

Pentagonal Patterns

Use these two circles with the points marked to draw your stars

Using a straight edge to guide your pencil join points 1 to 2 .

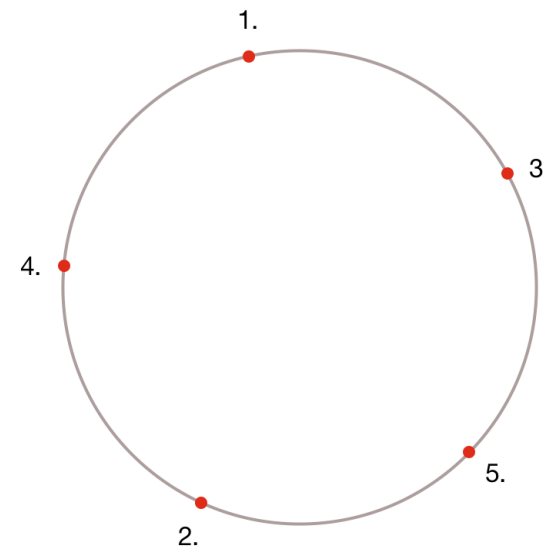
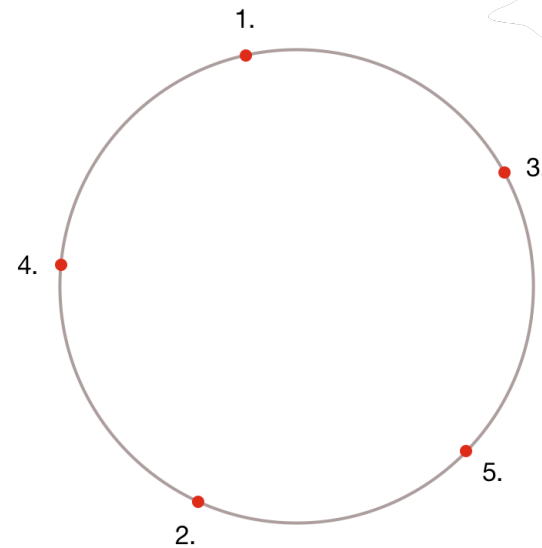
Then 2 to 3, 3 to 4, 4 to 5 and finally 5 to 1

You have drawn the Pentagram Star starting with just 5 points.

As we understood from Monday's video you have also created a pentagon inside your star at the same time.

You can use this to create another star inside and so on.

