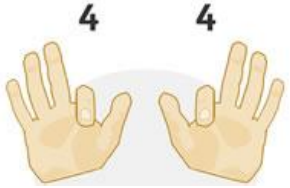
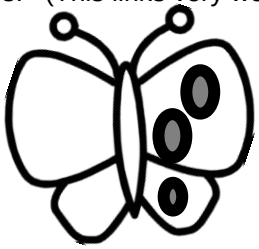
All Saints C of E Primary School Year R – Problem solving

By the end of the reception year, children have been taught to:

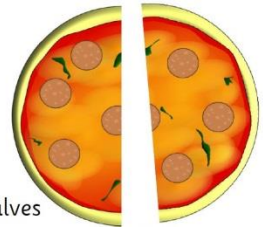
Learning milestone	Why is it important? Things to watch out for!	Ways to support a Year R child
Solve problems including doubling, halving and sharing.	**DOUBLING** Before solving problems which involve doubling, children are immersed in real examples of doubles, practical experiences and vocabulary in the world around them. The concept of being a double is all about two of the same thing, whether it be a number or an image.  double scoop  double decker  double 6  I've rolled a double six!   double buggy Encouraging children to sort dominoes into ones that are doubles and ones that are not doubles is a great way of developing understanding in a practical way. 	Pointing out doubles of things in everyday life is the best way to reinforce doubles and discuss why it is a double. **Activities we could try:** Doubling fingers – Challenge the child to show a double 1 by putting up one finger on each hand. Ask the child, "So how many fingers are you holding up altogether?" Extend by asking for double 2, double 3 etc.  Play dominoes! Lots of publication and things we can download from the internet use butterflies and ladybirds. These require us to double the amount of spots so that they are the same on both sides. (This links very well with symmetry!) 

Year R

HALVING

As with doubling, problems involving halving require the same immersion of images, practical experiences and vocabulary within the child's learning environment.







When discussing half and halving, the emphasis is that the whole thing has been cut or 'divided' in half, so producing two equal parts. Knowing that the parts have to be exactly the same is crucial in reinforcing the concept of half and halving.

Once children have practical experiences of halving and doubling, they can respond to problems such as:

- Adam is 2 years old, Joe is double his age. How old is Joe?
- There were usually 4 pirates on the ship, but once they had found treasure the number suddenly doubled. How many pirates were on the ship when they found treasure?
- Granny was making an apple pie. She had six apples and she needed double this amount. How many more did she need?

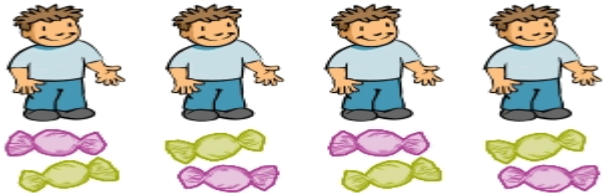
NOTE: These problems would be presented to the children verbally and solved using equipment.

Children would usually experience these types of problems through directed teacher time, as well as during their enhanced and continuous provision.

The relationship between halves and doubles is that they are 'inverses' or opposties – one undoes the other. If we double 1 it is 2 and if we halve 2 it is 1.

SHARING

We talk about sharing a lot with young children, whether it be when sharing a toy, a book or game. In maths, we talk about sharing as dividing out things between a certain number of people, boxes, cars – it can be anything depending on the situation. People share naturally, whether it be shared faily or unfairly, often depending on what we are sharing. For example when sharing sweets between friends we often say or do ' one for me, one for you, one for me , one for you…' until all of the sweets have gone. In the example below ten sweets shared between four friends means that they all get two each.



The concept of doubling, halving and sharing lays the foundations for division, fractions and multiplication.



During meal or snack times, ask a child to cut a fish finger in half, or share a biscuit so that you both have a half.

Supporting sharing can be great fun, especially if we want to cause a little mischief with a child. When sharing a packet of sweets, grapes, pennies we could share them out unequally. When the child realises that we have more than him/her he is sure to say something. During the conversation we can then ask the child to help us 'get it right' so that we both have the same amount and it is fair. We can enrich the play by using vocabulary such as fair, equal amount and share.

Year R

Begin to identify own mathematical problems based on own interests and fascinations	Mathematical play is an extremely valuable part of the learning journey to becoming a fluent and numerate mathematician. Children love making up games and generally making things their own. Quite often they come up with better ideas and problems than adults! Children are encouraged to make up their own maths story problems for other children to solve. Sometimes children may need some support with the numbers of items they choose initially, mainly due to the fact that young children like to include the largest number that they can possibly think of, often a million, even though they have no understanding of the value but they have heard an older child or adult say it, so it must be good!   Teddy bears and dolls' tea parties, role play shops, garages and cars are great ways to inspire children's mathematical creativity. This allows children to internalise what they have learned and to apply it in a different situation. In so doing, it demonstrations learning.   Maths is everywhere! Using every day real life situations and problems helps to develop children's ability to be methodical and use what they know to help them. **Changing from P.E.** Adult: I can see six plimsoles on the floor (after changing from P.E). Whose are they? Child: It must be three people. This child has understood that people have two feet and therefore they have two plimsoles each, so they must belong to three people (whether they are from the same pair is another thing though). This thinking shows good mathematical reasoning).