Helping Your Child with Word Problems

Addition and Subtraction Problems

If your child is struggling with word problems, one strategy that can help is something called schema-based instruction. Schema-based instruction teaches your child how to recognize the type of word problem (*schema*) so they can figure out the best strategies to solve it.

Additive Schemas

Schemas for addition and subtraction are called *additive schemas*. Three types of additive schemas are *change problems*, *combine problems*, and *compare problems*.

Change Problems

Change problems are when an amount increases (*goes up*) or decreases (*goes down*) because something changes or happens to the starting number.

Combine Problems

Combine problems are problems that put together two or more separate parts to make a total.

Compare Problems

Compare problems are when two sets are compared to find the difference.

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Adapted from Powell & Fuchs (2018) & IRIS Center
https://iris.peabody.vanderbilt.edu/module/math/cresource/q2/p06/

RIDE Rhode Island Department of Education

Change Problems

Change problems are when an amount increases (*goes up*) or decreases (*goes down*) because something changes or happens to the starting number. Your child might be asked to figure out the starting number, the amount the number changed, or the ending amount. Your child's teacher might also call this *add to* and *take from* problems.

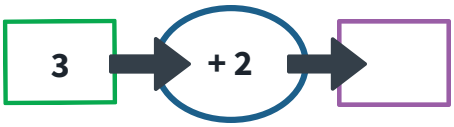
In the examples below, you can see what a change problem might look like when the number increases. In the first problem, we have some of the information, but one piece is unknown. We have the starting number (*Carly starts with 3 ribbons*), we have the amount of change and know that increased (*Shay gives Carly 2 more ribbons*), and the ending number is unknown.

Increase (*add to*)

End Unknown

Carly has 3 ribbons (*start*). Shay gives her 2 ribbons (*change – increase*). How many ribbons does Carly have now (*end – unknown*)?

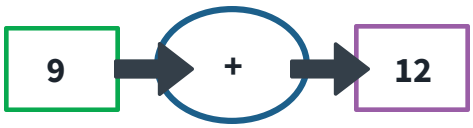
Schema



Change Unknown

Misha has 9 candies (*start*). Kaheen gave her some more candies (*change – unknown*). Now she has 12 candies (*end*). How many did Kaheen give her?

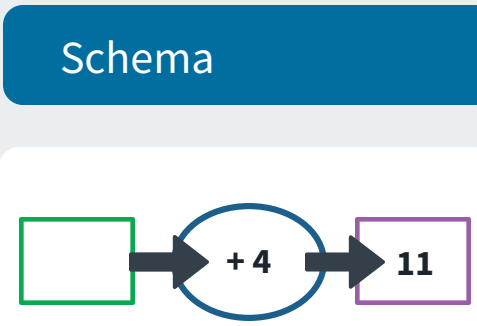
Schema



Start Unknown

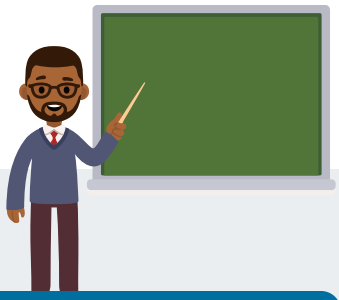
Marveli has some stickers (*start – unknown*). Maverick gave her 4 stickers (*change*). Now Marveli has 11 stickers (*end*). How many stickers did Marveli have to begin with?

Schema



Change Problems

Now let's look at some examples of change problems where the number decreases.

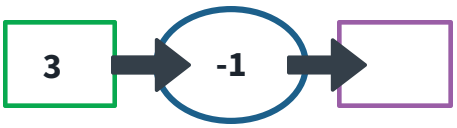


Decrease (*take from*)

End Unknown

Carly has 3 ribbons (*start*). She gave Shay 1 ribbon (*change*). How many ribbons does Carly have now (*end – unknown*)?

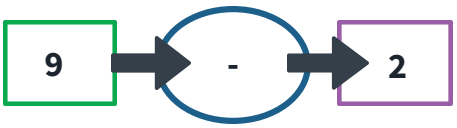
Schema



Change Unknown

Misha has 9 candies (*start*). Misha gives Kaheen some candies (*change – unknown*). Now she has 2 candies (*end*). How many did she give Kaheen?

Schema



Start Unknown

Maverick has some stickers (*start – unknown*). He gives 4 stickers to Marveli (*change*). Now Marveli has 11 stickers (*end*). How many stickers did Maverick have to begin with?

Schema

Combine Problems

Combine problems put together two or more separate parts to make a total. Sometimes they are also called total or part-part-whole problems. For these types of problems, your child will be asked to figure out the total or one of the parts. Your child's teacher might also call these *put together* or *take apart problems.*

In the examples below, you can see what a combine problem looks like when solving for a total and when solving for a missing part.

In the first problem, we know that Sam has 2 cookies (*part 1*), and that Ali has 3 cookies (*part 2*), and that they are combined to get the total.

In the second example, we have the information for part 1 (*6 students*), we know that we need to combine some number of students in the hallway to get the total of *20 students*.

Did You Know?

These types of problems are the foundation for your child developing algebraic reasoning. Tell your child that learning how to solve these problems is helping them get ready for math in later years, like algebra classes.

Solving for a Total

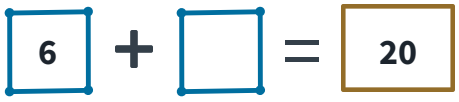
Sam has 2 cookies (*part 1*). Ali has 3 cookies (*part 2*). How many cookies do they have altogether (*total*)?

Schema

Solving for a Missing Part

There are 6 students (*part 1*) in the classroom and some more students (*part 2 – missing*) in the hallway. There are 20 students in all (*total*). How many students are in the hallway?

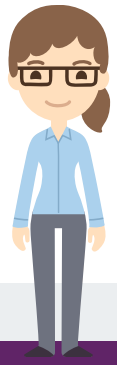
Schema



Compare Problems

Compare problems are when two sets are compared to find the difference. A teacher might also call these difference problems. Students must find the difference, the greater set, or the lesser set.

In the examples below, you can see what a compare problem might look like. In the first problem, we know some of the information – we know that one dog has 3 spots (lesser set) and one dog has 7 spots (greater set), and we are being asked to compare the two sets to find the difference. In the next two examples, we know the difference, but are being asked to compare to find either the greater set or the lesser set.



Difference Unknown

The small dog has 3 spots (*lesser set*). The large dog has 7 spots (*greater set*). How many more spots does the large dog have than the small dog (*difference – unknown*)?

Schema

Greater Set Unknown

Cy has 3 more pencils than Brody. Cy has 7 pencils. How many pencils does Brody have?

Schema

Lesser Set Unknown

Ava has 9 fewer points than Giovani. Ava has 2 points. How many points does Giovani have?

Schema