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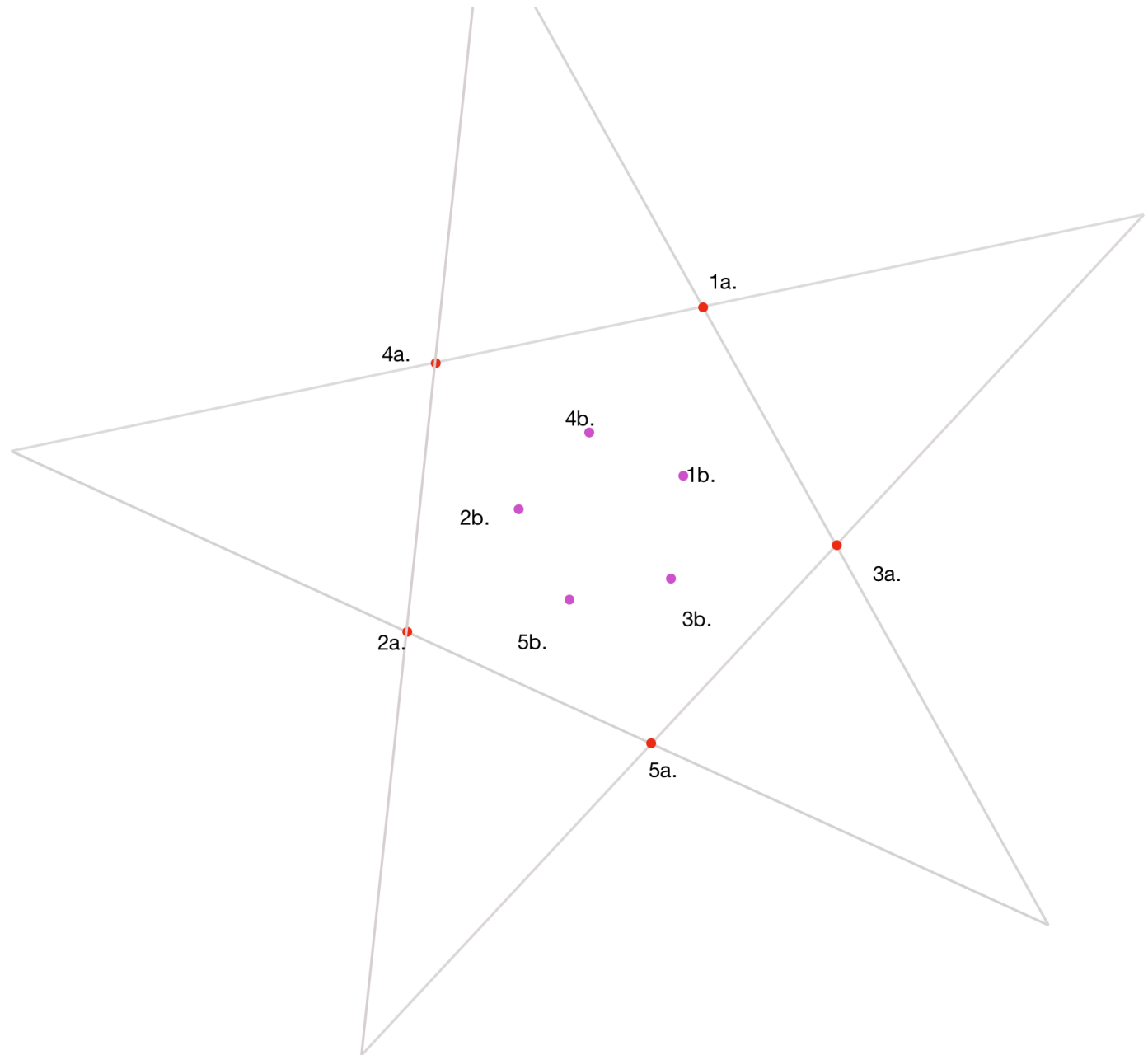


This diagram might help your to see the pentagons if you get stuck (or maybe not!)

Join the numbers to the next in the series. Start with all the a's at the intersections of the star you can see. Join 1a to 2a, 2a to 3a and soon.

Your lines will have passed through the b's. Now join all the b's. 1b to 2b etc. These are the corners of the pentagon inside your first star.

As you join the points see if you can extend the lines you draw all the way to the edges of the page.

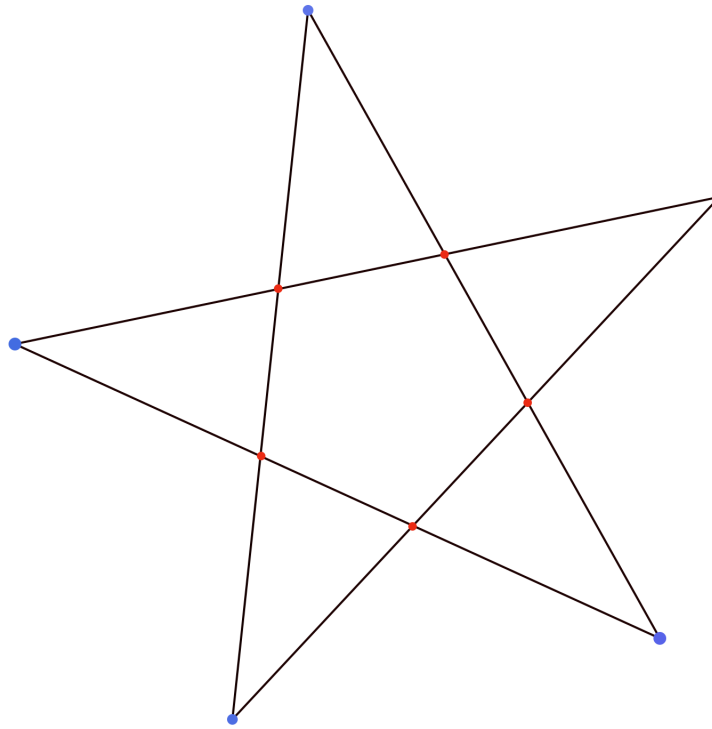


Now you have practised a little you can draw the lines on this star without the numbers to help.

