There's no limit to the different types of problems we encounter, so there's no way to list *all* possible strategies you could try in solving them. Below, though, is a list that's comprehensive enough for most elementary/middle school classrooms. The attached descriptions highlight key qualities of problems needing that strategy. I usually say that the descriptions *justify* why you might choose that particular strategy. Make sure you commit the strategy names and key features to memory.

Warning: Some teachers aren't aware that relying on mere "key words" is a weak, unreliable way to choose a strategy. Avoid it; look for and encourage the italicized qualities instead.

1. (*) **Look for a pattern** - The problem's information, predicted work, or possible answers feature some *repetition.*
2. (*) **Make a table or list** - There are several options/lots of information to keep *organized.*
3. (*) **Examine a simpler problem** - The problem's numbers are *too big* or the situation *too complicated.*
4. (*) **Identify a sub-goal** - The problem has some issue or step that must be addressed *before anything else* can be done.
5. (*) **Write an equation** or **use algebra** (different names for SAME strategy) - The answer is an unknown *number* **AND** the problem gives enough information to create a *relationship* about it.
   You could also justify with: There is a *commonly known formula* that applies to the situation.
6. (*) **Draw a diagram or picture** - The problem contains information that you need/want to *visualize.*
7. (*) **Guess and check** - There are a *reasonable* number of possible options **AND** the problem gives a value or condition (state what it is) to *check them against.*
8. (*) **Work backward** - The problem gives a clear *story sequence or chain of events* **AND** you know about the "end" but need to find out about the "beginning."
   Be careful: Work Backward does NOT apply to situations where info may be written in reverse from what we're used to: __ $= 6 - 2$ is NOT a Work Backward problem.
9. (*) **Use elimination** - The problem or your work involves some possibilities that can/should be *ruled out.*
10. (*) **Use direct arithmetic/reasoning** - The problem requires *straight-forward operations or properties* of given numbers with *no additional interpretation.*
11. (*) **Break into cases** - The problem features *totally separate qualities or situations*, like positive/negative, small/medium/large, having different fixed amounts of something (like 1 dime vs. 2 dimes), etc.

Note: An **equation** is not just a string of numbers and symbols that includes an = sign, even though as kids, we tend to overuse that word without being corrected. But in fact, we can't call something an equation unless it has a *variable* in it that we want to *actually solve for.* So for instance $3x - 8 = 2x + 1$ is an equation, but $(2 \cdot 3) + (8 \cdot 4) = 38$ is not. Something involving only numbers and an = sign (like the second example) should be referred to as a computation, equality, or number sentence, NOT an equation. And lack of an equal sign immediately makes something NOT an equation: for instance, we shouldn't call $5 + 8 - 2$ an equation!