**Problem-Solving Metaphors: Listening for Student Experiences**

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| Literal Metaphor | Conceptual Metaphor |
| Actual Statement | TARGET DOMAIN🡪SOURCE DOMAIN |
| “Once I read it I kind of understood what it was saying” | WRITTEN PROBLEMS ARE SPOKEN PROBLEMS |
| “To solve it for me, it meant that I had to find it somehow.” |  |
| “So I don’t think this would be a route that they would immediately jump to.”  “I think I know where to go”  “I’m lost” |  |

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**Problems From Geometry**

**Source Domains Teachers and Students Associate with Problem Solving**

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| **Students’ Most Frequented Source Domains**  **(22 Students)** | **Students’ Most Popular Source Domains**  **(22 Students)** | **Teachers’ Most Frequented Source Domains**  **(23 Teachers)** | **Teachers’ Most Popular Source Domains**  **(23 Teachers)** |
| 26% JOURNEY | 95% JOURNEY | 26% JOURNEY | 100% JOURNEY |
| 18% SEARCHING | 86% VISUALIZING | 13% SEARCHING | 96% SEARCHING |
| 13% VISUALIZING | 82% SEARCHING | 10% DISCOVERY | 91% DISCOVERY |
| 12% DISCOVERY | 73% PROCESS | 10% VISUALIZING | 91% BUILDING |
| 9% PROCESS | 68% BUILDING | 9% PARTITIONING | 87% VISUALIZING |
| 8% BUILDING | 68% DISCOVERY | 7% BUILDING | 78% PARTITIONING |
| 8% PARTITIONING | 55% PARTITIONING | 3% PROCESS | 52% PROCESS |
|  |  | 3% REMEMBERING | 35% RECOGNIZING |
|  |  |  | 26% REMEMBERING |

THETA 2

Well first **I started** with the area and I found it easier to split up the figures since it looks easier to solve if I split it up to solve the rectangle first and then solve the triangle. So for the area I did base times height which is what we learned and I just solved for the triangle which is half base times height. Then I add those two together and that was my area and **then I proceeded to my perimeter** and I just counted up the sides and I did have to use the Pythagorean Theorem to find the hypotenuse for the triangle. So I did that as well, that gave me that numbers of all of the sides which **I ended up** and got the perimeter…For the perimeter since not all of the side lengths were there I used the Pythagorean Theorem, and uh, there is enough data on this figure to use that so I did that and that gave me all of the side lengths **to go on** and add them all together to find the perimeter.

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…because we’re talking about whether or not to determine if the triangles are similar that we are going to have to use one of those **shortcut conjectures** that we’ve talked about, whether it’s angle-angle, side-side-side or side-angle-side. You know, once they kind of remember those three it’s just going to be determining what type of information is given, what they can mathematically prove there in order to decide which of the three **shortcuts** to use.…I think it was more of a two-step process, this chapter a lot of times. It’s learning about what a flowchart is and why we set one up, and how we set one up, the format and that is a tough **hurdle** for a lot of the kids.