Start with the points inside the star which make up the pentagon.

This time extend the lines all the way out as you draw.

Stop here and pause for a minute.



Now look at the blue dots on the star tips.

Join one blue dot to its neighbour with a straight line. This continues the pattern outside this original star.

Imagine this extending all the way out into your room and over your house and into the world!

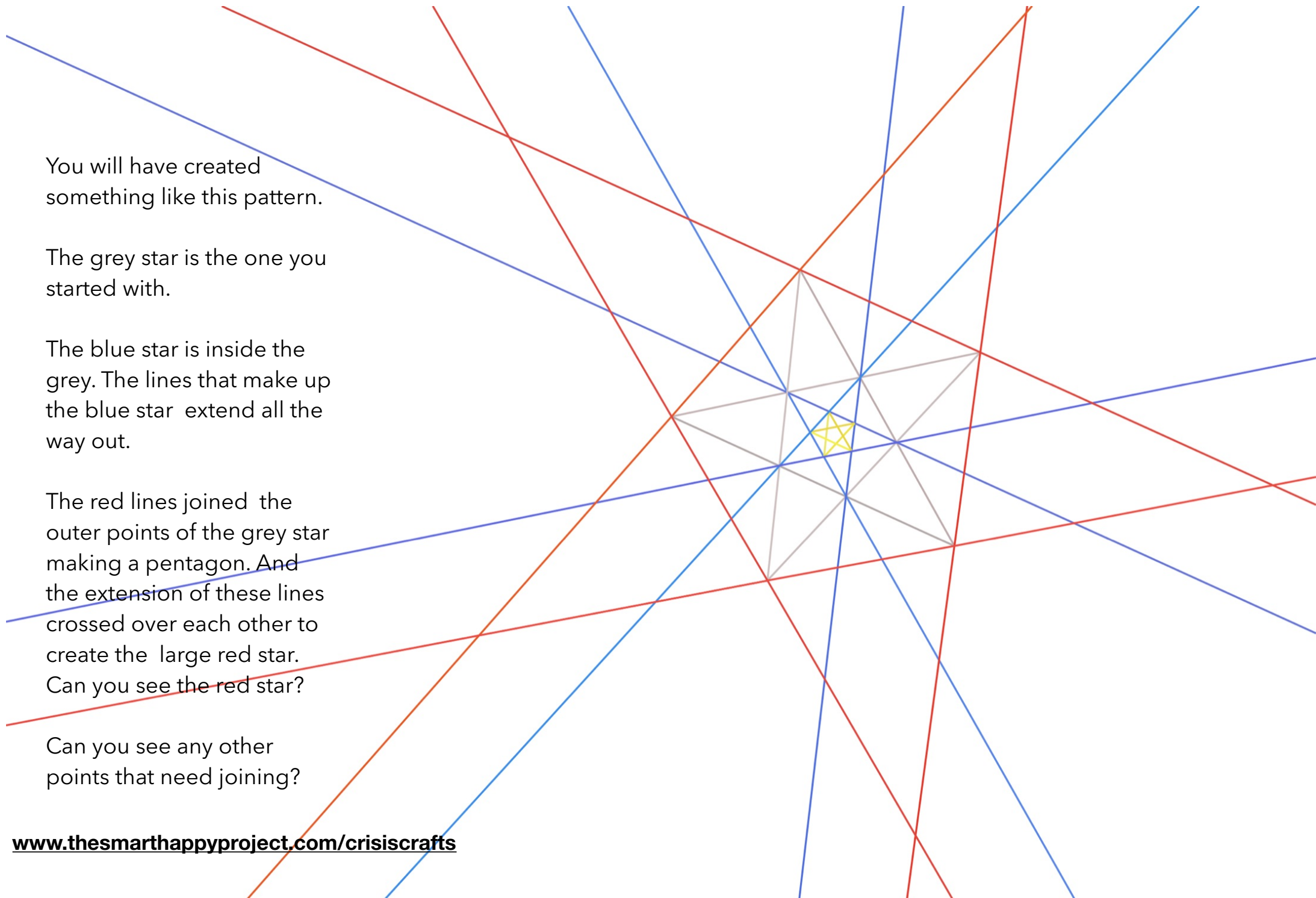
You will have created something like this pattern.

