

A Problem to Solve

When to use:	This activity is simply a problem to solve that elicits several different strategies in the solving. The solution is not based on a discrete strategy that one may have learned in a course. This problem works best in groups.
Purpose:	To demonstrate metacognition (awareness and control of our thinking) and problem solving; although, it may be used for other purposes where solving a problem comes in handy.
Materials:	The problem itself and large Post-It notes for students to display their solution.
Directions:	First, the problem is explained to the students – the first two paragraphs. Then, ask students to write down, somewhere anywhere, whether they think the answer is intuitively ‘yes’ or ‘no.’ Third, read the third paragraph, the actual problem and ask students in their groups to discuss whether the problem has a solution, or not, and to be able to demonstrate that solution on the large Post-IT note. Finally, have student groups explain their answers.
Time:	Approximately 30 minutes
Notes:	<p>This version of the problem is about a hiker to climbs a mountain one day, spends the night, and descends the next. The original problem (see Duncker below) was about a Monk who climbs the mountain to meditate, descending the next day. The topic of the problem was changed to increase its relevance to the typical student’s prior knowledge.</p> <p>This activity benefits from a teacher’s energy, as he/she roams the class looking in on the various groups (of no more than 4 students).</p>
Results:	<p>There are many ways to solve/represent the problem. Here is only 1:</p> <p style="text-align: center;">6 7 8 9 10 11 12 1 2 3 4 5 6</p>
Source:	Duncker, Karl (1945). <i>On Problem Solving</i> . Psychological Monographs. 58. American Psychological Association

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A hiker is looking for a one-night get-away and decides to climb the path to the top of Stargazer's Mountain, spend the night at the top, and then traverse back down the path the next day.

The narrow path spirals around and around the mountain (the only path to the top). The hiker begins walking up the mountain at sunrise and walks all day, reaching the top at about sunset. The hiker spends the night at the top. At sunrise the next morning, the hiker begins walking down the mountain, arriving at the bottom around noon.

The question is: Is there a point on the path when the hiker is coming down that she passed at the same time of day when she was climbing up the mountain?