

## EXERCISE Nine Dots Variation

**Purpose** Help students realize how susceptible they are to making hidden assumptions, how difficult it is to detect them, and how much that can interfere with finding solutions.

**Recommended for** Feedback Phase Path

**Time required** 10 minutes

### Key Points

One of the chief obstacles to finding solutions and inventing new possibilities is the mental inertia created by what we already know (or think we know).

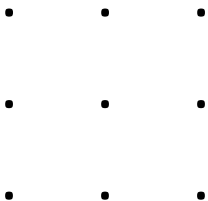
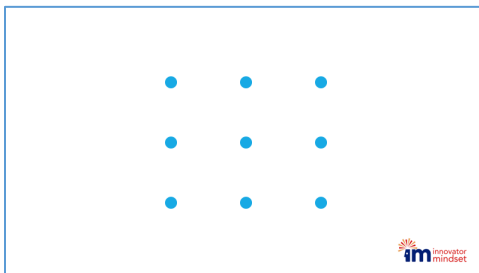
We all constantly make assumptions. We have to or we couldn't function.

It can be difficult to identify those assumptions, but helpful when we do.



**Introduction** I'm sure you have all heard the expression, "Thinking outside the box," but does anyone know where it came from?

[Show slide with nine dots, and show them on a flip chart or white board.]

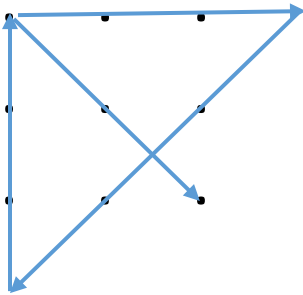


This is a hint. It's called the nine dot problem. Who knows what you have to do with the nine dot problem?

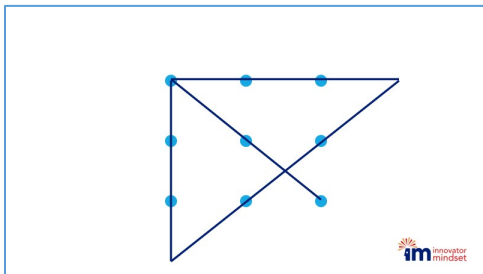
[Correct answer: Connect all nine dots with just four lines without lifting your pen or pencil from the paper.]

Who knows the solution?

Have a volunteer come up and draw the solution.

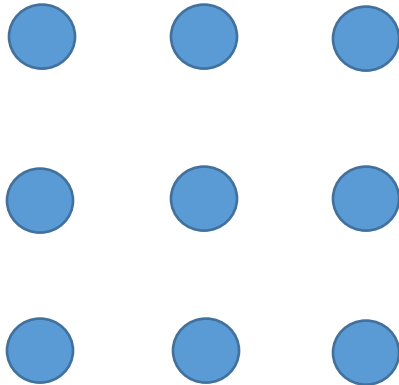
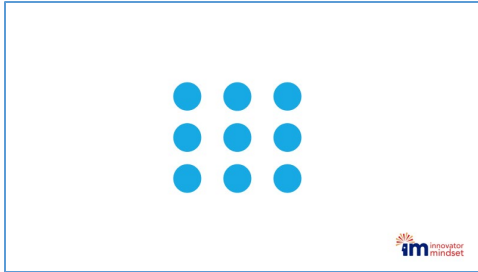


After someone shows the solution, show it on a slide.



What makes it difficult to solve is that when most people see it for the first time, it doesn't occur to people to extend the lines beyond the outline of the dots. Without realizing it, they assume they have to stay "inside the box."

This puzzle dates from at least as far back as the 1970s and entire books have been written about variations on the nine dot problem. One of them looks like this. [Show on slide and/or white board or flipchart.]



Let's treat this like a business challenge. Okay team, the boss really loved the way we solved that last problem he gave us. We've been killing it in the market and our customers love it, but our competitors have been catching up, so we need to innovate a new design. The boss thinks that because we did so well last time, we can come through again.

As you can see, we have a similar challenge. The dots are a little bigger, but we still need to connect them. But here's the big change. We need to keep the cost down, so we don't have enough budget to pay for four lines. We need to figure out how to get the same outcome—connecting all the dots continuously—with only three lines. Does anyone have any ideas?

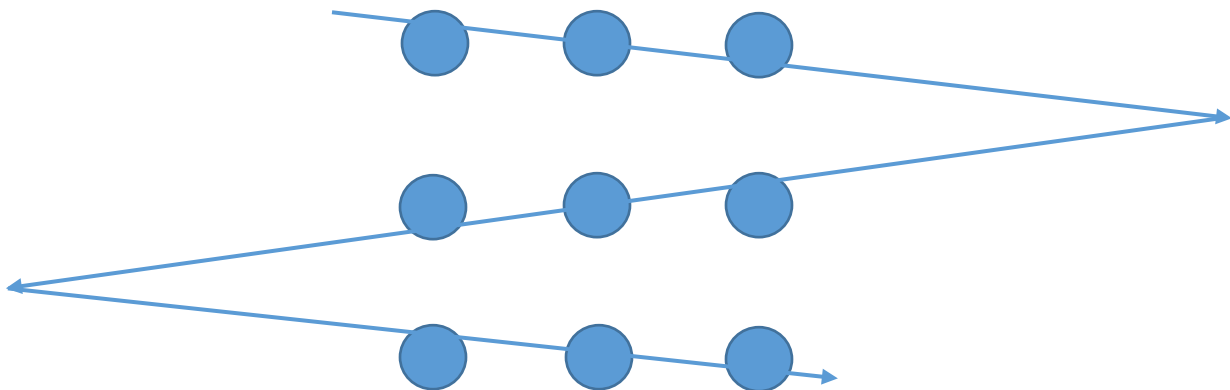
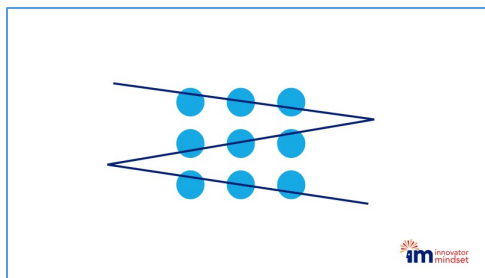
[A few students may raise their hands, so acknowledge them but don't have them solve it yet.]

Those of you who are struggling to figure this out are making an assumption that you don't realize you are making, and if you can identify that assumption, the solution will become very easy.

Those of you who have figured this out, what assumption are they making? [Some may not have the real solution and won't know, but those who have figured it out will be able to tell you.]

The assumption is that you have to draw the line through the center of the dots. [You may also hear other possible solutions like draw one really wide line through all of them.]

[You can show the solution, or have someone who has figured it out show their solution first.]



## DISCUSSION

So what does this have to do with innovation and entrepreneurship?

Frequently, when we need to solve a problem, we make it more difficult for ourselves. We limit ourselves with our own assumptions. If we can identify those assumptions and challenge them, sometimes we can solve problems that appear to be unsolvable.

Can you think of some examples of how this might happen in business?

All too often, when we see an idea we like, we just assume that other people will like it too. We assume that customers will like the product. That assumption is frequently wrong, but we don't realize that until after we've spent a lot of time and resources creating something that there is no demand for. Those kinds of assumptions can be very costly, and they can prevent us from finding what might be a solution that customers value and are willing to pay for.



One of the biggest challenges innovators face is not just coming up with new ideas, it is letting go of the assumptions and beliefs they already have. And it is often the best and the brightest—the ones with the most expertise—who are most susceptible to this.