud whether the new card has more, fewer or the same number of dots as the previous card. The prediction is checked by the dealer, by observing whether counters need to be taken away or added.
2. Increase the number of dots on the cards.



How Many?

Cover up a small number of pebbles [or any kind of object] with a cloth.

Ask your child to take some of the pebbles out from under the cloth and then suggest how many they think are still covered. Take the cloth away to check their suggestion

**You can make the task easier by allowing them to remove one or two more pebbles, or to feel the pebbles still hidden.*

You can extend this game in various ways:

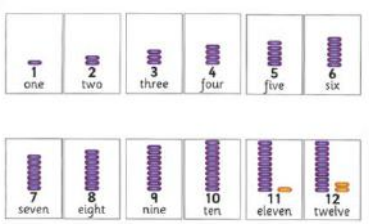
- "I'm covering up 15 cubes. How many would I have to take out for there to be 8 left under the cloth?"
- Give your child some cubes from under the cover, telling them how many are still hidden and ask "How many did I have to start with?"
- Start with a known number of pebbles and put them under the cloth. Ask your child to close their eyes while you add a few more pebbles. Ask child to remove cloth and count up the pebbles – "what was the 'secret number' I added?"

Time for children……☺

- **Help your child to count out 20 'magic pebbles' and put them in their special bag** (are they counting reliably and accurately – if so, up to which number?)

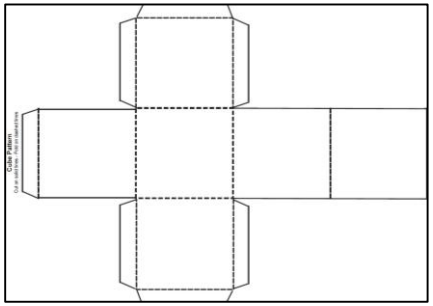
- **Cut out your 0-20 number cards**

  (ask your child to match the right number of pebbles to different number cards, try single digit numbers and then 'teen' numbers)



- **Have some fun with dice**

  (cut out and 'customise', match numbers to pebbles)



……And if you think they are ready……

- **Use your kit to try one or more of the early calculation activities we have talked about:**

  e.g. Compare 2 sets of pebbles (early addition/subtraction practice)

  e.g. Shake & Spill (introduction to number bonds)