

Problem Solving

The first thing I have my students do is underline the question they have to solve. Then, they look for key words that tell them if they have to add or subtract.

Next, they have to write the equation that goes with the problem ($\underline{\quad} + \underline{\quad} =$ or $\underline{\quad} - \underline{\quad} = \underline{\quad}$). They won't be able to fill out all the blanks, that's what they have to solve!

Finally, they write an answer sentence to go with the problem.

Example:

Miss Watson was in a hockey game and scored 7 points in the first period. Her total score at the end of the game was 35. How many goals did she get in the other periods?

$$7 + \underline{\quad} = 35$$

$$\begin{array}{ccccccc} & +10 & +10 & +3 & +5 & = & (28) \\ 7 & 17 & 27 & 30 & 35 & & \end{array}$$

Miss Watson got 28 more goals in the other periods.

Ten Solution Strategies for Problem Solving!

1. Act out the problem or use Objects!
2. Make a picture or diagram
3. Use or make a table
4. Make an organized list
5. Guess and Check
6. Use or Look for a pattern
7. Work Backwards
8. Use Logical Reasoning
9. Make it Simpler
10. Brainstorm

1. Act out the problem or use Objects!

It can be helpful to act out a problem or to move objects around while you are trying to solve a problem. You can actually see what is going on, as you try and figure out the answer. You are more likely to remember the way you solved the problem (process) and use it for problems that are similar (the same). You don't have to have fancy objects; it can be pieces of paper, bingo chips, counters, etc.

2. Make a Picture or Diagram

When drawing a picture or diagram, you don't have to be an artist! Just a simple drawing to help map out the problem and be able to manipulate (move) the information around. It is really good for problems that involve mapping.

3. Use or Make a Table

A table is an orderly (neat), arrangement of data (information). It helps keep track of information, spot missing information and identify information that is asked for in the problem. Patterns can be easily found when information is organized (put) into a table.

4. Make an Organized List

This helps you to organize your thinking about a problem. It makes it easy to review what has been done and see important steps that have to be finished. It is also a good way to record numbers, or combinations used to solve problems.

5. Guess and Check

This is helpful when the problem has lots of large numbers or many pieces of data, or when you are asked to find one solution, but there can be many different ones. When you use this strategy, you make an educated guess at the answer, and then test to see if it is correct. If you were incorrect, then you make another educated guess and so on. This way, you become closer and closer to the answer with each guess you make (each guess becomes more reasonable). You can also use this strategy to get started, and then switch to another one.

6. Use or Look for a Pattern

A pattern is a regular, systematic repetition (it happens over and over again). It can be numerical (using numbers), visual (you can see it), or behavioral. By finding the pattern, you can predict what will come next and what will happen again and again in the same way. Sometimes you can find the answer by just recognizing the pattern, but often you are asked to extend the pattern (show what comes next). Making a number table often helps when finding patterns, so these two strategies are often used together.

7. Work Backwards

This is when you start with the information found at the end of the problem, and end with the information at the beginning of the problem! It is exactly how it sounds, you work backwards to get the answer at the beginning!

8. Use Logical Reasoning

This is really used for all problem solving, as you are trying to make sense out of all problems. However, there are many problems that have conditional statements like: "if this happened.....then this would..." Or "if something is true, then..." Often you have to go through each step and look at the statements given to find the answer. You can keep track of your work in a chart. (Think of logic puzzles where you are given many clues to find the answer).

9. Make It Simpler

You will find this helpful when you are working with complex (hard) problems. You can make problems simpler by reducing large numbers to small numbers, or reducing the number of items given in a problem. Once you can find the answer with the simpler information, you can then use that same strategy/equation to solve the original complex problem. The simpler problem could also reveal a pattern that can be used with the more complex problem.

10. Brainstorm

This strategy is often used when everything else fails! When you cannot think of a problem that you have solved before, or another to use, try to brainstorm! It means looking at a problem in new and inventive ways. Open up, stretch, allow for inspiration, be creative, be flexible and keep on trying until you get a light bulb moment!

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