The grey star is the one you started with.

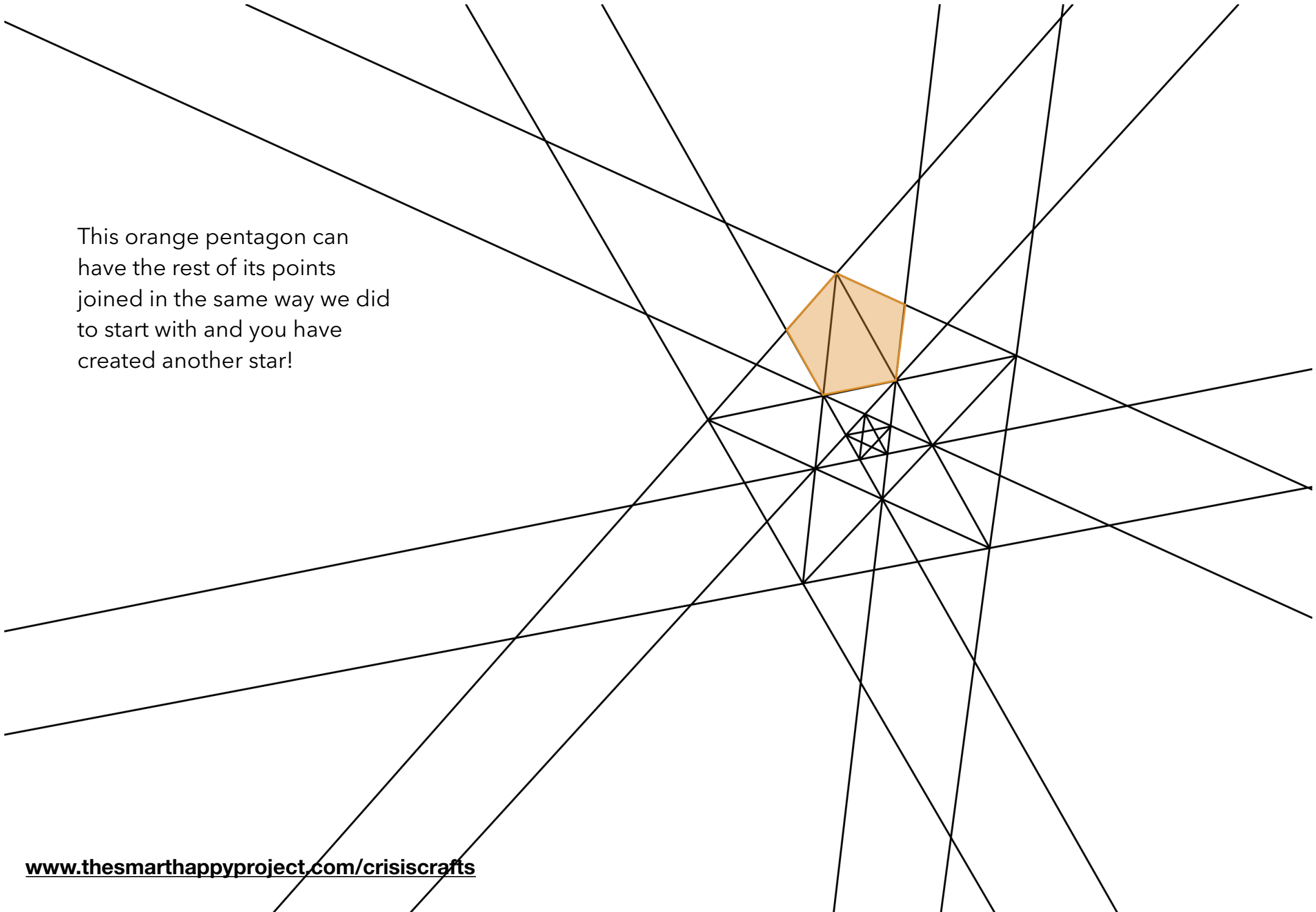
The blue star is inside the grey. The lines that make up the blue star extend all the way out.

