

HELP YOUR CHILD TO UNDERSTAND FRACTIONS

Some students do well in math till they hit FRACTIONS. As adults we have used fractions so often that we do several steps in our head at the same time without realizing this and often it is hard for us to recall why THE CONCEPT OF FRACTIONS can be so DIFFICULT AND CONFUSING.

Give the new concept time to take root, each part can take days to a few weeks depending on the 'math age' of your youngster. Don't push it too quickly, practice till it's ingrained and remember to shower her in praise. If you are in doubt about the speed of progressing to the next part read The Rules of Thumb.

- Part 1

Assuming all previous math concepts are clear for your math wizard to be, you need to realize that doing fractions means entering a whole new level of abstraction. Be sure she has the concept down with real life CONCRETE EXAMPLES and using PICTORIAL REPRESENTATIONS, before you even think of introducing the mathematical names and abstract notations such as $\frac{1}{2}$ and $\frac{1}{4}$. Never proceed to the next paragraph when the previous has not been fully understood: you would be wasting your child's and your own time.



So now you are looking for a fun way to show fractions in REAL LIFE. Nature is full of fractions: show your child when you cut fruit with parts like an orange, kiwi, cucumber, or sweet pepper. Don't forget the flower petals and the face of an analog clock.

We have all seen the 'PIZZA PIE MATH' where the size of the slice tells about the fraction: which part of the whole pizza it is. Pizza pies are a great way of showing fractions, adding and subtracting. For subtracting make all corresponding fractions in black card board and ask you fourth grader how you can show they are gone (like writing 'jum jum' etc. all over them or cut little teeth out at the side, make her be creative). Cover pizza pie pieces to show a subtraction: they have been eaten, so they are gone....



- Part 2



In math there is not 'one best way' to solve a question or 'one best way' to show a concept, actually the chance of 'the quarter falling in the slot' depends on the representation that rings a bell, so let's MAKE MATH MUSIC by 'ringing another bell':

Get out your lego's or other interlocking blocks, make a tower of 12 same color blocks and call the tower the ONE WHOLE COLOR TOWER or the ONE TOWER. Knock it over a few times to FRACTURE it into different 'ruins'...

The ruins are the FRACTIONS: which different fractions can your child make out of the initial ONE TOWER? For every new smaller tower she discovers, have her build one same size tower with a new color and set the new ones apart. (You will theoretically land up with 11 new smaller towers, so you

might want to give your blocks a ‘makeover’ with small stickers if you do not have enough colors.) When she’s done FRACTURING, ask her to order all her smaller towers according to size.

- Part 3

Ask her to show you which of the smaller towers will together build a tower the same size as the original ONE TOWER? Is she using several different colors? Explain that all these smaller towers are a family, they are all called by their family name: FRACTIONS, and that they would like to have a first name of their own too, like the ONE TOWER. Do not mention any numbers yet, ask what kind of names your child would like to call them.

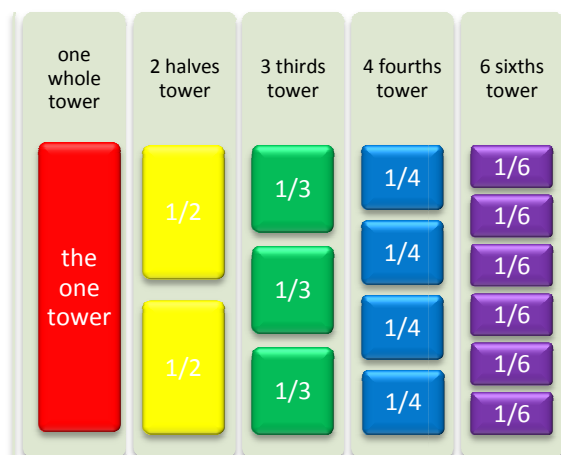
Provide enough colored lego’s or other interlocking blocks to copy each of the smaller towers several times in it’s own color. Ask which SAME COLOR SMALLER TOWERS will together build a tower the same size as the original ONE TOWER?

Explain that these SAME COLOR SMALLER TOWERS ARE VERY SPECIAL for the ONE TOWER and that they are all members of the family of SAME COLOR TOWERS, the only difference is how many smaller ones you need to build a tower the same size as the original ONE TOWER. So the way you can recognize them is by telling how many smaller towers you need to build the ONE TOWER and therefore they get their name from this: the number of smaller towers you need to build the ONE TOWER. This also explains how the ONE TOWER got it’s name: you ONLY NEED ONE of that and you are ready.

- Part 4

Only now start to explain the names of the $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{6}$ fractions: say ONE OVER THREE means the piece someone gets when one whole pizza is being divided over three plates, like when the ONE WHOLE TOWER is dived over THREE SAME SIZE SMALLER TOWERS, you call that one A THIRD etc.

Ask how many THIRDS you need to get the size of the ONE WHOLE COLOR TOWER again, to check for understanding. Repeat several times with all other fractions. Does s/he see that two fourths or three sixths is similar to one half? Don’t worry if you have to backtrack a few times, let your child play with the material and let her explain the concept to you, or even better to a family member, who pretends not to understand it the first or second time...



Now s/he is ready to do a lot of simple practice problems about fractions to develop fluency.

Keep the manipulatives handy and have her ‘act out’ the problems to you.

If this does not work for your student, do not loose valuable time and contact **Math and Dyscalculia Services** for an evaluation and specialized help.