Problem Solving

The student selects and carries out a strategy to find a solution, and checks results for reasonableness.

- Translates the problem into mathematical terms
- Chooses or creates a strategy
- Uses a strategy to solve the problem
- Checks solution to make sure it make sense in the problem

Some Strategies for Problem Solving

Draw a picture or diagram.
Look for patterns.
Use trial and error.
Make a table.
Work with special cases, then generalize.
Try simpler numbers.
Work backwards from the solution.

Problem Solving

5 I came up with and used a strategy that really fits and makes it easy to solve this problem.

- I know what to do to set up and solve this problem.
- I knew what math operations to use.
- I followed through with my strategy from beginning to end.
- The way I worked the problem makes sense and is easy to follow.
- I may have shown more than one way to solve the problem.
- I checked to make sure my solution make sense in the original problem.

3 I came up with and used a strategy, but it doesn't seem to fit the problem as well as it should.

- I think I know what the problem is about, but I might have a hard time explaining it.
- I arrived at a solution even though I had problems with my strategy at some point.
- My strategy seemed to work at the beginning but did not work well for the whole problem.
- I checked my solution and it seems to fit the problem.

1 I didn't have a plan that worked.

- I tried several things but didn't get anywhere.
- I didn't know which strategy to use.
- I didn't know how to begin.
- I didn't check to see if my solution makes sense.
- I'm not sure what the problem asks me to do.
- I'm not sure I have enough information to solve the problem.

SOURCE: Curriculum Department, Central Kitsap School District. Used with permission.

PROBLEM SOLVING STEPS

Define the Problem: (Write in own words what you are suppose to do in this activity)

Gather Information: (Where did you get your information, what are some of the things you know about this problem?)

Set Goals: (What are you trying to accomplish, ultimate thing you are trying to accomplish?)

List possible solutions: (What are your ideas, no matter how wild, to solve the problem, list at least 2-4 minimum)

Select the best solution: (from your list above, which seems to be the most possible to do and work?)

Apply the best solution: (What did you do and what happened when you tried doing your best solution?)

Evaluate: (What changes were necessary to make your solution work or did it work exactly as planned and shown in original sketches?)

NAMES_____DATE_____PERIOD#_____

Formative Feedback for Problem Solving

Problem Solving Strategy

First. Understand the problem. Read and reread the problem. Highlight the key words.

- ✓ What does the problem ask you to find? (This is the unknown.)
- ✓ What data does the problem give you?
- ✓ What are the requirements or conditions?
- ⇒ Hint: Draw a figure or picture. Make a table or model.
- ⇒ Hint: Introduce helpful symbols.

Second. Make a plan. Have you solved other problems like this one before?

- ✓ What steps will you take to get from the data to the unknown?
- ✓ Does your plan use all of the important data?
- ⇨ Stuck? Tactic: Is there a similar problem which is simpler?
- ⇨ Stuck? Tactic: Could you solve part of the problem?
- ⇨ Stuck? Tactic: Could you restate the problem?
- ⇨ Stuck? Tactic: Would other data help you find the unknown?
- ⇨ Stuck? Tactics: Work backwards. Look for a pattern. Guess and check.

Third. Carry out your plan.

- ✓ Check each step.
- ✓ Can you see clearly that the step is correct?

Fourth. Look back. Reread the problem.

- ✓ Did you answer the question that was asked?
- ✓ Was more than one question asked?
- ✓ Is your answer reasonable?
- ✓ Can you check the result? Can you think of an easier way to solve the problem?

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