Puzzle Introductions and Energizers

Summary - we often use these to open up a teacher workshop or class since they are perfect to have on the table and immediately engage anyone as others settle in before class or a presentation begins. They are deceivingly simple and typically can stump a group for as long as 15 minutes as they get so close to a seeming solution but miss an “out of the box” step.

Resource Links

T Puzzle - this puzzle has 4 pieces that must be arranged to perfectly match the model T Shape on the .pdf - the key is being able to see putting the largest piece as an odd diagonal, a really tough solution to envision although we always have students finally get this one.

Download .pdf to print pieces and background T - first page is pieces and page 2 is background

4 Arrowhead Puzzle - this puzzle has 7 pieces with the instructions to create five arrowhead shapes of identical size to the largest existing piece. The pieces form 4 perfectly matched arrowheads and the first reaction from most people is that we have made a mistake, lost pieces, etc - it’s just not possible. The out of the box thinking on this puzzle is making a 5 shape - which is actually just empty space in the shape of a 5 arrowhead formed by aligning the four already made pieces. Great aha moment and often we have students solve this one on their own - but not always.

Download .pdf to print out pieces

Download pdf of solution

Nail puzzle - this has two parts : download .pdf explanation here

The Bridge - place the 2 upright nail posts at least 6 inches apart and ask the students to use the other nails to create a bridge that touches both upright nails and nothing else. The key is that you DO NOT instruct students about the placement of the uprights - just put them down . . . goal is for them to realize that they can simply move them close to each other and then balance a nail on top of both. - or one on top of each touching in the middle. Both ideas work

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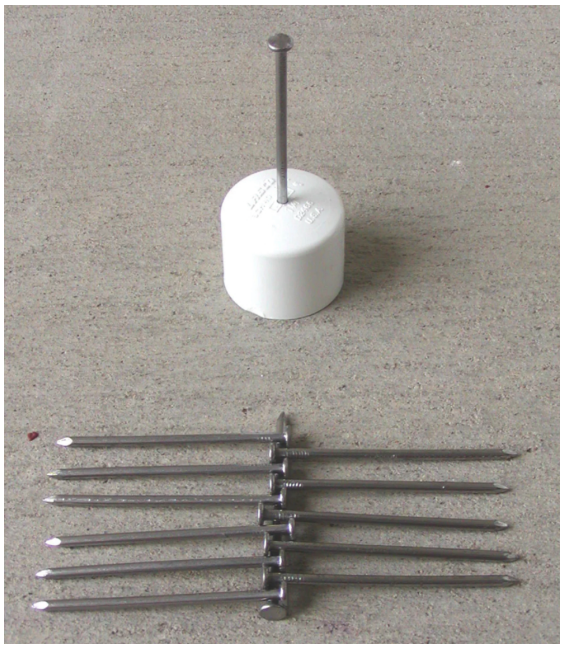
The Balance - the goal is to balance the entire set of nails on one upright - the nails can not touch anything except each other and the upright. This is often declared impossible - but look at the .pdf pictures and you will see there is a pretty slick solution - worth practicing to be able to show.



STEM Connections

Summary - These are perfect for emphasizing the reality of how close we can be to a solution - just a simple turn of one piece and it suddenly that has seemed impossible for ten minutes becomes crystal clear. Definitely practice the balancing nail puzzle ahead of time - rarely can a group create this solution and more than once our students have erupted into spontaneous applause since the outcome does seem to completely defy possibilities.

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