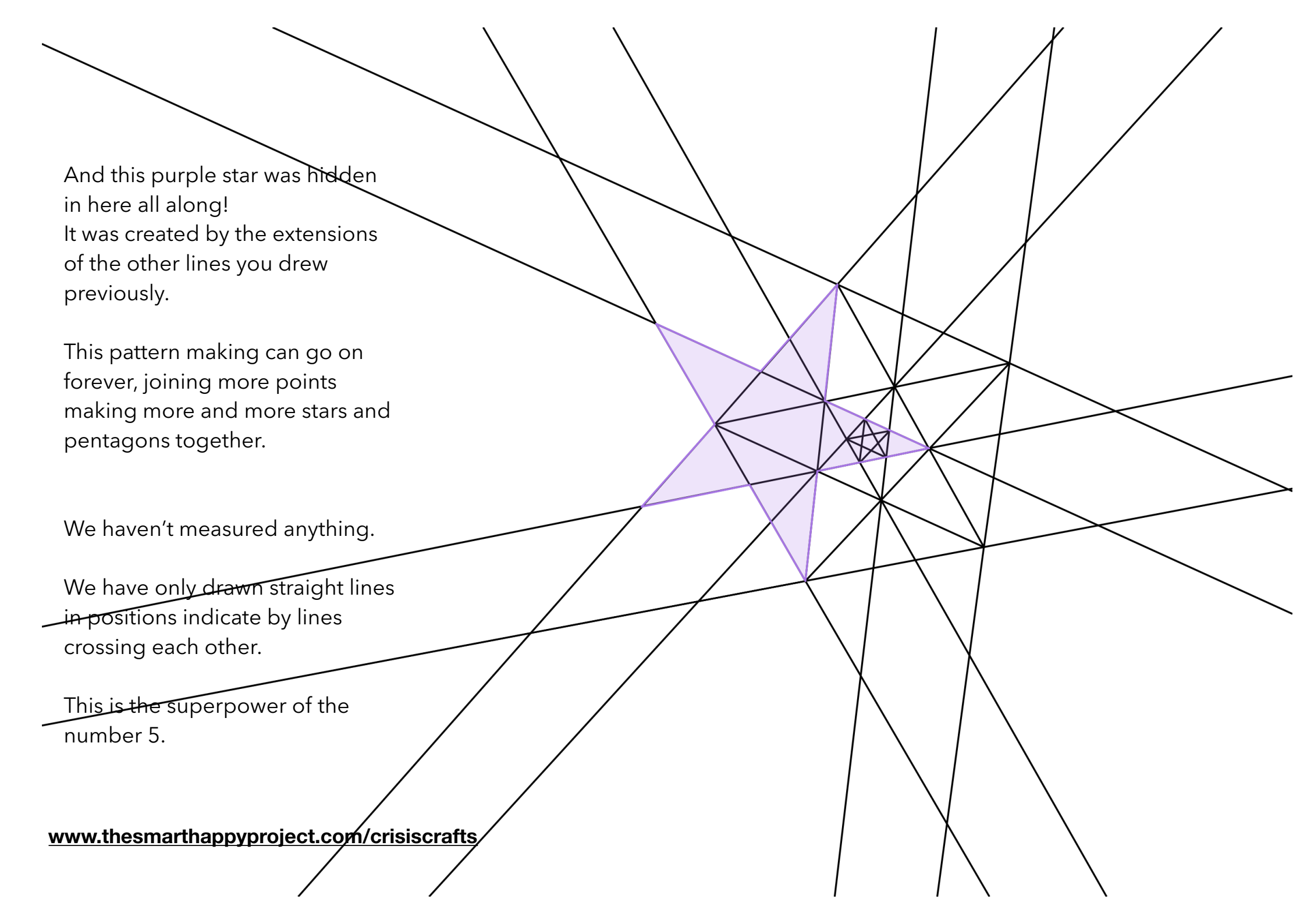
The red lines joined the outer points of the grey star making a pentagon. And the extension of these lines crossed over each other to create the large red star. Can you see the red star?

Can you see any other points that need joining?



This orange pentagon can have the rest of its points joined in the same way we did to start with and you have created another star!





And this purple star was hidden
in here all along!
It was created by the extensions
of the other lines you drew
previously.

This pattern making can go on
forever, joining more points
making more and more stars and
pentagons together.

We haven't measured anything.

We have only drawn straight lines
in positions indicate by lines
crossing each other.

This is the superpower of the
number 5.